Local Development Plan 2032
Draft Plan Strategy

Annex A

# Conservation Objectives / Ramsar Citation Northern Ireland Sites

Ards and North Down Borough Council

**Annex A**

**Conservation Objectives / Ramsar Citation**

**Northern Ireland Sites**

**AUGHNADARRAGH LOUGH SAC**
UK0030318

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Aughnadarragh Lough SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *01/04/2015* |
| Version Number | *V2* |
| Next Review Date | Nov 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | June 2013 | Internal working document | PC |
| V2 | January 2015 | Complete review | RMK |
| | | | |
| | | | |
| | | | |

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:** IJ443594

**AREA:** 12.8 ha

## 5. SUMMARY SITE DESCRIPTION

Aughnadarragh Lough is a complex site of high conservation value, with a variety of wetland habitats.

The area is particularly notable as one of the longest established colonies of the Marsh Fritillary butterfly *Euphydryas aurinia* in Northern Ireland. The species was first recorded in 1984, with records in most years since then, and annually since 1990. In 1999, 48 webs were recorded in August/September.

The area is an inter-drumlin wetland with a mosaic of notable vegetation communities fringing the mesotrophic lake. Of particular importance is the marginal mossy fen, which is extensive to the south and east behind the swamp and tall herb fen that fringes Aughnadarragh Lough. The mossy fen is predominantly base-rich in type, with pockets of poor acid fen around a small remnant pocket of raised bog in the south. Wet woodland and scrub fringe the lough to the east and north. Although not an ASSI qualifying feature, the open water community is also significant, being a reasonable example of a mesotrophic lake (NILS type VIII – open water extent 2.58 ha).

The range of vegetation types associated with the site makes it one of the most diverse wetlands in County Down.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website (www.doeni.gov.uk/niea).

## 5.1 BOUNDARY RATIONALE

The boundaries use permanent man-made features whenever possible. However, along a few small sections such boundaries are absent and recognisable topographical or physical features such as break in slopes or tree line have been used. The boundary has been drawn to include the lake, all areas of fen, swamp and associated semi-natural habitats, including bog, scrub and woodland.

## 6. SAC SELECTION FEATURES

| Feature Type | Feature | Global Status | Size/ extent/ population |
|---|---|---|---|
| Species | Marsh Fritillary Butterfly *Euphydryas aurinia* | B | 48 webs were counted in 1999<br>18 webs were counted in 2004 |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Aughnadarragh Lough SAC.

## 6.1 ASSI SELECTION FEATURES

### Aughnadarragh Lough ASSI

| Feature Type | Feature | Size/extent/ population |
|---|---|---|
| Species | Marsh Fritillary Butterfly *Euphydryas aurinia* | |
| Habitat | Lowland Fen<br>NVC types:<br>M6 *Carex echinata – Sphagnum recurvum* mire,<br>M5 *Carex rostrata – Sphagnum squarrosum* mire<br>S27 (tall herb fen) *Filipendula ulmaria-Angelica sylvestris* | 4.40ha |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

***To maintain (or restore where appropriate) the Marsh Fritillary Butterfly population to favourable condition.***

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objectives |
|---|---|---|
| Marsh Fritillary Butterfly *Euphydryas aurinia* | B | Maintain (and if feasible enhance) population numbers and distribution*. |
| | | Maintain (and if feasible enhance) the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis* |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| Marsh Fritillary Butterfly *Euphydryas aurinia* | See SAC Selection Feature Objective Requirements table. |
| Lowland Fen | Maintain (and if feasible expand) the extent of existing fen. |
| | Maintain and enhance fen species and community diversity, including the presence of notable species |
| | Maintain and enhance fen structure and hydrology |
| | Maintain the diversity and quality of habitats associated with the fen – i.e. mesotrophic lake, fringing swamp and fen, wet grassland, cut-over bog, scrub/woodland - and transitions. |

## 10. MANAGEMENT CONSIDERATIONS

### Ownership

In total there are 8 individuals with ownership rights associated with the site.

### *Adjoining Land Use*

The land surrounding the area has been greatly modified by grazing and reseeding. The main adjacent agricultural uses outside the ASSI boundary are silage production and grazing.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Aughnadarragh Lough, or could affect it in the future. Although Marsh Fritillary Butterfly *Euphydryas aurinia* is the qualifying SAC feature, factors affecting ASSI features are also considered.

**NOTE - Carrying out any of the Notifiable Operations listed in the ASSI schedule could affect the site.**

*Grazing/Scrub Encroachment*

Grazing levels and stock type are crucial to the maintenance of both the Marsh Fritillary population and the fen vegetation. Overgrazing/poaching causes physical damage and may lead to changes in vegetation composition and structure. This can be particularly damaging to Marsh Fritillary populations, by reducing the size and abundance of *Succisa pratensis* plants and producing a short, even vegetation structure. For the same reason, sheep (except at low stocking levels) are generally not recommended because of their close and selective grazing habits.

Alternatively, the exclusion of grazing – particularly from the more species-rich communities – should also be avoided, as it is likely to result in the development of a rank and less diverse stand, and ultimately scrub encroachment. Many wetland species – including *Succisa pratensis* – would be lost.

The site is largely ungrazed at present resulting in an increase in rankness and scrub development around the fringes, threatening both the Marsh Fritillary Butterfly colony and the fen vegetation. Extensive cattle grazing appears to be the most suitable form of grazing (at around 0.1 to 0.4 LU/Ha/year). It is also reported that hardy ponies can be effective grazers.

**ACTION: Ensure that suitable grazing regimes are in place and monitor and control scrub encroachment onto good-quality fen habitat on the site.**

*Drainage*

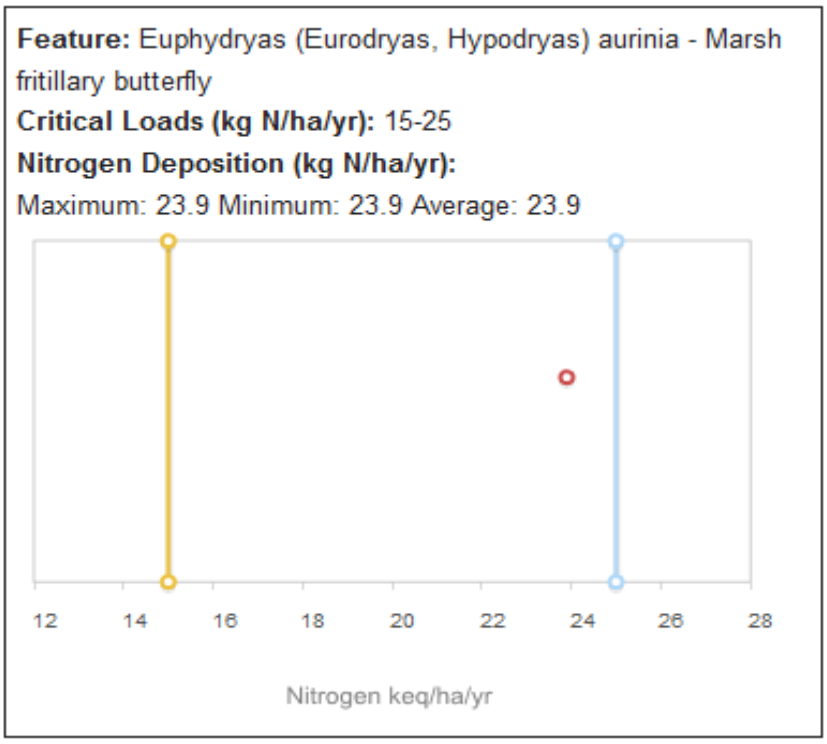
The area occurs within an intensively farmed setting. Although reclamation for intensive agriculture is unlikely, past drainage activities could still be impacting on the site. Drying out would threaten both the Marsh Fritillary and the fen vegetation.

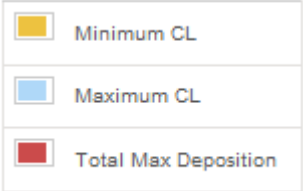
**ACTION: Ensure no further drainage takes place and liaise with Rivers Agency to ensure any drainage or watercourse maintenance work does not threaten the hydrology of the wetland.**

*Application of fertiliser/manure/slurry*
The fen vegetation and especially the lough are vulnerable to eutrophication from fertiliser drift and other diffuse sources of pollution from surrounding agricultural land.
**ACTION: To minimise the risk of nutrient enrichment and promote the adoption of nutrient management plans and good practice in slurry disposal, encourage landowners to leave "buffer" strips between the fen and adjoining land that has fertiliser applied.**

*Fly-tipping* – Both local fly-tipping and more extensive infilling have proved to be a threat to fens in this part of Northern Ireland. There have been some incidents of fly-tipping around the periphery of the area.
**ACTION: If fly-tipping occurs remove the material as soon as possible from the area, to prevent the build-up of debris and to discourage further tipping.**

*Nitrogen Deposition*
Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for habitats and species present on Aughnadarragh Lough SAC.






N.B. There is insufficient knowledge to make a judgment of the impact of excess nitrogen deposition on the Marsh Fritillary butterfly. If the habitat on which the species depends on this site (Moist and wet oligotrophic grasslands: *Molinia caerulea* meadows) exceeds the critical Nitrogen load, then there would be cause for concern.

(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*

Any changes in local land-use e.g. drainage, road improvements, afforestation, agricultural intensification and development, may be detrimental to the SAC.

**Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.

**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## 12. MONITORING

Monitoring of SACs takes place on using two monitoring techniques.

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat).

These longer-term changes will be picked up by monitoring of the feature via **Site Condition Assessment** - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

## 12.1 MONITORING SUMMARY

### 1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*

All sub-sites to be checked periodically, particularly for any evidence of fly-tipping or infilling, signs of inappropriate grazing levels, evidence of drainage (including over-deepening of existing drains, but not their periodic maintenance) or signs of drying out (the fen area should be 'soft, bouncy and squelchy'), evidence of slurry or fertiliser application or signs of eutrophication from agricultural run-off or any other source. This SIM should be carried out once a year.

### *2. Monitor the condition of the site (Condition Assessment)*

Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES


Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2005). Northern Ireland Species Action Plan – Marsh Fritillary *Euphydryas aurinia*.

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan - Fens.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Hobson, R., Bourn, N. and Warren, M. 2002 Conserving the Marsh Fritillary in Britain *British Wildlife* August 2002 pp 404-411.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

Nelson, B. 2000 *The Distribution, Status and Habitat Preferences of the Marsh Fritillary* Euphydryas aurinia *in Northern Ireland*. Environment and Heritage Service.

ANNEX I

Feature 1 (SAC) – Marsh Fritillary Butterfly *Euphydryas aurinia* - Global Status B

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Population Size | Number of larval webs present in at least one year in six | At least 50 larval webs should be present in at least one year in six<br><br>(unless unfavourable meteorological conditions during the flight period occur more often) | Larval webs are a much more reliable measure of the "health" of the colony than flying adults<br><br>Note: Figure for Wales is 200 webs per hectare. |
| * Habitat Extent | Extent of suitable fen and wet grassland | Maintain the extent of suitable fen and wet grassland at 2 ha | **Definition of suitable vegetation** - Stands of grassland where *Succisa pratensis* is present and scrub (>1 metre tall) covers no more than 10% of area .<br><br>Note: Figure for Wales is 10 hectares of suitable marshy grassland. To be assessed for Northern Ireland on completion of the Marsh fritillary Research Project. |
| | Extent of good Marsh Fritillary breeding habitat | Maintain the extent of good marsh fritillary breeding habitat at 2 ha[2]<br><br>Extent of good marsh fritillary breeding habitat needs to be assessed for Northern Ireland on completion of the Marsh fritillary Research Project. | **Definition of good Marsh Fritillary breeding habitat** - *Molinia*-dominated grassland where the vegetation height is within the range of 10 - 20 cm, and where *Succisa pratensis* is present within a 1 m radius of any point<br><br>Note: Figure for Wales is 4 hectares of good Marsh Fritillary breeding habitat. |

| | | | |
|---|---|---|---|
| * Habitat Mosaic | Extent of other semi-natural habitats | Maintain the extent of other semi-natural habitats which contribute to Marsh Fritillary breeding success<br><br>**No loss in extent of other semi-natural habitats** | The comparatively large extent of the site, with the mosaic of different habitats, is believed to contribute to the success of the colony on the site |

# BELFAST LOUGH OPEN WATER-SPECIAL PROTECTION AREA (SPA)

## UK9020290

# CONSERVATION OBJECTIVES

## Including conservation objectives for Inner Belfast Lough ASSI and Outer Belfast Lough ASSI

Document Details

| | |
|---|---|
| Title | Belfast Lough Open Water SPA Conservation Objectives |
| Prepared By | *Ian Enlander* |
| Approved By | *Mark Wright* |
| Date Effective From | *01/04/2015* |
| Version Number | *V2* |
| Next Review Date | January 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 29/09/2009 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA adjoins Belfast Lough SPA. It is also contiguous with Outer Ards SPA and the proposed East Coast Marine SPA.

The SPA also adjoins Belfast Lough Ramsar site.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Antrim and Down

G.R. J407 838 AREA: 5592.99 ha

NB – UK marine SPA programme has identified an important area for non-breeding Red-throated Diver in the Belfast Lough area. This area partly overlaps with the existing Belfast Lough Open Water SPA but also falls within the unclassified marine area eastwards of the existing Open Water SPA.

In addition a marine extension to the Copeland Islands SPA will be defined to reflect usage of the marine area by rafting Manx Shearwater.

The extent of the marine areas for non-breeding Red-throated Diver and Manx Shearwater rafting is will be available from NIEA.

These boundaries will be further revised once JNCC report on marine usage by tern species from existing SPA's designated for breeding terns is received.

THE AREA IS ALSO UTILISED BY FORAGING COMMON TERN DURING TRHE BREEDING SEASON, BIRDS ORIGINATING FROM THE BELFAST HARBOUR COLONY.

Conservation objectives will be revised as these issue progress

## 5 SUMMARY SITE DESCRIPTION

Belfast Lough is a large intertidal sea lough situated at the mouth of the River Lagan on the east coast of Northern Ireland. The inner part of the lough comprises a series of mudflats and lagoons. The outer lough is restricted to mainly rocky shores with some small sandy bays.

The Belfast Lough open water area comprises the marine area below the mean low water mark. Seawards it extends to a notional boundary between the eastern limits on the north and south shores of the Outer Belfast Lough Area of Special Scientific Interest at Kilroot and Horse Rock respectively. The boundary towards the head of the lough is a notional line between Greencastle on northern shore and Holywood Bank on the southern shore.

Water depths within the site are generally between 1m and 10m. Shallow waters, less than 5m in depth, dominate the area with deeper waters confined to the central area of the lough, east of a line between Greenisland and Cultra.

### 5.1 BOUNDARY RATIONALE

The SPA comprises the marine area of Belfast Lough. The landward boundary conjoins that of Belfast Lough SPA and Ramsar site. The outer boundary is a notional line taken between the eastern limits of Belfast Lough SPA that is from Kilroot on the northern shore to Horse Rock near Grey Point on the southern. The open water supports the main part of the internationally important wintering population of Great Crested Grebe. While the main roosting area for this species is in the Inner Lough area, the entire site is of importance for feeding and loafing activities. In addition these waters host nationally important wintering populations of a number of other species.

## 6 SPA SELECTION FEATURES

| Feature Type | Feature | Population (5 year average 1995-2000) | Population at time of designation (ASSI) | Population at time of designation (SPA) | SPA Review population | Common Standards Monitoring baseline |
|---|---|---|---|---|---|---|
| Species | Great Crested Grebe wintering population [a] | 1646 | N/A | **1677 individuals – wintering** | | |
| Habitat[1] | Habitat extent | | | | | |
| Roosting /loafing sites[1] | locations of sites | | | | | |

Table 1. List of SPA selection features.

[1] Habitat and roost sites are not a selection feature but are a factor and more easily treated as if they were a feature.

**Notes on SPA features – may not be applicable to all SPAs**

The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.

[a] – species cited in current SPA citation and listed on current N2K dataform

[b] – species selected post SPA designation through UK SPA Review 2001

[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

### 6.1. ADDITIONAL ASSI SELECTION FEATURES

Note that as the site is entirely below the low water mark, none falls within the adjoining Inner Belfast Lough ASSI or Outer Belfast Lough ASSI. However the following populations are cited as of nationally importance and, through common practice, are assessed as part of both the Inner and Outer Belfast Lough ASSI's.

**Marine populations of national importance**

In addition, the site supports nationally important numbers of (all data are 5 year averages of individuals for period 1996/97 – 2000/01) Cormorant *Phalacrocorax carbo* (407, 8.7 % of the Irish wintering population), Shelduck *Tadorna tadorna* (405, 5.8%), Scaup *Aythya marila* (233, 7.8%), Eider *Somateria mollissima* (1116, 55.8%), Goldeneye *Bucephala clangula* (287, 14.4%) and Red-breasted Merganser *Mergus serrato* (170, 8.5%). While utilising the open marine area, these species are treated as ASSI features against the Inner and Outer Belfast Lough ASSI area.

## 7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

***To maintain each feature in favourable condition***.

For each feature there are a number of component objectives which are outlined in the tables below. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8. BELFAST LOUGH OPEN WATER SPA CONDITION ASSESSMENT 2014

| Species | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Great Crested Grebe | 2148 | 1055 | 1174 | 325 | 780 | 1015 | 1096.4 | **108.02** | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

## SPA SELECTION FEATURE OBJECTIVES

| Feature | Component Objective |
|---|---|
| Great Crested Grebe wintering population | No significant decrease in population against national trends |
| Habitat extent | Maintain the extent of main habitat components subject to natural processes |
| Roosting/loafing sites | Maintain all locations of sites. |

Table 4. SPA Component objectives

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

See Conservation Objectives for Belfast Lough SPA for ASSI (Inner and Outer Belfast Lough ASSIs) selection feature objectives. These may be relevant to the present site.

## 10. MANAGEMENT CONSIDERATIONS

***Owner/Occupier's –*** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Key landowners, leasees and other users within the SPA, relevant to the site management, include Crown Estate Commissioners, local Councils (Belfast, Ards, Antrim and Newtownabbey, Mid and East Antrim), Belfast Harbour Commissioners, Department of Agriculture and Rural Development Fisheries Division and shellfish operators, together with the many commercial shipping operators. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

Consideration must also be given to all land and sea based activities which have a bearing on site quality. This includes activities influencing water quality, ecological communities and disturbance.

Adjacent commercial operations which may impact upon the SPA include BP Oil, AES (Kilroot Power Station) and Dargan Road Landfill site Kilroot Power Station located adjacent to Belfast Lough Open Water SPA is a Part A Process under the Industrial Pollution Control Order. Additionally sewage discharge points from Duncrue Street and Kinnegar Sewage Treatment Works may impact upon the site. A range of smaller established discharge points are present elsewhere around the site boundary together with the major discharge point at Brigg's Rocks (Groomsport) and the sewage sludge disposal site NE of the Copeland Islands.

## 11. MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Belfast Lough SPA, or could affect it in the future. Factors affecting the features within the adjoining ASSI are also considered.

### <u>Generic site/feature issues</u>

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 2 | Aquaculture | Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors. | Much of Inner Belfast Lough has active licences for shellfish production. | Liaise with DARD Fisheries Division. Assess all license applications individually. Current extent of licences may significantly alter seabed conditions. Consider the collective impact. |
| 6 | Boating activity – commercial | Disturbance and potential for impact from high-speed liners. | Major shipping channel. This is a long-established activity | Formal consultation likely relating to new schemes. onsider the collective impact. |
| 7 | Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | Sailing clubs at Carrickfergus, Whiteabbey, Holywood and Cultra. Additional slipways and quays. | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the |

| | | | | |
|---|---|---|---|---|
| | | | | collective impact. |
| 12 | Dredging | Generally only an issue in relation to commercial shipping channels. Issues include disturbance, remobilisation of contaminated sediment and spoil dumping zones. | Ongoing capital dredging programme maintains shipping channel. Established ongoing maintenance programme. | Liaise with port authority and Environmental Protection as required with regard to water quality issues and pollution incidents. |
| 14 | Fishing – commercial or recreational | Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass. | Most commercial activity related to aquaculture. Recreational fishing not deemed to be a problem. | Liaise with DARD and fishing authority as required. Liaise with angling clubs as required. |
| 15 | Habitat extent – inter-tidal | Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat may impact on system ecology and hence the selection feature. | There has been extensive loss of inter-tidal habitat historically. Inner lough mudflats particularly vulnerable. | Assess planning applications. Monitor using aerial photography. |
| 16 | Habitat extent – open water | Loss likely to be limited but expansion of commercial port facilities can impact on key localities. | Ongoing and further planned harbour developments will reduce open water area. Probably insignificant. | Assess planning applications. Consider the collective impact. |
| 17 | Habitat quality – inter-tidal | Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes. | Historically impacted by industrial and sewerage effluent. | Assess planning applications. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 18 | Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Historically impacted by industrial and sewerage effluent. Vulnerable to pollution incidents from both industry and shipping. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 20 | Roosting and loafing areas | An essential component of sites hosting waterfowl. Inappropriate development of or change in use of critical areas may adversely impact on the sites carrying capacity. | Localities should be mapped. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |
| 21 | Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Not evident but given nature of the site, could be an issue through commercial shipping and aquaculture. | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives. |
| 24 | Recreational activities. | Disturbance is the main consideration | Open water has been heavily used for recreational activities over long timescale. | Liaise with local authorities and other managing parties. |

| | | | | |
|---|---|---|---|---|
| | | | Cumulative disturbance impacts (e.g. boating, wildfowlers, walkers, dogs etc) may be a significant factor for wintering bird populations | |
| 25 | Research activities. | To date targeted work has been land-based e.g. population census. A range of marine based activities are ongoing in relation to water quality, commercial shellfish and benthic communities. | | All research activities to be undertaken by competent individuals, appropriately trained. If not directed at waterfowl, the latter must be considered. Liaise with relevant research bodies |
| 28 | System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | Main considerations are historical reclamation, especially along the north shore and Sydenham areas, together with widespread coastal engineering works and ongoing development within the Belfast harbour area. Sediment responses may be expected. Changes in water quality have led to an expansion of mussel beds, in turn altering system behaviour. Expanding aquaculture represents an alteration to substrate. System changes in relation to past high speed ferries have been suggested. | Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed.<br>Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |

Table 3. List of site/feature management issues

## 12. MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA objectives. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial

photographs to determine site morphological changes. Methodology for this is being developed.

## 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.

3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13. SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Great Crested Grebe | Stable | Increasing | Moderate Fluctuation | Increasing-Stable | Stable circa 1990 in UK. |

# ANNEX I

## Feature (SPA) – Wintering waterfowl

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Great Crested Grebe wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

## Non-avian factors

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used or potentially usable by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Roosting/loafing sites | Location of roosting/loafing sites | Maintain all locations of sites. | Map site locations. |

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.*

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

**1. Name and address of the compiler of this form:**

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number


**Joint Nature Conservation Committee**
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk


**2. Date this sheet was completed/updated:**

Designated: 05 August 1998 / update 12 May 2005

**3. Country:**

**UK (Northern Ireland)**

**4. Name of the Ramsar site:**

**Belfast Lough**

**5. Map of site included:**

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

**a) hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐

**b) digital (electronic) format** (optional): Yes

**6. Geographical coordinates** (latitude/longitude)**:**

54 38 00 N 05 54 00 W

**7. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Belfast

Belfast Lough is a large intertidal sea lough situated at the mouth of the River Lagan on the east coast of Northern Ireland.

**Administrative region:** Antrim; Down

**8. Elevation** (average and/or max. & min.) (metres)**:** **9. Area** (hectares)**:** 432.14

Min. 0
Max. 10
Mean 0

## 10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The inner part of the lough comprises areas of intertidal foreshore, comprising of mudflats and lagoons, and land, both land-claimed and being land-claimed, which form important feeding/roosting sites for significant numbers of wintering waders and wildfowl. The outer lough is restricted to mainly rocky shores with some small sandy bays and beach-head saltmarsh.

## 11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**6**

**Secretariat comment: The RIS provides information requiring the application of Criterion 4. This needs to be included in the next update.**

## 12. Justification for the application of each Criterion listed in 11. above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

**Ramsar criterion 6 – species/populations occurring at levels of international importance.**

**Qualifying Species/populations:**

**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Common redshank , *Tringa totanus totanus*, | 1897 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3) |

**Species/populations identified as internationally important subsequent to designation**

**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe | 521 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

## 13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Atlantic

**b) biogeographic regionalisation scheme** (include reference citation):

Council Directive 92/43/EEC

## 14. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|---|---|
| Soil & geology | igneous, sedimentary, sandstone, slate/shale |
| Geomorphology and landscape | intertidal sediments (including sandflat/mudflat), estuary, lagoon, intertidal rock |
| Nutrient status | eutrophic |
| pH | no information |
| Salinity | brackish / mixosaline |
| Soil | no information |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Aldergrove, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html)<br>Max. daily temperature: 12.5° C<br>Min. daily temperature: 5.8° C<br>Days of air frost: 39.1<br>Rainfall: 862.4 mm<br>Hrs. of sunshine: 1313.7 |

**General description of the Physical Features:**

Belfast Lough is a large, open sea lough located on the north-eastern coast of Northern Ireland. The inner part of the lough includes areas of intertidal foreshore, mainly mudflats and lagoons. In the outer lough the site includes mainly rocky shores with some small sandy bays and beach-head saltmarsh.

## 15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Belfast Lough is a large, open sea lough located on the north-eastern coast of Northern Ireland. The inner part of the lough includes areas of intertidal foreshore, mainly mudflats and lagoons. In the outer lough the site includes mainly rocky shores with some small sandy bays and beach-head saltmarsh.

## 16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

No special values known

## 17. Wetland types

Marine/coastal wetland

| Code | Name | % Area |
|---|---|---|
| D | Rocky shores | 34.7 |
| G | Tidal flats | 60.2 |
| J | Coastal brackish / saline lagoons | 5.1 |

## 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The Ramsar site includes areas of intertidal foreshore, comprising of mudflats and lagoons, and land, both land-claimed and being land-claimed, which form important feeding/roosting sites for significant numbers of wintering waders and wildfowl.

Semi-natural vegetation is confined to a narrow shoreline strip which is fragmented, particularly along the inner reaches of the lough. The sheltered bays and inlets of the south-eastern shore contain pockets of beach-head saltmarsh. Shores with harder rocks support vegetation typical of maritime cliff ledges

giving way to maritime grassland. Notable plant species found include spring squill *Scilla verna* and Ray's knotgrass *Polygonum oxyspermum*.

### 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

### 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Birds**

**Species currently occurring at levels of national importance:**

**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Great cormorant , *Phalacrocorax carbo carbo*, NW Europe | 279 individuals, representing an average of 5.5% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common eider , *Somateria mollissima mollissima*, NW Europe | 867 individuals, representing an average of 43.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Eurasian oystercatcher , *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering | 4648 individuals, representing an average of 9.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Ruff , *Philomachus pugnax*, Europe/W Africa | 3 individuals, representing an average of 15% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

**Species with peak counts in winter:**

| | |
|---|---|
| Red-throated diver , *Gavia stellata*, NW Europe | 27 individuals, representing an average of 2.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Great crested grebe , *Podiceps cristatus cristatus*, NW Europe | 1550 individuals, representing an average of 44.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common shelduck , *Tadorna tadorna*, NW Europe | 251 individuals, representing an average of 3.5% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Greater scaup , *Aythya marila marila*, W Europe | 340 individuals, representing an average of 11.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common goldeneye , *Bucephala clangula clangula*, NW & C Europe | 184 individuals, representing an average of 1.6% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Red-breasted merganser , *Mergus serrator*, NW & C Europe | 155 individuals, representing an average of 7.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa | 133 individuals, representing an average of 1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Red knot , *Calidris canutus islandica*, W & Southern Africa<br>(wintering) | 386 individuals, representing an average of 1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

| | |
|---|---|
| Ruddy turnstone , *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa | 385 individuals, representing an average of 1.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Mew gull , *Larus canus canus*, Europe to N Africa | 1167 individuals, representing an average of 1.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

**Species Information**

None reported

## 21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Environmental education/ interpretation
Non-consumptive recreation
Tourism
Transportation/navigation

## 22. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|---|---|---|
| Non-governmental organisation (NGO) | + | |
| Local authority, municipality etc. | + | |
| National/Crown Estate | + | |
| Other | + | |

## 23. Current land (including water) use:

| Activity | On-site | Off-site |
|---|---|---|
| Nature conservation | + | + |
| Tourism | + | + |
| Recreation | + | + |
| Current scientific research | + | |
| Fishing: commercial | + | |
| Gathering of shellfish | + | |
| Bait collection | + | |
| Industrial water supply | + | |
| Industry | | + |
| Sewage treatment/disposal | + | |
| Harbour/port | | + |
| Transport route | | + |
| Urban development | | + |
| Non-urbanised settlements | | + |

### 24. Factors adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

*Explanation of reporting category:*

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

*NA = Not Applicable because no factors have been reported.*

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|---|---|---|---|---|---|
| No factors reported | NA | | | | |
| | | | | | |

| For category 2 factors only.<br>What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors? |
|---|
| Is the site subject to adverse ecological change? NO |

### 25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---|---|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| Special Protection Area (SPA) | + | |
| Management agreement | + | |
| Site management statement/plan implemented | + | |

### 26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

### 27. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

**Fauna.**

Numbers of migratory birds and wildfowl and waders are monitored annually as part of the national Irish Wetland Birds Survey (I-WEBS) organised by the IWC Birdwatch Ireland, the National Parks and Wildlife Service (Ireland) and the Wildfowl and Wetlands Trust.

### 28. Current conservation education:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Royal Society for the Protection of Birds presence on the site is centred around a brackish lagoon with well developed educational facilities including observation hides and a large observation room and a warden for the site.

## 29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

None reported

## 30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

## 31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

## 32. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **13** above), list full reference citation for the scheme.

### Site-relevant references


Barne, JH, Robson, CF, Kaznowska, SS, Doody, JP, Davidson, NC & Buck, AL (eds.) (1997) *Coasts and seas of the United Kingdom. Region 17. Northern Ireland*. Joint Nature Conservation Committee, Peterborough. (Coastal Directories Series.)

Buck, AL & Donaghy, A (eds.) (1996) *An inventory of UK estuaries. Volume 7. Northern Ireland*. Joint Nature Conservation Committee, Peterborough

Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Crowe, O (2005) *Ireland's wetlands and their waterbirds: status and distribution*. BirdWatch Ireland, Newcastle, Co. Wicklow

Musgrove, AJ, Langston, RHW, Baker, H & Ward, RM (eds.) (2003) *Estuarine waterbirds at low tide. The WeBS Low Tide Counts 1992–93 to 1998–99*. WSG/BTO/WWT/RSPB/JNCC, Thetford (International Wader Studies, No. 16)

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Way, LS, Grice, P, MacKay, A, Galbraith, CA, Stroud, DA & Pienkowski, MW (1993) *Ireland's Internationally Important Bird Sites: a review of sites for the EC Special Protection Area network*. Joint Nature Conservation Committee, Peterborough, for Department of the Environment (Northern Ireland), Belfast, and Irish Wildlife Service, Dublin

Weighell, AJ, Donnelly, AP & Calder, K (eds.) (2000) *Directory of the Celtic coasts and seas*. Joint Nature Conservation Committee, Peterborough



Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

# BELFAST LOUGH - SPECIAL PROTECTION AREA (SPA)

## UK9020101

# CONSERVATION OBJECTIVES

### Including conservation objectives for Inner Belfast Lough ASSI and Outer Belfast Lough ASSI

Document Details

| | |
|---|---|
| Title | Belfast Lough SPA Conservation Objectives |
| Prepared By | *Ian Enlander* |
| Approved By | *Mark Wright* |
| Date Effective From | *01/04/2015* |
| Version Number | *V3* |
| Next Review Date | January 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 05/08/1998 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA adjoins Belfast Lough Open Water SPA. It is also contiguous with Outer Ards SPA and the proposed East Coast Marine SPA.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Antrim and Down

G.R. J353 783 AREA: 432.14 ha.

Inner Belfast Lough ASSI

Outer Belfast Lough ASSI

## 5 SUMMARY SITE DESCRIPTION

The site comprises the sea lough of Belfast Lough. A range of inter-tidal habitats are present including extensive mud and sand flats, mussel beds, boulder shores and rock platforms. Adjoining habitat includes beaches and limited maritime heath and grasslands notably on the outer southern shore.

### 5.1 BOUNDARY RATIONALE

The SPA comprises most of Inner and all of Outer Belfast Lough ASSI and is coincident with the Ramsar boundary. All inter-tidal habitat is included together with any adjoining natural or semi-natural habitat. The outer boundary on the northern shore is the limit of wide sediment dominated shore (east of Kilroot the inter-tidal zone is generally narrow and typically boulder dominated). On the southern shore, it is the general limit of rock platform interspersed with mud and sand dominated embayments (east of Horse Rock typically alternates between broad sand beaches with intervening rock shores). Also included is the important brackish lagoon at the Harbour Estate (D2), together with the tidal channel at Dargan Road. All these areas are utilised by Redshank. Roost sites occurring outside the extent of natural or semi-natural habitat have not been included but their importance must not be underestimated. The boundary differs from the Inner Belfast Lough ASSI with the following areas within the ASSI excluded from the SPA

- Victoria Park – formerly tidal but now of limited importance
- Reduced section of Dargan Channel – limited to inter-tidal area only, excluding developed land.
- Inter-tidal area on lands north of Herdman Channel – developed for industry
- Inter-tidal area on lands north of Musgrave Channel – developed for industry
- Former lagoon, D3, in Belfast Harbour Estate - infilled

## 6 SPA SELECTION FEATURES

| Feature Type | Feature | Population (5 year average 1995-2000) | Population at time of designation (ASSI) | Population at time of designation (SPA) | SPA Review population | Common Standards Monitoring baseline |
|---|---|---|---|---|---|---|
| Species | Redshank wintering population [a] | 2266 | | 2466 | 2466 | 2010 (1993/4-1997/98) |
| Species | Great Crested Grebe wintering population [a] | 1646 | | Not listed | 1385 | 1015 (1993/4-1997/98) |
| Habitat[1] | Habitat extent | | | | | |
| Habitat[1] | Roost site locations | | | | | |

Table 1. List of SPA selection features.

[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Feature species are fully dependant on such habitats

NB Great Crested Grebe population now attributed to Belfast Lough Open Water SPA

**Notes on SPA features – may not be applicable to all SPAs**
The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.
[a] – species cited in current SPA citation and listed on current N2K dataform
[b] – species selected post SPA designation through UK SPA Review 2001
[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1. ADDITIONAL ASSI SELECTION FEATURES

| Feature Type (i.e. habitat, species or earth science) | Feature | Size/ extent/ pop[.] | Population at time of designation (ASSI) | Common Standards Monitoring baseline |
|---|---|---|---|---|
| Habitat | Maritime cliffs and slope (Outer Belfast Lough ASSI) | | | |
| Species | Invertebrate assemblage | | | |
| Species | Turnstone wintering population | | 614 | 503 (1989/90-1995/96) |
| Species | Cormorant wintering population | | | 276 (1989/90-1995/96) |
| Species | Shelduck wintering population | | 589 | 278 (1989/90-1995/96) |
| Species | Mallard wintering population | | | 321 (1989/90-1995/96) |
| Species | Scaup wintering population | | | 29 (1989/90-1995/96) |
| Species | Eider wintering population | | | 391 (1989/90-1995/96) |
| Species | Goldeneye wintering population | | | 231 (1989/90-1995/96) |
| Species | Red-breasted Merganser wintering population | | | 136 (1989/90-1995/96) |
| Species | Oystercatcher wintering population | | 6584 | 4782 (1989/90-1995/96) |
| Species | Ringed Plover wintering population | | | 93 (1989/90-1995/96) |
| Species | Lapwing wintering population | | | 1770 (1989/90-1995/96) |
| Species | Knot wintering population | | | 56 (1989/90-1995/96) |
| Species | Dunlin wintering population | | 1440 | 742 (1989/90-1995/96) |
| Species | Black-tailed Godwit wintering population | | 433 | 135 (1989/90-1995/96) |
| Species | Curlew wintering population | | 1271 | 871 (1989/90-1995/96) |
| Earth Science | Cultra – Craigavad Carboniferous stratigraphy (Outer Belfast Lough ASSI) | | | |
| Earth Science | Grey Point - Horse Rock Lower Palaeozoic stratigraphy (Outer Belfast Lough ASSI) | | | |

| | | | | |
|---|---|---|---|---|
| Earth Science | Cultra Permian stratigraphy (Outer Belfast Lough ASSI) | | | |

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7 CONSERVATION OBJECTIVES

The Conservation Objective for this site is:

***To maintain each feature in favourable condition***.

For each SPA feature there are a number of component objectives which are outlined in the tables below. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8 BELFAST LOUGH SPA CONDITION ASSESSMENT 2014

| Species | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Redshank | 1163 | 1381 | 1837 | 1331 | 771 | 2010 | 1296.6 | **64.51** | Unfavourable |

| Species | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Great Crested Grebe | 2148 | 1055 | 1174 | 325 | 780 | 1015 | 1096.4 | **108.02** | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

| Feature | Component Objective |
|---|---|
| Redshank wintering population | As above |
| Great Crested Grebe wintering population | As above |
| Habitat extent | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species (X ha intertidal area), subject to natural processes |
| Habitat extent | Maintain the extent of main habitat components subject to natural processes |
| Roost sites | Maintain or enhance sites utilised as roosts |

Table 3. SPA Component objectives

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

| Feature | Component Objective |
|---|---|
| Maritime cliffs and slope (Outer Belfast Lough ASSI) | To maintain or extend, as appropriate, the area of the coastal habitat mosaic subject to natural processes |
| Invertebrate assemblage | To be finalised |
| Turnstone wintering population | As for SPA selection feature objectives |
| Cormorant wintering population | As for SPA selection feature objectives |
| Shelduck wintering population | As for SPA selection feature objectives |
| Mallard wintering population | As for SPA selection feature objectives |
| Scaup wintering population | As for SPA selection feature objectives |
| Eider wintering population | As for SPA selection feature objectives |
| Goldeneye wintering population | As for SPA selection feature objectives |
| Red-breasted Merganser wintering population | As for SPA selection feature objectives |
| Oystercatcher wintering population | As for SPA selection feature objectives |
| Ringed Plover wintering population | As for SPA selection feature objectives |
| Lapwing wintering population | As for SPA selection feature objectives |
| Knot wintering population | As for SPA selection feature objectives |
| Dunlin wintering population | As for SPA selection feature objectives |
| Black-tailed Godwit wintering population | As for SPA selection feature objectives |
| Curlew wintering population | As for SPA selection feature objectives |
| Cultra - Craigavad Carboniferous stratigraphy | Maintain the extent of exposures and access to them subject to natural processes |
| Grey Point - Horse Rock Lower Palaeozoic stratigraphy | Maintain the extent of exposures and access to them subject to natural processes |
| Cultra Permian stratigraphy | Maintain the extent of exposures and access to them subject to natural processes |

Table 4. ASSI Component objectives

## 10 MANAGEMENT CONSIDERATIONS

**See also Views About Management for relevant ASSIs**

***Owner/Occupier's*** **–** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Key landowners and leasees within the SPA, relevant to the site management, include Crown Estate Commissioners, Belfast Harbour Commissioners, NIEA, the following council areas (Belfast, Ards, Antrim and Newtownabbey, Mid and East Antrim), Belfast City Airport, RSPB and Private Individuals. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

Positive management within the site include the creation of two new lagoons north east of the Dargan Road Tip by Belfast Council. Additionally NIEA lease D2 from Belfast Harbour Commissioners which is managed by RSPB. RSPB are also involved in the management of Whitehouse Pools which are owned by Antrim and Newtownabbey Council.

Adjacent commercial operations which may impact upon the SPA include BP Oil, AES (Kilroot Power Station) and Dargan Road Refuse Tip. Kilroot Power Station located adjacent to Belfast Lough SPA is a Part A Process under the Industrial Pollution Control Order. Additionally sewage discharge points from Duncrue Street and Kinnegar Sewage Treatment Works may impact upon the site.

## 11. MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** **-** Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Belfast Lough SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

## Generic site/feature issues – includes activities relating to both Belfast Lough and Belfast Lough Open Water SPAs

| Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|
| Adjoining habitat | Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, difficult. | Most adjoining habitat utilised by birds other than as roost sites, comprises managed amenity grass. This provides important additional feeding opportunities for selected wader species but would not merit any formal designation. | Assess importance of adjoining and distant playing grounds, fields and other feeding areas. Assess impacts from development. |
| Aquaculture | Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors. | Much of Inner Belfast Lough has active licences for shellfish production. | Liaise with DARD Fisheries Division. Assess all license applications individually. Current extent of licences may significantly alter seabed conditions. Consider the collective impact. |
| Bait digging – commercial or 'recreational' and shellfish gathering. | Disturbance and impact on sediment and invertebrate fauna – may be positive through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated. | Appears to be organised on a commercial basis and is widespread. | Monitor scale of activity. Consider the collective impact. |
| Boating activity – commercial | Disturbance and potential for impact from high-speed liners. | Major shipping channel plus cross-lough activity imminent. The former is long-established. | Formal consultation likely relating to new schemes. Need to assess new trans-lough impact. Consider the collective impact. |
| Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | Sailing clubs at Carrickfergus, Whiteabbey, Holywood and Cultra. Additional slipways and quays. | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. |
| Coastal protection schemes | Where there is no history of this, it impacts on natural beach systems with loss of habitat. | Much of north and inner shores are heavily engineered. Balance in natural rock outcrop. No ongoing coastal erosion problems noted. | Liaise with Planning Service and other parties with an involvement in coastal management. |
| Dredging | Generally only an issue in relation to commercial shipping | Major capital dredging programme | Liaise with port authority and Environmental |

| | | | |
|---|---|---|---|
| | channels. Issues include disturbance, remobilisation of contaminated sediment and spoil dumping zones. | ongoing. Established ongoing maintenance programme. | Protection as required with regard to water quality issues and pollution incidents. |
| Fishing – commercial or recreational | Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass. | Most commercial activity related to aquaculture. Recreational fishing not deemed to be a problem. | Liaise with DARD and fishing authority as required. Liaise with angling clubs as required. |
| Habitat extent – inter-tidal | Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds. | There has been extensive loss of inter-tidal habitat historically. Inner lough mudflats particularly vulnerable. | Assess planning applications. Monitor using aerial photography. |
| Habitat extent – open water | Loss likely to be limited but expansion of commercial port facilities can impact on key localities. | Ongoing and further planned harbour developments will reduce open water area. Probably insignificant. | Assess planning applications. Consider the collective impact. |
| Habitat quality – inter-tidal | Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes. | Historically impacted by industrial and sewerage effluent. | Assess planning applications. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Historically impacted by industrial and sewerage effluent. Vulnerable to pollution incidents from both industry and shipping. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| High tide roosts | An essential component of sites hosting waders. Development of adjoining ground or actual traditional roost localities may adversely impact on the sites carrying capacity. Many such sites lie without the site making effective management of developments, other than those for which planning permission is required, difficult. | Localities should be mapped. Loss of wader roost sites within the Inner Lough has been notable. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |
| Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Not evident but given nature of the site, could be an issue through commercial shipping and aquaculture. | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives. |
| Recreational activities. | Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats. | Shoreline has been heavily used for recreational activities over long timescale. Cumulative disturbance impacts (e.g. | Liaise with local authorities and other managing parties. |

| | | | |
|---|---|---|---|
| | | boating, wildfowlers, walkers, dogs etc) may be a significant factor for wintering bird populations impacting on both feeding (inter-tidal) and roosting birds | |
| Research activities. | Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. | Past cannon netting has occurred with ongoing high and low tide WEBS counts. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held. |
| System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | Main considerations are historical reclamation, especially along the north shore and Sydenham areas, together with widespread coastal engineering works and ongoing development within the Belfast harbour area. Sediment responses may be expected. Changes in water quality have led to an expansion of mussel beds, in turn altering system behaviour. Expanding aquaculture represents an alteration to substrate. | Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |
| Wildfowling | Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands. | Very limited shooting occurs off the north foreshore dump – presumably ad hoc. | Liaise with Belfast Council who control access to dump, if this is felt to be a problem. |

Table 5. List of site/feature management issues

## 12. MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

### 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

### 12.2. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13. SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering

populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Republic Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

Updated information on site, regional, national and international population trends for feature species will be contained in the most recent SPA site condition assessment report.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Redshank | Stable | Fluctuating-Incr | Stable | Stable-Fluctuating | |
| Great Crested Grebe | Stable | Increasing | Moderate Fluctuatic | Increasing-Stable | Stable circa 1990 in UK. |

References (to be completed)

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds). 2001.*The UK SPA network: its scope and content* JNCC, Peterborough.

Way, L.S., Grice, P., MacKay, A., Galbraith, C.A., Stroud, D.A. & Pienkowski, M.W. 1993. Ireland's internationally important bird sites: a review of sites for the EC Special Protection Area network. JNCC, Peterborough, 231 pp.

The Wetland Bird Survey: Wildfowl and Wader Counts. BTO/WWT/RSPB/JNCC. Various years.

Wildfowl and Wader Counts, WWT and BTO. Various years.

# ANNEX I

## Feature (SPA) – Wintering waterfowl

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Redshank wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Great Crested Grebe wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

## Non-avian factors

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Habitat extent | Extent of other habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species. |
| # Roost sites | Location of roost sites | Maintain all locations of roost sites. | Map roost site locations. Visit once every reporting cycle to ensure sites are available |

# ANNEX II

## Feature (ASSI)

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| **Maritime cliffs and slopes** | | | |
| *Morphological naturalness (extent, mobility and physical structure) | Ensure that any loss in extent and change in system dynamics is only due to natural processes | No human induced developments impacting on the natural system or constraining it. Maintain the range of physical conditions arising from variation in geology and geomorphology, profile, stability, degree of maritime exposure, drainage, aspect, geographical location and history of management. | Impossible to precisely measure extent of each NVC type, many are represented. The detailed fluxes between communities which is likely to happen is beyond the scope of condition assessment. |
| Sward Structure: | Litter in a more or less continuous layer, distributed either in patches or in one larger area. This dense thatch-like material. Estimate % in 2x2. | <10% | Outside target indicates insufficient grazing. (See comments on grazing below) |
| Sward Structure: | Bare ground or sand **not rock** extent, noticeable without disturbing the vegetation. | <5% | Bare patches are the natural result of localised herbivore activity especially rabbit burrows. Such areas provide niche for more ruderal species. |
| Sward Composition: | Grass:Herb ratio | 40 - 90% herbs | |
| *Vegetation –maritime rock crevice and cliff ledge communities. | At least 4 of the species below recorded as occasional: **Armeria maritima, Silene vulgaris maritima, Festuca rubra**, | Maintain maritime rock- crevice and cliff- ledge communities – i.e. MC1c | Individual sites will exhibit different patterns and range of of vegetation types depending on site characteristics Surveys may be needed to establish the full range for |

| | | | |
|---|---|---|---|
| (Where present on a site) | Spergularia rupicola, S. maritima, Daucus carota, **Plantago coronopus, P. maritima**, Sedum anglicum and **orange Xanthoria lichens** | and MC5c. | each site. |
| *Vegetation composition sea-bird cliff communities. (Where present on a site) | At least 3 of the species below recorded as occasional: Festuca rubra, Matricaria maritima, Beta vulgaris maritima, Atriplex prostrata, Stellaria media, Rumex acetosa, Holcus lanatus and Atriplex hastata | Maintain range of sea-bird cliff communities - i.e. MC6 and MC7. | Individual sites will exhibit different patterns and range of vegetation types depending on site characteristics. Surveys may be needed to establish the full range for each site. |
| *Vegetation composition maritime grassland communities. (Where present on a site) | At least 6 of the species below recorded as occasional: Alchemilla spp, Carex flacca, Small sedge spp, Campanula rotundifolia, Primula vulgaris, Euphrasia vulgaris, Thymus polytrichus, Galium verum, Ranunculus bulbosus, Linum catharticum, Koeleria macrantha, Lotus corniculatus, Polygala sp, Potentilla erecta, Succisa pratensis, Pilosella officinalis, Veronica officinalis. | Maintain range of maritime grassland communities – i.e. MC8, MC9a, MC9c, MC9d, MC9e (including non-maritime forms of these). | Individual sites will exhibit different patterns and range of vegetation types depending on site size, history, substrate and patterns of human use. Surveys may be needed to establish the full range for each site. |
| *Vegetation composition-maritime heath communities. (Where present on a site) | At least 3 of the species below recorded as occasional: Festuca ovina, Plantago maritima, Lotus corniculatus, Scilla verna, Calluna vulgaris, Thymus praecox, Potentilla erecta.<br><br>Record species composition at selected sample points across site. | Maintain range of maritime heath communities – i.e. H7a and b and H10d | Maritime heaths can show some affinities with lowland heaths in relation to quality. Reference should be made to the appropriate guidance for dry heaths, taking into account the maritime influence and the effects of exposure and slat deposition as factors affecting growth rates and succession in. |
| *Vegetation of soft cliffs and other communities. (Where present on a site) | Ensure that the general distribution of communities is broadly maintained | Maintain range of transitions and other communities – the area is notable for the significant range of NVC communities. | Aerial photographs will pick up spread of scrub and bracken. The NVC survey is unlikely to be repeated but revisit of condition assessment points will pick up changes. This is probably a site where more detailed work should also be carried out. |
| Vegetation Structure | Sward height 4 – 12 cm during summer | Maintain short sward in areas of | It is clear from discussion with the site manager for |

| | | | |
|---|---|---|---|
| | (July/August) over 65% of the area | species-rich vegetation<br>* This to be assessed in conjunction with other short, species-rich grassland communities, including SD8 | Killard, that over the past number of years due to a variety of mitigating circumstances including the Foot and Mouth outbreak of 2001, that the winter grazing hasn't been as consistent as usual. This has already been rectified and the 2003/04 winter grazing of the site is already complete at the time of writing (Jan 04). |
| Vegetation negative indicators | Ensure that the more species-rich elements of the cliff vegetation are maintained<br><br>Aerial photography to record maximum extent of scrub, bracken, etc. | No further increase in bracken, scrub, rank grasses, ruderal species (Thistles, Nettle etc). | Changes in the extent and cover of invasive species usually indicate a change in conditions on a site, often as a result of anthropogenic activities which may promote rapid expansion or increase in cover. These are often initiated by changes in management. Some tall ruderal communities may be present naturally on a cliff site. |
| **Invertebrates** | | | |
| Invertebrate assemblage | To be finalised | To be finalised | To be finalised |
| **Ornithological** | | | |
| Turnstone wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Cormorant wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Shelduck wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| | | | |
|---|---|---|---|
| Mallard wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Scaup wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Eider wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Goldeneye wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Red-breasted Merganser wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Oystercatcher wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| | | | |
|---|---|---|---|
| Ringed Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Lapwing wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Knot wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Dunlin wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Black-tailed Godwit wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Curlew wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| **Earth Science** | | | |

| | | | |
|---|---|---|---|
| Cultra - Craigavad Carboniferous stratigraphy | | Maintain the extent of exposures and access to them subject to natural processes | |
| Grey Point - Horse Rock Lower Palaeozoic stratigraphy | | Maintain the extent of exposures and access to them subject to natural processes | |
| Cultra Permian stratigraphy | | Maintain the extent of exposures and access to them subject to natural processes | |

# COPELAND ISLANDS
# SPECIAL PROTECTION AREA (SPA)

## UK9020291

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| **Title** | Copeland Islands SPA Conservation Objectives |
| **Prepared By** | *Ian Enlander* |
| **Approved By** | *Mark Wright* |
| **Date Effective From** | *01/04/2015* |
| **Version Number** | *V2* |
| **Next Review Date** | January 2020 |
| **Contact** | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 29/09/2009 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA is in close proximity to Belfast Lough SPA, Belfast Lough Open Water SPA and Outer Ards SPA. It adjoins the proposed East Coast Marine SPA.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Down

| | | |
|---|---|---|
| Copeland Islands ASSI: | | AREA: 201.15ha |
| Big Copeland | G.R. J593 835 | |
| Light House Island | G.R. J596 858 | |
| Mew Island | G.R. J602 860 | |
| Copeland Islands SPA | G.R. J600 850 | AREA: 201.20ha |

NB – UK MARINE SPA PROGRAMME HAS IDENTIFIED THE NEED FOR A MARINE EXTENSION TO THE COPELAND ISLANDS SPA TO REFLECT USAGE OF THE MARINE AREA BY RAFTING MANX SHEARWATER.

THE EXTENT OF THE MARINE AREA MANX SHEARWATER RAFTING IS AVAILABLE FROM NIEA.

THIS BOUNDARY WILL BE FURTHER REVISED ONCE JNCC REPORT ON MARINE USAGE BY TERN SPECIES FROM EXISTING SPA'S DESIGNATED FOR BREEDING TERNS IS PUBLISHED.

CONSERVATION OBJECTIVES WILL BE REVISED AS THESE ISSUE PROGRESS

## 5 SUMMARY SITE DESCRIPTION

The site is composed of three islands, Big Copeland, Light House Island and Mew Island, which collectively make up the Copeland Islands ASSI, lying off the north-east coast of the Outer Ards SPA. The islands are sites for breeding seabirds, with Big Copeland and Lighthouse Island being home to the main colonies. Important breeding and wintering populations of Eider Duck occur. Notable breeding populations of wader species also occur on Big Copeland.

### 5.1 BOUNDARY RATIONALE

The ASSI/SPA includes all land areas, excluding those with buildings and adjoining gardens, as the Manx Shearwater population especially use both inland and coastal areas for breeding purposes. The inland breeding gull and wader populations also support inclusion of the core of Big Copeland. Sea areas adjoining the Copeland Islands have also been included in the SPA (used by breeding tern and Manx Shearwater). Such areas adjoining colonies are of particular importance for courtship, preening and loafing behaviours, and also feeding.

## 6 SPA SELECTION FEATURES

| **Feature Type** | **Feature** | **Population** | **Population at time of designation (ASSI)** | **Population at time of designation (SPA)** | **SPA Review population** |
|---|---|---|---|---|---|
| Species | Manx Shearwater breeding population [a] | Total 4800 pairs Lighthouse Island (surveyed 2000) and Big Copeland – (surveyed 2002 and 2003) | Total 4800 pairs Lighthouse Island (surveyed 2000) and Big Copeland – (surveyed 2002 and 2003) | Total 4800 pairs Lighthouse Island (surveyed 2000) and Big Copeland – (surveyed 2002 and 2003) | New feature |
| Species | Arctic Tern breeding population [a] | 1998 to 2002 - 5 year average of 566 | 1998 to 2002 - 5 year average of 566 | 1998 to 2002 - 5 year average of 566 | New feature |
| Habitat[1] | Habitat extent | | | | |

Table 1. List of SPA selection features.

[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area.

**Notes on SPA features – may not be applicable to all SPAs**
The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.
[a] – species cited in current SPA citation and listed on current N2K dataform
[b] – species selected post SPA designation through UK SPA Review 2001
[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1. ADDITIONAL ASSI SELECTION FEATURES

| Feature Type (i.e. habitat, species or earth science) | Feature | Size/ extent/ pop[.] | Population at time of designation (ASSI) | Common Standards Monitoring baseline |
|---|---|---|---|---|
| Species | Common Gull | **250 pr** | 250 pr | 250 pr |
| Species | Eider (breeding) | **140 pr** | 140 pr | 140 pr |
| Species | Eider (non-breeding) | **200** | 200 | 458 |

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

***To maintain each feature in favourable condition***.

For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes. Those for Additional ASSI Selection Features (Annex II) are not yet completed.

## 8. COPELAND ISLANDS SPA CONDITION ASSESSMENT 2014

| Species | 2007 | 2011 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|
| Arctic tern | 1050 | 1025 | 556 | 1037.5 | 186.60 | Favourable |

| Species | 2008 | 2009 | 2010 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|
| Manx Shearwater | 5994 | 5506 | 6209 | 4800 | 5903 | 122.98 | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
Fledging success sufficient to maintain or enhance population
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

| Feature | Component Objective |
|---|---|
| Manx Shearwater breeding population | No significant decrease in population against national trends |
| Manx Shearwater breeding population | Fledging success sufficient to maintain or enhance population |
| Arctic Tern breeding population | No significant decrease in population against national trends |
| Arctic Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Habitat extent | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species, (breeding areas 201.20ha) subject to natural processes |
| Habitat extent | Maintain the extent of main habitat components subject to natural processes |

Table 3. List of SPA Selection Feature Component Objectives

Tern nesting localities current and historical (TO BE FINALISED)

| |
|---|
| Big Copeland |
| Lighthouse Island |
| Mew Island |

Table 4. Tern nesting locations within the SPA

## 9.1 ADDITONAL ASSI SELECTION FEATURE OBJECTIVES

| Feature Type (i.e. habitat, species or earth science) | Feature |
|---|---|
| Species | Common Gull |
| Species | Eider (breeding) |
| Species | Eider (non-breeding) |

## 10. MANAGEMENT CONSIDERATIONS

**See also Views About Management for relevant ASSI**

***Owner/Occupier's –*** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Approximately x individuals/organisations own land within the SPA. Major landowners and leasees within the SPA, relevant to the site management include, Crown Estate Commissioners, National Trust, Commissioner of Irish Lights, the Copeland Bird Observatory and Private Individuals. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

A managed shoot is established on Big Copeland. This is not thought to have an adverse impact on the breeding seabirds (Arctic Tern numbers have increased during the period during which the shoot has been managed while no aspect of the shoot would have a specific impact on the Manx Shearwater). Provision of feeding points for game birds supports the local population of Stock Dove, together with many passerine species.

Activities of the Copeland Bird Observatory are positively directed towards both the Arctic Tern and Manx Shearwater populations. In addition they undertake population monitoring actions and habitat enhancement schemes.

The proposed new sewage treatment works for the greater Bangor area at Donaghadee and associated infrastructure may impact upon the SPA.

There are no management agreements within the SPA.

## 11. MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** - Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Outer Ards SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

**<u>Generic site/feature issues</u>**

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 1 | Boating activity – commercial | Disturbance and potential for impact from high-speed liners. | Fishing boat activity is widespread, centred on the main harbours. Shipping within the Irish Sea may have a bearing with regard to the potential for pollution incidents. No immediate issues evident. | Formal consultation likely relating to new schemes. Consider the collective impact. |
| 2 | Boating activity – recreational | Disturbance and potential for impact. Generally relevant to particularly sensitive areas within site. | Main boating centres are at Bangor and Donaghadee. Most activity is likely to be | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. |

| | | | | |
|---|---|---|---|---|
| | | | in the summer period. Implications for seabird nesting sites. | Consider the collective impact. |
| 3 | Cull of fledglings/ young | Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA. | Potentially an issue at tern colonies but numbers of breeding large gulls has declined considerably in recent years. | NIEA to review all licenses. Consider the collective impact. |
| 4 | Enhanced bird competition | Activities onsite or offsite that influences or results in a shift in balance of species utilising a site. | Future of landfill operations especially in the wider area could impact on breeding seabirds | Liaise with Planning Service. Review wider countryside changes. |
| 5 | Fishing – commercial or recreational | Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass. | Scallop dredging and other trawling is ongoing. | Liaise with DARD and fishing authority as required. Liaise with angling clubs as required. |
| 6 | Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Not a significant issue given the sites position in open coastal waters. Impacts are localised. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection. Consider the collective impact. |
| 7 | Habitat extent and quality-breeding | Alteration of habitat area or quality through inappropriate use or absence of site management. | Habitat management is main issue in context of seabirds. Manx Shearwater on Lighthouse Island are positively managed. This is not the case for Terns and Shearwaters on Big Copeland. | Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management. |
| 8 | Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Significant problem on Lighthouse Island. | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/ international initiatives. |
| 9 | Predation. | Mainly of concern on bird breeding sites. | Extent unknown. Introduction of ground predators eg rats, is a major risk to Shearwaters especially. | Must be dealt with as part of wider countryside management considerations. |
| 10 | Recreational activities | Disturbance is the main consideration. Breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success. | Widespread in summer with main concerns being access to Copeland Island (Lighthouse and Mew Islands have greater control on access). | Liaise with local authorities and other managing parties. Signage at vulnerable sites should be reviewed. |

| | | | | |
|---|---|---|---|---|
| 11 | Game Bird Management | Habitat management. | Potential conflict of habitat management. NB: The game bird rearing on Big Copeland is helping to support the Stock Dove population but may result in competition with waders for some invertebrate prey during the breeding season. | Liaise with holder of sporting rights. |
| 12 | Grazing regime | Stock levels must represent a balance between the need to keep a low sward and minimise soil erosion. Grazing/cutting needs also to be assessed in the context of the fluctuating rabbit populations. | On Lighthouse Island an artificial mowing regime is maintained, and on some areas of Big Copeland livestock grazing is maintained. On Mew Island the introduction of a grazing regime would be attractive. | For all islands, depending on rabbit activities, to seek measures to get rid of extra amounts of herbage |
| 13 | Field boundaries on Big Copeland | Some Manx Shearwater use the stone walls and dry turf banks. | The stone walls and turf banks need to be managed and maintained appropriately. | Liaise with local landowners. |
| 14 | Alien species | Himalayan Balsam invasion. | Eradication. | To contain or reduce extent of ground cover |
| 15 | Research activities | Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. | Breeding seabirds are surveyed annually. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held. |

Table 5. List of site/feature management issues

## *12.* MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

## 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has

relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.

3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13. SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Arctic Tern | - | - | - | - | Not known, to be compiled. |
| Manx Shearwater | - | - | - | - | Not known, to be compiled. |

# ANNEX I

## Feature (SPA) – Breeding Seabirds

* = primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Arctic Tern breeding population | Apparently occupied nests | No significant decrease in Arctic Tern breeding population against national trends | Requirement that annual data is collected, apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. |
| # Arctic Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period. | Appropriate level of fledgling survival to be determined. |
| * Manx Shearwater breeding population | Occupied nests | No significant decrease in Manx Shearwater breeding population against national trends. | Requirement that data is collected once every reporting cycle. Ideally the population will be maintained above 1% of the national population. |
| # Manx Shearwater fledging success | Fledging success | >1 fledgling per pair successfully raised over five year period. | Appropriate level of fledgling survival to be determined. |

**Non-Avian Factors – habitat**

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | To maintain or enhance the area of natural and semi-natural habitats potentially usable by Feature bird species, (breeding areas 201.20ha) subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes. | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures or breeding sites, where this would lead to different usage by notified species. |

**Dundrum Bay Proposed Ramsar Site**

Not published – assumed to be to maintain or enhance the population of the qualifying species, to maintain or enhance the distribution, extent, structure, function and supporting processes of the qualifying habitats.

**EC DIRECTIVE 2009/147/EC on the Conservation of Wild Birds**

**PROPOSED EAST COAST (NORTHERN IRELAND) MARINE SPECIAL PROTECTION AREA**

*Area:* 96668.34 Ha *Geographic co-ordinates:* 54.03.00 N
06.07.00 W

**Unitary Authority** marine waters adjoining:
Belfast City Council
Antrim and Newtownabbey Borough Council
Mid and East Antrim Borough Council
Ards and North Down Borough Council
Newry, Mourne and Down District Council

**County:** adjoining County Antrim and County Down

**Site description:**
The proposed East Coast (Northern Ireland) Marine Special Protection Area includes coastal and near shore waters from Ringfad near Carnlough, Co. Antrim in the north, the marine area of Larne Lough, the marine area of Belfast Lough, waters around the Copleand Islands and offshore of the Ards Peninsula to Cloghan Head, near Ardglass in the south.

The SPA covers a diverse range of seabed habitats, from extensive coastal fringing reefs of various lithologies to the fine silt of inner Belfast Lough.

To the north of Belfast Lough, fringing reef is notable, with substantial areas of coarse sediments and boulders and cobbles offshore from Islandmagee. Further north, towards Ballygally and Carnlough, the glacial till dominates the seabed but also with important areas harbour maerl, a coralline algae (mostly *Phymatolithon calcareum*), known for its associated high biodiversity and for acting as a scallop nursery ground. Rippled sands and gravels are also notable between the relic drowned drumlins that are present off much of the 'Glens of Antrim' coastline. Bedrock outcrops with near vertical sides are found at the Maidens; these reefs and the surrounding sand banks form part of the designated Maidens SAC.

Within Belfast Lough muds grade into muddy sands toward the outer Lough, with extensive areas of cobbles and shell debris overlying the muddy sand. Part of the muddy sand in the outer Lough is bioturbated by Dublin Bay prawn (*Nephrops norvegicus*), and also harbour the Seapen *Virgularia mirabilis*. Topographically complex reef areas surround the Copeland Islands.

To the south of Belfast Lough, the seabed off the Ards Peninsula is dominated by stony reef and mixed sands and gravels (often with a notable silt content). The gravelly sands support commercially harvestable seed mussel in geographically limited areas (affected by local hydrography), and further offshore support a scallop fishery (*Pecten maximus*). Mobile bedforms, such as extensive sand waves and banks, are found at Rigg Bank and extending south of the bank.

Offshore of Belfast Lough and off the Maidens Islands the seabed within the site reaches a depth of 125m.

The boundary adjoins the following existing Special Protection Areas –
Larne Lough SPA
Belfast Lough SPA
Outer Ards SPA
Copeland Islands SPA
Strangford Lough SPA

This site also subsumes the existing Belfast Lough Open Water SPA

The landward boundary for this marine area is the mean low water mark, medium tide.

The principal interests are as follows – marine area used by –

Non-breeding population of Great Crested Grebe
Non-breeding population of Red-throated Diver
Rafting Manx Shearwater in the breeding season originating from an adjoining colony
Foraging Sandwich, Common and Arctic Tern in the breeding season originating from adjoining tern colonies

The designation map shows the extent of the proposed East Coast (Northern Ireland) Marine Special Protection Area.

**Qualifying species:**

The subsumed Belfast Lough Open Water SPA was classified in 2009 at which time the site qualified for the wintering population of Great Crested Grebe.

The site qualifies under **Article 4.2** of the Directive (2009/147/EC) by regularly supporting internationally important populations of the following species:

| **Species relevant to Article 4.2** | **Count and Season** | **Period** | **% of population** |
|---|---|---|---|
| Great Crested Grebe *Podiceps cristatus* | 2466 individuals Non-breeding | 5 year mean (1991/92 – 1995/96) | 1.6% of the international biogeographical population |

Waterbird data from annual WeBS programme coordinated by BTO

In recent years the population of Great Crested Grebe on Belfast Lough Open Water SPA has declined. For the period 2008/09 – 2012/13, the mean Great Crested Grebe numbers were 737 wintering individuals (<1% of the international biogeographical population). Great Crested Grebe has been retained as a qualifying species for Belfast Lough as the population is still

notable (13.4% all-Ireland population) while the site can be of increased importance e.g. as a cold weather refuge. Retention of such site selection features is in line with agreed UK practice.

The site also qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting internationally important populations of the following species:

| **Annex I species** | **Count and Season** | **Period** | **% of population** |
|---|---|---|---|
| Red-throated Diver *Gavia stellata* | 142 individuals Non-breeding | 5 year mean (2006/07 – 2008/08) | 7.1 % of the all-Ireland population |

JNCC targeted site survey

More recently land-based surveys have been undertaken of movements of Red-throated Diver flying into Belfast Lough with matched counts from the County Antrim and County Down shorelines. For the period 2010/11 – 2014/15, the mean Red-throated Diver numbers were 121 wintering individuals (6% of the all-Ireland wintering population).

The site also qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting internationally important populations of the following species – figures relate to populations at adjoining breeding colonies:

| **Annex I species** | **Count and Season** | **Period** | **% of population** |
|---|---|---|---|
| Sandwich Tern *Thalasseus sandvicensis* | | | |
| Larne Lough SPA | 413 pairs Breeding | 5 year mean (2010 - 2014) | |
| Outer Ards SPA | 353 pairs Breeding | 5 year mean (2010 - 2014) | |
| Strangford Lough SPA | 890 pairs Breeding | 5 year mean (2010 - 2014) | |
| TOTAL | 1656 pairs Breeding | 5 year mean (2010 - 2014) | 44.8 % of the all-Ireland population |
| Common Tern *Sterna hirundo* | | | |
| Larne Lough SPA | 295 pairs Breeding | 5 year mean (2010 - 2014) | |
| Belfast Lough SPA | 243 pairs Breeding | 5 year mean (2010 - 2014) | |
| Strangford Lough SPA | 370 pairs Breeding | 5 year mean (2010 - 2014) | |
| TOTAL | 908 pairs Breeding | 5 year mean (2010 - 2014) | 21.6 % of the all-Ireland population |

| | | | |
|---|---|---|---|
| Arctic Tern<br>*Sterna paradisaea* | | | |
| Belfast Lough SPA | 53 pairs<br>Breeding | 5 year mean<br>(2010 - 2014) | |
| Outer Ards SPA | 141 pairs<br>Breeding | 5 year mean<br>(2010 - 2014) | |
| Copeland Islands SPA | 954 pairs<br>Breeding | 5 year mean<br>(2010 - 2014) | |
| Strangford Lough SPA | 203 pairs<br>Breeding | 5 year mean<br>(2010 - 2014) | |
| TOTAL | 1351 pairs<br>Breeding | 5 year mean<br>(2010 - 2014) | 38.6 % of the all-Ireland population |

Seabird data from annual site monitoring by various bodies and national seabird surveys coordinated by JNCC

The site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting internationally important populations of the following species – figures relate to population at adjoining breeding colonies:

| **Species relevant to Article 4.2** | **Count and Season** | **Period** | **% of population** |
|---|---|---|---|
| Manx Shearwater<br>*Puffinus puffinus* | 4800 pairs<br>Breeding | 2000–2002 | 1.7 % of the international biogeographical population |

Seabird data from site monitoring by Copeland Bird Observatory and national seabird surveys coordinated by JNCC

The site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting internationally important populations of the following species:

| **Species relevant to Article 4.2** | **Count and Season** | **Period** | **% of population** |
|---|---|---|---|
| Eider Duck<br>*Somateria mollissima* | 3126 individuals<br>Non-breeding | 5 year mean<br>(2010/11 – 2014/15) | 0.30 % of the international biogeographical population<br>> 90 % of the all-Ireland population |

Waterbird data from annual WeBS programme coordinated by BTO

**EASTERN MOURNES SAC**

UK0016615

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Eastern Mournes SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *11/10/2017* |
| Version Number | *V2.1* |
| Next Review Date | Nov 2020 |
| Contact | cdp@daera-ni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1.0 | June 2013 | Internal working document | PC |
| V2.0 | January 2015 | Complete review | RMK |
| V2.0 | 01.04.2015 | Effective date of Version 2.0 | PC |
| V2.1 | 11.10.2017 | Removed wording '*excluding recently burnt areas*' from bare peat target in all relevant Annex tables | PMC |

# 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:** IJ 330270

**AREA:** 7510 ha

## 5. SUMMARY SITE DESCRIPTION

The Eastern Mournes consists of a compact range of mountains forming the highest ground in Northern Ireland. They are situated in the south-east of the Province in County Down, just west of Newcastle. Within the Mountain range, 12 peaks extend to over 600m, with Slieve Donard rising to 852m. The area is important geologically representing the largest outcrop of Tertiary granites in the British Isles covering some 150 sq. km. The Eastern Mournes host three distinct granite types with associated mineralogies.

The Eastern Mournes SAC has a unique combination of upland habitats and associated vegetation communities including the largest extent of European dry heaths in Northern Ireland. This is mostly of the *Calluna/Erica cinerea* type, but includes *Ulex gallii/Erica cinerea* dry heath on the lower slopes. The dominance of *Erica cinerea* is a notable feature of the area and characteristic of dry heath in the oceanic climate of more western parts of the UK. The area supports a number of other vegetation communities including wet heaths and blanket bog, montane heaths and grasslands on the highest summits and plant communities associated with the cliffs and scree.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website (www.doeni.gov.uk/niea).

## 5.1 BOUNDARY RATIONALE

The boundary has been drawn to include all areas of dry, wet, upland and lowland heath communities together with associated semi-natural habitats in the Eastern Mourne region. The major valley of the White Water, a small river that runs from Deers Meadow south, divides the lower lying Western Mournes from the Eastern Mournes. The vegetation communities along the length of this valley are severely degraded such as areas adjacent to the Moyad Road that runs along the bottom of the valley. At the time of designation, the Western Mournes were seen as a separate entity from the Eastern Mournes. The heathland and blanket bog associated with the Western Mournes will be declared as an ASSI at a later date.

The boundary around the entire Eastern Mournes SAC is clearly defined as the edge of high quality, semi-natural heathland communities surrounded by severely degraded heathland communities, improved agricultural land and forestry. The boundaries are generally clearly defined as stone walls - marking a change in land ownership or along the edge of roads, rivers and streams; or fences - along the edge of forestry plantations and field boundaries. These forests have been planted on the lower slopes of the mountains and many of the fields have also been reclaimed from the lowland heath communities in recent years. The majority of boundaries are stock proof.

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ population |
|---|---|---|---|
| Habitat | European dry heaths | B | 4680 ha |
| Habitat | Northern Atlantic wet heaths with *Erica tetralix* | B | 889 ha |
| Habitat | Active blanket bogs | C | 318 ha |
| Habitat | Alpine and boreal heaths | C | 32.1 ha |
| Habitat | Siliceous alpine and boreal grasslands | C | 32.1 ha |
| Habitat | Siliceous rocky slopes with chasmophytic vegetation | C | 58.5 ha |
| Habitat | Siliceous scree of the montane to snow levels | C | 17.7 ha |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

**A** - Sites holding outstanding examples of the habitat in a European context.

**B** - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

**C** - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

**D** - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Eastern Mournes SAC.

## 6.1 ASSI SELECTION FEATURES

### Eastern Mournes ASSI

| Feature type | Feature | Size/ extent/ population |
|---|---|---|
| Habitat | Dry Heath | 4680 ha |
| Habitat | Wet Heath | 889 ha |
| Habitat | Blanket Bog | 318 ha |
| Habitat | Montane Heath | 64.2 ha |
| Habitat | Inland Rock | 76.2 ha |
| Habitat | Oligotrophic lakes | 4ha |
| Species | Higher Plant Assemblage | |
| Species | Notable assemblage of alpine fungi | |
| Species | Notable invertebrate assemblages of specialist montane species. | |
| Earth Science | Tertiary Igneous series - Five sub-sites within the Eastern Mournes SAC<br>• Eagle Rock – Inland outcrops and streams<br>• Bloody River – Coastal and river cliffs<br>• Diamond Rocks - Inland outcrops and streams<br>• Lindsay's Leap - Inland outcrops and streams<br>• Ben Crom - Inland outcrops and streams | |
| Earth Science | Pleistocene – glacial erosional series. This comprises the assemblage of features including – corries, ice-plucked slopes, ice-smoothed walls, tors, glacial troughs and trimlines, debris fans and cones, streamlined bedrock, ice-shattered debris fields, meltwater channels. | |
| Earth Science | Pleistocene – glacial depositional series. This comprises the assemblage of features including moraines, dissected valley and drift terraces, boulder fields. | |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The *Conservation Objective* for this site is:

*To maintain (or restore where appropriate) the*

- European dry heaths
- Northern Atlantic wet heaths with *Erica tetralix*
- Active blanket bogs
- Alpine and boreal heaths
- Siliceous alpine and boreal grasslands
- Siliceous rocky slopes with chasmophytic vegetation
- Siliceous scree of the montane to snow levels

*to favourable condition.*

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objectives |
|---|---|---|
| European dry heath | B | Maintain the extent of existing European dry heath vegetation. |
| | | Maintain and enhance the quality of the European dry heath community types. |
| | | Seek to expand the extent of the dry heath communities into degraded areas of species poor, dry acid grassland. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the dry heath. |
| | | Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for dry heath rehabilitation. |
| Northern Atlantic wet heath with *Erica tetralix*. | B | Maintain the extent of existing Northern Atlantic wet heath vegetation. |
| | | Maintain and enhance the quality of the existing wet heathland. |
| | | Seek to expand the extent of the wet heath communities into degraded areas of species poor, wet acid grassland. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the Northern Atlantic wet heath. |
| | | Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for wet heath rehabilitation. |
| Active blanket bog | B | Maintain the extent of intact blanket bog and actively regenerating blanket bog vegetation. |
| | | Maintain and enhance the quality of the blanket bog community types including the presence of notable species. |
| | | Seek to expand the extent of actively regenerating blanket bog vegetation into degraded (non-active) areas of cutover bog. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the blanket bog. |
| | | Maintain the hydrology of the intact blanket bog peat mass. |
| | | Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for blanket bog rehabilitation. |

| | | |
|---|---|---|
| **Alpine and boreal heaths** | C | Maintain the extent of existing alpine and boreal heath vegetation. |
| | | Maintain and enhance the quality of the existing alpine and boreal heaths. |
| | | Seek to expand the extent of the alpine and boreal heath communities into degraded areas of species poor acid grassland. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the alpine and boreal heaths. |
| **Siliceous alpine and boreal grasslands** | C | Maintain the extent of existing siliceous alpine and boreal grasslands. |
| | | Maintain and enhance the quality of the siliceous alpine and boreal grassland community types. |
| | | Seek to expand the extent of the siliceous alpine and boreal grassland communities into degraded areas of species poor, dry acid grassland. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the siliceous alpine and boreal grasslands. |
| **Siliceous rocky slopes with chasmophytic vegetation** | C | Maintain the existing acid rock chasmophytic Vegetation. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the siliceous rocky slopes. |
| **Siliceous scree of the montane to snow levels** | C | Maintain the extent of existing siliceous scree (partially vegetated siliceous scree). |
| | | Maintain and enhance the quality of the siliceous scree community types. |
| | | Maintain the diversity and quality of other habitats of conservation interest, especially where these exhibit natural transition to the siliceous scree. |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| Dry Heath | See SAC Selection Feature Objective Requirements table. |
| Wet Heath | See SAC Selection Feature Objective Requirements table. |
| Blanket Bog | See SAC Selection Feature Objective Requirements table. |
| Montane Heath | See SAC Selection Feature Objective Requirements table. |
| Inland Rock | See SAC Selection Feature Objective Requirements table. |
| Oligotrophic Lakes | Maintain the extent of oligotrophic lakes and ponds – i.e. Blue and Binnian Loughs. |
| | Maintain the open water area of the lakes. |
| | Maintain the water chemistry and water levels – i.e. water poor in plant nutrients and levels not to fluctuate outside normal limits. |
| | Maintain characteristic aquatic vegetation |
| Higher plant assemblage | Maintain viable populations, and enhance where practicable the species comprising the rare plant assemblage. (*Diphasiastrum alpinum, Salix herbace, Cryptogramma crispa, Phegopteris connectilis*<br>*Carex bigelowii, Saxifraga stellaris* |
| Notable assemblage of alpine fungi | To be finalised. |
| Notable invertebrate assemblage | Ensure that the populations of notable invertebrates are maintained within the Eastern Mournes SAC. |
| Tertiary igneous rocks | Maintain the extent of exposure at each of the five sub-sites that display nationally important exposures of Tertiary igneous rocks and access to them subject to natural processes. |
| Pleistocene – glacial erosional series | Maintain the position in the landscape of these features including access opportunity, viewlines and physical character subject to natural processes |
| Pleistocene – glacial depositional series. | Maintain the extent and physical integrity of these features subject to natural processes |

## 10. MANAGEMENT CONSIDERATIONS

### Ownership

About 50% of the Eastern Mournes SAC (3,640 ha) is owned by Belfast Water Commissioners and this area of land is completely surrounded by the 'Mourne Wall' built between 1912 and 1920 to delimit their ownership. This area is often referred to as the high Eastern Mournes and acts as the catchment for the Ben Crom and Silent Valley Reservoirs. An additional eleven estates are located around the periphery of the high Eastern Mournes including the Annesley Estate, which is now the property of the National Trust. The remaining estates are privately owned and in multiple ownership with over 100 owners identified in the area in addition to a much greater number of graziers. Additional individuals also have shooting rights over the area.

The complex pattern of ownership and grazing rights together with the added complication of shooting rights makes a unified approach to site management more difficult.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Eastern Mournes, or could affect it in the future.

Although **European dry heaths, Northern Atlantic wet heaths with *Erica tetralix*, Active blanket bogs, Alpine and boreal heaths, Siliceous alpine and boreal grasslands, Siliceous rocky slopes with chasmophytic vegetation and Siliceous scree of the montane to snow levels** are the qualifying SAC features, factors affecting ASSI features are also considered.

**NOTE - Carrying out any of the Notifiable Operations listed in the ASSI schedule could affect the site.**

### *Grazing*

Within the Eastern Mournes SAC, many of the mountain summits and lower slopes are heavily grazed by sheep. As a consequence, these heathland communities are degraded and in unfavourable condition. Overgrazing has been identified on all lower slopes outside NI Water Ownership. Within the Mourne Wall, the grazing pressure is somewhat lower, but overgrazing still does occur. The areas that have been most severely affected by over-grazing include the montane heaths and grasslands on the summits of Slieve Donard and Slieve Commedagh, along tracks and paths such as the Brandy Pad and on some of the lower slopes. NI Water has tried to exclude sheep grazing from all lands within the Mourne Wall in an attempt to prevent the bacteria *Cryptosporidium* from infecting the water

supply. However, they have not been able to maintain a no grazing policy due to illegal grazing by landowners.
Therefore, overgrazing is a consequence of a number of factors that are extremely difficult to control. These include grazing prescriptions which have been set too high for the Mourne region, illegal grazing (including winter grazing which is particularly damaging to Heather), lack of shepherding and the difficulties of monitoring sheep numbers over extensive areas of upland.
**ACTION: Establish a sustainable stocking density within each management unit of the Eastern Mournes SAC and ensure that set grazing prescriptions are strictly adhered to. Continue careful monitoring of the heathland communities to establish if the set grazing prescriptions are permitting the heathland communities to recover towards favourable condition.**

### *Burning*

Burning of the vegetation has taken place occasionally, with some areas of past burning being identifiable. Excessive burning will lead to the deterioration of all heathland communities. Within the Eastern Mournes, burning should only be carried out in exceptional circumstances.

**ACTION: Ensure that any burning within the SAC is carefully controlled and monitored.**

### *Scrub/Bracken Encroachment*

There are many small pockets of bracken associated with the lower slopes around the periphery of the Eastern Mournes SAC as well as localised pockets of bracken on some of the upper slopes. There is also some limited scrub development – mainly *Ulex europaeus* associated with areas of disturbance. Any further scrub or bracken encroachment into the heathland communities is undesirable.
**ACTION: Monitor further scrub/bracken encroachment (where it occurs) and take remedial action if required. Remove any invasive exotic species, such as Rhododendron as a matter of urgency.**

### *Water abstraction*

Within the Mourne Wall, the land is managed by NI Water for the purpose of water abstraction and supply. With growing water requirements within the Belfast area, there is constant pressure to increase supply.
**ACTION: Ensure that increased levels of water abstraction do not damage the heathland communities within the SAC. There may be a requirement to lay new water pipelines from the upper reservoirs down to Spelga Dam or Fofany Dam. If required, pipe laying should be carried out with the minimum disruption to the heathland communities.**

### *Fly-tipping*

There does not appear to be a serious dumping issue anywhere within the Eastern Mournes SAC.

**ACTION: If any dumping does occur, remove all evidence immediately to prevent any further incidences.**

*Quarrying*

Historically quarrying within the Eastern Mournes has been very small scale and a number of mineral rights are held by private and state organisations in the area. There is currently no quarrying within the Mourne Wall, but there are two small scale operations presently in operation at Thomas' Mountain and Trassey Track.

**ACTION: There should be no quarrying within the Eastern Mournes SAC. The status of mineral rights within the site requires clarification in order to identify potential threats that they might have on the SAC features.**

*Land reclamation*

Much of the lower *Ulex gallii* dry heaths have been lost to reclamation in recent years. The remaining *Ulex gallii* heath is an important component of the SAC. In addition some of the dry heaths further up-slope have also been reclaimed.

**ACTION: Ensure that there is no further reclamation of the lowland or upland heaths anywhere within the SAC.**

*Recreation*

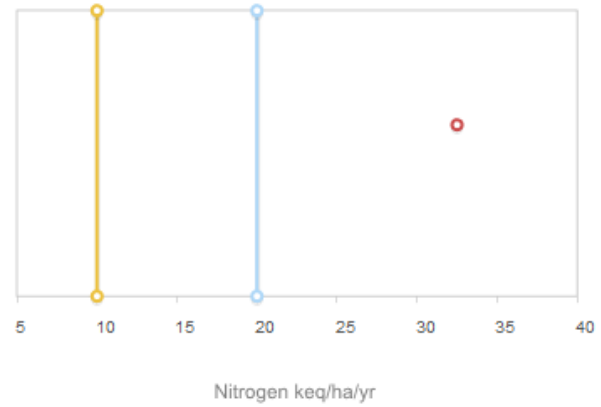
An increased interest in hill walking within the Northern Ireland population together with increased tourist activity in the Newcastle area, is beginning to put real pressure on the footpaths and surrounding vegetation within the Eastern Mournes. Ideally, a sustainable level of recreational activity should be established to ensure that there is no adverse affect on the heathland communities.

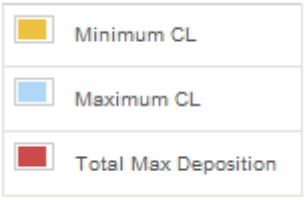
**ACTION: Ensure that all precautions are taken to minimise the impact of hill walking on upland paths throughout the Mourne Mountains. Footpath maintenance is of paramount importance and there is also a need to develop and promote paths in areas that are not highly sensitive to disturbance.**

*Nitrogen Deposition*

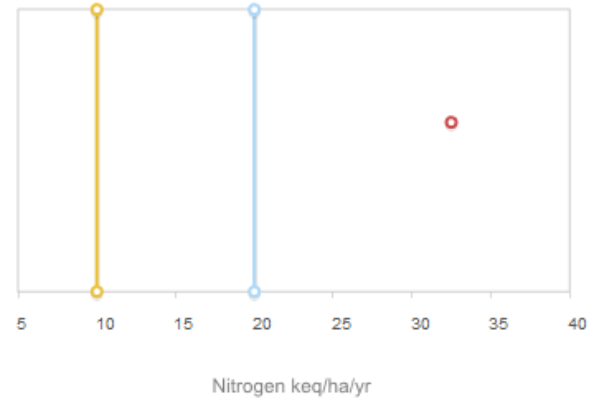
Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for habitats and species present on Eastern Mournes SAC.

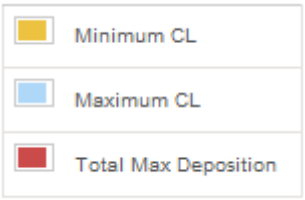
**Feature:** European dry heaths
**Critical Load Class:** Dry heaths
**Critical Loads (kg N/ha/yr):** 10-20
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.5 Minimum: 16.2 Average: 24.4



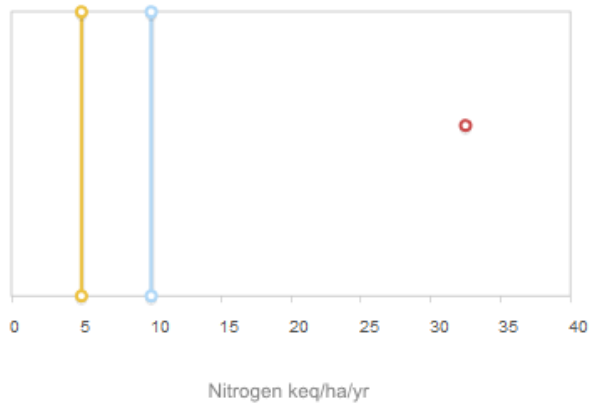



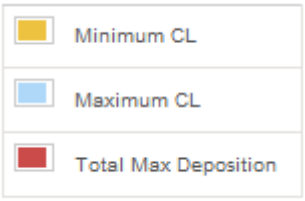

**Feature:** Northern Atlantic wet heaths with Erica tetralix
**Critical Load Class:** Northern wet heath: Erica tetralix dominated wet heath
**Critical Loads (kg N/ha/yr):** 10-20
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.5 Minimum: 16.2 Average: 24.4



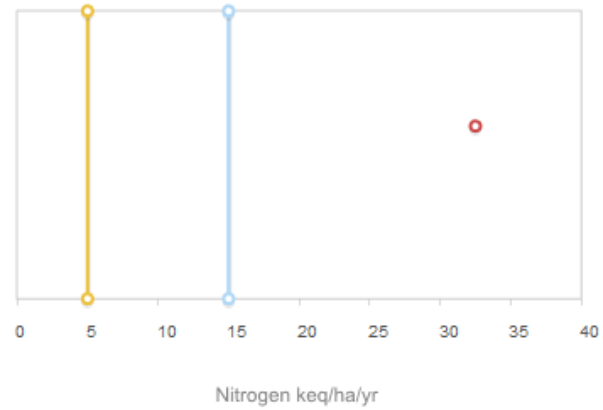



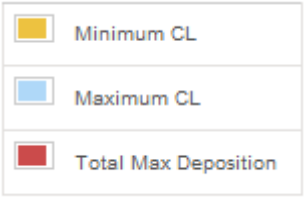
**Feature:** Blanket bogs (* if active bog)
**Critical Load Class:** Raised and blanket bogs
**Critical Loads (kg N/ha/yr):** 5-10
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.5 Minimum: 16.2 Average: 24.4



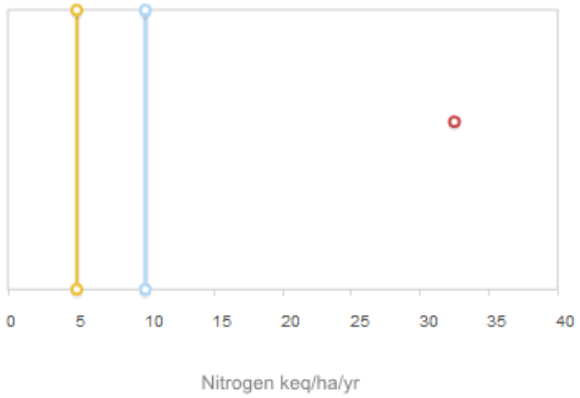



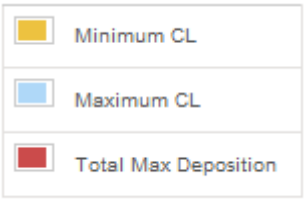

**Feature:** Alpine and Boreal heaths
**Critical Load Class:** Arctic, alpine and subalpine scrub habitats
**Critical Loads (kg N/ha/yr):** 5-15
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.5 Minimum: 16.2 Average: 24.4



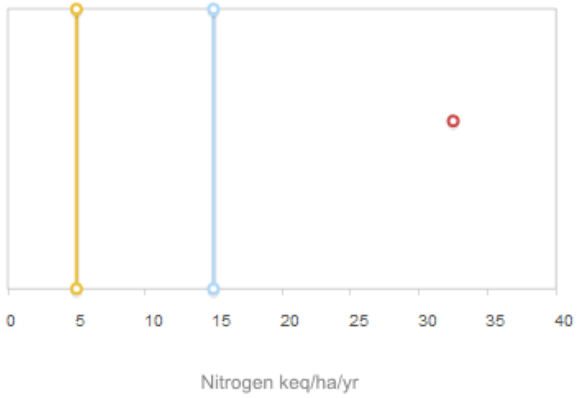



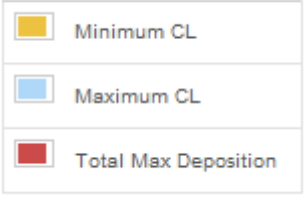
**Feature:** Siliceous alpine and boreal grasslands
**Critical Load Class:** Alpine and subalpine grasslands
**Critical Loads (kg N/ha/yr):** 5-10
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.5 Minimum: 16.2 Average: 24.4

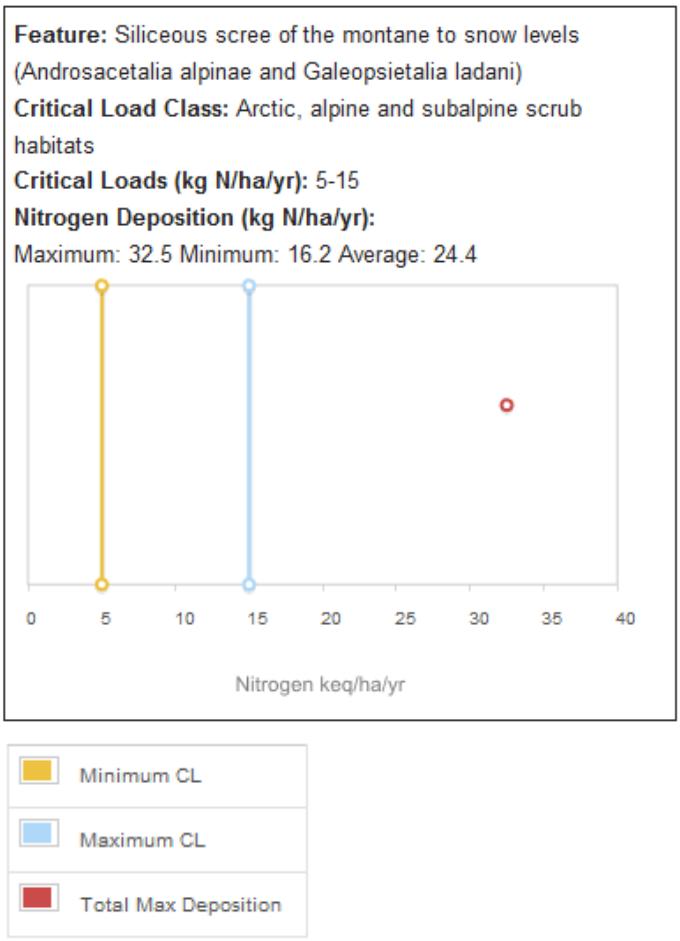



**Feature:** Siliceous rocky slopes with chasmophytic vegetation
**Critical Load Class:** Arctic, alpine and subalpine scrub habitats
**Critical Loads (kg N/ha/yr):** 5-15
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.5 Minimum: 16.2 Average: 24.4






(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*

Any changes in local land-use e.g. agricultural intensification, drainage works and development) may be detrimental to the SAC.

**Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.

**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## 12. MONITORING

Monitoring of SACs takes place using two monitoring techniques.

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat).

These longer-term changes will be picked up by monitoring of the feature via **Site Condition Assessment** - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

### 12.1 MONITORING SUMMARY

1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*
Complete boundary survey to ensure that the fencing is still intact. Ensure that there has been no illegal grazing, dumping or burning carried out within the SAC boundary. This SIM should be carried out once a year.

*2. Monitor the condition of the site (Condition Assessment)*
Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Blanket Bog.

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Upland Heathland.

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Montane Heath.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

ANNEX I

Feature 1 (SAC) - European dry heath (Status B)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of dry heath | Maintain the extent of dry heath at 4680 ha. The dry heath communities include H10 - *Calluna vulgaris-Erica cinerea*, H12 - *Calluna vulgaris-Vaccinium myrtillus* and H8 *Calluna vulgaris-Ulex gallii* heath.<br>The extent and distribution of each community to be maintained. | Visual estimate in 2x2 m plots and across the dry heath using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Note that it may be possible to extend dry heath communities, provided this is into degraded areas and does not encroach into other habitats of scientific interest. |
| * Heath community diversity | Maintain the presence of the dry heath communities H7, H8, H10 etc. as established at base line survey. | Visual estimate in 2x2 m plots. | Repeat monitoring of plots using GPS should indicate whether dry heath communities have changed or been lost. |
| * Area of mosaic communities and associated semi-natural habitats | Maintain associated mosaic communities and semi-natural habitats. | Visual estimate in 2x2 m plots and across the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost. |

| | | | |
|---|---|---|---|
| Dwarf-shrub height | Average ericoid height should be 15–35cm with at least 25% of the dry heath in the late mature/degenerate growth phase (greater than 35cm). | Visual estimate in 2x2 m plots. | On some areas of dry heath (especially on gentle slopes), the ericoid age structure will largely reflect recent burning patterns. However, in dry heath, burning should only be carried out occasionally under carefully controlled and monitored circumstances.<br>A varied heather age structure is reflected in the height of heather. |
| * Bare peat, or ground covered by algal mats (% cover) | Bare peat etc. should occupy less than 2% of the dry heath surface overall. | Visual estimate in 2x2 m plots. | Bare peat (NOT exposed rock) or peat carpeted by *Polytrichum* spp., *Campylopus* spp. crust forming lichens or algal mats can occur as a consequence of constant burning and/or grazing.<br>Bare peat here represents bare peat etc. within the dry vegetation rather than naturally eroded surfaces where exposed rock can form a natural part of the dry heath community. |
| * Ericaceous cover (% cover) | Dwarf-shrub cover should be greater than 75% over at least 75% of the dry heath community; and<br>Mean dwarf-shrub cover should be greater than 75% | Visual estimate in 2x2 m plots. | |
| * Ericoid diversity | At least two species of dwarf-shrub at least present in 90% of plots. | Visual estimate in 2x2 m plots. | Ericoid (dwarf-shrub species) include *Calluna vulgaris*, *E. cinerea*, *Vaccinium myrtillis*, *Erica tetralix*, *Ulex gallii*, *Empetrum nigrum* and *Myrica gale*. |
| * Cover of *Ulex gallii* (% cover) | *Ulex gallii* cover should be less than 50% in plots within H8 stands. | Visual estimate in 2x2 m plots. | Mean percentage cover should be assessed for stands of H8 only – i.e. exclude plots in other heath communities from the calculations. Stands of H8 are generally restricted to the south-east of Northern Ireland. |

| | | | |
|---|---|---|---|
| * Cover of graminoids (% cover) | Total graminoid cover should be less than 33%. | Visual estimate in 2x2 m plots. | Include true grasses, sedges, and rushes in this assessment. *Nardus stricta, Deschampsia flexuosa*, *Juncus squarrosus* or other graminoids should not dominate over other species. |
| * Frequency and % cover of bryophytes and bushy lichens (esp *Cladonia* spp.) (DAFOR and % cover) | Bryophytes (excluding *Polytrichum* spp. and *Campylopus* spp. on bare ground) and/or Cladonia species should be at least frequent.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plots.<br><br>Combined mean cover should be greater than 5%. | Visual estimate in 2x2 m plots. | Generally only bryophytes (mosses and liverworts) figure in this assessment, but occasionally bushy lichens can also be a prominent feature of the dry heath vegetation. |
| * Frequency and % cover of scrub/tree encroachment on dry heath communities (DAFOR and % cover) | Scrub/tree encroachment should be no more than occasional over the dry heath community.<br><br>No more than occasional is equivalent to less than 40% occurrence in recoded plots.<br><br>Mean cover should be less than 5%. | Visual estimate within a 10 m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | Scrub encroachment should be checked using a combination of aerial photographs and Condition Assessment. Include invasive alien species in addition to *Betula pubescens, Prunus spinosa, Rubus* spp. Invasive exotic species such as *Rhododendron ponticum* should be removed immediately. Exclude *Ulex europaeus* (see below) |
| * Cover of Gorse | Gorse (*Ulex europaeus)* cover | Visual estimate in 2x2 | Although a natural component of heath communities, |

| | | | |
|---|---|---|---|
| *Ulex europaeus* (% cover) | should be less than 5%.<br><br>During repeat surveys, Gorse cover should not exceed that of the baseline survey. | m plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | Gorse can become invasive under both low and high grazing pressures.<br><br>It is important to assess whether the relative quantities present in the site are increasing. |
| * Cover of Bracken (*Pteridium aquilinum*) encroachment (% cover) | Bracken cover less than 10% in dense canopy.<br><br>During repeat surveys, Bracken cover should not exceed that of the baseline survey. | Visual estimate in 2x2 m plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | Although a natural component of heath communities, Bracken can become invasive under both low and high grazing pressures.<br><br>It is important to assess whether the relative quantities present in the site are increasing. |
| * Frequency and cover of undesirable agricultural grasses and weeds (DAFOR and % cover) | None of the following should be more than rare: *Cirsium arvense, C. vulgare, Senecio jacobaea, Urtica dioica, Plantago major, Phleum pratense, Trifolium repens, Holcus lanatus* and *Lolium perenne*<br><br>No more than rare is equivalent to less than 20% occurrence in recorded plots.<br><br>Combined mean cover of agricultural grasses and weeds less than 1%. | Visual estimate in 2x2 m plot. | |

| | | | |
|---|---|---|---|
| * Management - Grazing (% cover) | Signs of moderate or heavy grazing should occupy less than 5% of the dry heath vegetation.<br><br>The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs and invasion by *Juncus squarrosus* etc. indicate moderate and heavy grazing where any one of the above is recorded as more than occasional. | Visual estimate in 2x2 m plots. | |
| * Management - Burning (% cover) | Signs of recent burning should occupy less than 5% of the dry heath vegetation.<br><br>Recent burning is represented by areas burnt within the last two years. | Visual estimate in 2x2 m plots and across feature using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |
| Frequency and cover of erosion features associated with human impacts. (DAFOR and % cover) | No gully erosion or bare rock associated with more concentrated human impacts (ATV tracks or recreational activities). Man induced/enhanced erosion should occupy less than 2% of the total area of dry heath other than very localised | Visual estimate in 2x2 m plots. | The extent of man induced erosion should be monitored using a combination of aerial photographs and Condition Assessment. Erosion is a natural feature of high mountain slopes. However, where natural erosion is exacerbated by human activity, mainly hill walking, the heath will not be in favourable condition, except where such erosion is very limited in nature. |

| | | | |
|---|---|---|---|
| | instances. | | |
| Herb diversity | Herbs (excluding negative indicators) at least frequent.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plots. | Visual estimate in 2x2 m plots. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 2 (SAC) - Northern Atlantic wet heath with *Erica tetralix* (Status B)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of wet heath | Maintain the extent of wet heath at 889 ha.<br>The wet heath community is M15 – *Scirpus cespitosus-Erica tetralix* wet heath. | Visual estimate in 2x2 m plots and across the wet heath using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Any loss of wet heath, or fragmentation of this habitat is unacceptable. Note that it may be possible to extend wet heath communities, provided this is into degraded areas and does not encroach into other habitats of scientific interest. |
| * Heath community diversity | Maintain the presence of the wet heath community M15 as established at base line survey. | Visual estimate in 2x2 m plots. | Repeat monitoring of plots using GPS should indicate whether wet heath communities have changed or been lost. |
| * Area of mosaic communities and associated semi-natural habitats | Maintain associated mosaic communities and semi-natural habitats. | Visual estimate in 2x2 m plots and across the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost. |

| | | | |
|---|---|---|---|
| Dwarf-shrub height | Average ericoid height should be 15–35cm with at least 25% of the wet heath in the late mature/degenerate growth phase (greater than 35cm). | Visual estimate in 2x2 m plots. | On some areas of wet heath (especially on gentle slopes), the ericoid age structure will largely reflect recent burning patterns. However, in wet heath, burning should only be carried out in exceptional circumstances.<br>Heather height reflects the age structure of the Heather. |
| * Bare peat, or ground covered by algal mats (% cover) | Bare peat etc. should occupy less than 2% of the wet heath surface overall. | Visual estimate in 2x2 m plots. | Bare peat or peat carpeted by *Polytrichum* spp., *Campylopus* spp. crust forming lichens or algal mats can occur as a consequence of excessive burning and/or grazing.<br>Bare peat here represents bare peat etc. within the wet heath vegetation. |
| * Ericaceous cover (% cover) | Dwarf-shrub cover should be maintained between 50–75% | Visual estimate in 2x2 m plots. | Although dominated by dwarf shrubs, the sward should be composed of a variety of higher plants and bryophytes. |
| * Ericoid diversity | At least two species of dwarf-shrub at least present in 90% of plots. | Visual estimate in 2x2 m plots. | Ericoid (dwarf-shrub species) include *Calluna vulgaris*, *Erica tetralix*, *Empetrum nigrum* and *Myrica gale*. |
| * Cover of graminoids (% cover) | Total graminoid cover should be less than 50%. | Visual estimate in 2x2 m plots. | Include true grasses, sedges, and rushes in this assessment. *Molionia caerulea, Trichophorum cespitosum, Deschampsia flexuosa*, *Juncus squarrosus* or other graminoids should not dominate over other species.<br>Localised *Schoenus nigricans* flushes should not be included in this habitat assessment. |
| * Bryophyte cover and frequency of *Sphagnum* mosses (% | Mean bryophyte cover (excluding *Polytrichum* spp. and *Campylopus* spp. on | Visual estimate in 2x2 m plots. | Bryophytes should include a range of pleurocarpus species forming patches below, or in more open swards beneath the dwarf-shrubs as well as |

| | | | |
|---|---|---|---|
| cover and DAFOR) | bare ground) should be at least 25%.<br>*Sphagnum* moss species should be at least frequent throughout the moss layer.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plots. | | *Sphagnum* moss species. |
| * Frequency and % cover of scrub/tree encroachment on wet heath communities (DAFOR and % cover) | Scrub/tree encroachment should be no more than rare over the wet heath community.<br>Mean cover should be less than 2%.<br>No more than rare is equivalent to less than 20% occurrence in recorded plots. | Visual estimate within a 10 m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | Scrub encroachment should be checked using a combination of aerial photographs and Condition Assessment. Invasive exotic species such as *Rhododendron ponticum* should be removed immediately. |
| * Frequency and cover of undesirable agricultural grasses and weeds (DAFOR and % cover) | None of the following should be more than rare: *Cirsium arvense, C. vulgare, Senecio jacobaea, Urtica dioica, Plantago major, Phleum pratense, Trifolium repens, Holcus lanatus* and *Lolium perenne*. | Visual estimate in 2x2 m plot. | |

| | | | |
|---|---|---|---|
| | No more than rare is equivalent to less than 20% occurrence in recorded plots.<br><br>Combined mean cover of agricultural grasses and weeds less than 1%. | | |
| * Management - Grazing (% cover) | Signs of moderate or heavy grazing should occupy less than 5% of the wet heath vegetation.<br><br>The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs and invasion by *Juncus squarrosus* etc. indicate moderate and heavy grazing where any one of the above is recorded as more than occasional. | Visual estimate in 2x2 m plots. | |
| * Management - Burning (% cover) | Signs of recent burning should occupy less than 5% of the wet heath vegetation.<br><br>Recent burning is represented by areas burnt within the last two years. | Visual estimate in 2x2 m plots and across the feature using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |

| | | | |
|---|---|---|---|
| Frequency and cover of erosion features associated with human impacts (DAFOR and % cover) | No gully erosion, bare peat or rock associated with more concentrated human impacts (ATV tracks or recreational activities). Man induced/enhanced erosion should occupy less than 2% of the total area of wet heath other than very localised instances. | Visual estimate in 2x2 m plots. | The extent of man induced erosion should be monitored using a combination of aerial photographs and Condition Assessment. Erosion is a natural feature of high mountain slopes. However, where natural erosion is exacerbated by human activity, mainly hill walking, the heath will not be in favourable condition, except where such erosion is very limited in nature. |
| Herb diversity | Herbs (excluding negative indicators) at least frequent.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plots. | Visual estimate in 2x2 m plots. | Wet heaths tend to be dominated by dwarf-shrubs and graminoids; however, some herbs should be present in most plots (albeit at a low cover). |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 3 (SAC) - Active blanket bog (Status C)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of blanket bog and upland raised mire (ha) | Maintain the extent of the intact bog surface at 318 ha. The blanket bog communities include M17 – *Scirpus cespitosus* *Eriophorum vaginatum* blanket mire, M18 – *Sphagnum papillosum* raised and blanket mire and M19 *Calluna vulgaris* - *Eriophorum vaginatum* blanket mire. | Visual estimate in 2x2 m plots and across the blanket bog using a combination of aerial photographs, SIM and Condition Assessment structured walk. | The blanket bog communities include M17 – *Scirpus cespitosus Eriophorum vaginatum* blanket mire, M18 – *Sphagnum papillosum* raised and blanket mire and M19 *Calluna vulgaris* - *Eriophorum vaginatum* blanket mire. |
| * Area of mosaic communities and associated habitats | Maintain associated mosaic communities and habitats (wet heath, dry heath, upland fen, etc) | Visual estimate across the SAC using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring using condition assessment, SIM, and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost. |
| * Pool/hummock system extent and complexity | The extent and complexity of pool and hummock systems at least maintained. | The extent of pool and hummock systems should be | The extent of pool and hummock systems should be monitored using a combination of aerial photographs and Condition Assessment. |

| | | | |
|---|---|---|---|
| | Differentiation of *Sphagnum* species should be recorded with *S. cuspidatum* or *S. auriculatum* in the pools and *S. papillosum* and *S. capillifolium* forming the lawns and hummocks. | monitored using a combination of aerial photographs and SIM. | |
| Dwarf-shrub Height (cm) | Average ericoid height should be 15-30cm. | Visual estimate in 2x2 m plots. | On some areas of blanket bog, the dwarf-shrub height will largely reflect recent management patterns. However, on largely undisturbed sites with minimal or no grazing, dwarf shrubs should display no apparent growth forms with a fairly uniform height between 15-30cm. |
| * Bare Peat, or ground covered by algal mats (%) | Bare peat etc should occupy less than 2% of the intact blanket bog surface overall. | Visual estimate in 2x2 m plots. | Bare peat, or bare ground carpeted by *Polytrichum* spp., *Campylopus* spp. crust forming lichens or algal mats can occur as a consequence of peat cutting or excessive burning and/or grazing.<br>Bare ground here represents bare peat etc. within the blanket bog vegetation rather than naturally eroded surfaces where bare ground forms a natural part of the erosion feature. |
| * *Sphagnum* cover/ abundance (% cover and frequency)<br><br>Active Peat Formation (DAFOR) | *Sphagnum* moss species should have a minimum cover of 25% over at least 66% of the intact blanket bog surface.<br><br>Thick, hummock forming species of sphagnum should be at least occasional. | Visual estimate in 2x2 m plots. | A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the blanket bog surface. |

| | | | |
|---|---|---|---|
| | Species present should include a mixture of both thin species: - *S. capillifolium* and *S. tenellum* and the thick hummock forming species*:* - *S. papillosum* and *S. magellanicum* at least occasional over the surface. | | |
| * Ericaceous Cover (%) | Ericoid cover frequent over the surface of the intact blanket bog. Dwarf-shrub cover greater than 33%. Less than 33% is only acceptable in wetter areas where *Narthecium ossifragum* or *Sphagnum* spp. are abundant and forming lawns. | Visual estimate in 2x2 m plots. | Ericoid (dwarf-shrub species) include *Calluna vulgaris*, *Erica tetralix*, *E. cinerea*, *Myrica gale*, *Vaccinium myrtillis and Empetrum nigrum*. |
| * Ericoid diversity (DAFOR) | At least two species of dwarf-shrub should be widespread and frequent. Where three or more species are present, but only one frequent and widespread, the abundance of the less abundant species may be combined and treated as if they are a single species. | Visual estimate in 2x2 m plots. | A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – i.e. the water table is too low beneath the surface of the bog. |
| * Scrub/tree encroachment on any active peat surface | Scrub/tree encroachment should be no more than rare on the intact bog surface, or in | Visual estimate in 2x2 m plots. | Scrub encroachment should be checked using a combination of aerial photographs and Condition Assessment. Invasive exotic species such as |

| | | | |
|---|---|---|---|
| (DAFOR) | the actively regenerating cutover areas. | | *Rhododendron ponticum* should be removed immediately. |
| * Erosion Features associated with human impacts (% and DAFOR) | No gully erosion or bare peat associated with more concentrated human impacts (eg drainage, peat extraction, ATV tracks or recreational activities). Man induced/enhanced erosion should occupy less than 2% of the total area of blanket bog other than very localised instances. | Visual estimate in 2x2 m plots. | The extent of man induced erosion should be monitored using a combination of aerial photographs and Condition Assessment. Erosion is a natural feature of blanket bog, particularly marginal fretting on breaks of slope. However, where natural erosion is exacerbated by human activity, the bog will not be in favourable condition, except where such erosion is very limited in nature. |
| * Graminoid Cover (%) | Total cover of graminoids should not exceed 50%, unless dominated by *Molinia caerulea* forming even swards over waterlogged areas with *Sphagnum* moss cover greater than 25%. | Visual estimate in 2x2 m plots. | Include true grasses, sedges, and rushes in this assessment. *Eriophorum vaginatum*, *Trichophorum cespitosum*, *Deschampsia flexuosa*, *Juncus squarrosus* or other graminoids (except *Molinia* in some instances) should not dominate over other species. |
| * Management – Peat extraction | No evidence of unconsented active peat extraction. | Visual estimate in 2x2 m plots. | In some instances areas of cut peat can re-vegetate with good blanket bog vegetation which meets the attributes for favourable condition. |
| * Management - Grazing (%) | Signs of moderate or heavy grazing by cattle or sheep should occupy less than 5% of the blanket bog vegetation within any grazing unit. | Visual estimate in 2x2 m plots. | The frequency of droppings, the extent of poaching and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing where any one of the above is recorded as more than occasional. |

| | | | |
|---|---|---|---|
| *Molinia caerulea* Cover (%) | Where *Molinia caerulea* cover is greater than 50%, it should form an even (not tussocky) sward in waterlogged conditions with *Sphagnum* moss cover greater than 25%. | Visual estimate in 2x2 m plots. | *Molinia caerulea* only occurs as a natural component of the bog vegetation in the extreme west of Northern Ireland where the climate is generally warmer and wetter i.e. more oceanic. |
| Presence of rare or scarce species specific to the site. | *Sphagnum imbricatum* and *Sphagnum fuscum*, where they have been recorded, should remain at least present along the length of each of the w-walks. If these species are not recorded on any one visit, it does not automatically make the SAC unfavourable. | Visual estimate in 2x2 m plots. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 4 (SAC) - Alpine and boreal heaths (Status C)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| Area of montane heath (ha) | Maintain the extent of montane heath communities at a minimum of 32ha. These communities include H14 – *Calluna vulgaris-Racomitrium lanuginosum* heath and wind-pruned H10b - *Calluna vulgaris-Erica tetralix* heath (*Racomitrium* sub-community). | Visual estimate in 2x2 m plots and across the montane heath using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Any loss or fragmentation of this habitat is unacceptable. It is probably not possible to extend montane heath communities beyond their current range at Cuilcagh – i.e. no obvious areas where the habitat has been lost through damaging activities.<br><br>Difficult to measure exactly; summit ridge is c. 30 ha in extent, but includes significant area of eroding blanket bog. Some higher level heath communities on slopes below summit may also conform to the type. |
| Ericoid Height (cm) | Average ericoid height should be 5 –10 cm. | Visual estimate in 2x2 m plots. | Dwarf-shrubs should be low growing (usually prostrate or semi-prostrate. |
| Bare Peat, or ground covered by algal mats (% and DAFOR) | Patches of bare ground greater than 10cm across in sheltered areas should be more or less absent. | Visual estimate in 2x2 m plots. | Bare peat or peat carpeted by *Polytrichum* spp., *Campylopus* spp. crust forming lichens or algal mats can occur as a consequence of excessive grazing. |
| Ericaceous Cover (%) | Dwarf-shrub cover should be greater than 60%. | Visual estimate in 2x2 m plots. | The sward should be composed of a low growing (and usually prostrate or semi-prostrate) dwarf-shrub in combination with abundant mosses and lichens. |
| Mean Cover of dwarf-shrubs/ *Racomitrium* | The collective cover of dwarf-shrubs, *Racomitrium* | Visual estimate in 2x2 m plots. | Characteristic species include a dominance of dwarf-shrubs with mosses, mainly *Racomitrium lanuginosum,* |

| | | | |
|---|---|---|---|
| *lanuginosum* and robust lichens. (%) | *lanuginosum* and robust lichens should compose at least 90% of total vegetation cover. | | and robust lichens. The low-growing dwarf-shrub mat is dominated by *Calluna vulgaris* with *Erica tetralix*, *E. cinerea*, *Vaccinium myrtillis*, *Empetrum nigrum*, *V. vitis-idea*, etc. |
| *Racomitrium lanuginosum* (DAFOR) | *Racomitrium lanuginosum* to be constant and forming patches below, or in more open swards beneath the dwarf-shrubs. | Visual estimate in 2x2 m plots. | *Racomitrium lanuginosum* should form a major part of the ground cover for the vegetation to be in favourable condition. |
| Fine-leaved grass/*Galium saxatile/Potentilla erecta* Cover (%) | The collective cover of fine-leaved grasses, *Galium saxatile* and *Potentilla erecta* should not exceed 10%. | Visual estimate in 2x2 m plots. | Grasses to include *Deschampsia flexuosa* and *Festuca ovina/vivipara*. |
| Management - Grazing (% cover) | Signs of moderate or heavy grazing should occupy less than 5% of the montane heath vegetation. | Visual estimate in 2x2 m plots. | The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs and invasion by *Juncus squarrosus* etc. indicate moderate and heavy grazing where any one of the above is recorded as more than occasional. |
| Management - Burning (% cover) | Signs of recent burning should occupy less than 5% of the montane heath vegetation. | Visual estimate in 2x2 m plots and within wider vicinity of the plot; in addition, across feature using a combination of aerial photographs, SIM and Condition Assessment | Recent burning is represented by areas burnt within the last two years. |

| | | | |
|---|---|---|---|
| | | structured walk. | |
| Erosion Features associated with human impacts (% and DAFOR) | No bare rock or bare peat associated with more concentrated human impacts (ATV tracks or recreational activities). Man induced/enhanced erosion should occupy less than 2% of the total area of montane heath, other than very localised instances. | Visual estimate in 2x2 m plots and within wider vicinity of the plot; in addition, across feature using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Erosion is a natural feature of high mountain slopes. However, where natural erosion is exacerbated by human activity, mainly hill walking, the heath will not be in favourable condition, except where such erosion is very limited in nature. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 5 (SAC) - Siliceous alpine and boreal grasslands (Status C)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of siliceous alpine and boreal grassland | Maintain the extent of the siliceous alpine and boreal grassland communities at a minimum of 32 ha. This community includes U10 - *Carex bigelowii-Racomitrium lanuginosum* moss heath. | Visual estimate in 2x2 m plots and across the wet heath using a combination of aerial photographs, SIM and Condition Assessment structured walk. | The montane grasslands should be monitored using a combination of aerial photographs and condition assessment. Any loss or fragmentation of this habitat is unacceptable. It may be possible to extend siliceous alpine and boreal grassland communities into degraded areas without encroaching into other habitats of scientific interest. |
| * Height of graminoid/ bryophyte/Cladonia/ dwarf-shrub mat (cm) | The average depth of the vegetation mat should be greater than 5cm. | Visual estimate in 2x2 m plots. | Depth should be recorded by the vertical distance an object can be inserted into the vegetation mat until the ground is met. Exclude grass flower spikes from the depth measurement. |
| * Bare peat, or ground covered by algal mats (% cover) | Bare peat etc (excluding naturally exposed rock surfaces) should occupy less than 5% of the siliceous alpine and boreal grassland surface overall. | Visual estimate in 2x2 m plots. | This includes bare peat, but NOT exposed rock attributable to natural exposure effects. Bare ground can be attributed to excessive grazing. |
| * *Racomitrium lanuginosum* cover (%) | *Racomitrium lanuginosum* to be present with 100% | Visual estimate in 2x2 m plots. | *Racomitrium lanuginosum* must form a major part of the ground cover for the vegetation to be in |

| | | | |
|---|---|---|---|
| | Frequency and forming patches below, or in more open swards beneath the dwarf-shrubs. | | favourable condition. |
| * Mean cover of graminoid/ bryophyte/Cladonia/dwarf-shrub mat (%) | The collective cover of characteristic species should be greater than 90%. | Visual estimate in 2x2 m plots. | Characteristic species include a dominance of mosses, mainly *Racomitrium lanuginosum* with *Carex bigelowii*, *C. pilulifera* robust lichens and dwarf- shrubs. The dwarf-shrubs which are prostrate include *Salix herbacea*, *Vaccinium myrtillis*, *V. vitis-idea*, *Calluna vulgaris* etc. |
| * Fine-leaved grass/*Galium saxatile/Potentilla erecta* cover (%) | The collective cover of fine-leaved grasses, *Galium saxatile* and *Potentilla erecta* should not exceed 10%. | Visual estimate in 2x2 m plots. | Grasses to include *Deschampsia flexuosa*, *Nardus stricta* and *Festuca ovina/vivipara*. |
| * Management - Grazing (% cover) | Signs of moderate or heavy grazing by sheep should occupy less than 5% of the siliceous alpine and boreal grassland vegetation within any grazing unit. | Visual estimate in 2x2 m plots. | The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs, grazing of flower heads and shrubs and invasion by fine-leaved grasses etc. indicate moderate and heavy grazing. |
| * Frequency and cover of erosion features associated with human impacts (DAFOR and % cover) | No bare rock or peat associated with more concentrated human impacts (ATV tracks or recreational activities). Man induced/enhanced erosion should occupy less than 2% of | Visual estimate in 2x2 m plots. | The extent of man induced erosion should be monitored using a combination of aerial photographs and Condition Assessment. Erosion is a natural feature of high mountain slopes. However, where natural erosion is exacerbated by human activity, mainly hill walking, the montain grassland will not be in favourable condition, |

| | | | |
|---|---|---|---|
| | the total area of montane grassland other than very localised instances. | | except where such erosion is very limited in nature. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 6 (SAC) - Siliceous rocky slopes with chasmophytic vegetation (Status C)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| Area of siliceous rocky slopes | Maintain the extent of siliceous rocky slopes at 58.5 ha. These cliff face communities include U21 - (*Cryptogramma crispa-Deschampsia flexuosa* community). | Visual estimate in 2x2 m plots and across the siliceous rocky slopes using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |
| Indicators of current grazing | Less than 50% of live leaves (forbs) or the shoots (dwarf-shrubs) should show signs of having been grazed or browsed. | Target assessed against visual estimate for as much of the feature as is visible while standing at a sample location. | |
| Non-native species | Less than 1% of vegetation cover should be made up of non-native species. | Target assessed against visual estimate for as much of the feature | |

| | | | |
|---|---|---|---|
| | | as is visible while standing at a sample location. | |
| Cover of Bracken, tress and scrub | Less than 25% of the ground cover should be made up of bracken, trees and shrubs. | Target assessed against visual estimate for as much of the feature as is visible while standing at a sample location. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 7 (SAC) - Siliceous scree of the montane to snow levels (Status C)

(* = Primary attribute. One failure among primary attribute = unfavourable condition)

| Attributes | Targets | Method of Assessment | Comments |
|---|---|---|---|
| Area of siliceous scree | Maintain the extent of siliceous scree at 17.7 ha. The montane acid scree communities include U21 - (*Cryptogramma crispa-Deschampsia flexuosa* community). | Visual estimate in 2x2 m plots and across the siliceous scree using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Note that it may be possible to extend siliceous scree communities, provided this is into degraded areas and does not encroach into other habitats of scientific interest. |
| Indicators of current grazing | At least 33% of ground cover should be free from overgrowth by vascular plants<br><br>Less than 50% of live leaves (forbs) and/or the shoots (dwarf-shrubs) should show signs of having been grazed or browsed. | Targets assessed against visual estimate for as much of the feature as is visible while standing at a sample location. | |
| Non-native species | Less than 1% of vegetation cover should be made up of non-native species. | Target assessed against visual estimate for as | |

| | | | |
|---|---|---|---|
| | | much of the feature as is visible while standing at a sample location. | |
| Cover of Bracken, tress and scrub | Less than 25% of the ground cover should be made up of bracken, trees and shrubs. | Target assessed against visual estimate for as much of the feature as is visible while standing at a sample location. | |
| Cover of agricultural weeds | Less than 1% of vegetation cover should consist of, collectively, *Cirsium arvense, Cirsium vulgare, Pteridium aquilinum,* large docks (excluding *Rumex acetosa*), *Rubus fruticosus, Senecio jacobaea, Urtica dioica* | Target assessed against visual estimate for as much of the feature as is visible while standing at a sample location. | |
| Physical structure — indicators of ground disturbance due to herbivore and human activity. | Less than 10% of the *ground* cover should be disturbed by human or animal paths, scree running, or vehicles. | Target assessed against visual estimate for as much of the feature as is visible while standing at a sample location. | The nature of the scree – i.e. large, block scree – more or less precludes recreational use, and appears to discourage most of the grazing animals. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

# HOLLYMOUNT SAC
UK0030169

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Hollymount SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *01/04/2015* |
| Version Number | *V2* |
| Next Review Date | Nov 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | June 2013 | Internal working document | PC | |
| V2 | Dec 2014 | Complete review | RMK | |
| | | | | |
| | | | | |
| | | | | |

# 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:** J464438

**AREA:** 49.95 ha

## 5. SUMMARY SITE DESCRIPTION

Hollymount, just south of Downpatrick, Co. Down is comprised of low-lying, regularly flooded marshland surrounded by drumlins. Swamp carr woodland has developed in the wetland and is characterised by dense, mature Alder *Alnus glutinosa* and Grey Willow *Salix cinerea* with Reed Canary-grass *Phalaris arundinacea* and the Greater Pond-sedge *Carex riparia* dominating the ground flora. Oak woodland has also developed on a large drumlin within the site.

Over much of this Oak *Quercus* sp. dominates the canopy with frequent Sycamore *Acer pseudoplatanus* and Beech *Fagus sylvatica* and occasional Ash *Fraxinus excelsior*. Otter *Lutra lutra* is present on the site and fluctuating water-filled ditches represent the principal sites for Water Violet *Hottonia palustris* in Northern Ireland.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website (www.doeni.gov.uk/niea).

## 5.1 BOUNDARY RATIONALE

The boundary has been drawn to include all areas of the existing semi-natural wet woodland NNR. In addition to this, some wetland areas with the potential to develop into carr woodland have been included and areas of broad-leaved semi-natural estate woodland, notably the drumlin Oak wood.

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ population |
|---|---|---|---|
| Habitat | Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) | B | 8.7 ha |
| Habitat | Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles | C | 20 ha |
| Species | Otter *Lutra lutra* | D | Present |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary

interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Hollymount SAC.

## 6.1 ASSI SELECTION FEATURES

### Hollymount ASSI

| Feature Type | Feature | Size/ extent/ population |
|---|---|---|
| **Habitat** | Wet Woodland | 8.7 ha |
| **Habitat** | Oakwood | 20 ha |
| **Species** | Water Violet *Hottonia palustris* | |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

**To maintain (or restore where appropriate) the**

- **Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*)**
- **Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles**

**to favourable condition.**

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| SAC Feature | Global Status | Component Objective |
|---|---|---|
| Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) | B | Maintain and expand the extent of existing swamp woodland. (There is an area of wetland and damp grassland which have the potential to develop into carr woodland) |
| | | Maintain and enhance swamp woodland species diversity and structural diversity |
| | | Maintain the diversity and quality of habitats associated with the swamp woodland, e.g. fen, swamp, especially where these exhibit natural transition to swamp woodland. |
| | | Seek nature conservation management over adjacent forested areas outside the ASSI where there may be potential for woodland rehabilitation. |
| | | Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion. |
| **Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles** | C | Maintain the extent of existing Oak woodland. |
| | | Maintain and enhance Oak woodland species diversity and structural diversity. |
| | | Maintain the diversity and quality of habitats associated with the Oak woodland, e.g. fen, swamp, grasslands, scrub, especially where these exhibit natural transition to Oak woodland |
| | | Seek nature conservation management over adjacent forested areas outside the ASSI where there may be potential for woodland rehabilitation. |
| | | Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion. |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| ASSI Feature | Component Objective |
|---|---|
| Wet Woodland | See SAC SelectionFeature Objective Requirements table. |
| Oakwood | See SAC SelectionFeature Objective Requirements table. |
| Water Violet *Hottonia palustris* | Maintain and expand the current population of Water Violet *Hottonia palustris* |

## 10. MANAGEMENT CONSIDERATIONS

*Ownership*
Forest Service owns the entire area, with areas not included within the ASSI largely in commercial forest production. The area of Wet Alder Swamp woodland managed by NIEA in conjunction with Forest Service is a National Nature Reserve.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Hollymount, or could affect it in the future. Although Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) and Old sessile oak woods with *Ilex* and *Blechnum* are the qualifying SAC features, factors affecting ASSI features are also considered.

**NOTE - Carrying out any of the Notifiable Operations listed in the ASSI schedule could affect the site.**

### Woodland Clearance
There are small pockets of clearance outside the Nature Reserve area. This has been Forest Service-initiated prior to small scale underplanting of Broad-leaves.
**ACTION: Regular liaison with Forest Service is likely to alleviate any conflicts of interest in this area.**

### Timber Removal
There is some evidence of timber removal in the drumlin wood. Dead wood should be left in situ if safe or practical to do so. This provides valuable habitat for fungi, invertebrates, etc. Removal of wood for firewood should be discouraged.

**ACTION: Liaison with Forest Service is key. There should be no conflict of interest in this area.**

*Invasion by exotics*

Exotic species recorded for the wood include Sycamore *Acer pseudoplatanus*, Beech *Fagus sylvatica* and Cherry Laurel *Prunus laurocerasus*. These are not posing a threat at present, but in particular, any exotic species should be removed in the long-term from the wet woodland NNR. Presence of such species elsewhere in the site should be monitored and removal considered following consideration of other potential nature conservation benefits of such species, e.g. Beech is important for ectomycorrhizal fungi and associated invertebrates.

There is a history of planting for game cover and pheasant are still being reared on site. Shrubs planted in the past for cover should be monitored and their removal considered in the long term.

Priority is in the wet woodland NNR. Any non-native species should be removed sympathetically from this area. The other broad-leaved areas are all derived from semi-natural estate woodland. Any transition from what is present now to an "idealised" semi-natural Oak wood will require an agreement of approach with Forest Service and a long-term management programme.

**ACTION: As before, regular discussion with Forest Service should agree objectives here.**

**Drainage**

Drying out is the biggest potential threat to the Nature Reserve area. Any increased drainage of this wetland would result in development of drier woodland types and consequently loss of species such as Tussock Sedge *Carex paniculata,* Greater Pond-sedge *C. riparia* and the notable Water Violet *Hottonia palustris.*

**ACTION: Routine monitoring activities should observe any plant community changes due to any drainage practices. More subtle changes will be observed in quality woodland monitoring. There will be a natural, all things being equal, transition from wet wood to a drier type over time.**

**Pollution**

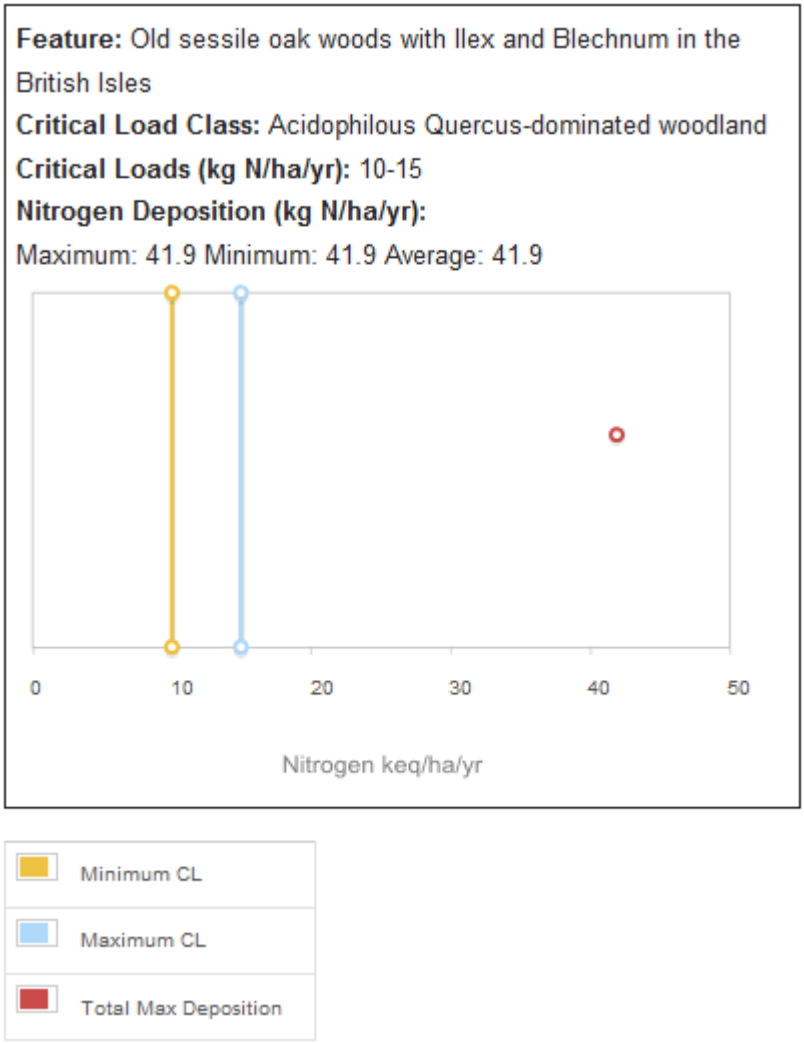
Any increase in plant nutrients, e.g. NPK in the water would lead to a shift in vegetation structure in the wetland areas.

**Action: Compliance monitoring should observe any pollution of water bodies. Point sources of pollution should be investigated and rectified by the usual procedures. Vegetation monitoring within the woodland may pick up more subtle changes in pollutant levels.**

*Nitrogen Deposition*

Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on

natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for Hollymount SAC.




(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)
**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*
Activities occurring outside the site (e.g. agricultural intensification, drainage works, and development) may be detrimental to the site through remote affects.
**Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*
Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.
**ACTION:When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## 12. MONITORING

Monitoring of SACs takes place on using two monitoring techniques.

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. woodland clearance, overwintering of stock, dumping etc), or will be comparatively slow. These longer-term changes will be picked up by monitoring of the feature via **Site Condition Assessment** - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

### 12.1 MONITORING SUMMARY

*1. Monitor the integrity of the site (SIM or Compliance Monitoring)* –Complete boundary survey to ensure that walls and fences are still intact. Ensure that there has been no tree felling, dumping or burning carried out within the ASSI. SIM should be carried out once a year.

*2. Monitor the condition of the site (Condition Assessment)* –
Monitor the key attributes for each selection feature. This will detect if the features are in favourable condition or not.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does <u>not by itself</u> provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Oakwood.

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Wet Woodland.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

ANNEX 1

Feature 1 (SAC) – Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion Alnion incanae, Salicion alvae*) (Status B)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of Wet woodland | Maintain the extent Wet woodland at 8.7ha. | Visual estimate in 10x10m plots and across the extent of the woodland using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable |
| Alder woodland community diversity | Maintain presence of the woodland community, W5 as established at base line survey. | Visual estimate in 10x10m plots | |
| Presence of associated features and semi-natural habitats | Maintain existing associated features and semi-natural habitats. | Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost.<br>Note: Loss of associated habitats to Wet woodland may be desirable in some instances. |
| * Structural variation (% cover) | Mean canopy cover greater than 50% | Estimate within the visual vicinity of the monitoring plots. | A well structured wood should have a well developed canopy and shrub layer. However, many Wet woodlands do not support a tall |

| | | | |
|---|---|---|---|
| | Mean shrub cover should be maintained between 15-50% | Estimate within the visual vicinity of the monitoring plots. | canopy or very mature trees. |
| | Maintain current levels of standard variation within reasonable limits for field, herb and moss cover. | Visual estimate in 10x10m plots. | At least the current level of structural diversity should be maintained for field cover, herb cover and moss cover. Limits to be set for each site after the baseline survey.<br>The ground flora may appear sparse, particularly where periodic flooding leaves areas of bare mud etc. Its composition may be variable.<br>Hydrology is difficult to assess given vagaries of climate. The regime should be allowed to revert to a natural one. Negative changes will be picked up in vegetation changes over time but more detailed recording may be necessary |
| | | Visual estimate in 10x10m plots. | |
| | | Visual estimate in 10x10m plots. | |
| | Water-filled pools and ditches (or mud) should be at least present in 50% of plots. | Visual estimate in 10x10m plots. | |
| * Age-class variation (DAFOR) | Young trees (5- 20cm diameter) at least occasional in 25% of plots. | Visual estimate in 10x10m plots. | Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-classes present, including young and over-mature trees.<br>Note, that in many cases achieving the set targets is a long term aim. However, providing the correct management practices are in place, this attribute may be recorded as Unfavourable -recovering. |
| | Mature trees (20 - 75cm diameter) at least frequent in 75% of plots. | Visual estimate in 10x10m plots. | |
| | Over-mature trees (>75cm diameter) at least present in 10% of plots. | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| * Presence of standing and fallen dead wood (DAFOR) | Standing dead wood at least occasional in 50% of plots. | Visual estimate in 10x10m plots. | Dead wood is often abundant but because there tend to be fewer big trees in wet woodland the size of the fallen wood is often small. Flooding may lead to local accumulations with other areas totally lacking fallen wood. |
| | Fallen dead wood at least occasional in 50% of plots. | Visual estimate in 10x10m plots. | |
| * Presence of epiphytes and climbers (DAFOR) | Epiphytes and climbers at least occasional in 50% of plots and at least frequent in 10% of plots. | Visual estimate in 10x10m plots. | Epiphytes and climbers are an important component in all woodlands. However, in Wet woodlands, their occurrence is much more sporadic than in other woodland types. |
| * Presence of Epiphytic bryophytes and lichens (DAFOR) | Epiphytic bryophytes and lichens at least occasional in 70% of plots and frequent in 30% of plots. | Visual estimate in 10x10m plots. | Epiphytic bryophytes and lichens are an important component in all woodlands. However, in the extreme south east of Northern Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites. |
| * Regeneration potential (DAFOR)<br><br>Maintain current levels of native tree regeneration within reasonable limits for the current structure of | Regeneration of native seedlings. | Visual estimate in 10x10m plots. | The general aim is for the successful establishment of young stems (i.e. seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to maintain canopy density over a 10 year period.<br>Regeneration of some native species is likely to be slow and sporadic; in some stands, there may currently not be sufficient and/or |
| | Regeneration of native saplings. | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| the Wet Woodland. | | | extensive enough gaps for young trees to regenerate. This does not necessarily indicate unfavourable condition. |
| * Cover of non-native species (all layers) (presence/absence) | Non–native invasive canopy species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | The canopy of the Wet Woodland should be largely comprised of Alder and Willow trees with associated native species. Non-native species are undesirable in the canopy, particularly invasive species such as Sycamore.<br><br>In addition, non-native invasive species in any one layer is un-desirable.<br>Note that non-invasive species are not viewed as a significant threat, and a low level of occurrence may be acceptable. |
| | Non–native invasive shrub species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| | Non-native invasive canopy species seedlings/saplings should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| | Non–native invasive ground flora species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| * Frequency and cover of eutrophication indicators:<br>(DAFOR) | No one negative species no more than occasional throughout the wood and/or singly or together comprising more than 5% cover.<br>*Galium aparine, Urtica dioica, Heracleum spp, Epilobium spp. Rumex obtusifolius* | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| | No more than occasional is equivalent to less than 40% occurrence in recorded plots. | | |
| * Cover of grasses (non-woodland species) (% cover) | The mean cover of grass for the wood should be less than 10%. | Visual estimate in 10x10m plots. | A high cover of grasses indicates past and/or present grazing. Where heavy grazing has been a past management practice, the natural woodland ground flora will take a considerable time to re-establish (time limits for restoration currently unknown). However, providing the grazing pressure has been addressed, and there is evidence that woodland flora is beginning to re-appear, this attribute may be recorded as unfavourable, recovering. |
| * Grazing (DAFOR) | Grazing should be recorded as no more than occasional over 80% of plots. | Estimate within the visual vicinity of the monitoring plots. | Grazing by domestic stock, where it occurs should be light resulting in minimal damage to the ground flora through poaching and damage to seedlings and saplings. |
| * Poaching by cattle (DAFOR) | Poaching should be absent, or recorded in less than 20% of plots and frequent or more in less than 10 % of plots. | Visual estimate in 10x10m plots. | |
| * Frequency of recent goat damage (1-2 years) (DAFOR) | Recent goat damage should be absent, or recorded in less than 20% of plots. | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| * Frequency of damage to seedlings/saplings (DAFOR) | Damage to seedling/saplings should be absent, or recorded in less than 20% of plots. | Visual estimate in 10x10m plots. | |
| Frequency of felling/coppicing (within 6 year monitoring cycle) (DAFOR) | There should be no felling or coppicing of native trees or shrubs. | Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Felling non-native species as part of management for conservation is acceptable. |
| Maintain the diversity of woodland species throughout the wood. | Record the % of plots with each of the wet woodland indicators (W5 community) listed below:-<br>*Filipendula ulmaria,*<br>*Galium palustris,*<br>*Caltha palustris,*<br>*Cardamine pratensis,*<br>*Lysimachia. nummularia,*<br>*Ranunculus repens,*<br>*Mentha aquatica,*<br>*Angelica sylvestris,*<br>*Potentilla palustris,*<br>*Lythrum salicaria,*<br>*Myosotis scorpioides,*<br>*Oenanthe crocata,*<br>*Lycopus europaeus,*<br>*Angelica sylvestris,* | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| | *Scutellata,*<br>*Solanum dulcamara,*<br>*Valeriana officinalis*<br>*Iris pseudacorus,*<br>*Equisetum fluviatile,*<br>*Phragmites australis,*<br>*Carex rostrata,*<br>*C. paniculata,*<br>*C. remota,*<br>*C. vesicaria*. | | |
| Indicators of Local Distinctiveness | | | |
| Presence of rare or scarce species specific to the site.<br>*Carex riparia* | Maintain current levels of standard variation within reasonable limits for rare and notable species.<br><br>If these species are not recorded on any one visit, it does not automatically make the site unfavourable. | Name the species at least present along the length of the Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

ANNEX 1

Feature 2 (SAC) - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles (Status C)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of Oakwood | Maintain the extent of Oakwood at 20ha. | Visual estimate in 10x10m plots and across the extent of the woodland using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable. |
| Oakwood community diversity | Maintain presence of woodland communities, W11, W17, W9 & W7 as established at base line survey. | Visual estimate in 10x10m plots | |
| Presence of associated features and semi-natural habitats | Maintain existing associated features and semi-natural habitats (wet/bog woodland, wet heath, semi-natural grasslands etc.) | Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost.<br>Note: Loss of associated habitats to Oakwood may be desirable in some instances. |

| | | | |
|---|---|---|---|
| | | structured walk. | |
| * Structural variation (% cover) | Mean canopy cover greater than 70% | Estimate within the visual vicinity of the monitoring plots. | A well structured wood should have a well developed canopy and shrub layer. |
| | Mean shrub cover should be maintained between 20 - 50% | Estimate within the visual vicinity of the monitoring plots. | |
| | Maintain current levels of standard variation within reasonable limits for field, herb and moss cover.<br><br>Where present assess cover of *Luzula sylvatica*. | Visual estimate in 10x10m plots. | At least the current level of structural diversity should be maintained for field cover, herb cover and moss cover. Limits to be set for each site after the baseline survey.<br>Note: *L. sylvatica* may be dominant in many W11 oakwood communities. The percentage cover of this species may affect Oak regeneration, but more information is required before that assumption can be made. |
| | | Visual estimate in 10x10m plots. | |
| | | Visual estimate in 10x10m plots. | |
| | | Visual estimate in 10x10m plots. | |
| | Mean cover of bare ground should be less than 5%<br><br>Bare ground does not include boulders or rocks. | Visual estimate in 10x10m plots. | |
| * Age-class variation (DAFOR) | Young trees (5- 20cm diameter) at least occasional in 25% of plots | Estimate within the visual vicinity of the monitoring plots. | Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-classes present, including young and over-mature trees. However, on very steep sided slopes with shallow soils, over-mature trees are |
| | Mature trees (20 - 75cm diameter) at least frequent in | Estimate within the visual vicinity of the | |

| | | | |
|---|---|---|---|
| | 75% of plots | monitoring plots. | unlikely to occur as larger trees are likely to fall over before becoming over –mature.<br>Note, that in many cases achieving the set targets is a long term aim. However, providing the correct management practices are in place, this attribute may be recorded as Unfavourable - recovering. |
| | Over-mature trees (>75cm diameter) at least present in 10% of plots | Estimate within the visual vicinity of the monitoring plots. | |
| * Presence of standing and fallen dead wood (DAFOR) | Standing dead wood at least occasional in 70% of plots and at least frequent in 30% of plots. | Visual estimate in 10x10m plots. | |
| | Fallen dead wood at least occasional in 70% of plots and at least frequent in 30% of plots. | Visual estimate in 10x10m plots. | |
| * Presence of epiphytes and climbers (DAFOR) | Epiphytes and climbers at least occasional in 70% of plots and at least frequent in 30% of plots. | Visual estimate in 10x10m plots. | Epiphytes and climbers are an important component in all woodlands. However, in the extreme south east of Northern Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites. |
| * Presence of epiphytic bryophytes and lichens (DAFOR) | Epiphytic bryophytes and lichens at least occasional in 70% of plots and frequent in 30% of plots. | Visual estimate in 10x10m plots. | Epiphytic bryophytes and lichens are an important component in all woodlands. However, in the extreme south east of Northern Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites. |

| | | | |
|---|---|---|---|
| * Regeneration potential (DAFOR)<br><br>Maintain current levels of native tree regeneration within reasonable limits for the current structure of the Oak woodland. | Regeneration of Oak seedlings. | Visual estimate in 10x10m plots. | The general aim is for the successful establishment of young stems (i.e. seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to maintain canopy density over a 10 year period.<br><br>Regeneration of Oak in particular is likely to be slow and sporadic; in some stands, there may currently not be sufficient and/or extensive enough gaps in the canopy for oak to regenerate. This does not necessarily indicate unfavourable condition. |
| | Regeneration of Oak saplings | Visual estimate in 10x10m plots. | |
| | Regeneration of other native seedlings. | Visual estimate in 10x10m plots. | |
| | Regeneration of other native saplings. | Visual estimate in 10x10m plots. | |
| * Cover of non-native species (all layers) (presence/absence) | Non–native invasive canopy species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | The canopy of the Oak woodland should be largely comprised of Oak trees. Non-native species are undesirable in the canopy, particularly invasive species such as Sycamore.<br><br>In addition, non-native invasive species in any one layer is un-desirable.<br>Note that non-invasive species are not viewed as a significant threat, and a low level of occurrence may be acceptable. |
| | Non–native invasive shrub species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| | Non-native invasive canopy species seedlings/saplings should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| | Non–native invasive ground flora species should be present in less | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| | than 20% of plots, but never frequent. | | |
| *Frequency and cover of eutrophication indicators: (DAFOR) | No one negative species no more than occasional throughout the wood and/or singly or together comprising more than 5% cover. *Galium aparine, Urtica dioica, Heracleum spp, Epilobium spp. Rumex obtusifolius*<br><br>No more than occasional is equivalent to less than 40% occurrence in recorded plots. | Visual estimate in 10x10m plots. | |
| * Cover of *Pteridium* (% cover) | The mean cover of *Pteridium* for the wood should be less than 10%. | Visual estimate in 10x10m plots. | |
| * Cover of grasses (non-woodland species) (% cover) | The mean cover of grass for the wood should be less than 10%. | Visual estimate in 10x10m plots. | A high cover of grasses indicates past and/or present grazing. Where heavy grazing has been a past management practice, the natural woodland ground flora will take a considerable time to re-establish (time limits for restoration currently unknown). However, providing the grazing pressure has been addressed, and there is evidence that woodland flora is beginning to re-appear, this attribute may be recorded as unfavourable, recovering. |

| | | | |
|---|---|---|---|
| Management /Disturbance | | | |
| * Grazing (DAFOR) | Grazing should be recorded as no more than occasional over 80% of plots. | Estimate within the visual vicinity of the monitoring plots. | Grazing by domestic stock, where it occurs should be light resulting in minimal damage to the ground flora through poaching and damage to seedlings and saplings. |
| * Poaching by cattle (DAFOR) | Poaching should be absent, or recorded in less than 20% of plots and frequent in less than 10% of plots. | Visual estimate in 10x10m plots. | |
| *Frequency of recent goat damage (1-2 years) (DAFOR) | Recent goat damage should be absent, or recorded in less than 20% of plots. | Visual estimate in 10x10m plots. | |
| *Frequency of damage to seedlings/saplings (DAFOR) | Damage to seedling/saplings should be absent, or recorded in less than 20% of plots. | Visual estimate in 10x10m plots. | |
| Frequency of felling/coppicing (within 6 year monitoring cycle) (DAFOR) | There should be no felling or coppicing of native trees or shrubs. | Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Felling non-native species as part of management for conservation is acceptable. |

| | | | |
|---|---|---|---|
| Maintain the diversity of woodland species throughout the wood. | Record the % of plots with each of the acid woodland indicators (W11 & W17 communities) listed below:-<br>*Vaccinium myrtillus,*<br>*Blechnum spicant,*<br>*Dicranum spp.,*<br>*Luzula pilosa,*<br>*Rhytidiadelphus loreus* | Visual estimate in 10x10m plots. | Within any Oak woodland, there may be pockets of base-rich woodland and or flushed woodland within the boundaries of the SAC. The diversity of these woodland communities should be maintained.<br>However, the W11 & W17 communities should dominate the woodland. |
| Maintain the diversity of woodland species throughout the wood. | Record the % of plots with each of the base-rich woodland indicators (W9 community) listed below:-<br>*Sanicla europea,*<br>*Geum urbanum,*<br>*Polystichum setiferum,*<br>*Aneomne nemorosa,*<br>*Primula vulgaris.* | Visual estimate in 10x10m plots. | Within any Oak woodland, there may be pockets of base-rich woodland and or flushed woodland within the boundaries of the SAC. The diversity of these woodland communities should be maintained. |
| Maintain the diversity of woodland species throughout the wood. | Record the % of plots with each of the flushed woodland indicators (W7 community) listed below:-<br>*Carex remota,*<br>*Ranunculus repens,*<br>*Chrysosplenium oppositifolium,*<br>*Filipendula ulmaria,*<br>*Lysimachia nemorum.* | Visual estimate in 10x10m plots. | Within any Oak woodland, there may be pockets of base-rich woodland and or flushed woodland within the boundaries of the SAC. The diversity of these woodland communities should be maintained. |

| | | | |
|---|---|---|---|
| Presence of rare or scarce species specific to the site. | Maintain current levels of standard variation within reasonable limits for rare and notable species.<br><br>If these species are not recorded on any one visit, it does not automatically make the site unfavourable. | Name the species at least present along the length of the Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

An Agency within the Department of the Environment

ENVIRONMENT AND HERITAGE SERVICE

# The Ramsar Convention on Wetlands

**Name:** Killough Bay and Strand Lough

**Unitary Authority/County:** Down District Council, County Down

**Consultation proposal:** Killough Bay and Strand Lough Area of Special Scientific Interest has been selected for designation as a Ramsar site because of its important wintering population of waterfowl.

**Site description:** Killough Bay and Strand Lough encompasses the inter-tidal areas, and additional adjoining areas of notable habitat. These include mudflats, sand dominated beaches, gravel and cobble units and rocky shore. Additional habitat includes a brackish lagoon with associated swamp, fen and wet grassland. The principal interest is the wintering population of Light-bellied Brent Goose. The boundary of the Ramsar site is entirely coincident with the Killough Bay and Strand Lough Area of Special Scientific Interest.

**Size of Ramsar site:** The Ramsar site covers an area of 175.91 ha.

**International importance of Ramsar site:** Killough Bay and Strand Lough is a Wetland of International Importance because it qualifies under **Criterion 6** as it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird in any season:

| Species | Count and season | Period | Biogeographic % |
|---|---|---|---|
| Light-bellied Brent Goose *Branta bernicla hrota* | 354 individuals - wintering | 5 year peak mean for 1992/93 – 1996-97 | 1.8% international population |

Bird figures from: WeBS database

Classified by the Minister for the Department of the Environment

Date: .....

# Killough Bay

EC Site Code: UK9020221

Proposed Special Protection Area (pSPA) shown thus:

The proposed Special Protection Area (SPA) includes all lands within the solid red line down to low water mark. Marine areas below mean low water are not included.

ENVIRONMENT AND HERITAGE SERVICE

An Agency within the Department of the Environment

Longitude 5° 37' 50" W

Latitude: 54° 15' 21" N

Area of pSPA: 104.23 ha.

Map 1 of 1

Version number: 1 (13/12/01)

Projection: Irish National Grid

Scale 1:10000

Centre (355000, 336500)

metres 0 50 100 150 200 250

yards 0 100 200 300 400 500

N

Reproduced from Ordnance Survey of Northern Ireland with the permission of the Director and Chief Executive
© Crown Copyright
© Environment and Heritage Service Copyright 2001

# KILLOUGH BAY
# SPECIAL PROTECTION AREA (SPA)

## UK9020221

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| **Title** | Killough Bay SPA Conservation Objectives |
| **Prepared By** | *Ian Enlander* |
| **Approved By** | *Mark Wright* |
| **Date Effective From** | *01/04/2015* |
| **Version Number** | *V3* |
| **Next Review Date** | January 2020 |
| **Contact** | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 31/03/2003 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA adjoins the proposed Strangford Lough SPA extension.

The SPA also matches the Killough Bay Ramsar site.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Down

G.R. J535 374 AREA: 104.23 ha.

## 5 SUMMARY SITE DESCRIPTION

Killough Bay encompasses the inter-tidal areas, and additional adjoining areas of notable habitat. These include mudflats, sand dominated beaches, gravel and cobble units and rocky shore. The principal interest is the wintering population of Light-bellied Brent Goose.

### 5.1 BOUNDARY RATIONALE

The boundary includes all inter-tidal areas utilised regularly by the wintering Light-bellied Brent Goose population, essentially those areas within Killough Harbour and Coney Island

Bay. In addition, areas of natural and semi-natural habitat adjoining the inter-tidal units have also been included.

## 6 SPA SELECTION FEATURES

| Feature Type | Feature | Population 1992 - 1997 | Population at time of designation (ASSI) | Population at time of designation (SPA) | SPA Review population | Generic threshold |
|---|---|---|---|---|---|---|
| Species | Light-bellied Brent Goose [a] | 354 | 354 | 354 | 354 | 354 |
| Habitat[1] | Habitat extent | | | | | |
| Habitat[1] | Roost site locations | | | | | |

Table 1. List of SPA selection features.
[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature.

**Notes on SPA features – may not be applicable to all SPAs**
The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.
[a] – species cited in current SPA citation and listed on current N2K dataform
[b] – species selected post SPA designation through UK SPA Review 2001
[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1. ADDITIONAL ASSI SELECTION FEATURES

| Feature Type (i.e. habitat, species or earth science) | Feature | Size/ extent/ pop. |
|---|---|---|
| Species | Breeding bird assemblage | |
| Species | Invertebrate sssemblage | |
| Habitat | Intertidal rock | |
| Habitat | Intertidal mudflats | |
| Habitat | Purple Moor-grass and rush pastures | |
| Habitat | Saline lagoon | |

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

***To maintain each feature in favourable condition***.
For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8 KILLOUGH BAY SPA CONDITION ASSESSMENT 2014

| Species | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Light-bellied Brent Goose | 383 | 434 | 516 | 282 | 225 | 356 | 368.00 | 103.37 | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

| Feature | Component Objective |
|---|---|
| Light-bellied Brent Goose wintering population | As above |
| Habitat extent | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species (94 ha intertidal area), subject to natural processes |
| Habitat extent | Maintain the extent of main habitat components subject to natural processes |
| Roost sites | Maintain or enhance sites utilised as roosts |

Table 3. SPA Component objectives

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

| Feature | Component Objective |
|---|---|
| Intertidal rock | To be defined |
| Intertidal mud/sand | To be defined |
| Purple Moor-grass and rush pastures | To be defined |
| Brackish Lake | To be defined |

Table 4. ASSI Component objectives

## 10. MANAGEMENT CONSIDERATIONS

**See also Views About Management for relevant ASSI**

***Owner/Occupier's*** **–** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Approximately 11 individuals/organisations own land within the SPA. Major landowners within the SPA, relevant to the site management include, Crown Estate Commissioners, Newry, Mourne and Down Council, Ardglass Golf Club and Private Individuals. Crown

Estate Commissioners own the majority of the SPA. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

Water quality and aquaculture are the main threats to the SPA.

There are no management agreements within the SPA.

## 11. MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** **-** Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Outer Ards SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

### <u>Generic site/feature issues</u>

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 2 | Aquaculture | Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors. | A major undertaking within the site but limited to an area near the low water mark. This does represent a loss of inter-tidal habitat but in a zone only exposed for limited time periods and so possibly not critical feeding grounds. A balance will be required between maintenance of habitat extent and future expansion in aquaculture. | Liaise with DARD Fisheries Division. Assess all license applications individually. Consider the collective impact. |
| 3 | Bait digging – commercial or 'recreational' and shellfish gathering. | Disturbance and impact on sediment and invertebrate fauna – may be positive through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated. | Extent is unknown | Monitor scale of activity. Consider the collective impact. |
| 7 | Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | Limited potential for impact as geese appear to move off the site at high tide. Most recreational pressure will be during those periods when the geese are absent. | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. |
| 8 | Coastal | Where there is no history of | Much of the coast is | Liaise with Planning Service |

| | | | | |
|---|---|---|---|---|
| | protection schemes | this, it impacts on natural beach systems with loss of habitat. | engineered. Past storm damage to the road highlights the need for any maintenance works to be undertaken sensitively, minimising impact on inter-tidal area. | and other parties with an involvement in coastal management. |
| 15 | Habitat extent – inter-tidal | Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds. | Main issue is potential expansion of shellfish cultivation. | Assess planning applications. Monitor using aerial photography. |
| 17 | Habitat quality – inter-tidal | Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes. | *Enteromorpha* production probably associated with nutrient enrichment of inflowing waters especially. Production levels may not be sustainable if improvement in water quality is an over-riding priority. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 21 | Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Not currently an issue but potentially is one in the context of the aquaculture industry. | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives. |
| 24 | Recreational activities. | Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats. | Coney Island Bay especially is a popular recreation area – walking, dogs etc are main considerations but main impact is outside of period of goose usage. | Liaise with local authorities and other managing parties. |
| 25 | Research activities. | Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. | Ad hoc winter/spring WEBS counts undertaken. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held. |
| 27 | Seaweed harvesting | Either cutting living weed or gathering storm debris. The former, depending on scale and frequency, may fundamentally impact on shore communities and their ability to support waterfowl. The latter, represents a net loss to the system in terms of habitat and biomass. | Extent unknown | |

| | | | | |
|---|---|---|---|---|
| 28 | System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | History of any recent changes is unknown. Partial loss of seawall on the east side of Killough Harbour may increase level of exposure. Coast throughout the site has been engineered over much of its length. No evidence of ongoing erosion impacts. | Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |
| 31 | Wildfowling | Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands. | Extent unknown – little by way of quarry species present in SPA. | Liaise with relevant shooting bodies (BASC especially) to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the collective impact. |

Table 5. List of site/feature management issues

## 12. MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial

photographs to determine site morphological changes. Methodology for this is being developed.

## 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.

3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13. SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Light-bellied Brent Goose | Not known | Fluctuating | Slight Fluctuation | Not Applicable | |

# ANNEX I

## Feature (SPA) – Wintering Waterfowl

* = primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Light-bellied Brent Goose wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. A decline to 50% or less of the generic threshold over a five year period may indicate unfavourable condition of the site. |

## Non-Avian Factors – habitat

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species. |
| # Roost sites | Location of roost sites | Maintain all locations of roost sites. | Map roost site locations. Visit once every reporting cycle to ensure sites are available. |

# ANNEX II

## Feature (ASSI)

* = primary attribute.  One failure among primary attribute = unfavourable condition
# = optional factors.  These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| Intertidal rock | | | |
| Intertidal mud/sand | | | |
| Purple Moor-grass and rush pastures | | | |
| Brackish Lake | | | |

An Agency within the Department of the Environment for Northern Ireland

ENVIRONMENT AND HERITAGE SERVICE

## RAMSAR CONVENTION

## LARNE LOUGH RAMSAR SITE

*Area*: 398 hectares

*Geographic co-ordinates*: 05° 44' 38" W
54° 48' 54" N

Larne Lough is situated on the Co. Antrim coast in the east of Northern Ireland.

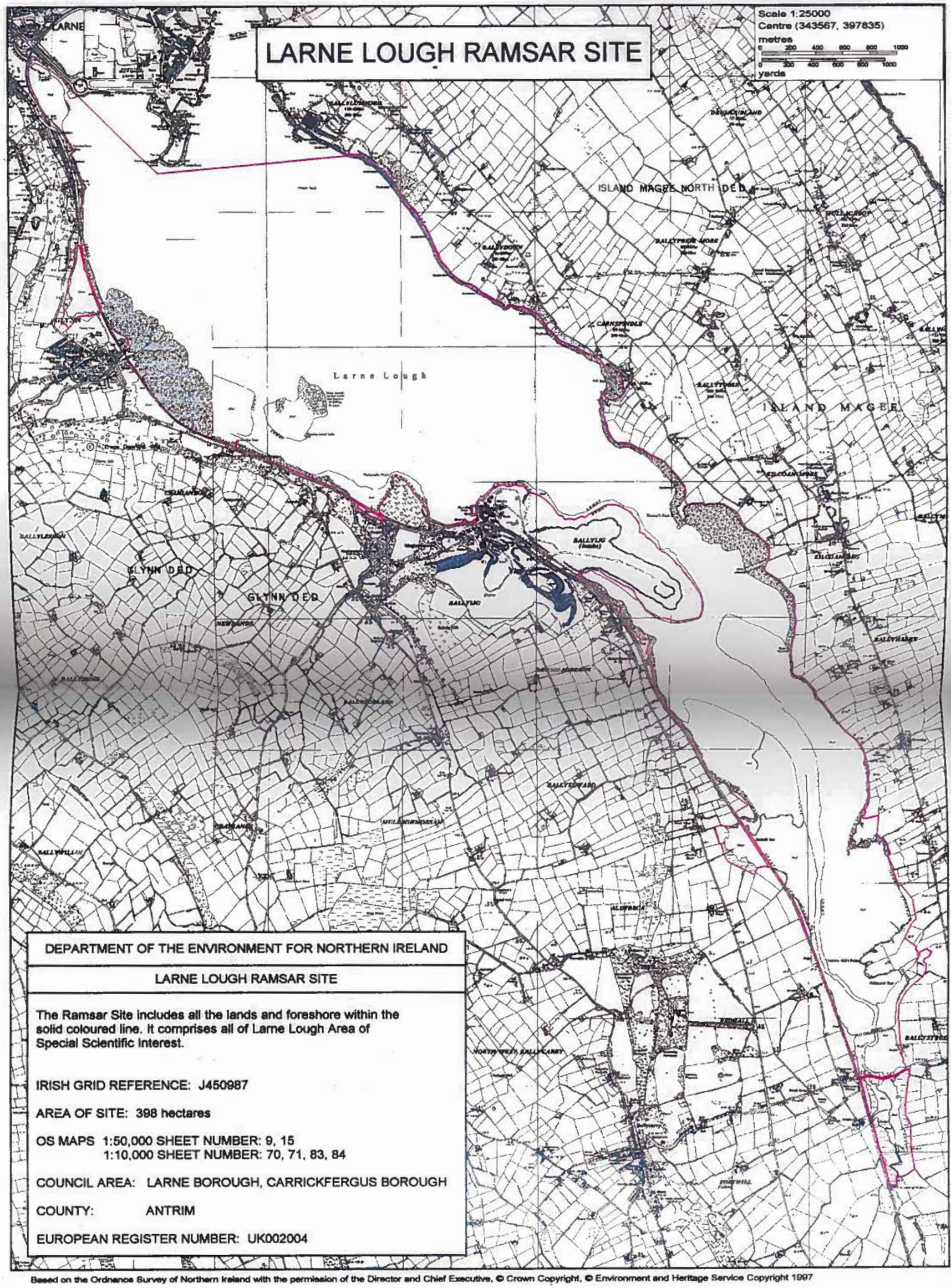
The Ramsar site boundary is entirely coincident with both that of the Larne Lough Area of Special Scientific Interest and the Larne Lough Special Protection Area.

The site qualifies under Criterion 3c of the Ramsar Convention by regularly supporting internationally important numbers of Light-bellied Brent Geese *Branta bernicla hrota* in winter (the five year peak mean for the period 1991/92 to 1995/96 was 227 which comprises 1.1 % of the international population).

The site also qualifies under Criterion 2a by supporting an important assemblage of vulnerable and endangered Irish Red Data Book bird species. The site regularly supports nationally important numbers of breeding populations of the following Annex 1 species: Roseate Tern *Sterna dougallii* (the five year mean for the period 1992 to 1996 was 6 pairs which comprises 1.7 % of the Irish population) and Common Tern *Sterna hirundo* (an average of 199 pairs for the period 1992 to 1996 - 6.8 % of the Irish population).

The figure for Roseate Terns is also very close to the number required for international qualification. Swan Island has, in the recent past, held internationally important numbers of breeding Roseate Terns (1% of the international population is 6 pairs).

# LARNE LOUGH RAMSAR SITE




DEPARTMENT OF THE ENVIRONMENT FOR NORTHERN IRELAND

LARNE LOUGH RAMSAR SITE

The Ramsar Site includes all the lands and foreshore within the solid coloured line. It comprises all of Larne Lough Area of Special Scientific Interest.

IRISH GRID REFERENCE: J450987

AREA OF SITE: 398 hectares

OS MAPS 1:50,000 SHEET NUMBER: 9, 15
1:10,000 SHEET NUMBER: 70, 71, 83, 84

COUNCIL AREA: LARNE BOROUGH, CARRICKFERGUS BOROUGH

COUNTY: ANTRIM

EUROPEAN REGISTER NUMBER: UK002004

Based on the Ordnance Survey of Northern Ireland with the permission of the Director and Chief Executive, © Crown Copyright, © Environment and Heritage Service Copyright 1997

# LARNE LOUGH -
# SPECIAL PROTECTION AREA (SPA)

## UK9020221

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| **Title** | Larne Lough SPA Conservation Objectives |
| **Prepared By** | *Ian Enlander* |
| **Approved By** | *Mark Wright* |
| **Date Effective From** | *01/04/2015* |
| **Version Number** | *V4* |
| **Next Review Date** | January 2020 |
| **Contact** | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 04/03/1997 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA adjoins the proposed East Coast Marine SPA.

The SPA also matches the boundary of the Larne Lough Ramsar site.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Antrim

G.R. J450 987 AREA: 398 ha.

REVIEW OF ANY ADJOINING OR REMOTE MARINE AREAS WILL BE INFORMED BY JNCC REPORT ON MARINE USAGE BY TERN SPECIES FROM EXISTING SPA'S DESIGNATED FOR BREEDING TERNS.

CONSERVATION OBJECTIVES WILL BE REVISED AS THESE ISSUE PROGRESS

## 5 SUMMARY SITE DESCRIPTION

The sea lough extends from Larne town, southwards to Ballycarry bridge and beyond. The lough is nearly bisected by Magheramourne dump, created from quarry spoil. The lough includes the extensive inter-tidal mudflats, together with more limited sand, gravel and boulder beaches. The tidal lagoon at Glynn is also included. Adjoining habitat within the site includes saltmarsh and transitional habitats together with limited wet grassland. Swan Island (natural) and Blue Circle Island (artificial) are important tern and gull nesting sites.

## 5.1 BOUNDARY RATIONALE

The SPA is coincident with the ASSI and Ramsar boundaries. The site includes all natural and semi-natural habitat both inter-tidal and adjoining. The southern inter-tidal section of the lough is utilised by geese while the northern part is utilised by terns. Swan Island SPA now forms part of Larne Lough SPA. Roost sites occurring outside the extent of natural or semi-natural habitat have not been included but their importance must not be underestimated.

# 6 SPA SELECTION FEATURES

| Feature Type | Feature | Population | Population at time of designation (ASSI) | Population at time of designation (SPA) | SPA Review population | Common Standards Monitoring baseline |
|---|---|---|---|---|---|---|
| Species | Sandwich Tern breeding population [b] | 0, 165 (1999-2000) | 123 | New feature | 165 | 64 (1993-1997) |
| Species | Roseate Tern breeding population [a] | 4, 6 (1999-2000) | 6 | 6 | 6 | 0 (1993-1997) |
| Species | Common Tern breeding population [a] | 439, 180 (1999-2000) | 174 | 199 | 180 | 177 (1993-1997 |
| Species | Light-bellied Brent Goose wintering population [a] | 218, 227 (1995-2000) | 202 | 227 | 227 | 177 (1990/91-1996/97) |
| Habitat[1] | Habitat extent | | | | | |
| Habitat[1] | Roost site locations | | | | | |

Table 1. List of SPA selection features.

[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area.

**Notes on SPA features – may not be applicable to all SPAs**

The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.

[a] – species cited in current SPA citation and listed on current N2K dataform

[c] – species selected post SPA designation through UK SPA Review 2001

[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1 ADDITIONAL ASSI SELECTION FEATURES

| Feature Type (i.e. habitat, species or earth science) | Feature | Size/ extent/ pop. | Population at time of designation (ASSI) | Common Standards Monitoring baseline |
|---|---|---|---|---|
| Habitat | Coastal saltmarsh | | | |
| Habitat | Saline lagoons | | | |

| | | | | |
|---|---|---|---|---|
| Species | Goldeneye wintering population | | 182 | 126 (1990/91-1996/97) |
| Species | Great Crested Grebe wintering population | | 121 | 88 (1990/91-1996/97) |
| Species | Red-breasted Merganser wintering population | | 180 | 167 (1990/91-1996/97) |
| Species | Shelduck wintering population | | 246 | 247 (1990/91-1996/97) |
| Species | Redshank wintering population | | 415 | 304 (1990/91-1996/97) |
| Species | Breeding bird assemblage | | | |
| Species | Invertebrate assemblage | | | |

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

***To maintain each feature in favourable condition***.

For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8 LARNE LOUGH SPA CONDITION ASSESSMENT 2014

| Species | 2008 | 2009 | 2010 | 2011 | 2012 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Light-bellied Brent Goose | 369 | 655 | 219 | 376 | 282 | 177 | 380.20 | **214.80** | Favourable |
| Common Tern (B) | 530 | 314 | 387 | 380 | 317 | 177 | 385.60 | **217.85** | Favourable |
| Roseate Tern (B) | 4 | 3 | 1 | 1 | 1 | 0 | 2.00 | **N/A** | Favourable |
| Sandwich Tern (B) | 695 | 545 | 373 | 449 | 324 | 64 | 477.20 | **745.63** | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
Fledging success sufficient to maintain or enhance population
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site

- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species.

| Feature | Component Objective |
|---|---|
| Sandwich Tern breeding population | As above |
| Sandwich Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Roseate Tern breeding population | As above |
| Roseate Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Common Tern breeding population | As above |
| Common Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Light-bellied Brent Goose wintering population | As above |
| Habitat extent | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species (325 ha intertidal area), (breeding areas 1 ha) subject to natural processes |
| Habitat extent | Maintain the extent of main habitat components subject to natural processes |
| Roost sites | Maintain or enhance sites utilised as roosts |

Table 3. SPA Component objectives

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

| Feature | Component Objective |
|---|---|
| Coastal saltmarsh | To maintain or extend, as appropriate, the area of saltmarsh, subject to natural processes |
| | To maintain or enhance, as appropriate, the composition of the saltmarsh communities |
| | To maintain transitions between saltmarsh communities and to other adjoining habitats |
| | To permit the continued operation of formative and controlling natural processes acting on the saltmarsh communities |
| Goldeneye wintering population | As for SPA selection feature objectives |
| Great Crested Grebe wintering population | As for SPA selection feature objectives |
| Red-breasted Merganser wintering population | As for SPA selection feature objectives |
| Shelduck wintering population | As for SPA selection feature objectives |
| Redshank wintering population | As for SPA selection feature objectives |

Table 4. ASSI Component objectives

Tern nesting localities current and historical (TO BE FINALISED)

| |
|---|
| Swan Island |
| Blue Circle Island |

Table 5. Tern nesting locations within the SPA

## 10. MANAGEMENT CONSIDERATIONS

**See also Views About Management for relevant ASSI**

***Owner/Occupier's –*** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Approximately 75 individuals/organisations own land within the SPA. Major landowners within the SPA, relevant to the site management, include Crown Estate Commissioners, NIEA, Blue Circle Cement and Private Individuals. The RSPB lease Tern Island from Lafarge Tarmac, and Swan Island from NIEA. The lease expires in 2015. Kilcoan Shellfish lease areas of the seabed from the Crown Estate Commissioners for shellfish production. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

Adjacent commercial operations that may impact upon the SPA include Ballylumford Power Station, Lafarge Tarmac, Larne Harbour and P&O European Ferries. Premier Power Ltd operate Ballylumford Power Station which generates electricity for Northern Ireland Electricity. The power station located close to Larne Lough SPA on Islandmagee, is a Part A Process under the Industrial Pollution Control Order. Additionally sewage discharge points from Ballystrudder and Ballycarry Treatment Works (recently upgraded) may impact upon the site.

A number of management agreements are already in place with some landowners.

## 11. MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** **-** Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Lough Foyle SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

**<u>Generic site/feature issues</u>**

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 1 | Adjoining habitat | Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, | Limited consideration here as the geese do not utilise adjoining habitat. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |

| | | | | |
|---|---|---|---|---|
| | | difficult. | | |
| 2 | Aquaculture | Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors. | Shellfish developments concentrated in the Magheramourne area; mainly tray cultivation of oyster with some rope cultivation of mussels. Areas utilised are of minimal importance birds. | Liaise with DARD Fisheries Division. Assess all license applications individually. Consider the collective impact. |
| 3 | Bait digging – commercial or 'recreational' and shellfish gathering. | Disturbance and impact on sediment and invertebrate fauna – may be positive through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated. | Of particular concern in the area of Swan Island which is accessible at low Spring tides, potentially causing disturbance to nesting birds. Otherwise not thought to be a significant issue. | Monitor scale of activity. Consider the collective impact. |
| 6 | Boating activity – commercial | Disturbance and potential for impact from high-speed liners. | Very limited shipping to the Magheramourne Blue Circle quay, currently being run down. Little concern. | Formal consultation likely relating to new schemes. Consider the collective impact. |
| 7 | Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | Sailing boats are concentrated at the northern end of the lough. Main concern is from disturbance to nesting birds. | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. Ensure appropriate signage on both islands. |
| 9 | Cull of fledglings/ young | Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA. | Control of large gull nests has been undertaken at the tern colonies. To be continued as necessary. | NIEA to review all licenses. Consider the collective impact. |
| 13 | Enhanced bird competition | Activities onsite or offsite that influences or results in a shift in balance of species utilising a site. | Off-site developments may have a bearing on numbers of potentially competing species/individuals using the site. Examples include landfill operations attracting large gulls which then use the designated site. | Liaise with Planning Service. Review wider countryside changes. |
| 15 | Habitat extent – inter-tidal | Loss of habitats through development, changes in coastal processes. Loss of | Not a significant issue. | Assess planning applications. Monitor using aerial photography. |

| | | | | |
|---|---|---|---|---|
| | | inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds. | | |
| 16 | Habitat extent – open water | Loss likely to be limited but expansion of commercial port facilities can impact on key localities. | Not a significant issue. | Assess planning applications. Consider the collective impact. |
| 17 | Habitat quality – inter-tidal | Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes. | Lough is enriched, notably through sewage discharge from Ballystrudder and Ballycarry. This has the potential to alter inter-tidal habitat. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 18 | Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Lough is enriched, notably through sewage discharge from Ballystrudder and Ballycarry. This has the potential to alter inter-tidal habitat. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 19 | Habitat extent and quality-breeding | Alteration of habitat area or quality through inappropriate use or absence of site management. | Blue Circle Island represents a successful increase in available nesting habitat. Ongoing management of the islands will be required with regard to vegetation succession. | Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management if necessary. RSPB are managing body for the islands.. |
| 22 | Power cables | Specifically a problem in relation to swans and geese. Threat is through impact. Need to consider flight lines, as well as feeding and loafing areas, which ideally should be avoided. | Line markers have been put in place at Ballycarry following a number of Brent fatalities. | Liaise with NIE. Minimum need is for line marking based on best current practice. Consider the collective impact. |
| 23 | Predation. | Mainly of concern on bird breeding sites. | Issue of large gulls impacting on breeding terns. | Must be dealt with as part of wider countryside management considerations. Carry out appropriate site management. |
| 24 | Recreational activities. | Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats. | Cumulative disturbance impacts (e.g. boating, wildfowlers, walkers, dogs etc) may be a significant factor for | Liaise with local authorities and other managing parties. |

| | | | | |
|---|---|---|---|---|
| | | Apart from disturbance of birds themselves, breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success. | wintering bird populations impacting on both feeding (inter-tidal) and roosting birds<br>Not thought to be a significant issue. | |
| 25 | Research activities. | Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. | Routine winter WEBS counts undertaken. Annual visits to the islands undertaken to assess nest numbers and success. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held. |
| 28 | System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | The site is a relatively low energy one, with limited coastal engineering. The main impact is from the historical dumping associated with the Magheramourne. This has reduced further tidal and wind energies in the southern part of the lough. Tray cultivation is limited in extent. | Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed.<br>Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |
| 31 | Wildfowling | Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands. | Local wildfowlers have a strong interest in conservation and undertake, in liaison with NIEA, habitat creation and management. Main concerns relates to appropriateness of wildfowlers using Swan Island as a base for shooting. | Liaise with relevant shooting bodies (BASC especially) to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Assess if wildfowlers should have access right to Swan Island. Consider the collective impact. |

Table 6. List of site/feature management issues

## *12.* MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

## 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site

decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.

2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13. SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Sandwich Tern | - | - | - | - | Not known, to be compiled. |
| Roseate Tern | - | - | - | - | Not known, to be compiled. |
| Common Tern | - | - | - | - | Not known, to be compiled. |
| Light-bellied Brent Goose | Stable | Fluctuating | Slight Fluctuation | Not Applicable | |

# ANNEX I

## Feature (SPA) – Breeding seabirds

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Sandwich Tern breeding population | Apparently occupied nests | No significant decrease in Sandwich Tern breeding population against national trends | Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Sandwich Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |
| *Roseate Tern breeding population | Apparently occupied nests | No significant decrease in Roseate Tern breeding population against national trends | Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Roseate Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |
| * Common Tern breeding population | Apparently occupied nests | No significant decrease in Common Tern breeding population against national trends | Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| | | | |
|---|---|---|---|
| # Common tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |

## Non-avian factors

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures or breeding sites, where this would lead to different usage by notified species. |

## Feature (SPA) – Wintering waterfowl

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Light-bellied Brent Goose wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

## Non-avian factors

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species. |

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| # Roost sites | Location of roost sites | Maintain all locations of roost sites. | Map roost site locations. Visit once every reporting cycle to ensure sites are available. |

# ANNEX II

## Feature (ASSI)

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| **Feature** | | | |
| Coastal saltmarsh | | | |
| Goldeneye wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Great Crested Grebe wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Red-breasted Merganser wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Shelduck wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Redshank wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

**LECALE FENS SAC**
UK0030180

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Lecale Fens SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *01/04/2015* |
| Version Number | *V2* |
| Next Review Date | Nov 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | June 2013 | Internal working document | PC |
| V2 | January 2015 | Complete review | RMK |
| | | | |
| | | | |
| | | | |

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:**

Ballycam: IJ 523348
Carrowcarlin: IJ 560486
Corbally: IJ 451387
Loughkeelan: IJ 563453

**AREA:** 40.87 ha

## 5. SUMMARY SITE DESCRIPTION

Lecale is a lowland area typified by low drumlins with wide inter-drumlin hollows that are often poorly draining. The underlying rocks are mainly Silurian sandstones shales. However, calcium-rich Kearny Siltstones occur locally, and some of the fens in the area are correspondingly fed by base-rich ground waters. The four sub-sites included within the Lecale Fens SAC are separately designated as ASSIs and are considered the best examples of calcium-rich spring water-fed fens remaining in the area. Common reed *Phragmites australis* is an important element in the fen-floristics of all the sub-sites. It is the co-occurring species in places both within the reedbeds and in the usually small areas of open fen, often at reedbed margins, that elevate the conservation importance beyond ASSI status. Ponds, pools and spring eminencies add diversity to the sites and at Loughkeelan the fen is associated with an important lake.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website (www.doeni.gov.uk/niea).

## 5.1 BOUNDARY RATIONALE

Boundaries have been tightly drawn to encompass all of the wetlands within each of the sub-sites including that which is not obviously calcium-rich. Fringing semi-improved vegetation is usually rather narrow, and has normally been included even if they are currently disturbed. Some fringing areas are of interest themselves as grasslands although wider areas, including species-rich grassland of considerable interest, have not been included in the site as they are not central to the core interest. Improved grassland has been excluded from all sub-sites.

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ pop~ |
|---|---|---|---|
| Habitat | Alkaline fens | B | 6.0 ha in 4 sub-sites |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Lecale Fens SAC.

## 6.1 ASSI SELECTION FEATURES

### Lecale Fens ASSI

| Feature Type | Feature | Size/ extent/ pop~ |
|---|---|---|
| **Habitat** | Fens | All Subsites |
| **Species** | Higher Plant Assemblage | Lough Keelan |
| **Species** | Invertebrate Assemblage | Carrowcarlin, Corbally, Lough Keelan |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

***To maintain (or restore where appropriate) the Alkaline Fens to favourable condition.***

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objective |
|---|---|---|
| Alkaline fens | B | Maintain and expand the extent of existing alkaline fens. |
| | | Maintain and enhance fen species and community diversity including the presence of notable species |
| | | Maintain and enhance alkaline fen structure and hydrology |

| | | |
|---|---|---|
| | | Maintain the diversity and quality of habitats associated with the alkaline fens, e.g. reedbed and transitions to them |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| Fens | See SAC Selection Feature Objective Requirements table. |
| Higher Plant Assemblage | To be finalised |
| Invertebrate Assemblage | To be finalised |

## 10. MANAGEMENT CONSIDERATIONS

### Ownership

All sites are in private ownership and, with the exception of Ballycam, in multiple ownership. Management agreements have been negotiated with the owners of Loughkeelan including fencing and regulated extensive grazing, and with the owner of Ballycam to fence the fen area.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Lecale Fens, or could affect it in the future. Although Alkaline Fens are the qualifying SAC feature, factors affecting ASSI features are also considered.

**NOTE - Carrying out <u>any</u> of the Notifiable Operations listed in the ASSI schedule could affect the site.**

### *Drainage*

The fens themselves are generally in an intensively farmed setting, and remain because inherent hydrological characteristics have precluded drainage in past processes of agricultural improvement. Reclamation for intensive agriculture remains an incentive for drainage.

Ballycam is in part bounded by the White Bog Drain which is a Rivers Agency designated minor watercourse, maintained on a 3 to 5 year cycle. Similarly Loughkeelan is drained by the Turkish River also a designated minor watercourse and subject to periodic maintenance.

ACTION: Ensure no drainage takes place through liaison and management agreements with landowners. Liaise with the Rivers Agency to ensure any drainage watercourse maintenance work does not threaten the hydrology of the fen sites.

*Application of fertiliser/manure/slurry*

Whilst some fen areas are managed for grazing, at least in part, eutrophication derived from drift and run-off from adjacent agricultural areas remains probably more of a threat than direct application on site.

ACTION: Prevent nutrient enrichment from fertiliser drift and runoff by encouraging landowners to leave adequate buffer strips between fertiliser spray areas and sensitive interest features such as fens.

*Grazing*

Grazing levels are important on these sites. Overgrazing/poaching has been noted locally but the exclusion of grazing from the more nutrient-rich fen areas is likely to result in the development of a rank, less diverse stand.

ACTION: Through liaison with landowners and monitoring, ensure sustainable grazing levels for the conservation interest features.

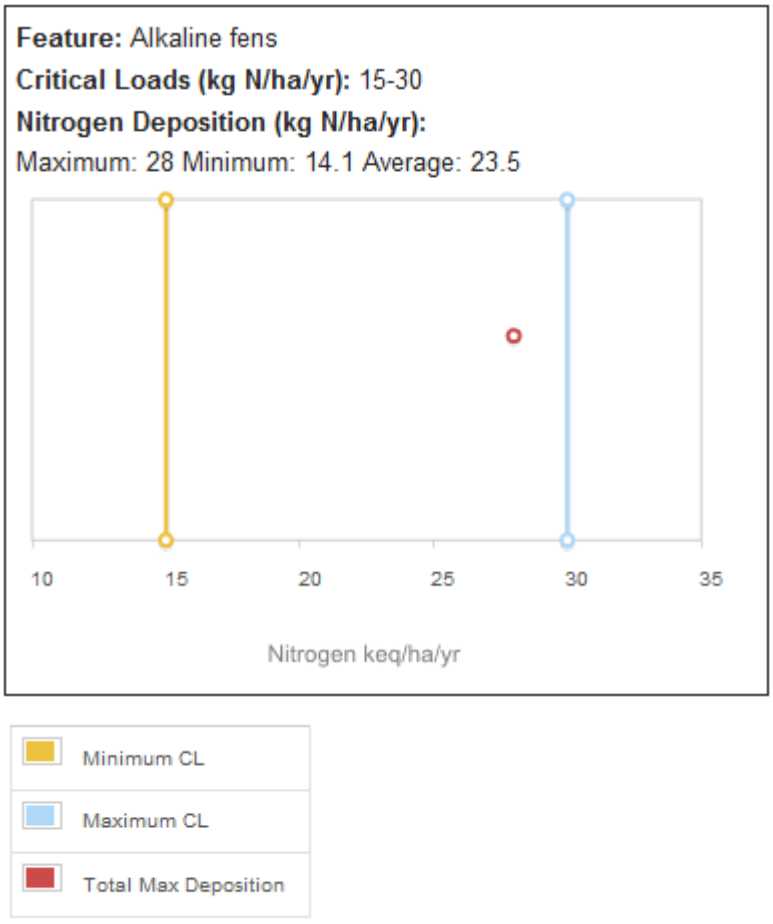
*Fly-tipping*

Both local fly tipping and more extensive infilling, is another threat particularly the former, noted on several sites in the past.

ACTION: Removal of any fly-tipped material from the site, to prevent the build-up of debris and to discourage further tipping.

*Nitrogen Deposition*

Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for habitats and species present on Lecale Fens SAC.




(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*

Any changes in local land-use e.g. drainage, road improvements, afforestation, agricultural intensification and development, may be detrimental to the SAC.

**Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.

**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## 12. MONITORING

Monitoring of SACs takes place on using two monitoring techniques.

Site Integrity Monitoring (SIM) is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat).

These longer-term changes will be picked up by monitoring of the feature via Site Condition Assessment - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

### 12.1 MONITORING SUMMARY

1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*
All sub-sites to be checked periodically, particularly for any evidence of fly-tipping or infilling, signs of inappropriate grazing levels, evidence of drainage (including over-deepening of existing drains, but not their periodic maintenance) or signs of drying out (the fen area should be 'soft, bouncy and squelchy'), evidence of slurry or fertiliser application or signs of eutrophication from agricultural run-off or any other source. This SIM should be carried out once a year.

*2. Monitor the condition of the site (Condition Assessment)*
Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan - Fens.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

ANNEX I

Feature 1 (SAC) – Alkaline Fens (Status B)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Attribute | Targets | Method of Assessment | Comments |
|---|---|---|---|
| Extent | | | |
| * Area of Fen | Maintain the extent of fen | Visual estimate in 2x2m plots and across the extent of the fen should be monitored using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Variety within fens is determined by water supply mechanism, hydroseral succession and land management practices. Account should be taken of successional processes and management aims/priorities. |
| * Mire community diversity | Maintain presence of fen communities e.g. M9, M10 as established at base line survey. | Visual estimate in 2x2m plots. | Natural succession may lead to an increase in the area of certain communities and a decrease in others.<br>The most likely changes are subtle shifts in species composition as a result of eutrophication or water-level changes.<br>Repeat monitoring of plots using GPS should indicate whether fen communities have changed or been lost. |

| | | | |
|---|---|---|---|
| Presence of associated semi-natural habitats | Maintain existing associated semi-natural habitats (wet grassland, wet woodland, wet heath etc.) | Visual estimate in 2x2m plots and across the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost.<br>Note: Loss of associated habitats to fen communities may be desirable in some instances. |
| Vegetation structure | | | |
| Vegetation height (cm) | Mean vegetation height of medium fen communities (e.g. M9, M22) should be 30–75cm.<br><br>Mean vegetation height of short fen communities (e.g. M10, M13) should be 5–15cm. | Visual estimate in 2x2 m plots. | Tall herb fen is highly variable. After the baseline survey, these can be set with more precision. |
| Cover of litter/thatch accumulation (% cover) | Less than 10% mean cover in medium fen communities (e.g. M9, M22)<br><br>Less than 5% mean cover in short fen communities (e.g. M10, M13) | Visual estimate in 2x2m plots. | More than 25% litter cover indicates insufficient removal of biomass by grazing. |

| | | | |
|---|---|---|---|
| Extent of bare mud visible without disturbing the vegetation (% cover) | Less than 10% mean cover in medium fen communities (e.g. M9, M22 – check m22)<br><br>Less than 25% mean cover in short fen communities (e.g. M10, M13) | Visual estimate in 2x2m plots. | A high cover of exposed substrate will usually be undesirable and may indicate over-grazing and water scour.<br>Patches of exposed substrate are likely to be more typical/desirable for short fen communities such as M10 which is often based on unconsolidated peat exposed beneath a water film.<br>At a later stage it might be better to merge these two targets and have just one threshold of less than 15%. |
| Vegetation composition – Positive Indicators | | | |
| * Combined cover of herbs and sedges in fen areas (**only applicable to medium height sedge fen communities** e.g. M9) | Maintain cover greater than 45% | Visual estimate in 2x2m plots. | |
| Cover of all bryophytes (**only applicable to medium height sedge fen communities** e.g. M9) | Maintain moss cover appropriate to fen vegetation communities recorded for the site. | Visual estimate in 2x2m plots. | Refer to Common Standards Monitoring guidance for lowland wetland habitats. |
| *Combined cover of key species – small *Carex*, all bryophytes, *Eleocharis* spp., *Eriophorum* spp., *Schoenus nigricans* and *Molinia caerulea* (% cover) (**only applicable to short sedge fen communities** e.g. M10, short M13) | At least 75% of the vegetation cover should be made up of key species. (exclude bare peat) | Visual estimate in 2x2m plots. | This is only applicable to short calcareous and alkaline fen. |

| | | | |
|---|---|---|---|
| * Frequency of positive indicators short medium fen (DAFOR scale) *Alisma-plantago aquatica, Anagallis tenella, Angelica sylvestris, Berula erecta, Briza media, Caltha palustris, Carex curta, C. diandra, C. dioica, C. disticha, C. flacca, C. hostiana, C. nigra, C. panicea, C. pulicaris, C. rostrata, C. vesicaria, C. viridula, Cicuta virosa, Crepis paludosa, Dactylorhiza sp., Epilobium palustris, Equisetum fluviatile, E. palustre, Eriophorum angustifolium, Euphrasia spp., Galium palustris, Hydrocotyle vulgaris, Juncus articulatus, Linum catharticum, Lotus pedunculatus, Lychnis flos-cuculi, Lycopus europaeus, Lysimachia vulgaris, Lythrum salicaria, Mentha aquatica, Menyanthes trifoliata, Oenanthe crocata, Parnassia palustris, Pedicularis palustris, Pingiucula vulgaris, Potamogeton spp., Potentilla erecta, Potentilla palustris, Ranunculus flammula, Sagina nodosa, Selaginella selaginoides, Succisa pratensis, Triglochin palustre, Valeriana officinalis,* | At least six indicator species at least occasional, of which three are at least frequent throughout the sward: | Visual estimate in 2x2m plots. | The suite of key communities to be monitored is chosen on a site specific basis.<br><br>In some instances short sedge communities (e.g. M10, M13) may fail on this attribute as they are naturally species poor. However, providing they have passed on the % cover of combined key species they should be recorded as favourable for this attribute. |

| | | | |
|---|---|---|---|
| *Veronica scutellata, Viola palustris. Aulacomnium palustre, Bryum pseudotriquetrum, Calliergon spp., Campylium stellatum, Cratoneuron/Drepanocladus, Ctenidium molluscum,Polytrichum commune, Scorpidium scorpoides, Sphagnum denticulatum, Sphagnum fallax, Sphagnum palustre, Sphagnum squarrosum* | | | |
| Vegetation composition – Indicators of Negative Change | | | |
| * Frequency and % cover of scrub/tree encroachment on the fen communities (DAFOR and % cover). | Scrub/tree encroachment including *Betula*, *Salix*, *Rhododendron* etc. should be no more than occasional over the fen communities.<br><br>Mean cover should be less than 10 %. | Visual estimate within a 10x10 m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | Scrub and woodland are integral components of many fen systems and may be particularly important for invertebrates. However, invasion by woody species, primarily *Betula* and *Salix*, and their development to maturity may indicate drying out, dereliction, disturbance and/or enrichment. |
| * Frequency and % cover of negative indicator species- eutrophication indicators:<br>*Phalaris arundinacea, Glyceria maxima, Typha latifolia, Epilobium hirsutum, Urtica dioica.* | No one negative indicator species more than rare throughout the fen and/or singly or together comprising more than 5% cover. | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| * % cover of negative species – indicating lack of management/ successional changes: *Filipendula ulmaria, Phragmites australis.* | No one negative indicator singly or together comprising more than 10% cover.<br><br>In short fen communities (M10/M13) *Phragmites* cover should be no more than rare | Visual estimate in 2x2m plots. | |
| * % cover of *Juncus* spp in Group A and B<br>Group A: jointed rushes (*Juncus acut/arti/subnod*)<br>Group B: *J. conglomeratus, J. effusus and J. inflexus.* | All species combined less than 20% cover and less than 5% made up of species from Group B. | Visual estimate in 2x2m plots. | Where M22 vegetation is dominated by *Juncus subnodulosus* a higher mean cover may be considered. |
| * Cover of grasses (excludes *Phalaris* and *Phragmites*, but includes the rank grasses *Arrhenatherum elatius, Deschampsia cespitosum, Brachypodium sylvaticum*) | All grass species combined less than 20% cover and less than 10% made up of rank grasses. | Visual estimate in 2x2m plots. | |
| * % cover of *Molinia caerulea* (only applicable to the NVC communities M9/S27, M10 and M13) | % cover in M10 or M13 should be less than 25%<br><br>% cover in M9/S27 | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| | should be less than 5% | | |
| Fen hydrology | | | |
| * Groundwater elevation (Ground soft, bouncy and squelchy) | Maintain the water table height as determined at baseline survey. | Test with foot | Maintain the water table height as determined at baseline survey. The water table level will obviously fluctuate seasonally and with local weather conditions. However, this assessment should try and gauge if the hydrology of the site is being adversely affected. |
| Indicators of Local Distinctiveness | | | |
| * Presence of locally distinctive species specific to the site (Include any other species of note mentioned in the site citation) e.g. *Epipactis palustris, Stellaria palustris, Hypericum elodes etc.* | Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk. | Name the species at least present along the length of the Condition Assessment structured walk. | If these species are not recorded on any one visit, it does not automatically make the site unfavourable. |

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).*

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

## 1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

**Joint Nature Conservation Committee**
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

## 2. Date this sheet was completed/updated:

Designated: 05 January 1976

## 3. Country:

**UK (Northern Ireland)**

## 4. Name of the Ramsar site:

**Lough Neagh and Lough Beg**

## 5. Designation of new Ramsar site or update of existing site:

**This RIS is for:** Updated information on an existing Ramsar site

## 6. For RIS updates only, changes to the site since its designation or earlier update:

### a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

### b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

## 7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

**a) A map of the site, with clearly delineated boundaries, is included as:**

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

**b) Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

## 8. Geographical coordinates (latitude/longitude):

54 34 11 N 06 24 34 W

## 9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Belfast

Lough Neagh is situated in the centre of Northern Ireland. It is the largest freshwater lake in the United Kingdom, covering an area of 383 square km, with a longest length of 30.5 km and narrowest width of 12.1 km across the middle.

**Administrative region:** Antrim; Armagh; Ballymena; Cookstown; Craigavon; Down; Dungannon; Lisburn; Londonderry; Magherafelt; Tyrone

## 10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 50165.84

Min. 0
Max. 20
Mean 0

## 12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Lough Neagh is situated in the centre of Northern Ireland. It is the largest freshwater lake in the United Kingdom covering an area of 383 km2 with a longest length of 30.5 km and narrowest width of 12.1 km across the middle. The lake is very shallow for its size, with a mean depth of 8.9 metres. At its deepest point it extends down to 34 metres. The 125 km shoreline is mostly exposed with wave-beaten rocks and stones but there are also some sheltered, sandy bays with better-developed marginal vegetation including some reedbeds.

This site also contains a smaller lake, Lough Beg (1,125 ha) to the north, as well as a small satellite lake, Portmore Lough (286 ha) which is situated to the east of Lough Neagh. Lough Beg (meaning 'little lough') is essentially a widening of the Lower Bann River just downstream from where it leaves Lough Neagh. Lough Beg is very shallow, with a mean depth of 1-2 metres and a surface area of km2. About 200 hectares of the west shore is unimproved wet grassland that is largely inundated with floodwater each winter.

Rivers flowing into Lough Neagh drain about 43% of Northern Ireland, plus part of County Monaghan in the Republic of Ireland.

## 13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**1, 2, 3, 4, 5, 6**

## 14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

A particularly good representative example of natural or near-natural wetlands, common to more than one biogeographic region. The site is the largest freshwater lake in the United Kingdom. Lough Neagh a relatively shallow body of water supporting beds of submerged aquatic vegetation fringed by associated species-rich damp grassland, reedbeds, islands, fens, marginal swampy woodland and pasture. Other interesting vegetation types include those associated with pockets of cut-over bog, basalt rock outcrops and boulders, and the mobile sandy shore.

Ramsar criterion 2

Supports an appreciable assemblage of rare, vulnerable or endangered species or sub-species of plant or animal or an appreciable number of individuals of any one of these species. The site supports over 40 rare or local vascular plants which have been recorded for the site since 1970; the most notable are eight-stamened waterwort *Elatine hydropiper*, marsh pea *Lathyrus palustris*, Irish lady's tresses *Spiranthes romanzoffiana*, alder buckthorn *Frangula alnus*, narrow small-reed *Calamagrostis stricta* and holy grass *Hierochloe odorata*. The Lough and its margin are also home to a large number of rare or local invertebrates, including two aquatic and two terrestrial molluscs, a freshwater shrimp *Mysis relicta*, eight beetles, five hoverflies, seven moths and two butterflies. Of the rare beetles recorded two, *Stenus palposus* and *Dyschirius obscurus*, have their only known Irish location around the Lough. The Lough also supports twelve species of dragonfly.

Ramsar criterion 3

This site is of special value for maintaining the genetic and ecological diversity of a region becuse of the quality and peculiarities of its flora and fauna. The site regularly supports substantial numbers of individuals from particular groups of waterfowl which are indicative of wetland values, productivity and diversity. In addition, this site is of special value for maintaining the genetic and ecological diversity of Northern Ireland because of the quality and peculiarities of its flora and fauna. A large number of plants and animal species are confined or almost confined to this area within Northern Ireland.

Ramsar criterion 4

This site is of special value as the habitat of plants or animals at a critical stage of their biological cycles. The site supports an important assemblage of breeding birds including the following species with which occur in nationally important numbers: great crested grebe *Podiceps cristatus*, gadwall *Anas strepera*, pochard *Aythya ferina*, tufted duck *Aythya fuligula*, snipe *Gallinago gallinago* and redshank *Tringa totanus*. Other important breeding wetland species include shelduck *Tadorna tadorna*, teal *Anas crecca*, shoveler *Anas clypeata*, lapwing *Vanellus vanellus* and curlew *Numenius.arquata*.

Ramsar criterion 7

The site supports a population of pollan *Coregonus autumnalis*, one of the few locations in Ireland and one of the two known locations in the UK (the other is Lower Lough Erne). It is one of the most important species in Ireland in terms of faunal biodiversity since it occurs nowhere else in Europe,

and the Irish populations are all well outside the typical range – the Arctic Ocean drainages of Siberia, Alaska and north-western Canada, where it is known as the Arctic cisco.

Ramsar criterion 5

**Assemblages of international importance:**

**Species with peak counts in winter:**
86639 waterfowl (5 year peak mean 1998/99-2002/2003)

**Ramsar criterion 6 – species/populations occurring at levels of international importance.**

**Qualifying Species/populations (as identified at designation):**
**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Tundra swan , *Cygnus columbianus bewickii*, NW Europe | 26 individuals, representing an average of 0.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

**Species with peak counts in winter:**

| | |
|---|---|
| Whooper swan , *Cygnus cygnus*, Iceland/UK/Ireland | 1523 individuals, representing an average of 7.2% of the population (5 year peak mean 1998/9-2002/3) |
| Common pochard , *Aythya ferina*, NE & NW Europe | 20279 individuals, representing an average of 5.7% of the population (5 year peak mean 1998/9-2002/3) |
| Tufted duck , *Aythya fuligula*, NW Europe | 17807 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3) |
| Greater scaup , *Aythya marila marila*, W Europe | 3377 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3) |
| Common goldeneye , *Bucephala clangula clangula*, NW & C Europe | 6645 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3) |

**Species/populations identified subsequent to designation for possible future consideration under criterion 6.**
**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Great cormorant , *Phalacrocorax carbo carbo*, NW Europe | 1628 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9-2002/3) |
| Mute swan , *Cygnus olor*, Britain | 1874 individuals, representing an average of 4.9% of the population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
See Sections 21/22 for details of noteworthy species
Details of bird species occuring at levels of National importance are given in Section 22

## 15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Atlantic

**b) biogeographic regionalisation scheme** (include reference citation):

Council Directive 92/43/EEC

## 16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|---|---|
| Soil & geology | sand, clay, peat, basalt |
| Geomorphology and landscape | lowland, floodplain |
| Nutrient status | highly eutrophic |
| pH | no information |
| Salinity | fresh |
| Soil | no information |
| Water permanence | usually permanent |
| Summary of main climatic features | Annual averages (Aldergrove, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html)<br>Max. daily temperature: 12.5° C<br>Min. daily temperature: 5.8° C<br>Days of air frost: 39.1<br>Rainfall: 862.4 mm<br>Hrs. of sunshine: 1313.7 |

**General description of the Physical Features:**

Lough Neagh is the largest freshwater lake in the UK, covering an area of 383 sq. km. The lough is very shallow for its size with a mean depth of 8.9 m (at deepest only 34 m). The 125 km shoreline is mostly exposed with wave-beaten rocks and stones but there are also some sheltered, sandy bays with better-developed marginal vegetation including some reedbeds. The smaller Lough Beg (covering 1,125 ha) to the north is essentially a widening of the Lower Bann River downstream of its exit from Lough Neagh, and is very shallow, with a mean depth of 1-2 m. About 200 ha of the west shore is unintensified wet grassland that is largely inundated with floodwater each winter.

## 17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Lough Neagh is situated in the centre of Northern Ireland. It is the largest freshwater lake in the British Isles and is very shallow for its size.

Six major rivers flow into the Lough while the Lower Bann River provides the exit, carrying water from the north end of the Lough at Toome to the sea on the north coast of Northern Ireland.

The rivers flowing into Lough Neagh drain about 43% of Northern Ireland, plus part of County Monaghan in the Republic of Ireland. There is no incursion of seawater into Lough Neagh.

Lough Beg and Portmore Lough are two smaller lakes associated with Lough Neagh. Lough Beg (1,125 ha) lies to the north of Lough Neagh at the start of the Lower Bann River and Portmore Lough (286 ha) flows into the south-east of Lough Neagh.

## 18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Flood water storage / desynchronisation of flood peaks

## 19. Wetland types:

Inland wetland

| Code | Name | % Area |
|---|---|---|
| O | Freshwater lakes: permanent | 77.6 |
| Other | Other | 16 |
| U | Peatlands (including peat bogs swamps, fens) | 4 |
| W | Shrub-dominated wetlands | 2.1 |
| Xp | Forested peatland | 0.3 |

## 20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Most of the shoreline and shallow margin of the Lough is exposed to wave action and has a rocky or sandy character. The submerged and floating aquatic vegetation is confirmed to sheltered bays and inlets and includes very extensive stands of fennel-leaved pondweed *Potamogeton pectinatus* and slender-leaved pondweed *P. filiformis* intermixed with smaller quantities of additional species.

Swamp vegetation generally consists of a mosaic of small stands of common spike-rush *Eleocharis palustris*, reedmace *Typha latifolia*, branched bur-reed *Sparganium erectum*, flowering rush *Butomus umbellatus*, bulrush *Scirpus lacustris* and bottle sedge *Carex rostrata*. Locally, large stands of common reed *Phragmites australis* have developed.

The tall fen occurring along the water's edge mostly consists of a thin, generally species-poor band of reed canary-grass *Phalaris arundinacea*, hemlock water dropwort *Oenanthe crocata*, yellow loosestrife *Lysimachia vulgaris* and purple loosestrife *Lythrum salicaria*, but in places there are a number of more uncommon plant species.

Some of the Lough shore is fringed by a fragmented, swampy woodland of alder *Alnus glutinosa* and willow *Salix* spp. related to successive lowerings of water-levels. This woodland is among the best of its type in Northern Ireland. It is extensive and locally contains a diversity of plants including many notable species.

The remainder of the shore is mostly covered by a variety of grassland types ranging from improved and reseeded grassland to species-rich hay meadows, with the most characteristic type being wet marshy grassland with soft rush *Juncus effusus* and brown sedge *Carex disticha* as the most prominent species.

Ecosystem services

## 21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Nationally important species occurring on the site.**

**Higher Plants.**

*Elatine hydropiper, Spiranthes romanzoffiana, Calamagrostis stricta, Hierochloe odorata, Mentha pulegium, Lathyrus palustris, Frangula alnus, Carex elongata*

## 22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Birds**

**Species currently occurring at levels of national importance:**

**Species regularly supported during the breeding season:**

| | |
|---|---|
| Black-headed gull , *Larus ridibundus*, N & C Europe | 3269 apparently occupied nests, representing an average of 6% of the all-Ireland population (Seabird 2000 Census) |
| Lesser black-backed gull , *Larus fuscus graellsii*, W Europe/Mediterranean/W Africa | 451 apparently occupied nests, representing an average of 8.6% of the all-Ireland population (Seabird 2000 Census) |
| Common tern , *Sterna hirundo hirundo*, N & E Europe | 93 apparently occupied nests, representing an average of 3% of the all-Ireland population (Seabird 2000 Census) |

**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Great crested grebe , *Podiceps cristatus cristatus*, NW Europe | 1227 individuals, representing an average of 35% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Gadwall , *Anas strepera strepera*, NW Europe | 126 individuals, representing an average of 21% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Mallard , *Anas platyrhynchos platyrhynchos*, NW Europe | 5136 individuals, representing an average of 10.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Red-breasted merganser , *Mergus serrator*, NW & C Europe | 25 individuals, representing an average of 1.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common coot , *Fulica atra atra*, NW Europe | 5680 individuals, representing an average of 22.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Lesser black-backed gull , *Larus fuscus graellsii*, | 1174 individuals, representing an average of 1.6% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

**Species with peak counts in winter:**

| | |
|---|---|
| Little grebe , *Tachybaptus ruficollis ruficollis*, Europe to E Urals, NW Africa | 355 individuals, representing an average of 7.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common shelduck , *Tadorna tadorna*, NW Europe | 138 individuals, representing an average of 1.9% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

| | |
|---|---|
| Eurasian wigeon , *Anas penelope*, NW Europe | 3012 individuals, representing an average of 2.4% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Eurasian teal , *Anas crecca*, NW Europe | 1878 individuals, representing an average of 2.8% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic | 8249 individuals, representing an average of 4.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Northern lapwing , *Vanellus vanellus*, Europe - breeding | 10968 individuals, representing an average of 4.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Mew gull , *Larus canus canus*, Europe to N Africa | 765 individuals, representing an average of 1.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

**Species Information**

**Assemblage.**

During the breeding season the site supports a diverse assemblage of waterfowl, including: *Larus ridibundus, Podiceps cristatus, Anas strepera, Tringa totanus, Gallinago gallinago, Aythya fuligula, Aythya ferina, Anas clypeata, Larus fuscus* and *Larus canus*.

Pollan *Coregonus autumnalis*

---

## 23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation
Scientific research
Sport fishing
Sport hunting
Tourism
Traditional cultural
Transportation/navigation

**b)** Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

## 24. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|---|---|---|
| Non-governmental organisation (NGO) | + | |
| Local authority, municipality etc. | + | |
| Private | + | |
| Public/communal | + | |

## 25. Current land (including water) use:

| Activity | On-site | Off-site |
|---|---|---|
| Nature conservation | + | |
| Tourism | + | |
| Recreation | + | |
| Current scientific research | + | |
| Fishing: commercial | + | |
| Fishing: recreational/sport | + | |
| Rough or shifting grazing | + | |
| Hunting: recreational/sport | + | |
| Sewage treatment/disposal | + | |
| Flood control | + | |
| Mineral exploration (excl. hydrocarbons) | + | |
| Domestic water supply | + | |
| Non-urbanised settlements | | + |

## 26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

*Explanation of reporting category:*

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

*NA = Not Applicable because no factors have been reported.*

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Eutrophication | 2 | The Lough drains some 40% of Northern Ireland and has been subject to severe eutrophication as a result of increased nutrient inputs from agricultural run-off and general domestic sewage from catchment housing and other developments. | + | | + |
| Pollution – agricultural fertilisers | 2 | The Lough drains some 40% of Northern Ireland and has been subject to severe eutrophication as a result of increased nutrient inputs from agricultural run-off and general domestic sewage from catchment housing and other developments. | + | | + |
| | | | | | |

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Eutrophication - Phosphate-stripping at appropriate sewage treatment works had begun to address the issue of eutrophication, but the nutrient problem has now been demonstrated to be predominantly due to non-point, agricultural, sources. Water Catchment Management Plan will be developed in context of the Water Framework Directive.

Pollution – agricultural fertilisers - Phosphate-stripping at appropriate sewage treatment works had begun to address the issue of eutrophication, but the nutrient problem has now been demonstrated to be predominantly due to non-point, agricultural, sources. Water Catchment Management Plan will be developed in context of the Water Framework Directive.

Is the site subject to adverse ecological change? YES

## 27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---|---|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| National Nature Reserve (NNR) | + | |
| Special Protection Area (SPA) | + | |
| Land owned by a non-governmental organisation for nature conservation | + | |
| Site management statement/plan implemented | + | |
| Special Area of Conservation (SAC) | + | |

**b)** Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

## 28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

## 29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

**Fauna.**
Numbers of migratory birds and wildfowl and waders are monitored annually as part of the national Irish Wetland Birds Survey (I-WEBS) organised by the IWC Birdwatch Ireland, the National Parks and Wildlife Service (Ireland) and the Wildfowl and Wetlands Trust.

**Miscellaneous.**
The University of Ulster has a freshwater research laboratory on the shores of Lough Neagh.

## 30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Lough Neagh Discovery Centre is located on the southern shores of Lough Neagh and is run by Craigavon Borough Council. School groups and other incidental visitors are also catered for at the nearby Environment and Heritage Service Warden's office/information centre.

## 31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

**Activities, Facilities provided and Seasonality.**
There is regular use of parts of the site for informal recreation.

## 32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

## 33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

## 34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

### Site-relevant references

Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Crowe, O (2005) *Ireland's wetlands and their waterbirds: status and distribution*. BirdWatch Ireland, Newcastle, Co. Wicklow

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Smart, M (1989) *Ramsar Advisory Missions: Report No. 10: Lough Neagh / Lough Beg, Northern Ireland, UK (1989)*. Ramsar Convention Bureau, Gland. www.ramsar.org/ram_rpt_10e.htm

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Way, LS, Grice, P, MacKay, A, Galbraith, CA, Stroud, DA & Pienkowski, MW (1993) *Ireland's Internationally Important Bird Sites: a review of sites for the EC Special Protection Area network*. Joint Nature Conservation Committee, Peterborough, for Department of the Environment (Northern Ireland), Belfast, and Irish Wildlife Service, Dublin

Wood, RB & Smith, RV (eds.) (1993) *Lough Neagh: The ecology of a multipurpose water resource*. Kluwer, Dordrecht (Monographiae Biologicae, No. 69)

Wolfe-Murphy, SA, Lawrie, EW, Smith, SJ & Gibson, CE (1993) *Northern Ireland Lakes Survey*. Unpublished report to Northern Ireland Department of Environment, Countryside and Wildlife, Belfast

---

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

# LOUGH NEAGH AND LOUGH BEG-

# SPECIAL PROTECTION AREA (SPA)

## UK9020091

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Lough Neagh and Lough Beg SPA Conservation Objectives* |
| Prepared By | *Ian Enlander* |
| Approved By | *Mark Wright* |
| Date Effective From | *01/04/2015* |
| Version Number | *V4* |
| Next Review Date | January 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 01/04/1996 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA partially overlaps with Reas Wood and Farrs Bay SAC

The SPA also overlaps with part of the Lough Neagh and Lough Beg Ramsar site.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Antrim, Down, Armagh, Tyrone and Londonderry

G.R. J030 700 AREA: 41188 ha.

## 5 SUMMARY SITE DESCRIPTION

Lough Neagh is a large, shallow, eutrophic lake contained within Counties Antrim, Down, Londonderry and Tyrone. Lough Neagh is the largest freshwater lake in the UK and is one of the top ten sites in the UK for wintering waterfowl (based on annual mean numbers). The SPA also includes the smaller lakes, Lough Beg and Portmore Lough. The main habitats within the SPA are open water with beds of submerged aquatic vegetation, species-rich wet grassland, reedbed, islands, swamp, fen and carr woodland. The SPA supports internationally important numbers of wintering waterfowl and is internationally important for a number of wildfowl species including Whooper Swan, Bewick's Swan, Pochard, Tufted Duck, Scaup and Goldeneye. It is also internationally important for breeding Common Tern.

## 5.1 BOUNDARY RATIONALE

The boundary takes in the main waterbodies, including Portmore Lough and Lough Beg, together with all adjoining natural and semi-natural habitat of conservation significance. All islands within Lough Neagh are also included. Adjoining agriculturally improved areas utilised by swans have not been included but their importance must not be underestimated.

## 6 SPA SELECTION FEATURES

| **Feature Type (i.e. habitat or species)** | **Feature** | **Population[1]** | **Population at time of designation (ASSI)** | **Population at time of designation (SPA)** | **SPA Review population** | **Common Standards Monitoring baseline** |
|---|---|---|---|---|---|---|
| Species | Common Tern breeding population [a] | 137 individuals (Seabird 2000 data) | | 200 pairs | 185 | 118 |
| Species | Great Crested Grebe breeding population [a] | 500 pairs (Data source unknown) | | New feature | 500 | |
| Species | Great Crested Grebe passage population [b] | 2440 (1995 max count) | | New feature | 2440 | 438 |
| Species | Whooper Swan wintering population [a] | 1031 | 1152 | 923 | 1031 | 283 |
| Species | Bewick's Swan wintering population [a] | 136 | 314 | 251 | 136 | 23 |
| Species | Golden Plover wintering population[b] | 5334 | 3625 | Not listed | 5298 | 1626 |
| Species | Great Crested Grebe wintering population [a] | 1431 | 1173 | 741 | 1821 | 110 |
| Species | Pochard wintering population [a] | 26441 | 31508 | 32165 | 26341 | 19588 |
| Species | Tufted Duck wintering population [a] | 22454 | 19372 | 23476 | 22372 | 17972 |
| Species | Scaup wintering population [a] | 3698 | 1584 | 2557 | 3798 | 1215 |
| Species | Goldeneye wintering population [a] | 10781 | 11521 | 12479 | 10776 | 6700 |
| Assemblage species | Little Grebe wintering population | 465 | 395 | 390 | 465 | 290 |
| Assemblage species | Cormorant wintering population | 718 | 815 | 781 | 728 | 445 |
| Assemblage species | Greylag Goose wintering population | 156 | 120 | 129 | 176 | 7 |
| Assemblage species | Shelduck wintering population | 180 | 142 | 165 | 159 | 107 |
| Assemblage species | Wigeon wintering population | 3117 | 2607 | 3447 | 3117 | 2607 |
| Assemblage species | Gadwall wintering population | 166 | 120 | 114 | 166 | 88 |
| Assemblage species | Teal wintering population | 1597 | 2288 | 1868 | 1596 | 1154 |
| Assemblage | Mallard wintering | 5422 | 5330 | 4982 | 5256 | 3591 |

| | | | | | | |
|---|---|---|---|---|---|---|
| species | population | | | | | |
| Assemblage species | Shoveler wintering population | 163 | 169 | 173 | 148 | 43 |
| Assemblage species | Coot wintering population | 7018 | 5979 | 6676 | 6993 | 3062 |
| Assemblage species | Lapwing wintering population | 6946 | 3042 | Not listed | 6899 | 2822 |
| Waterfowl assemblage | Waterfowl Assemblage wintering population[a] (Component species: Whooper Swan, Bewick's Swan, Golden Plover, Great Crested Grebe (wintering) Pochard, Tufted Duck, Scaup, Goldeneye, Little Grebe, Cormorant, Greylag Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Shoveler, Coot, Lapwing) | 81827 | 87049 | 79915 | 99221 | 62352 |
| Habitat[2] | Habitat extent | | | | | |
| Habitat[2] | Roost site locations | | | | | |

Table 1. List of SPA selection features.

[1] Designation population given as 1995/96 five year running mean of maximum annual WeBS counts (except where stated). Note that for some of the selection features these differ from the figures given in the SPA citation, but have been used as they are considered to be more relevant to future monitoring

[2] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area. Extent of swamp/tall fen will be used for breeding waterfowl

**Notes on SPA features – may not be applicable to all SPAs**

The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.

[a] – species cited in current SPA citation and listed on current N2K dataform

[b] – species selected post SPA designation through UK SPA Review 2001

[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1 ADDITIONAL ASSI SELECTION FEATURES

| **Feature Type (i.e. habitat, species or earth science)** | **Feature** | **Size/ extent/ pop.** |
|---|---|---|
| Habitat | Purple Moor-grass and rush pastures (Lough Beg and Lough Neagh ASSI) | |
| Habitat | Wet woodlands (Lough Neagh ASSI) | |
| Habitat | Reed beds and swamps (Lough Neagh ASSI) | |
| Habitat | Fens (Lough Neagh ASSI) | |
| Species | Higher Plant Assemblage (Lough Beg and Lough Neagh ASSI) | |
| Species | Breeding waterbird assemblage (Lough Beg and Lough Neagh ASSI) | |
| Species | Breeding bird assemblage (wet woodland) | |
| Species | Breeding wader assemblage | |

| | | |
|---|---|---|
| Species | Little Grebe wintering population | |
| Species | Cormorant wintering population | |
| Species | Greylag Goose wintering population | |
| Species | Shelduck wintering population | |
| Species | Wigeon wintering population | |
| Species | Gadwall wintering population | |
| Species | Teal wintering population | |
| Species | Mallard wintering population | |
| Species | Shoveler wintering population | |
| Species | Coot wintering population | |
| Species | Lapwing wintering population | |
| Species | Mute Swan wintering population | |
| Species | Freshwater and Estuarine fish (Lough Neagh ASSI) | |
| Species | Invertebrate assemblage (Lough Neagh ASSI) | |
| Earth Science | Coastal processes - refers to near-shore sand complexes (Lough Neagh ASSI) | |

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

# 7 CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

To maintain each feature in favourable condition.

For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of Condition Assessment. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

# 8 LOUGH NEAGH AND LOUGH BEG SPA CONDITION ASSESSMENT 2014

| Species | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Common Tern (B) | 94 | 79 | 118 | 96 | 98 | 59 | 97.00 | **164.41** | Favourable |
| Golden Plover | 6475 | 3129 | 7097 | 4047 | 1539 | 1626 | 4457.40 | **274.13** | Favourable |
| Bewick's Swan | 0 | 0 | 0 | 0 | 0 | 23 | 0.00 | **0.00** | Unfavourable |
| Whooper Swan | 515 | 535 | 637 | 388 | 248 | 283 | 464.60 | **164.17** | Favourable |
| Goldeneye | 2993 | 4626 | 3684 | 3003 | 3437 | 6700 | 3548.60 | **52.96** | Unfavourable |
| Great Crested Grebe (W) | 236 | 1181 | 733 | 947 | 1030 | 110 | 825.40 | **750.36** | Favourable |
| Great Crested Grebe (P) | 634 | 676 | nc | 561 | 941 | 438 | 703.00 | **160.50** | Favourable |
| Pochard | 8878 | 8902 | 5770 | 9183 | 5027 | 19588 | 7552.00 | **38.55** | Unfavourable |
| Scaup | 4348 | 5587 | 6335 | 2989 | 2257 | 1215 | 4303.20 | **354.17** | Favourable |
| Shelduck | 131 | 87 | 193 | 188 | 126 | 107 | 145.00 | **135.51** | Favourable |
| Tufted Duck | 6336 | 5845 | 4995 | 9167 | 7669 | 17972 | 6802.40 | **37.85** | Unfavourable |
| Waterbird assemblage | 47771 | 48575 | 43168 | 43462 | 35837 | 75215 | 43762.60 | **58.18** | Unfavourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
Fledging success sufficient to maintain or enhance population
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

## 5.1 SPA SELECTION FEATURE OBJECTIVES

| **Feature** | **Component Objective** |
|---|---|
| Common Tern breeding population | As above |
| Common Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Great Crested Grebe breeding population | As above |
| Great Crested Grebe breeding population | Fledging success sufficient to maintain or enhance population |
| Great Crested Grebe passage population | As above |
| Whooper Swan wintering population | As above |
| Bewick's Swan wintering population | As above |
| Golden Plover wintering population | As above |
| Great Crested Grebe wintering population | As above |
| Pochard wintering population | As above |
| Tufted Duck wintering population | As above |
| Scaup wintering population | As above |
| Goldeneye wintering population | As above |
| Little Grebe wintering population | As above |
| Cormorant wintering population | As above |
| Greylag Goose wintering population | As above |
| Shelduck wintering population | As above |
| Wigeon wintering population | As above |
| Gadwall wintering population | As above |
| Teal wintering population | As above |
| Mallard wintering population | As above |
| Shoveler wintering population | As above |
| Coot wintering population | As above |
| Lapwing wintering population | As above |
| Waterfowl Assemblage wintering population | No significant decrease in population against national trends |

| Feature | Component Objective |
|---|---|
| Waterfowl Assemblage wintering population | Maintain species diversity contributing to the Waterfowl Assemblage |
| Habitat | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species subject to natural processes |
| Habitat | Maintain the extent of main habitat components subject to natural processes |
| Habitat | Maintain or enhance sites utilised as roosts |

Table 3. List of SPA Selection Feature Component Objectives

**Tern nesting localities current and historical (TO BE FINALISED)**

| |
|---|
| Torpedo platform, Antrim Bay |
| |

Table 4. Tern nesting locations within the SPA

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

| Feature | Component Objective |
|---|---|
| Purple Moor-grass and rush pastures | |
| Wet woodlands | |
| Reed beds and swamps | |
| Fens | |
| Higher Plant Assemblage | |
| Breeding Birds | |
| Freshwater and Estuarine fish | |
| Invertebrate assemblage | |
| Coastal processes – refers to near-shore sand complexes | |

Table 5. List of Additional ASSI Selection Feature Objectives

## 10 MANAGEMENT CONSIDERATIONS

## See also Views About Management for relevant ASSIs

***Owner/Occupier's –*** As of October 1995 there were 463 individual landowners within Lough Neagh SPA. These include the Shaftesbury Estate of Lough Neagh, the National Trust, Armagh, Banbridge and Craigavon Council and the Department of Agriculture and Rural Development for Northern Ireland (DANI). There are five National Nature Reserves (NNRs) within the SPA; Lough Neagh Islands, Rea's Wood, Farr's Bay, Oxford Island and Randalstown Forest with a proposed sixth at Blacker's Rock. There are also an additional four management agreements in place for four small landholdings within the SPA.

## 11. MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** **-** Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Lough Neagh SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

**<u>Site/feature management issues</u>**

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 1 | Adjoining habitat | Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas | Imminent road development through Toome swanfields the effects of which will require monitoring. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| | | lie without the site making effective management of developments other than those for which planning permission is required, difficult. | | |
| 6 | Boating activity – commercial | Disturbance and potential for impact from commercial vessels. | No evidence of a significant impact on the selection features of Lough Neagh | Formal consultation likely relating to new schemes. Consider the collective impact. |
| 7 | Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | A major concern during the breeding season, particularly around the Torpedo platform at Six Mile Water. | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. |
| 8 | Coastal (shoreline) protection schemes | Where there is no history of this, it impacts on natural beach systems with loss of habitat. | There is ad hoc dumping around the shoreline, in places this is in response to erosion. | Liaise with Planning Service and other parties with an involvement in coastal management. |
| 9 | Cull of fledglings/ young | Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA. | Culling of larger gull species is undertaken to reduce impact on breeding wildfowl and terns. | NIEA to review all licenses. Consider the collective impact. |
| 11 | Drainage | Potential impact on water flooding regime. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding. | Routine watercourse maintenance programme by Rivers Agency is referred to NIEA for comment. | Identify key areas and promote site management schemes to protect and enhance site features. Consider the collective impact. |
| 13 | Enhanced bird competition | Activities onsite or offsite that influences or results in a shift in balance of species utilising a site. | General issue of gulls during breeding season. Historical high numbers of Black-headed Gull may have been related to access to feeding on a dump site (Denny's), now closed. | Liaise with Planning Service. Review wider countryside changes. |
| 14 | Fishing – commercial or recreational | Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass. | Important long-established commercial eel, coarse fish and salmonid fishery. Concern regarding diving duck taken as by-catch in nets either accidentally or deliberately. | Liaise with DARD and fishing authorities as required. Liaise with commercial fishing interests and angling clubs as required. Netting of diving duck as a Wildlife Order offence – action is dependant on evidence. |
| 16 | Habitat extent – open water | Loss likely to be limited but expansion of commercial port facilities can impact on key localities. | Not a concern. | Assess planning applications. Consider the collective impact. |
| 18 | Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Water quality is a concern with progressive eutrophication. Longer | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their |

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| | | | term improvement in water quality will reduce productivity and may affect waterfowl populations. | impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 19 | Habitat extent and quality-breeding | Alteration of habitat area or quality through inappropriate use or absence of site management. | Terns mainly breed on Torpedo Platform, Six Mile Water, but also on some islands. | Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management. |
| 21 | Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Roach and Ruddy Duck are present, Zebra Mussel must be considered a real threat. | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives. |
| 22 | Power cables | Specifically a problem in relation to swans and geese. Threat is through impact. Need to consider flight lines, as well as feeding and loafing areas, which ideally should be avoided. | Generally lines in the area are well marked. Assess all new proposals and existing network in relation to swan usage.. | Liaise with NIE. Minimum need is for line marking based on best current practice. Consider the collective impact. |
| 23 | Predation. | Mainly of concern on bird breeding sites. | Impact from large gulls is deemed to be a problem. Care to be taken as breeding Lesser Black-backed Gull are notable. | Must be dealt with as part of wider countryside management considerations. Carry out appropriate site management. |
| 24 | Recreational activities. | Disturbance is the main consideration.<br>Breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success. | Breeding birds are particularly vulnerable to disturbance. Cumulative disturbance impacts (e.g. boating, sand dredgers, wildfowlers, walkers, dogs etc) may also be a significant factor for wintering bird populations | Liaise with local authorities and other managing parties. |
| 25 | Research activities. | Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. | Routine winter WEBS counts. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held. |
| 26 | Sand dredging - commercial | Issue presently limited to Lough Neagh and subject to current (2015) detailed evaluation | Restricted in area but possibly impacting the more diverse invertebrate assemblages. Possibly a limited disturbance issue. | Liaise with commercial operators, Planning Service and other regulatory authorities. |
| 28 | System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors | Historical lowering of the lough level reduced considerably the area subject to flooding but | Human induced change should be minimised. Assess planning applications and liaise with other relevant |

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| | | especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | also would have had implications for shore and nearshore morphology particularly the dynamics of sand bar and river mouth shoal complexes. Ongoing sand exploitation could alter lough bed substrate and influence near shore sediment mobility. | authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |
| 29 | Water abstraction | Potential impact on water flooding regime. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding. | Lough Neagh is a major source of drinking water with ongoing abstraction together with proposals for increased volumes taken. | Liaise with Water Service and Rivers Agency. |
| 30 | Water level control | Impacts on natural fluctuation of water body. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding. | Lough water level essentially controlled by sluice gates at Toome. | Liaise with Rivers Agency. |
| 31 | Wildfowling | Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands. | Generally a good relationship with main gun clubs. Overall perception is that lough is heavily shot. | Liaise with relevant shooting bodies to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the collective impact. |

Table 3. List of site/feature management issues

# 12 MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

## 12.1 MONITORING SUMMARY

**1.** Monitor the integrity of the site (Site Integrity Monitoring or SIM) – to ensure compliance with the SPA/ASSI schedule and identify likely processes of change (e.g. dumping, infilling, gross pollution). This SIM should be carried out once a year.

**2.** Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (species, assemblage, habitat, etc). This will detect if the features are in favourable condition or not. See Annexes I and II for SPA and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2 ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13 SELECTION FEATURE POPULATION TRENDS

A summary statement of site population trends, together with wider geographical trends. Date of completion is given as well as information sources used. Site trends are reported as % increase/decline from designation population (1995/96) using running 5 year means of annual maximum count (WEBS data). For breeding populations the best available data is used. Other trends are generally limited to terms such as 'consistent increase/decline', 'variable with overall increase/decline', 'no discernable trend'.

| SPECIES | SITE TREND | NI TREND | IRISH TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Common Tern (breeding) | insufficient data | Data unavailable | 34% decline between surveys in 1969-70 and 1985-87 (per SPA review) | 11% increase between surveys in 1969-70 and 1985-87 (per SPA review) | |
| Great Crested Grebe | insufficient data | Data unavailable | I-WeBS data unavailable | No discernible trend (1994-99 Breeding | |

| SPECIES | SITE TREND | NI TREND | IRISH TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| (breeding) | | | | Bird Survey) | |
| Great Crested Grebe (passage) | insufficient data | Data unavailable | I-WeBS data unavailable | Data unavailable | |
| Whooper Swan (wintering) | -10% (1999/2000) | Variable with overall decline 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Variable with overall increase 1990/91-1999/2000 (WeBS) | |
| Bewick's Swan (wintering) | -41% (1999/2000) | Consistent Decline 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | No discernible trend 1990/91-1999/2000 (WeBS) | |
| Golden Plover (wintering) | +6% (1999/2000) | Data unavailable | I-WeBS data unavailable | Data unavailable | |
| Great Crested Grebe (wintering) | -11% (1999-2000) | Variable with overall increase 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | No discernible trend 1990/91-1999/2000 (WeBS) | |
| Pochard (wintering) | -5% (1999-2000) | Variable with overall decline 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | No discernible trend 1990/91-1999/2000 (WeBS) | |
| Tufted Duck (wintering) | Stable (1999-2000) | No discernible trend 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | No discernible trend 1990/91-1999/2000 (WeBS) | |
| Scaup (wintering) | +9% (1999-2000) | Data unavailable | I-WeBS data unavailable | Data unavailable | |
| Goldeneye (wintering) | -29% (1999-2000) | Consistent decline 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | No discernible trend 1990/91-1999/2000 (WeBS) | |
| Little Grebe (wintering) | -10% (1999-2000) | No discernible trend 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Consistent increase 1990/91-1999/2000 (WeBS) | |
| Cormorant (wintering) | +89% (1999-2000) | Consistent increase 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Variable with overall increase 1990/91-1999/2000 (WeBS) | |
| Greylag Goose (wintering) | +114% (1999-2000) | Data unavailable | I-WeBS data unavailable | Data unavailable | |
| Shelduck (wintering) | +15% (1999-2000) | Consistent increase 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Variable with overall decline 1990/91-1999/2000 (WeBS) | |
| Wigeon (wintering) | +8% (1999-2000) | No discernible trend 1990/91- | I-WeBS data unavailable | Variable with overall increase 1990/91-1999/2000 | |

| SPECIES | SITE TREND | NI TREND | IRISH TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| | | 1999/2000 (WeBS) | | (WeBS) | |
| Gadwall (wintering) | -21% (1999-2000) | Variable with overall decline 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Consistent increase 1990/91-1999/2000 (WeBS) | |
| Teal (wintering) | +6% (1999-2000) | No discernible trend 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Variable with overall increase 1990/91-1999/2000 (WeBS) | |
| Mallard (wintering) | +1% (1999-2000) | No discernible trend 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Consistent decline 1990/91-1999/2000 (WeBS) | |
| Shoveler (wintering) | -31% (1999-2000) | No discernible trend 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Variable with overall increase 1990/91-1999/2000 (WeBS) | |
| Coot (wintering) | +1% (1999-2000) | Variable with overall increase 1990/91-1999/2000 (WeBS) | I-WeBS data unavailable | Variable with overall increase 1990/91-1999/2000 (WeBS) | |
| Lapwing (wintering) | +11% (1999-2000) | Data unavailable | I-WeBS data unavailable | Data unavailable | |
| Wintering Waterfowl Assemblage (Component species: Little Grebe, Great Crested Grebe, Bewick's Swan, Whooper Swan, Greylag Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Shoveler, Pochard, Tufted Duck, Scaup, Goldeneye, Coot, Golden Plover, Lapwing) | -3% (1999-2000) | N/a | I-WeBS data unavailable | N/a | |

# ANNEX I

## Feature (SPA) – Breeding seabirds - waterbirds

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Common Tern breeding population | Apparently occupied nests | No significant decrease in Common Tern breeding population against national trends | Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Common Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |
| *Great Crested Grebe breeding population | Annual count of breeding pairs<br>Calculate new five year running mean.<br>Plot running five-year means. | No significant decrease in Great Crested Grebe breeding population against national trends | Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. |
| # Great Crested Grebe fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |

## Non-avian factors

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures or breeding sites, where this would lead to different usage by notified species. |

## Feature (SPA) – Passage and Wintering waterfowl

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Great Crested Grebe passage population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Whooper Swan wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Bewick's Swan wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Golden Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Great Crested Grebe wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Pochard wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Tufted Duck wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Scaup wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Goldeneye wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Little Grebe wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Cormorant wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Greylag Goose wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| # Shelduck wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Wigeon wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Gadwall wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Teal wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Mallard wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Shoveler wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Coot wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Golden Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| # Lapwing wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Waterfowl assemblage wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Waterfowl assemblage wintering population | Bird numbers | Maintain species diversity contributing to the Waterfowl Assemblage | |

## Non-avian factors

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species. |
| # Roost sites | Location of roost sites | Maintain all locations of roost sites. | Map roost site locations. Visit once every reporting cycle to ensure sites are available. |

**ANNEX II**

**Feature (ASSI)**

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| Purple Moor-grass and rush pastures (Lough Beg and Lough Neagh ASSI) | | | |
| Wet woodlands (Lough Neagh ASSI) | | | |
| Reed beds and swamps (Lough Neagh ASSI) | | | |
| Fens (Lough Neagh ASSI) | | | |
| Higher Plant Assemblage (Lough Beg and Lough Neagh ASSI) | | | |
| Breeding Birds (Lough Beg and Lough Neagh ASSI) | | | |
| Freshwater and Estuarine fish (Lough Neagh ASSI) | | | |
| Invertebrate assemblage (Lough Neagh ASSI) | | | |
| Coastal processes - refers to near-shore sand complexes (Lough Neagh ASSI) | | | |

**MURLOUGH SAC**
UK0016612

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Murlough SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *24/3/2017* |
| Version Number | *V4* |
| Next Review Date | Nov 2020 |
| Contact | cdp@daera-ni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | June 2013 | Internal working document | PC |
| V2 | January 2015 | Complete review | RMK |
| V3 | March 2017 | Review marine features | LP |
| V4 | November 2018 | Review seal targets | LP |

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable

Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:** J 410360

**AREA:** 11902.03 ha

## 5. SUMMARY SITE DESCRIPTION

The site adjoins Dundrum Bay and includes the shallow waters of the Bay itself, of importance as the largest area of shallow sub-littoral sandbanks in Northern Ireland. The inter-tidal sands and muds are also extensive, and the beach area at Ballykinler is important as a haul-out for Common Seal. The terrestrial element comprises the major dune systems of Murlough and Ballykinler, together with the relatively intact low dunes and ridges within Royal County Down golf club. These host a range of dune communities, but most important, are the dune heath and grey dune grasslands.

The site is particularly important for the population of Marsh Fritillary butterfly. The Inner Bay supports limited saltmarsh. The site is of international importance for earth science with contemporary coastal processes, including a classic ridge and runnel beach form, and associated dune forms, together with features important to understanding post-glacial sea-level history including the important underlying gravel series. The dunes host important fossil soil horizons with associated archaeological artefacts.

Further details of the site are available on the DAERA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-murlough).

### 5.1 BOUNDARY RATIONALE

The seaward boundary includes Outer Dundrum Bay, its line being determined by the main area of sublittoral sandbanks. The landward boundary includes all undeveloped beach area between Newcastle harbour and the western end of Tyrella Beach (this being the presumed active coastal unit associated with the selected dune complexes), the main dune system at Murlough, including the Royal County Down golf course, and at Ballykinler. The boundary in Inner Dundrum Bay includes all inter-tidal habitat, together with all substantive units of adjoining semi-natural habitat.

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ pop· |
|---|---|---|---|
| Habitat | Atlantic decalcified fixed dunes (Calluno-Ulicetea) | A | 93 ha* |
| Habitat | Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) | C | 8.5 ha |
| Habitat | Dunes with *Salix repens ssp. Argentea* (*Salicion arenariae*) | C | 0.2 ha |
| Habitat | Embryonic shifting dunes | C | 2.0 ha |
| Habitat | Fixed dunes with herbaceous vegetation (grey dunes) | B | 127.0 ha |
| Habitat | Mudflats and sandflats not covered by seawater at low tide | C | 785.0 ha |
| Habitat | Sandbanks which are slightly covered by sea water all the time | C | 10000.0 ha |
| Habitat | Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) | C | 4.5 ha |
| Species | Marsh Fritillary *Euphydryas aurinia* | B | |
| Species | Harbour (Common) Seal *Phoca vitulina* | C | 106 individuals |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in Annex I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Murlough SAC.

## 6.1 ASSI SELECTION FEATURES

### Murlough ASSI

| Feature Type | Feature | Size/ extent/ pop~ |
|---|---|---|
| Habitat | Coastal Sand Dunes | 226.7 ha |
| Habitat | Coastal Saltmarsh | 8.5 ha |
| Habitat | Mudflats | 785 ha |
| Species | Marsh Fritillary | |
| Species | Harbour (Common) Seal | |
| Species | Higher Plant Assemblage | |
| Species | Wintering waterfowl assemblage | |
| Species | Invertebrate assemblage | |
| Earth science | Contemporary coastal processes – Recent dune systems together with the associated fossil soil horizons and sub-fossil dune series. | |
| Earth science | Holocene sea-level history – buried and semi-buried components within dune system | |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

***To maintain (or restore where appropriate) the***

- Atlantic decalcified fixed dunes (Calluno-Ulicetea)
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Dunes with *Salix repens ssp. Argentea* (*Salicion arenariae*)
- Embryonic shifting dunes
- Fixed dunes with herbaceous vegetation (grey dunes)

- Mudflats and sandflats not covered by seawater at low tide
- Sandbanks which are slightly covered by sea water all the time
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)
- Marsh Fritillary *Euphydryas aurinia*
- Harbour (Common) Seal *Phoca vitulina*

*to favourable condition.*
Maintain implies that the feature is in favourable condition and will, subject to natural change, remain at its condition at designation. Restore implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment can refer to natural recovery through the removal of unsustainable physical, chemical and biological pressures, as well as intervention.

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objective |
|---|---|---|
| Atlantic decalcified fixed dunes (Calluno-Ulicetea) | A | Maintain and if feasible, expand the extent of existing decalcified fixed dune, H 11 and H10. Increase permitted into areas of rank dune grassland, NOT into spp-rich short turf (Grey Dune SD8). |
| | | Maintain and enhance structural and species diversity within the H11 and H10 communities including the presence of notable species. |
| | | Seek nature conservation management over suitable areas immediately outside the SAC where there is possibility of restoring decalcified fixed dune |
| | | Maintain the diversity and quality of habitats associated with the decalcified fixed dunes, e.g. neutral grasslands, scrub, especially where these exhibit natural transition to decalcified fixed dune vegetation. |
| Atlantic salt | C | Maintain or extend, as appropriate, the area |

| | | |
|---|---|---|
| meadows (*Glauco-Puccinellietalia maritimae*) | | of saltmarsh, subject to natural processes |
| | | Maintain or enhance, as appropriate, the composition of the saltmarsh communities |
| | | Maintain transitions between saltmarsh communities and to other adjoining habitats |
| | | Permit the continued operation of formative and controlling natural processes acting on the saltmarsh communities |
| Dunes with *Salix repens ssp. Argentea* (*Salicion arenariae*) | C | Maintain and expand the extent of existing Fixed dunes with *Salix repens.* Increase permitted into areas of rank dune grassland, NOT into spp-rich short turf (Grey Dune SD8). |
| | | Maintain and enhance species diversity within the SD16 community including the presence of notable species. |
| | | Seek nature conservation management over suitable areas immediately outside the SAC where there is possibility of restoring fixed dune with *Salix repens* |
| Embryonic shifting dunes | C | Maintain or enhance the extent of embryonic shifting dunes subject to natural processes |
| | | Allow the natural processes which determine the development and extent of embryonic shifting dunes to operate appropriately |
| Fixed dunes with herbaceous vegetation (grey dunes) | B | Maintain and expand the extent of existing species-rich fixed dune, SD8. |
| | | Maintain and enhance species diversity within the SD8 community including the presence of notable species. |
| | | Seek nature conservation management over suitable areas immediately outside the SAC where there is possibility of restoring fixed dune |
| | | Maintain the diversity and quality of habitats associated with the fixed dunes, e.g. neutral grasslands, scrub, especially where these exhibit natural transitions to fixed dune vegetation. |
| Mudflats and sandflats not covered by seawater at low tide | C | Maintain the extent of mudflats and sandflats not covered by sea water at low tide |
| | | Allow the natural processes which determine the development, structure and extent of mudflats and sandflats not covered by sea water at low tide, to operate appropriately |

| | | |
|---|---|---|
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |
| Sandbanks which are slightly covered by sea water all the time | C | Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |
| | | Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes. |
| Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) | C | Maintain and enhance the extent of white dunes subject to natural processes |
| | | Allow the natural processes which determine the development and extent of white dunes to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this community |
| Marsh Fritillary *Euphydryas aurinia* | B | Maintain (and if feasible enhance) population numbers and distribution. |
| | | Maintain (and if feasible enhance) the extent and quality of suitable Marsh Fritillary breeding habitat, particularly suitable rosettes of the larval food plant *Succisa pratensis* |
| Harbour (Common) Seal *Phoca vitulina* | C | Maintain (and if feasible enhance) population numbers and distribution of Harbour (Common) Seal. |
| | | Maintain and enhance, as appropriate, physical features used by Harbour (Common) Seals within the site |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| Coastal Sand Dunes | See SAC Selection Feature Objective Requirements table. |
| Coastal Saltmarsh | See SAC Selection Feature Objective Requirements table. |
| Mudflats | See SAC Selection Feature Objective Requirements table. |
| Sandbanks | See SAC Selection Feature Objective Requirements |

| | |
|---|---|
| | table. |
| Marsh Fritillary *Euphydryas aurinia* | See SAC Selection Feature Objective Requirements table. |
| Harbour (Common) Seal *Phoca vitulina* | See SAC Selection Feature Objective Requirements table. |
| Higher Plant Assemblage | To maintain (and if feasible enhance) the populations of notable species, including their abundance and distribution: i.e. *Carlina vulgaris, Echium vulgare, Juncus subnodulosus, Teesdalia nudicaulis, Erigeron acer, Filigo minima* and the bryophytes *Rhodobryum roseum* and *Racomitrium canescens*. |
| Wintering waterfowl assemblage | To be finalised. |
| Invertebrate assemblage | Maintain or enhance, as appropriate, the invertebrate population together with their habitat requirements. |
| Contemporary coastal processes – Recent dune systems together with the associated fossil soil horizons and sub-fossil dune series. | Permit the continued operation of formative and controlling natural processes acting on the dune systems. Maintain natural site morphology subject to natural processes. Maintain the potential for access to fossil soil horizons and sub-fossil dune series. |
| Holocene sea-level history – buried and semi-buried components within dune system | Maintain the potential for access to buried and semi-buried components necessary for the demonstration of sea-level history as related to this site. |

## 10. MANAGEMENT CONSIDERATIONS

### Ownership

Considerable portions of the site are owned by the National Trust and managed as a NNR (Murlough). Ministry of Defence own and actively use much of the Ballykinler area but have a broadly favourable attitude to site conservation objectives. Royal County Down golf club own much of the western portion of the Murlough dune complex; again, they have a broadly favourable attitude to site conservation objectives.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Murlough, or could affect it in the future. Although **Atlantic decalcified**

fixed dunes (Calluno-Ulicetea), Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), Dunes with *Salix repens ssp. Argentea* (*Salicion arenariae*), Embryonic shifting dunes, Fixed dunes with herbaceous vegetation (grey dunes), Mudflats and sandflats not covered by seawater at low tide, Sandbanks which are slightly covered by sea water all the time, Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes), Marsh Fritillary *Euphydryas aurinia* and Common Seal *Phoca vitulina* are the qualifying SAC features, factors affecting ASSI features are also considered.

NOTE - Carrying out <u>any</u> of the Notifiable Operations listed in the ASSI schedule could affect the site.

*Grazing*

In common with many dune grasslands in the UK, parts of the Murlough system suffer from under-grazing. In the absence of livestock, a healthy rabbit population can generally maintain short, species-rich swards and sufficient open ground for important communities of annual plants and invertebrates. However, populations are prone to very wide fluctuations, and once the sward becomes too rank, they are generally ineffective at reversing the trend, even if populations recover. Increased rankness leads to the loss of less competitive species and eventual colonisation by bracken and scrub – over much of the Murlough system Gorse *Ulex europaeus* is the main species.

The problem of increasing rankness may be even more severe in dune slacks and hollows, where under-grazing exacerbates a natural tendency towards drying out as plant litter accumulates progressively over time. Hydrological changes – a lowering of the underlying water table – will accelerate this process (note – only applicable at Ballykinler). In such cases, the only effective methods of managing the site are the manual removal of scrub and the introduction of livestock grazing. Further hydrological management may be required for dune slacks – for example, re-configuring dune profiles.

On the National Trust land at Murlough, a new grazing regime has been established using rare breeds (Dexter cattle – now replaced by Galloway cattle - and Exmoor ponies). The effectiveness of this regime will be formally determined through condition assessment and adjusted as required, but early indications suggest that the livestock are successful in reducing the rank growth. This has been combined with a programme of bracken and scrub control (part of HLF grant-aided "Tomorrow's Heathland Heritage" programme). Again, early indications suggest that the work is improving the condition of the dunes.

To ensure optimum conditions for Marsh Fritillary, a series of grazing exclosures have been established in areas where breeding takes place; however, these should not be allowed to become too rank.

Management of the other major part of the dune complex at Ballykinler is more problematical; here, the rabbit population is relatively low and much of the grey dune habitat is becoming rank. The difficulty is introducing a regime of livestock grazing in an area that is used so intensively for military training.

ACTION: Continue to work with MOD and National Trust staff at Murlough as partners to:

a. explore the possibility of extending current livestock grazing over the bulk of the dune system
b. develop a scrub and bracken management plan for the whole site
c. investigate options for maintaining (and restoring where feasible) dune slack communities at Ballykinler.

### Sea Buckthorn

Sea-buckthorn is an alien species that can spread widely in dune systems and cause radical changes to the composition of the vegetation, and the underlying soils. The species is widespread in places at Murlough, both within NT and MOD land (especially in the dunes around Murlough House and on the opposite bank of the channel at Ballykinler). A programme of control should be implemented.

ACTION: Review the need for a Sea Buckthorn control programme with National Trust and MOD.

### Military Use

Military use has the potential to cause substantial impacts on the dune system. The current management committee and agreed management plan provide a framework for resolving issues.

ACTION: Continue to liaise with M.O.D. and other stakeholders

### Disruption to natural sediment regime

Like most dune systems, Murlough is a highly dynamic system that needs sensitive management. Construction on the shore – including rock armouring and other coastal defence works – are likely to have "knock-on" impacts throughout the system, potentially leading to coastal erosion and loss of intertidal and adjacent coastal habitats.

Natural sand loss from the western end of the beach fronting Newcastle is probably an ongoing system response to hard engineering activities foreshortening the beach profile. Ongoing retreat of the dune front is most noticeable east of the Slieve Donard Hotel. This has resulted in the golf club getting approval for installation of hard engineering coastal protection structures, which generally have the effect of reducing or stopping the interchange of sediment between the beach and dune components of the system, and to exacerbate erosion further down 'drift'.

Substantial erosion of the dune front is ongoing over the length of the National Trust ownership – no management response is anticipated. Historically emplaced railway sleepers near the dune foot fronting the golf course have been recently

renewed. In general, the Newcastle - Murlough beach/dune system is undergoing erosion while the Ballykinler side is stable or actively accreting.
ACTION: Liaise with Council, MOD, NT, Golf Course and others as appropriate.

### Recreational Impact

Trampling through dunes can have a destabilising effect, with particular impacts on foredunes and shifting white dunes. Severe cases can result in blow-outs. Less intensive trampling can affect plant communities through the loss of species sensitive to trampling.

In the Murlough system, recreational impacts are clearly more pronounced on the NT land, where public access is permitted. However, NT has a proactive management strategy for dealing with visitors, which includes fencing the most sensitive areas, and the use of boardwalks where access to the beach is concentrated. As a result, recreational pressure does not currently appear to be a major issue on this part of the system.

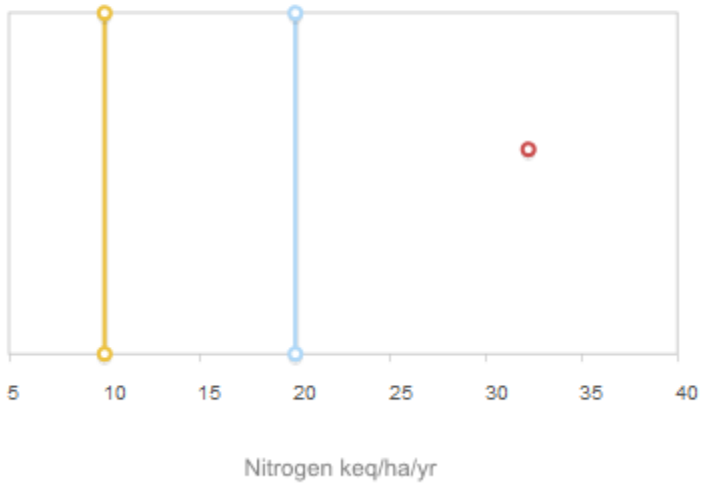
At Ballykinler, the dunes represent an important amenity area for military personnel, and recreation tends to be concentrated in the more accessible parts (e.g. to the east).

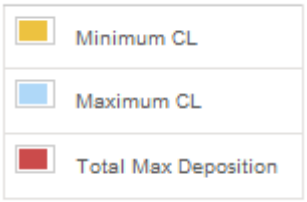
At Royal County Down, golf course management is important for the condition of the grey dunes and especially dune heaths. Gorse removal offers the opportunity to extend the area of more desirable communities.
ACTION: Liaise with NT, MOD and Golf Course as appropriate.

### *Nitrogen Deposition*

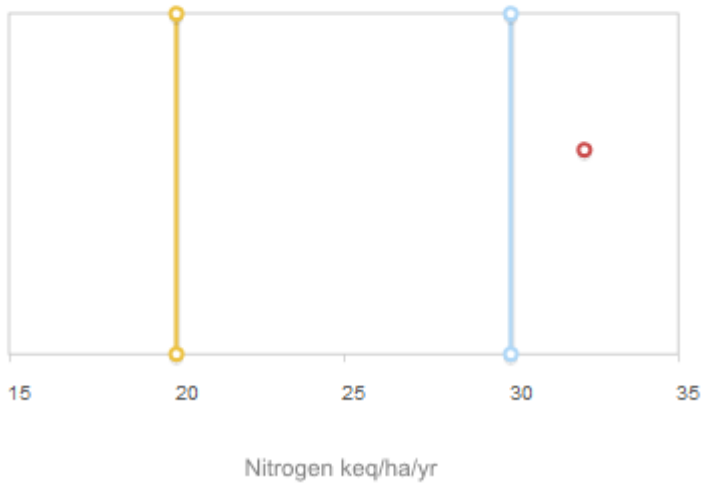
Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for Murlough SAC.

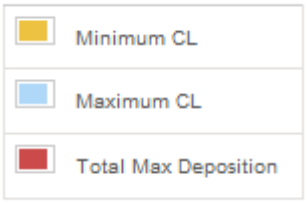
**Feature:** Atlantic decalcified fixed dunes (Calluno-Ulicetea)
**Critical Load Class:** Coastal dune heaths
**Critical Loads (kg N/ha/yr):** 10-20
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6



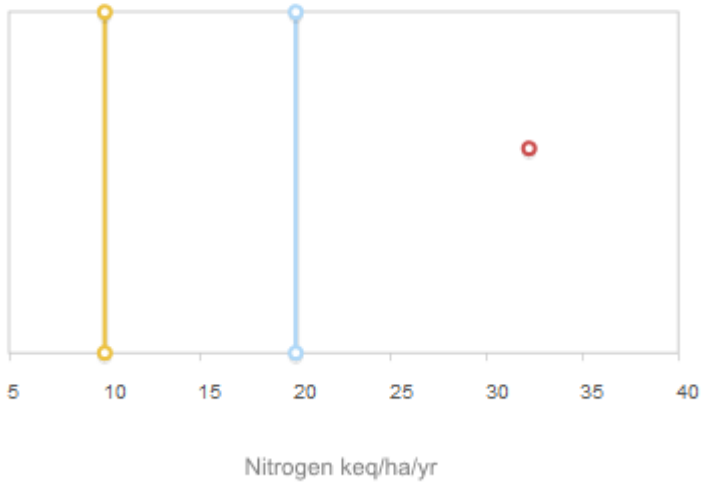



**Feature:** Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
**Critical Load Class:** Pioneer, low-mid, mid-upper saltmarshes
**Critical Loads (kg N/ha/yr):** 20-30
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6



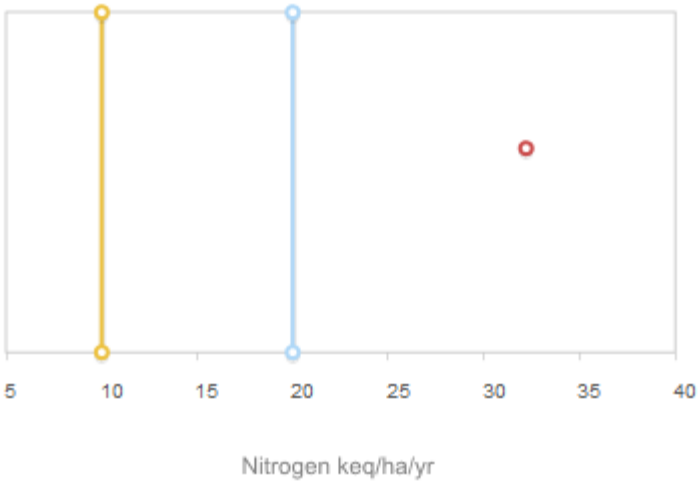



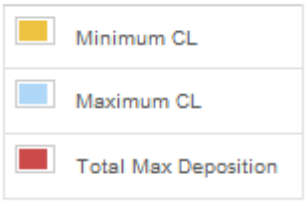
**Feature:** Dunes with Salix repens ssp argentea (Salicion arenariae)
**Critical Load Class:** Moist to wet dune slacks
**Critical Loads (kg N/ha/yr):** 10-20
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6



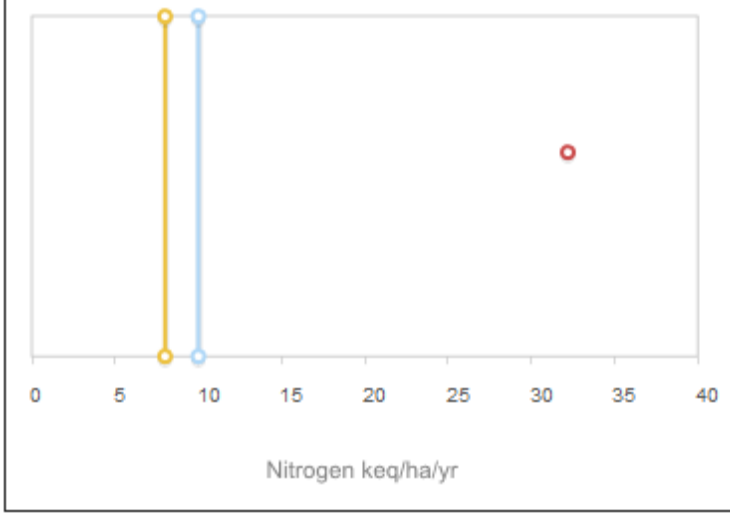


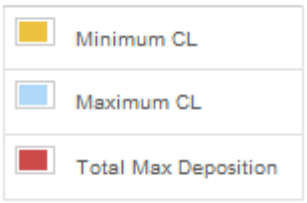

**Feature:** Embryonic shifting dunes
**Critical Load Class:** Shifting coastal dunes
**Critical Loads (kg N/ha/yr):** 10-20
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6



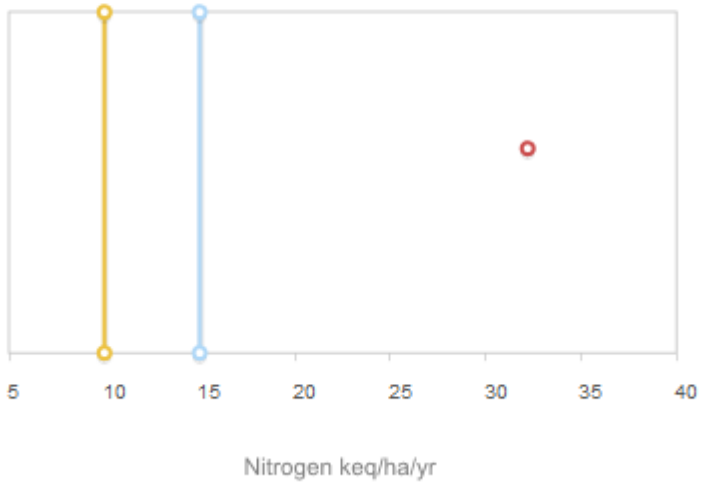



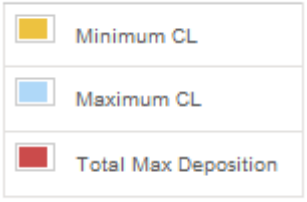

**Feature:** Fixed coastal dunes with herbaceous vegetation ("grey dunes")
**Critical Load Class:** Coastal stable dune grasslands - acid type
**Critical Loads (kg N/ha/yr):** 8-10
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6






**Feature:** Fixed coastal dunes with herbaceous vegetation ("grey dunes")
**Critical Load Class:** Coastal stable dune grasslands - calcareous type
**Critical Loads (kg N/ha/yr):** 10-15
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6



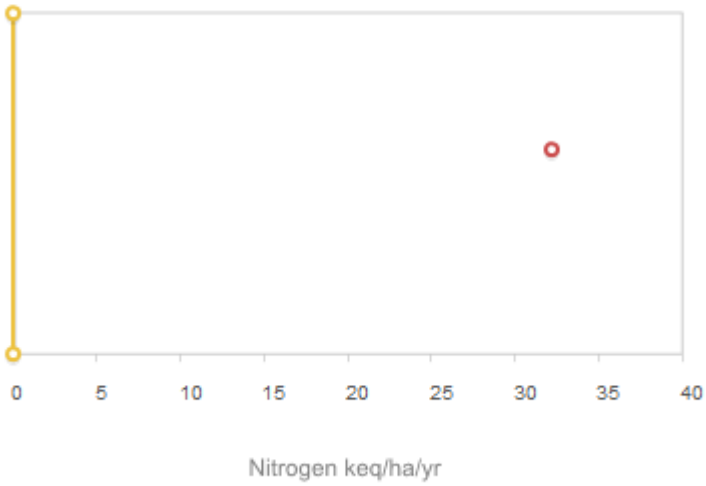
**Feature:** Mudflats and sandflats not covered by seawater at low tide

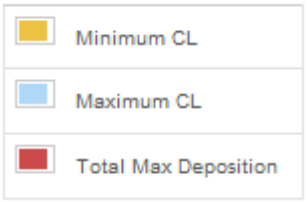
**Critical Load Class:** No comparable habitat with established critical load estimate available

**Critical Loads (kg N/ha/yr):** no critical loads available for this feature

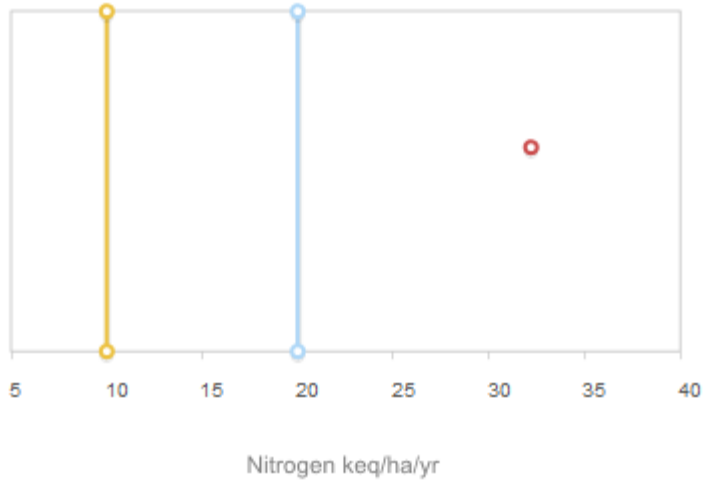
**Nitrogen Deposition (kg N/ha/yr):**

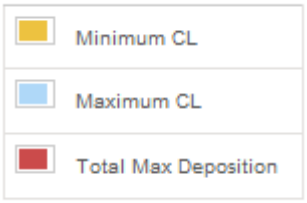
Maximum: 32.2 Minimum: 14.3 Average: 12.6

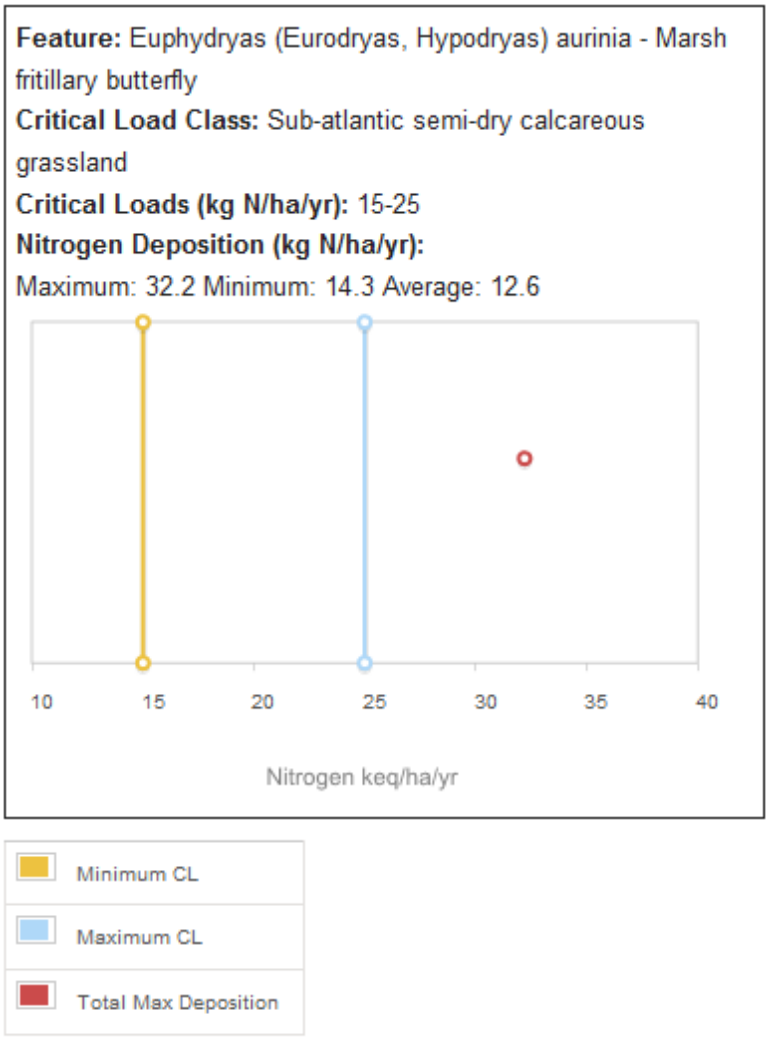


**Feature:** Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")
**Critical Load Class:** Shifting coastal dunes
**Critical Loads (kg N/ha/yr):** 10-20
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 32.2 Minimum: 14.3 Average: 12.6






(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*

Any changes in local land-use e.g. agricultural intensification, drainage works, and coastal development) may be detrimental to the SAC.

**Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events. The Northern Ireland Climate Change Adaptation Programme was published in January 2014. This contains the Northern Ireland Executive's response to the risks and opportunities identified in the Climate

Change Risk Assessment for Northern Ireland (published January 2012) as part of the overall UK Climate Change Risk Assessment. The Adaptation Programme provides the strategic objectives in relation to adaptation to climate change, the proposals and policies by which each department will meet these objectives and the timescales associated with the proposals and policies identified in the period up to 2019.

**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## 12. MONITORING

The SACs are surveyed using two forms of monitoring:

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat). In addition, potentially damaging activities may be picked up through the active marine ranger programme or by members of the public raising concerns with the Department. These reports are followed up through consultation with the relevant competent authorities.

**Site Condition Assessment** of the designated features is carried out on a rolling 6 year basis to pick up subtle changes in the condition of the feature and to ensure that the conservation objectives are being met.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland. For marine features, condition assessments include a variety of techniques such as diving, remote cameras, sediment sampling and acoustic seabed mapping. Marine mammal monitoring programmes also contribute.

### 12.1 MONITORING SUMMARY

1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*

Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction, dumping or dune damage has occurred within the SAC boundary. This SIM should be carried out at least once a year.

*2. Monitor the condition of the site (Condition Assessment)*

Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex I is intended to supplement the conservation objectives only in relation to management of established and

ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES

AFBI, 2015. Bathymetric and Habitat Map for Murlough Special Area of Conservation and offshore, Northern Ireland. Report to the Department of the Environment.

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Mudflats.

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan – Coastal Sand Dunes.

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan – Coastal Saltmarsh.

Department of the Environment for Northern Ireland (2005). Northern Ireland Species Action Plan – Marsh Fritillary.

Erwin, D.G., Picton, B.E., Connor, D.W., Howson, C.M., Gilleece, P. and Bogues, M.J. (1986). The Northern Ireland Sublittoral Survey (NISS) Ulster Museum.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

Wilkinson, M., Fuller, I.W.A., Telfer, T.C., Moore, C.G. & Kingston, P.F. (1988). Northern Ireland Littoral Survey: A conservation-orientated survey of the intertidal seashore of Northern Ireland. Institute of Offshore Engineering, Heriot-Watt Unveristy, Edinburgh.

ANNEX I

Feature 1 (SAC) – Atlantic decalcified fixed dunes (Calluno-Ulicetea) (Status A)

(* = primary attribute. One failure among primary attributes = unfavourable condition)

| Attribute | Targets/Limits | Method of Assessment | Comments |
|---|---|---|---|
| * Area (ha) | Maintain the extent of dune heath community. | Visual estimate in 2x2 plots and across the site using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Any loss of the current intact area is unacceptable. The fixed dune communities include H11 *Calluna vulgaris – Carex arenaria* heath (only H11a *Erica cinerea* subcommunity and H11c species-poor subcommunity present in NI) and H10 *Calluna vulgaris – Erica cinerea* heath. |
| Extent and distribution of dune heath vegetation communities | Maintain extent and distribution of dune heath communities/sub-communities:<br>Both variants of H11a:<br>H11a(i) – grassy on slopes<br>H11a(ii) – lichen rich in hollows<br>And non-coastal dry heath:<br>H10x – species-poor variant | Visual estimate in 2x2 m plots. | |
| * Area of mosaic communities and associated habitats | Maintain associated mosaic communities and habitats. | Visual estimate across the SAC using a combination of aerial photographs, | Repeat monitoring using condition assessment, SIM, and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost. |

| | | | |
|---|---|---|---|
| | | SIM and Condition Assessment structured walk. | |
| Vegetation height | Average vegetation height should be 20-50cm cm. Where H11a (II) lichen community occurs this should be assessed separately and be between 5-20cm. | Visual estimate in 2x2 m plots. | |
| Dwarf-shrub cover (%) | Dwarf-shrub cover should be maintained between 25-90%.<br><br>Both *Calluna vulgaris* and *Erica cinerea* should be frequent. | Visual estimate in 2x2m plots | |
| Bare ground (%) | Bare ground or sand (not rock) extent, noticable without disturbing the vegetation < 5% | Visual estimate in 2x2m plots | |
| Bryophyte cover (%) | Bryophytes should have a minimum cover of 33% over at least 66% of the site. | Visual estimate in 2x2m plots | |
| Lichen cover (%) | Lichens should have a minimum cover of 33% over at least 66% of the site. | Visual estimate in 2x2m plots | |
| Graminoid cover (excluding *Ammophila*) (%) | Graminoid cover (excluding Ammophila) should be less than 40%. | Visual estimate in 2x2m plots | |

| | | | |
|---|---|---|---|
| * Frequency of community character species | At least 3 of the following at least frequent, with at least two also frequent from either list A or List B throughout the sward:<br>*Erica cinerea, Dicranum scoparium, Lotus corniculatus, Luzula campestris*<br><br>Frequency of the following species on slopes:<br>List A<br>*Calluna vulgaris, Pleurozium schreberi, Teucrium scorodonia*<br><br>Frequency of the following species in hollows:<br>List B<br>*Cladonia* spp*, Hypochaeris radicata* | Visual estimate in 2x2m plots | |
| * Frequency of negative indicators | Any one of the following more than frequent throughout the sward:<br>*Cirsium arvense, Cirsium vulgare, Lolium perenne, Senecio jacobaea, Urtica dioica, Arrhenatherum elatius* | Visual estimate in 2x2m plots | |

| | | | |
|---|---|---|---|
| *Pteridium* cover (%) | Mean cover should be less than 15% | Visual estimate in 2x2m plots | |
| * Frequency and % cover of scrub/tree encroachment. (DAFOR and % cover) | Scrub/tree encroachment should be no more than occasional.<br><br>Mean cover should be less than 5%. | Visual estimate within a 10x10 m radius of plots. | |
| * Management – Grazing (DAFOR) | Signs of grazing (poaching/dung) should be no more than occasional. | Visual estimate in 2x2 m plots. | |
| Management – Disturbance (DAFOR) | Tracks/disturbed ground should not be recorded as frequent in more than 25% of plots over the whole area. | Visual estimate in 2x2 m plots. | |
| * Presence of rare or scarce species specific to the site. | Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk. | Name the species at least present along the length of the Condition Assessment structured walk. | If these species are not recorded on any one visit, it does not automatically make the site unfavourable. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
>60%=Constant

Feature 2 (SAC) – Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (Status C)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Attribute | Target | Method of assessment | Comments |
|---|---|---|---|
| * Area of saltmarsh | Subject to natural processes, maintain the overall extent of saltmarsh vegetation. | Visual estimate in 2 x 2 m plots and across the extent of the saltmarsh using a combination of aerial photographs and SIM.<br>The area should be measured once per reporting cycle (6 years) during the summer months of June, July, August or early September. | Judgements in changes to extent/area will have to take particular care to distinguish changes as a result of natural erosion vs. anthropogenic actions. |
| * Mobility | No increase in either the linear extent or the area constrained by introduced structures or landforms. | Visual inspection of aerial photographs, SIM and Condition assessment structured walk. Check for any new physical structures that may impact on this community. | Introduction of physical constraints would reduce the extent of this community and affect its structure. |

| | | | |
|---|---|---|---|
| Physical structure: creeks and pans | Realignment of creeks absent or rare.<br>No further anthropogenic alteration of creek patterns or loss of pans compared to an established baseline. | Visual inspection of aerial photographs, SIM and Condition assessment structured walk.<br>Check for man-made influences on creeks and pans. | Creeks and pans vary in size and density. Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network. |
| * Saltmarsh community diversity | Maintain presence of saltmarsh communities SM10, SM13, SM16, SM18, SM19, SM20 and SM28 as established at baseline survey. | Visual estimate in 2x2m plots. | |
| *Presence of associated semi-natural habitats | Maintain other saltmarsh communities and transitions to freshwater/flush and grassland<br>- e.g. some of the samples to contain open SM8 communities with *Salicornia*; S21 communities with *Scirpus maritimus*; and<br>S4d communities with *Phragmites* | Visual estimate in 2x2 m plots | *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types.<br>Where they occur with saltmarsh communities, their presence should be recorded. |
| * Maintain frequency of positive indicators for low-level marsh (SM10) | At least 5 of the indicator species listed below at least occasional, of which 3 are at least frequent throughout the | Visual estimate in 2x2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities. |

| | | | |
|---|---|---|---|
| | sward:<br>*Suaeda maritima, Salicornia* agg., *Puccinellia maritima, Aster tripolium, Limonium humile, Glaux maritima, Cochlearia officinalis, Plantago maritima, Triglochin maritima Armeria maritime*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | | **Note:** *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features. |
| * Sward Height (SM10) | Maintain short sward in areas of species-rich vegetation. Maintain mean sward height at less than 12 cm. | Visual estimate in 2 x 2 m plots | Measure during summer (July/August/early September) |
| * Maintain frequency of positive indicators for low-level marsh (SM13a, b, c and d) | At least 5 of the indicator species listed below at least occasional, of which 3 are at least frequent throughout the sward:<br>*Suaeda maritima, Salicornia* | Visual estimate in 2 x 2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.<br><br>**Note:** *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are |

| | | | |
|---|---|---|---|
| | agg., *Puccinellia maritima, Aster tripolium, Limonium humile, Glaux maritima, Cochlearia officinalis, Plantago maritima, Triglochin maritima Armeria maritime.*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | | included within other Annex 1 habitat types/ ASSI selection features.. |
| * Sward Height (SM13a, b, c and d) | Maintain short sward in areas of species-rich vegetation. Maintain mean sward height at less than 15 cm. | Visual estimate in 2 x 2 m plots | Measure during summer (July/August/early September) |
| * Maintain frequency of positive indicators for middle marsh communities (SM16b, c, d and e) | At least 6 of the indicator species listed below at least occasional, of which 4 are at least frequent throughout the sward:<br>*Puccinellia maritima, Aster tripolium, Limonium humile, Glaux maritima, Cochlearia officinalis, Plantago maritima, Triglochin maritima Armeria maritima, Festuca rubra,* | Visual estimate in 2 x 2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.<br><br>Note: *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features. |

| | | | |
|---|---|---|---|
| | *Juncus gerardii, Agrostis stolonifera, Trifolium repens, Leontodon autumnalis, Carex flacca*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% | | |
| * Sward Height (SM16b, c, d and e) | Maintain short sward in areas of species-rich vegetation. Maintain mean sward height at less than 20 cm. | Visual estimate in 2 x 2 m plots | Measure during summer (July/August/early September) |
| * Maintain frequency of positive indicators for upper marsh communities (e.g.SM18a, SM19 and SM20 and SM28) | At least 6 of the indicator species listed below at least occasional, of which 4 are at least frequent throughout the sward:<br>*Juncus maritimus, Agrostis stolonifera, Festuca rubra*, *Glaux maritima*, *Juncus gerardii, Triglochin maritima, Plantago maritima, Armeria maritima, Aster tripolium, Elymus repens, Atriplex* | Visual estimate in 2 x 2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities. |

| | | | |
|---|---|---|---|
| | *prostrata, Potentilla anserina, Phragmites australis, Blysmus rufus, Eleocharis uniglumis*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | | |
| Sward Height (Upper marsh communities) | Maintain mean sward height less than 1m. | Visual estimate in 2x2 m plots | Measure during summer (July/August/early September) As upper saltmarsh communities are tall, often mono-dominant stands of vegetation, the height of the vegetation is not critical. |
| * Frequency and/or % cover of *Spartina* encroachment into the saltmarsh communities (% Cover) | *Spartina* be should be recorded as absent or rare across the saltmarsh communities.<br><br>Mean cover should be less than 2 %.<br><br>No more than rare is equivalent to less than 20% occurrence in recoded plots | Visual estimate within a 10x10 m radius of monitoring plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | *Spartina* is extremely invasive across all saltmarsh communities and its occurrence should be carefully recoded to ensure that it does not pose a threat to these valuable communities. |

| | | | |
|---|---|---|---|
| * Frequency and % cover of negative indicators excluding *Spartina* (DAFOR and % cover) | Negative indicators no more than occasional across the saltmarsh communities<br><br>Mean cover should be less than 2 %.<br><br>No more than occasional is equivalent to less than 40% occurrence in recoded 2x2m plots. | Visual estimate in 2x2 m plots | |
| * Frequency and % cover of scrub/tree encroachment into transitional communities (DAFOR and % cover) | Scrub encroachment no more than occasional in transitional communities.<br><br>Mean cover should be less than 5 %.<br><br>No more than occasional is equivalent to less than 40% occurrence in recoded 10x10m plots. | Visual estimate within a 10x10 m radius of monitoring plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | |
| * Cover of litter/thatch accumulation (% cover) | Less than 25% mean cover.<br><br>Lower thresholds may be appropriate for short SM 10 communities. | Visual estimate in 2x2m plots. | More than 25% litter cover indicates insufficient removal of biomass by grazing, particularly in middle and upper saltmarsh communities such as SM13 and SM16. A lower threshold for thatch should be set - perhaps 10% |

| | | | |
|---|---|---|---|
| | | | For SM10 communities (to be determined). |
| * % cover of bare ground | Bare areas resulting from trampling by stock or human activity (vehicle use, etc.) should account for less than 10 % of the extent of all communities with the exception of SM 10. | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Saltmarsh can be severely affected by persistent heavy trampling<br>Note: UK CSM suggests 25% upper limit for poaching – a lower limit is recommended for SM13 and SM16 at most saltmarsh areas in N. Ireland. |
| Lack of disturbance | There should be no management activities leading to erosion. | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Saltmarsh can be severely affected by persistent heavy trampling<br>Lower marsh communities naturally have higher cover of bare ground than middle and upper marsh communities. |
| Lack of pollution | No evidence of oil or other forms of pollution | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |

| | | | |
|---|---|---|---|
| Saltmarsh hydrology | Artificial drainage channels adversely affecting hydrology are absent or rare, | Visual estimate across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |
| * Maintain distinctive elements at current extent/levels and/or in current locations | Maintain distinctive elements at current extent/levels and/or in current locations (e.g. maintain existing populations of notable species, important structural attributes or notable transitions between habitats) | Visual estimate in 2x2 m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. Check for presence of species/structural attributes, and/or transitions. | This attribute is intended to cover any site-specific aspects of this habitat feature which are not adequately covered by the previous attributes. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

Feature 3 (SAC) – Dunes with *Salix repens ssp. Argentea* (*Salicion arenariae*) (Status C)

(* = primary attribute. One failure among primary attributes = unfavourable condition)

| Attribute | Targets/Limits | Method of Assessment | Comments |
|---|---|---|---|
| * Area (ha) | Maintain the extent of *Salix* dune slack community. | Visual estimate in 2x2 plots and across the site using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Any loss of the current intact area is unacceptable. The Salix dune slack community includes SD16 *Salix repens – Holcus lanatus* dune-slack community (with *Salix repens* dominant). |
| * Area of mosaic communities and associated habitats | Maintain associated mosaic communities and habitats. | Visual estimate across the SAC using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring using condition assessment, SIM, and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost. |
| Height and frequency of *Salix repens* | Average height of *Salix repens* should be 5–30cm.<br><br>*Salix repens* should be at least | Visual estimate in 2x2 m plots. | Low bushy *Salix* should be maintained in association with open patches of shorter dune communities. |

| | | | |
|---|---|---|---|
| | frequent. | | |
| Litter (%) | Litter in a more or less continuous layer, distributed either in patches or in one larger area should not cover > 50% of the area. | Visual estimate in 2x2m plots | |
| Bare ground (%) | Bare ground or sand (not rock) extent, noticable without disturbing the vegetation < 10% | Visual estimate in 2x2m plots | |
| * Frequency of community character species | At least two of the following at least frequent and two at least occasional throughout the sward:<br>*Salix repens,*<br>*Festuca rubra,*<br>*Carex flacca,*<br>*Carex arenaria,*<br>*Ononis repens,*<br>*Lotus corniculatus,*<br>*Pilosella officinarum* | Visual estimate in 2x2m plots | At least frequent is equivalent to greater than 41% occurrence in recorded plots.<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots. |
| * Frequency of negative indicators | Any one of the following more than frequent throughout the sward:<br>*Cirsium arvense, Cirsium vulgare, Cirsium palustre, Lolium perenne, Senecio jacobaea, Urtica dioica, Pteridium aquilinum, Arrhenatherum elatius, Rubus fruticosus.* | Visual estimate in 2x2m plots | |

| | | | |
|---|---|---|---|
| *Frequency and % cover of scrub/tree encroachment (excluding *Salix repens*) (DAFOR and % cover) | Scrub/tree encroachment (excluding *Salix repens*) should be no more than occasional.<br><br>Mean cover should be less than 5%. | Visual estimate within a 10x10 m radius of plots. | If scrub/tree species are more than occasional throughout the sward but less than 5% cover they are soon likely to become a problem if grazing levels are not sufficient or if scrub control is not being carried out. |
| * Presence of rare or scarce species specific to the site. | Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk.<br><br>If these species are not recorded on any one visit, it does not automatically make the site unfavourable. | Name the species at least present along the length of the Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

## Feature 4 (SAC) – Embryonic shifting dunes (Status C)

(* = primary attribute. One failure among primary attributes = unfavourable condition)

| Attribute | Targets/Limits | Method of Assessment | Comments |
|---|---|---|---|
| *Area (ha) | Presence of embryonic dunes appropriately positioned within the site | Visual estimate in 2x2 plots and across the site using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Ideally there should be a presence of this community but its ephemeral nature makes prediction of presence or position at dune front difficult. Provided that no human developments result in direct loss of habitat or of areas with the potential to develop this habitat, or change the site dynamics, then the attribute should be deemed to be in favourable condition. |
| * Area of mosaic communities and associated habitats | Maintain associated mosaic communities and habitats. | Visual estimate across the SAC using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring using condition assessment, SIM, and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost. |
| * Frequency of community character species | Presence of characterising species, particularly *Elytrigia juncea*, and/or *Leymus arenarius*, with other species such as *Honkenya peploides, Cakile maritima* during the summer months of June, July or August | Visual estimate in 2x2m plots | At least frequent is equivalent to greater than 41% occurrence in recorded plots.<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots. |

| | | | |
|---|---|---|---|
| * Presence of rare or scarce species specific to the site. | Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk. | Name the species at least present along the length of the Condition Assessment structured walk. | If these species are not recorded on any one visit, it does not automatically make the site unfavourable. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

## Feature 5 (SAC) – Fixed dunes with herbaceous vegetation (grey dunes) (Status B)

(* = primary attribute. One failure among primary attributes = unfavourable condition)

| Attribute | Targets/Limits | Method of Assessment | Comments |
|---|---|---|---|
| * Area (ha) | Maintain the extent of fixed dune community. | Visual estimate in 2x2 plots and across the site using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Any loss of the current intact area is unacceptable.<br>The fixed dune communities include SD7 *Ammophila arenaria – Festuca rubra*, SD8 *Festuca rubra – Galium verum*, SD10 *Carex arenaria*, SD19 *Phleum arenarium – Arenaria serpyllifolia*, U4 *Agrostis capillaris – Galium saxatile* and W25. |
| * Relative % proportion of species-rich short dune vegetation to taller Marram dominated swards | 30-70% of sward to comprise species-rich short dune vegetation, between 2-15 cm tall. | . | . |
| * Area of mosaic communities and associated habitats | Maintain associated mosaic communities and habitats. | Visual estimate across the SAC using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring using condition assessment, SIM, and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost. |
| Vegetation height | Average vegetation height should be 2–25cm over the whole grey dune vegetation. | Visual estimate in 2x2m plots. | Outside target indicates insufficient grazing or over-grazing. |

| | | | |
|---|---|---|---|
| Litter (%) | Litter in a more or less continuous layer, distributed either in patches or in one larger area should not cover > 10% of the area. | Visual estimate in 2x2m plots | |
| Bare ground (%) | Bare ground or sand (not rock) extent, noticable without disturbing the vegetation < 5% | Visual estimate in 2x2m plots | |
| Grass:herb ratio | 40–90% herbs | Visual estimate in 2x2m plots | |
| * Frequency of community character species | At least four of the following at least frequent and four at least occasional throughout the sward:<br>*Polygala sp,*<br>*Centaurium erythraea,*<br>*Primula vulgaris,*<br>*Euphrasia sp,*<br>*Thymus polytrichus,*<br>*Galium verum,*<br>*Ranunculus bulbosus,*<br>*Linum catharticum,*<br>*Koeleria macrantha,*<br>*Lotus corniculatus,*<br>*Peltigera/Cladonia,*<br>*Scilla verna,*<br>*Viola tricolor,*<br>*Pilosella officinarum,* | Visual estimate in 2x2m plots | |

| | | | |
|---|---|---|---|
| | *Veronica officinalis,*<br>*Succisa pratensis,*<br>*Orchid sp,*<br>*Anthyllis vulnareria,*<br>*Erodium* spp.,<br>*Campanula rotundifolia*,<br>*Erophila verna*,<br>*Hyacinthoides non-scripta*,<br>*Ononis repens*,<br>*Phleum arenarium*,<br>*Polypodium* spp.,<br>small *Carex*<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plots.<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots. | | |
| * Frequency of negative indicators | Any one of the following more than frequent throughout the sward:<br>*Cirsium arvense, Cirsium vulgare, Lolium perenne, Senecio jacobaea, Urtica dioica, Pteridium aquilinum, Arrhenatherum elatius* | Visual estimate in 2x2m plots | |
| * Frequency and % | Scrub/tree encroachment | Visual estimate within a | If scrub/tree species are more than occasional |

| | | | |
|---|---|---|---|
| cover of scrub/tree encroachment. (DAFOR and % cover) | should be no more than occasional.<br><br>Mean cover should be less than 5%. | 10x10 m radius of plots. | throughout the sward but less than 5% cover they are soon likely to become a problem if grazing levels are not sufficient or if scrub control is not being carried out. |
| * Presence of rare or scarce species specific to the site. | Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk.<br><br>If these species are not recorded on any one visit, it does not automatically make the site unfavourable. | Name the species at least present along the length of the Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

## Feature 6 (SAC) – Mudflats and sandflats not covered by seawater at low tide (Status C)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Sub-feature | Attribute | Measure | Targets | Comments |
|---|---|---|---|---|
| | *Morphological naturalness (extent, mobility and substrate) | Ensure that any loss in extent and change in system dynamics is only due to natural processes | No human induced developments impacting on the natural system. | This habitat occupies a naturally dynamic position in coastal systems. Provided that no human developments result in direct loss of habitat, or change the site dynamics, then the attribute should be deemed to be in favourable condition. Substrate supply and distribution should be regulated by natural coastal processes. |
| Intertidal Sand and Gravel communities<br><br>Intertidal Fine Sand and Mud Communities | *Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of the selected biotopes as identified by the NI Littoral survey at selected sites measured once during the reporting cycle | Results should not deviate significantly from the established baseline, subject to natural change. | Baseline survey was carried out as part of the Northern Ireland Littoral Survey between 1984 and 1987 by Heriot-Watt University. Changes in extent and distribution may indicate long term changes in the physical conditions at the site. |
| | *Species composition of selected biotopes at monitoring sites. | Species composition of the selected biotopes as identified by the NI Littoral survey measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

| | | | | |
|---|---|---|---|---|
| *Zostera* Spp Beds<br><br>(*Z.noltii, Z. angustifolia, Z. marina*) | Distribution of *Zostera* beds. | Distribution of *Zostera* beds, measured during autumn once during the reporting cycle. | Distribution should not deviate significantly from the established baseline, subject to natural change. | The distribution of the beds is of key importance to their conservation condition.<br>It is important that any consideration of *Zostera* within the context of these conservation objectives fits with the UK Biodiversity Action Plan for Seagrass Beds.<br><br>A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data. |
| | Extent | Area (ha) of *Zostera* spp. Beds | Extent should not deviate significantly from the established baseline, subject to natural change. | A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data. |
| | Taxonomic composition | Presence of selected taxa | Taxonomic species should not deviate significantly from the established baseline, subject to natural change. | A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data. |
| | Density | Measuring *Zostera* shoot density | Target: Average shoot density should not deviate significantly from the long term average. | An early indicator of seagrass under stress is a reduction in the number of plants and loss of plants on the lower shore.<br>This will probably concentrate only on *Z. angustifolia* which, being a larger plant, is found at lower densities than *Z. noltii*. |

## Feature 7 (SAC) – Sandbanks which are slightly covered by sea water all the time (Status C)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Extent and disturbance | Area (ha) of the subtidal sandbanks to be measured periodically (frequency to be determined). | Ensure that quality and extent of sandbank are not threatened by unsustainable aggregate removal. | Aggregate removal is subject to EIA, HRA and marine license regulations. Therefore, it could only be approved if shown not to impact the conservation objectives of the site. |
| *Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent. | Presence of the selected biotopes at selected sites measured once during the reporting cycle. | Results should not deviate significantly from the established baseline, subject to natural change. | Northern Ireland Sublittoral Survey (NISS) carried out the baseline survey during 1980s. This was enhanced by the Inis Hydro project which mapped 182km$^2$ of the SAC.<br>DOE commissioned AFBI to produce a habitat map of Murlough in 2015. This details biotope complexes down to L4 (https://www.afbini.gov.uk/sites/afbini.gov.uk/files/publications/dundrum_bay.pdf).<br><br>Changes in extent and distribution may indicate long term changes in the physical conditions at the site. |

| | | | |
|---|---|---|---|
| *Species composition of selected biotopes at monitoring sites | Species composition of the selected biotopes measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

Feature 8 (SAC) – Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (Status C)

(* = primary attribute. One failure among primary attributes = unfavourable condition)

| Attribute | Targets/Limits | Method of Assessment | Comments |
|---|---|---|---|
| * Area (ha) | Maintain the extent of white dune community. | Visual estimate in 2x2 plots and across the site using a combination of aerial photographs, SIM and Condition Assessment structured walk. | This community occupies a naturally dynamic position in coastal systems. Provided that no human developments result in direct loss of habitat or of areas with the potential to develop this habitat, or change the site dynamics, then the attribute should be deemed in favourable condition.<br>The white dune community includes SD6 *Ammophila arenaria*. |
| * Area of mosaic communities and associated habitats | Maintain associated mosaic communities and habitats (bog woodland, fen, etc) | Visual estimate across the SAC using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring using condition assessment, SIM, and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost. |
| Bare ground (%) | Bare ground or sand (not rock) extent, should be noticeable without disturbing the vegetation. | Visual estimate in 2x2m plots | |

| | | | |
|---|---|---|---|
| * Frequency of community character species | *Ammophila arenaria* at least frequent and one of the following at least present throughout the sward:<br>*Euphorbia* spp.,<br>*Eryngium maritima*,<br>*Leymus arenarius*,<br>*Calystegia soldanela,*<br>*Festuca rubra*,<br>*Sonchus* spp<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plots.<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots. | Visual estimate in 2x2m plots | |
| * Frequency of non-native species | There should be no non-native species recorded within the white dunes. | Visual estimate in 2x2m plots | |
| *Frequency and % cover of Sea buckthorn encroachment. (DAFOR and % cover) | Sea buckthorn encroachment should be absent.<br><br>Mean cover should be 0%. | Visual estimate within a 10x10 m radius of plots. | There is a limited range of invasive species that are likely to be able to establish themselves on shifting dunes. Sea buckthorn would probably present the greatest threat. |
| * Presence of rare or scarce species | Locally distinctive species recorded for the site should be | Name the species at least present | |

| | | | |
|---|---|---|---|
| specific to the site. | at least present along the length of the Condition Assessment structured walk<br><br>If these species are not recorded on any one visit, it does not automatically make the site unfavourable. | along the length of the Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

Feature 9 (SAC) – *Euphydryas aurinia* (Status B)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Population Size | Number of larval webs present in at least one year in six | At least 150 larval webs should be present in at least one year in six with a minimum of 20 colonies.<br><br>(unless unfavourable meteorological conditions during the flight period occur more often) | Larval webs are a much more reliable measure of the "health" of the colony than flying adults. National Trust undertakes an annual survey to assess population and distribution. By its nature, this species naturally adopts a dispersed breeding pattern.<br>Murlough is the most important area for this species with Ballykinler having little Succisa or potential habitat. Exclosures have been used at Murlough to reduce the impact of the recently introduced grazing regime. |
| * Habitat Extent | Extent of suitable grassland | Maintain the extent of suitable grassland – determine area. | Definition of suitable grassland -Stands of grassland where *Succisa pratensis* is present. Vegetation height and extent of Succisa are critical. |
| | Extent of good marsh fritillary breeding habitat | Maintain the extent of good marsh fritillary breeding habitat. | Definition of good marsh fritillary breeding habitat |
| * Habitat Mosaic | Extent of other semi-natural habitats | Maintain the extent of other semi-natural habitats which contribute to marsh fritillary breeding success.<br><br>No loss in extent of other semi-natural habitats | |

Feature 10 (SAC) – *Phoca vitulina* (Status B)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Population | Number of Harbour Seals counted during the autumn moult period. | Maintain a population of at least 106 Harbour Seals. | Using baseline data from 1994-1999 the mean maximum counts for each year within this 6 year period gave a value of 141 individuals. Allowing for a maximum decline of 25% from this baseline value gives a target of 106 individuals. When monitoring Harbour Seal numbers, ideally 2 counts would be performed during the moult season and 2 counts would be performed during the pupping season each year to give a reasonable estimate of the population.<br><br>The population within this area could be influenced by factors including population trends within the wider Irish Sea, food availability and disturbance.<br><br>Murlough data should be considered in the context of both long-term trends and existing seal numbers in Co.Down, all Ireland, UK and North East Atlantic. |

| | | | |
|---|---|---|---|
| Pups | Percentage of pups in relation to number of seals counted in the moult period. | Maintain a pup percentage of at least 25%. | |
| *Haul-outs | Integrity of haul-outs. | Maintain integrity of traditional haul-outs. | Changes to traditional haul-outs should only be through natural processes e.g. coastal erosion/deposition. |
| Disturbance | Disturbance events. | Contain disturbance events to a level which do not significantly impact the population. | Disturbance can result in injury to pups, separation of pups from their mothers and reduced opportunities to feed and rest. Disturbance events reported previously within this SAC include recreational activities on the shore and on water. Deliberate disturbance by boating activities has also been reported. Incidents reported to DAERA should be logged and investigated where practicable. If the population becomes unfavourable then more monitoring effort may be required to determine disturbance effects. |

Joint Nature Conservation Committee

Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk




# Harbour Porpoise (*Phocoena phocoena)* Special Area of Conservation: North Channel

## Conservation Objectives and Advice on Operations

March 2019

Advice under Regulation 21 of The Conservation of Offshore Marine Habitats and Species Regulation 2017 and Regulation 28(2) of The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)

## Further information

This document is available as a pdf file on the JNCC website for download if required (www.jncc.defra.gov.uk).

## Contact details:

**JNCC**
Marine Species Advice Team
Joint Nature Conservation Committee
Inverdee House
Aberdeen
AB11 9QA

Email: OffshoreMPAs@jncc.gov.uk
Tel: +44 (0) 1224 266550

**DAERA**
Marine Conservation and Reporting Team
Marine and Fisheries Division
Department of Agriculture, Environment and Rural Affairs
Klondyke Building
1 Cromac Avenue
Gasworks Business Park
Malone Lower
Belfast
BT7 2JA

Email: Marine.InfoRequests@daera-ni.gov.uk
Tel: +44 (0) 28 90569262

## Summary of Conservation Objectives and Advice on Operations

The Conservation Objectives and Advice on Operations are set out for the North Channel Special Area of Conservation (SAC) for harbour porpoise (*Phocoena phocoena*). The site covers both inshore (within 12 nautical miles of coast) and offshore (beyond 12 nautical miles of coast) waters where the Department of Agriculture, Environment and Rural Affairs (DAERA) and the Joint Nature Conservation Committee (JNCC) have respective advisory responsibilities as the Statutory Nature Conservation Body (SNCB).

The general objective of achieving or maintaining Favourable Conservation Status (FCS) for all species and habitat types listed in Annexes I and II of the Habitats Directive needs to be translated into Conservation Objectives for SACs. These objectives describe the condition to be achieved by a site for it to contribute in the best possible way to achieving FCS at the national, bio-geographical and European level[1]. The Advice on Operations is site-specific but based on a broad assessment of the sensitivity of the harbour porpoise to anthropogenic pressures at a UK scale.

The advice in this document has been developed using the best available scientific information and expert interpretation as of February 2019. The advice provided here may be subject to change as our knowledge about the site and the impacts of human activities improves.

To ensure the site contributes in the best possible way to achieving FCS, management of human activities occurring in or around the site is required if these activities are likely to have an adverse impact (directly or indirectly) on the integrity of the site, with regards to its Conservation Objectives. It should be noted that as a European Protected Species under Annex IV of the Habitats Directive, harbour porpoises are already strictly protected throughout their European range. As such, several conservation measures are already in place in the UK.

To achieve the Conservation Objectives for the North Chanel SAC, the relevant[2] and competent[3] authorities should consider human activities within their remit which might affect the integrity of the site.

[1] http://jncc.defra.gov.uk/PDF/comm02D07.pdf

[2] Relevant authorities are those who are already involved in some form of relevant marine regulatory function and would therefore be directly involved in the management of a marine site lying within territorial waters. The bodies which may be relevant authorities are listed in Regulation 6 of the Conservation of Habitats and Species Regulations 2017. All relevant authorities are also competent authorities.

[3] Competent authorities are defined in Regulation 5 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 and Regulation 7 of the Conservation of Habitats and Species Regulations 2017. In summary, a competent authority is any person or organisation that has the legally delegated or invested authority (e.g. Minister, government department, public body of any kind or statutory undertaker) to perform a designated function.

# Contents

1 Introduction ..... 3
1.1 Background ..... 3
2 Responsibilities of Relevant and Competent Authorities ..... 4
3 Conservation Objectives for harbour porpoise SACs ..... 4
3.1 The role of Conservation Objectives ..... 4
3.2 Background to Conservation Objectives ..... 5
3.3 The North Channel SAC Conservation Objectives ..... 5
4 Advice on Operations ..... 8
4.1 Purpose of advice ..... 8
4.2 Background ..... 9
5 Operation assessments at UK scale ..... 9
6 Site specific considerations: North Channel SAC ..... 11
6.1 Sensitivity of harbour porpoise to existing activities within or impacting on the site 11
6.2 Limitations of the evidence ..... 18
7 References ..... 20
8 Annex A: Assessment of the level of impact risk from operations (activities) on UK harbour porpoise populations ..... 22
9 Annex B: Definitions of Pressures as applied within harbour porpoise SAC Advice on Operations ..... 27

# 1 Introduction

## 1.1 Background

Initial advice on a network of sites identified within UK waters for harbour porpoise (*Phocoena phocoena*) was submitted to UK and Devolved Governments as a series of draft SACs in June 2015. The sites were identified within the UK portions of Management Units (MUs[4]) defined for the species (ICES, 2014; IAMMWG, 2015). The Welsh and Northern Irish Governments, along with Defra on behalf of England and relevant offshore waters, gave approval for sites within their areas of jurisdiction to proceed to consultation (January to May 2016). In light of the responses to the consultation, five sites were submitted to the European Commission as candidate SACs in January 2017. These five sites were adopted by the EC as Sites of Community Importance (SCIs) on 12 December 2017 and designated as SACs by Ministers on 26th February 2019. These sites are shown in Figure 1.

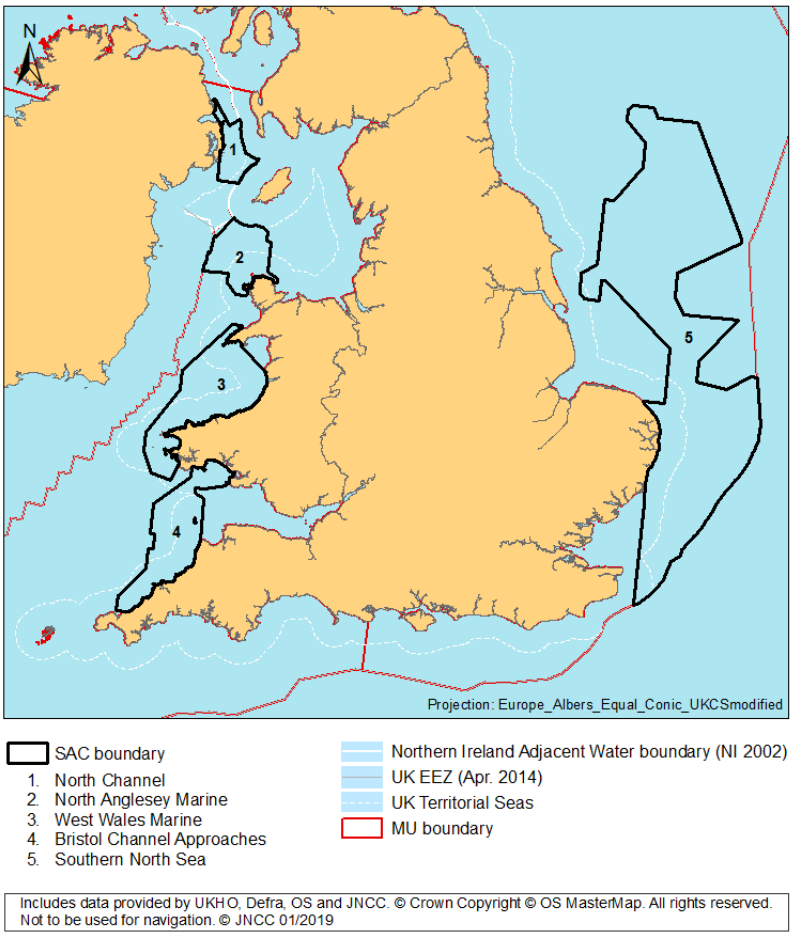



**Figure 1:** Special Areas of Conservation for the harbour porpoise, *Phocoena phocoena* identified in Northern Ireland, England, Wales and offshore waters. The Management Unit (MU) boundary (red line) refers to the UK portion of the North Sea and Celtic and Irish Seas MUs.

[4] For conservation and management purposes it is practical to divide the population into smaller units, termed Management Units (MUs). These MUs were developed to take account of biological populations of animals but were also determined by political boundaries and are at an appropriate scale at which to assess human activities. In the UK, three MUs have been defined for harbour porpoise: West of Scotland, Celtic and Irish Seas, and North Sea (IAMMWG, 2015)

This advice document is for the North Channel SAC (Figure 2) which is subject to protection under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)[5] and the Conservation of Offshore Marine Habitats and Species Regulation 2017[6] (collectively referred to as the Habitats Regulations). The advice is given in fulfilment of the duty of the Statutory Nature Conservation Bodies (SNCBs) under the Habitats Regulations to advise Relevant and Competent Authorities as to (a) the Conservation Objectives for the site; and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. The SNCBs aim to ensure that the Conservation Objectives are up-to-date, accessible and enable the assessment of the potential effects of plans and projects.

# 2 Responsibilities of Relevant and Competent Authorities

Competent Authorities (including those which are also Relevant Authorities) are required to exercise their functions to comply with the Habitats Regulations. Competent Authorities must, within their areas of jurisdiction, consider both direct and indirect effects on the site. This includes considering operations inside and outside the boundary of the SAC, if the impacts could affect the achievement of the site's Conservation Objectives. Decisions on management measures (e.g. the scale and type of mitigation) are the responsibility of the relevant regulatory or management bodies. These bodies will consider SNCB advice and hold discussions with the sector concerned, where appropriate. Where consent is required and the operation (if considered a plan or project) is likely to significantly affect a European Site, Article 6(3) of the Habitats Directive requires that an Appropriate Assessment (AA) is carried out. The AA is part of the “Habitat Regulations Assessment” (HRA), which is a case-specific assessment made in view of the Conservation Objectives for the affected site or sites. Each HRA requires case-specific advice from the SNCB but the assessment is the responsibility of the competent authority concerned.

The variability of harbour porpoise distribution and abundance within sites is in part due to their mobility and wide-ranging nature as well as natural and anthropogenic changes in habitat and prey. Relevant and Competent Authorities are not required to undertake any actions to ameliorate changes in the condition of the site if it is shown that the changes result wholly from natural causes. It is therefore important to contextualise any apparent changes in harbour porpoise presence within the site in terms of natural variability and the abundance and distribution patterns at the population level (i.e. MU).

# 3 Conservation Objectives for harbour porpoise SACs

## 3.1 The role of Conservation Objectives

Site level Conservation Objectives (COs) are a set of specified objectives designed to ensure that the site contributes in the best possible way to achieving Favourable Conservation Status (FCS) of the designated site feature(s) at the national and biogeographic level (EC, 2012). Conservation Objectives constitute a necessary reference for:

- identifying any site-based conservation measures that may be required;
- carrying out HRAs of the implications of plans or projects.

The purpose of the HRA is to determine whether a plan or project could adversely affect a site’s integrity. The critical consideration in relation to site integrity is not the extent or degree of an impact, or whether an impact is direct or indirect, but whether a plan or project, either

[5] http://www.legislation.gov.uk/nisr/1995/380/contents/made
[6] http://www.legislation.gov.uk/uksi/2017/1013/contents/made

individually or in combination with other plans or projects, affects the site's ability to achieve its Conservation Objectives and therefore contribute to Favourable Conservation Status.

Harbour porpoise are protected everywhere in European waters under the provisions of the Habitats Regulations. The harbour porpoise in UK waters are considered part of a wider European population and the highly mobile nature of this species means that the concept of a 'site population' is not considered an appropriate basis for expressing Conservation Objectives for this species. Site based conservation measures will complement wider ranging measures that are in place for the harbour porpoise.

### 3.2 Background to Conservation Objectives

The Conservation Objectives are designed to help ensure that the obligations of the Habitats Directive can be met. Article 6(2) of the Directive requires that there should be no deterioration or significant disturbance of the qualifying species or to the habitats upon which they rely. Therefore, the focus of the Conservation Objectives for harbour porpoise sites is on addressing pressures that affect site integrity and would include:

- killing or injuring harbour porpoise (directly or indirectly);
- preventing their use of significant parts of the site (disturbance / displacement);
- significantly damaging relevant habitats; or
- significantly reducing the availability of prey.

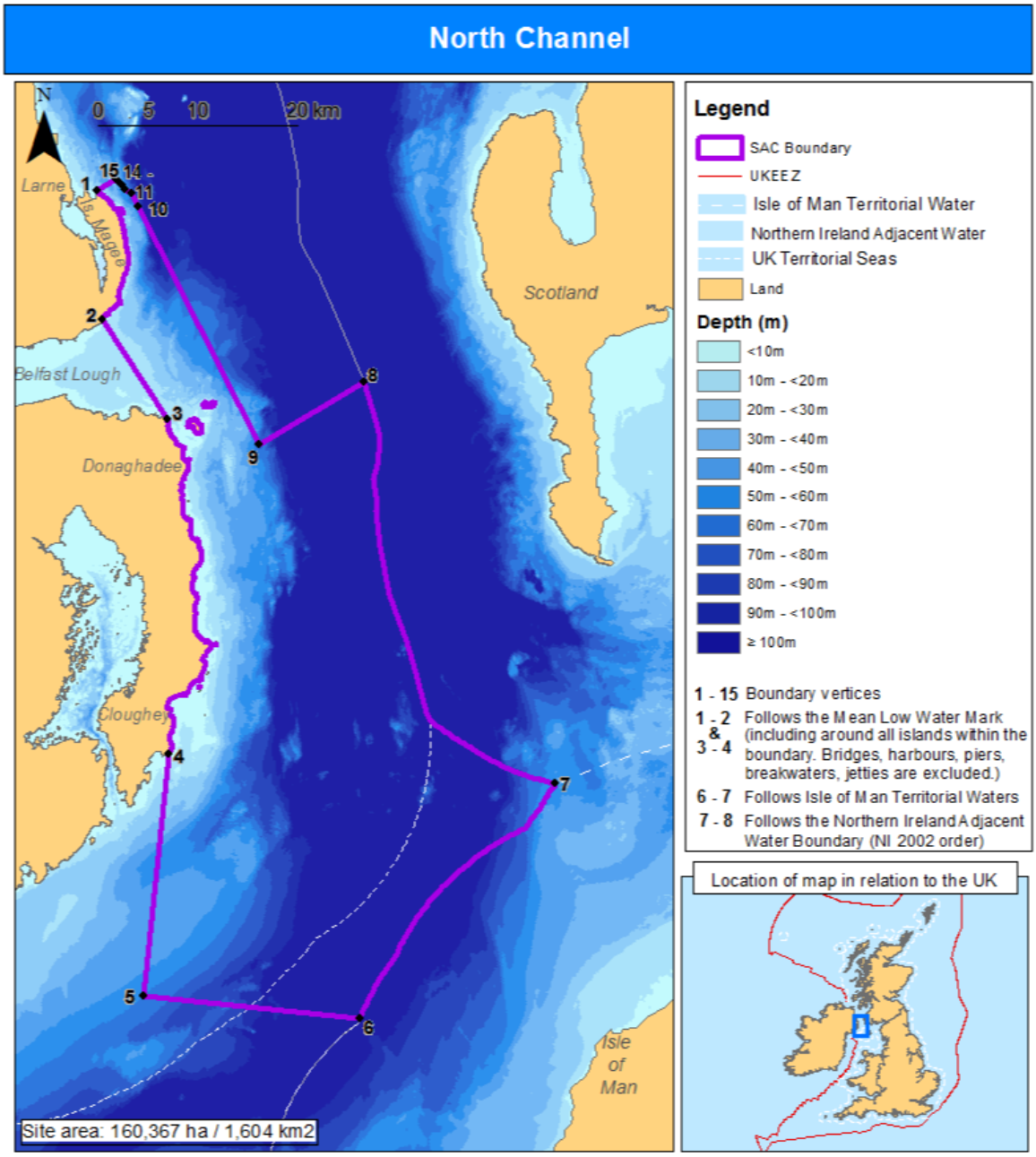
This document includes both a statement of the Conservation Objectives and explanatory text on their intent and interpretation specific to the site. The Objectives have been set taking account of European Commission guidance (EC, 2012). Further guidance on the management of specific pressures on harbour porpoise is being developed.

### 3.3 The North Channel SAC Conservation Objectives

The qualifying feature of the site is the Habitats Directive Annex II species:

- harbour porpoise (*Phocoena phocoena*)

Seasonal differences in the relative use of the site have been identified based on the analyses of Heinänen and Skov (2015). Harbour porpoise sightings data were modelled seasonally (Summer: April-September and Winter: October-March) for each MU. The outputs of this analysis were maps of areas by season and MU that persistently contained elevated densities of harbour porpoises. These areas were used as the basis for site identification and consequently, sites may have seasonal components which should be considered in the assessment of impacts and proposed management. The North Channel SAC (Figure 2) has been designated because of its importance to harbour porpoise in the winter months (October – March).




Includes data provided by UKHO, Defra, OS and JNCC. © Crown Copyright © OS MasterMap. All rights reserved.
Not to be used for navigation. © JNCC 02/2019. Coordinates displayed in WGS84 geographic coordinate system.
Site area calculated using modified Europe_Albers_Equal_Area_Conic_UK projection.

| ID | Latitude | Longitude | ID | Latitude | Longitude | ID | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|
| 1 | 54° 51' 34.7" N | 5° 45' 46.6" W | 6 | 54° 11' 30.7" N | 5° 5' 8.3" W | 11 | 54° 51' 50.6" N | 5° 42' 33.9" W |
| 2 | 54° 44' 55.9" N | 5° 42' 33.0" W | 7 | 54° 25' 59.8" N | 4° 52' 7.7" W | 12 | 54° 52' 1.0" N | 5° 43' 14.3" W |
| 3 | 54° 40' 30.7" N | 5° 34' 37.0" W | 8 | 54° 44' 48.0" N | 5° 17' 30.8" W | 13 | 54° 52' 11.2" N | 5° 43' 35.8" W |
| 4 | 54° 23' 6.4" N | 5° 27' 40.7" W | 9 | 54° 40' 16.0" N | 5° 25' 43.8" W | 14 | 54° 52' 19.8" N | 5° 43' 59.1" W |
| 5 | 54° 10' 8.4" N | 5° 25' 0.3" W | 10 | 54° 51' 14.4" N | 5° 41' 45.0" W | 15 | 54° 52' 25.8" N | 5° 44' 21.3" W |

**Figure 2:** The North Channel Special Area of Conservation for harbour porpoise.

The Conservation Objectives for the site are:

**To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters**

In the context of natural change, this will be achieved by ensuring that:

1. Harbour porpoise is a viable component of the site;

2. There is no significant disturbance of the species; and

3. The condition of supporting habitats and processes, and the availability of prey is maintained.

**Conservation Objective 1: Harbour porpoise is a viable component of the site**

The SACs have been selected primarily based on their long-term, relatively higher densities of porpoise in contrast to other areas of the MU. The implication is that SACs provide relatively good foraging habitat and may also be used for breeding and calving. However, because the number of harbour porpoise using the sites naturally varies (e.g. between seasons), there is no exact number of animals within the site.

The intent of this objective is to minimise the risk of injury and killing or other factors that could restrict the survivability and reproductive potential of harbour porpoise using the site. Specifically, this objective is primarily concerned with operations that would result in unacceptable levels of those impacts on harbour porpoises using the site. Unacceptable levels can be defined as those having an impact on the FCS of the populations of the species in their natural range. The reference population for assessments against this objective is the MU population in which the SAC is situated (IAMMWG, 2015).

Harbour porpoise is a European Protected Species (EPS) listed on Annex IV of the Habitats Directive and as such is protected under the Habitats Directive Article 12 and transposing regulations from deliberate killing (or injury), capture and disturbance throughout its range. In addition, Article 12 (4) of the Habitats Directive is concerned with incidental capture and killing. It states that Member States 'shall establish a system to monitor the incidental capture and killing of the species listed on Annex IV (all cetaceans). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned'. Site based measures should therefore be aligned with the existing strict protection measures in place throughout UK waters. Significant disturbance within or affecting the site is considered in the second conservation objective.

**Conservation Objective 2: There is no significant disturbance of the species**

Disturbance of harbour porpoise typically, but not exclusively, originates from operations that cause underwater noise including, as examples, seismic surveys, pile driving and sonar. Responses to noise can be physiological and/or behavioural. JNCC has produced guidelines to minimise the risk of physical injury to cetaceans from various sources of loud, underwater noise[7]. However, disturbance is primarily a behavioural response to noise and may, for example, lead to harbour porpoises being displaced from the affected area.

This SAC was identified as having persistently higher densities of harbour porpoises (Heinänen and Skov 2015) compared to other areas of the MU. This is likely linked to the habitats within the site providing good feeding opportunities. Therefore, operations within or affecting the site should be managed to ensure that the animals' potential usage of the site is

[7] http://jncc.defra.gov.uk/page-4273

maintained. Disturbance is considered significant if it leads to the exclusion of harbour porpoise from a significant portion of the site. Specifically, draft SNCB advice /guidance for assessing the significance of noise disturbance to a site suggests:

Noise disturbance within an SAC from a plan/project individually or in combination is significant if it excludes harbour porpoises from more than:

1. 20% of the relevant area[8] of the site in any given day[9], and

2. an average of 10% of the relevant area of the site over a season[10,11].

**Conservation Objective 3: The condition of supporting habitats and processes, and the availability of prey is maintained**

Supporting habitats, in this context, means the characteristics of the seabed and water column. Processes encompass the movements and physical properties of the habitat. The maintenance of supporting habitats and processes contributes to ensuring that prey is maintained within the site and is available to harbour porpoises using the site. Some evidence shows that the harbour porpoise has a high metabolic rate compared to terrestrial mammals of similar size (Rojano-Doñate et al., 2018) and high feeding rates (Wisniewska et al., 2016). The harbour porpoise is therefore thought to be a species that is highly dependent on a year-round proximity to food sources and its distribution and condition may strongly reflect the availability and energy density of its prey (Brodie 1995 in Santos & Pierce, 2003). The densities of porpoise using a site are likely linked to the availability (and density) of prey within the site. Harbour porpoise eat a variety of prey including gobies, sandeel, whiting, herring and sprat. However, the diet of porpoises when within the sites is not well known but is likely comparable to that in the wider seas.

There are several operations (Table 2) which potentially affect the achievement of this Conservation Objective. Whilst some plans/projects are unlikely to have a significant effect alone, an effect might become significant when considered in combination with other plans/projects and against the background of existing activities/pressures on the site. Further work is needed to assess historic, existing and planned levels of plans/projects in the sites and to better understand their impacts on the habitats and prey within the sites.

# 4 Advice on Operations

## 4.1 Purpose of advice

This section details the advice on activities specifically occurring within or close to the North Channel SAC that would be expected to impact the site; this is known as Advice on Operations. Initial assessments were conducted at a UK scale, with subsequent site-level

[8] The relevant area is defined as that part of the SAC that was designated on the basis of higher persistent densities for that season (summer defined as April to September inclusive, winter as October to March inclusive).

[9] Applicable only in Habitats Regulations Assessments (HRA / AA stage) due to impracticality of daily noise limit management of activities, but retrospective compliance analysis advised

[10] Summer defined as April to September inclusive, winter as October to March inclusive

[11] For example, a daily footprint of 19% for 95 days would result in an average of 19x95/183 days (summer) =9.86%

assessment detailing our understanding of the operations and their potential to impact the site (Section 5 & 6). Advice is only given where pressures[12] may impact the site and therefore, may require management, if the Conservation Objectives are to be met. Widespread pressures may also act to affect the overall status of harbour porpoise, but their effects are not restricted to specific sites. Such pressures are best dealt with through broader measures. Alongside and in addition to the identification of the network of harbour porpoise sites, an overarching conservation strategy (DETR, 2000) has been in place for harbour porpoise since 2000. In light of a recent conservation literature review (IAMMWG *et al,* 2015), a UK Dolphin and Porpoise Conservation Strategy is being developed.

The advice outlined below should also be used to help identify the extent to which existing operations are, or can be made, consistent with the Conservation Objectives, and thereby focus the attention of Relevant and Competent Authorities and monitoring programmes to areas that may need management measures.

This Advice on Operations will be supplemented through further discussions with the Relevant and Competent Authorities and any advisory groups that may be formed for the site.

### 4.2 Background

In compiling this Advice on Operations, the SNCBs have considered the pressures that may be caused by human activities and may affect the integrity of the site when considered against the Conservation Objectives. The advice is generated through a broad grading of sensitivity and exposure of the harbour porpoise to pressures associated with activities to gain an understanding of how vulnerable the species is to each activity at a UK level. The activities and their associated pressures to which the harbour porpoise is deemed vulnerable at a UK level are then considered at a site level to inform the risks to achieving the Conservation Objectives along with any potential management that may be required to mitigate against such risks. Annex A details the assessments of the level of impact risk[13] from operations on harbour porpoise populations at a UK-wide scale. This informs on the activities/operations likely to impact the site.

This document is guidance only and activities/operations and their management within or affecting the site will be considered in the context of a Habitats Regulations Assessment (HRA) and where applicable through other environmental assessment processes, such as Environmental Impact Assessment (EIA).

## 5 Operation assessments at UK scale

The assessments have been carried out using all available evidence as of February 2019. If further information is made available in future which would improve our understanding of harbour porpoise vulnerability in UK waters, the assessments may be updated. This advice is provided without prejudice for use by the Relevant and Competent Authorities. The level of any impact will depend on the location, timing and intensity of the relevant operation. This advice is provided to assist and focus the Relevant and Competent Authorities in their consideration of the management of these operations.

The harbour porpoise is a wide-ranging species and occurs throughout the UK Continental Shelf area (JNCC, 2013). It does occur in deeper waters but in very low densities, and perhaps only seasonally. As a predominantly continental shelf species, it is exposed to a wide range of pressures that are both ubiquitous (e.g. pollution) and patchy (e.g. bycatch) in nature, and the list of anthropogenic activities leading to these pressures is long. Based on current

[12] See Annex B for definition of key terms
[13] Risk includes consideration of severity of implications of impact

available information, the operations that pose the most notable risk of impact to UK harbour porpoise are shown in Table 1.

The current levels of impact of the various pressures are based on the Article 17 assessments[14] and the full list of assessed activities (operations) and key references can be found in Annex A. Updates to the assessments will occur as more evidence becomes available.

Definitions of pressures are explained in Annex B.

Activities which currently pose a low risk of impact to harbour porpoise at the UK level (Annex A) have not been considered in this advice. The exposure to the pressures associated with these activities is currently very limited and poses no significant threat to the maintenance of harbour porpoise at FCS. Non-anthropogenic impacts are also not considered, such as attack and predation from other marine mammal species that have the potential to impact harbour porpoise populations.

**Table 1:** Key activities/operations and the relative level of risk of impact on harbour porpoise throughout UK waters. Those pressures ranked 'high' are known to have the greatest impact relative to other pressures on the population of UK harbour porpoises. Activities which currently pose a low risk are not shown.

| **Operations** | **Pressures** | **Impacts** | **Current relative level of risk of impact** |
|---|---|---|---|
| Commercial fisheries with bycatch of harbour porpoise (predominantly static nets) | **Removal of non-target species** | • Mortality through entanglement/bycatch | High |
| Discharge/run-off from land-fill, terrestrial and offshore industries | **Contaminants** | • Effects on water and prey quality<br>• Bioaccumulation through contaminated prey ingestion<br>• Health issues (e.g. on reproduction) | High |
| Shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity | **Anthropogenic underwater sound** | • Mortality<br>• Internal injury<br>• Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising) | Medium |
| Shipping, recreational boating, tidal energy installations | **Death or injury by collision** | • Mortality<br>• Injury | Medium/Low |
| Commercial fisheries (reduction in prey resources) | **Removal of target species** | • Reduction in food availability<br>• Increased competition from other species<br>• Displacement from natural range | Medium |

[14] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf . Updated Article 17 reports for 2013-2018 will be available in 2019.

# 6 Site specific considerations: North Channel SAC

## 6.1 Sensitivity of harbour porpoise to existing activities within or impacting on the site

The North Channel site spans territorial waters of Northern Ireland and offshore waters and covers an area of 1,604km$^2$. A summary of the site can be found in the Selection Assessment Document on the Site Information Centre[15].

All available information on activities/operations within or in proximity to the site has been used to assess the threats and pressures within the site. However, precise information on some activities/operations is not currently available due to lack of targeted data collection to date. Assessing exposure carries certain assumptions about the spatial extent, frequency and intensity of the pressures associated with marine activities.

Table 2 is an overview of activities occurring within or in proximity to the North Channel site to which the harbour porpoise has a current level of impact risk of High or Medium at UK level (Table 1) and therefore may require further consideration concerning options for management. The impact of a pressure at the site level can differ to that at UK level dependent on the amount of activity within or adjacent to the site. GIS layers of spatial activity data as well as review of literature, were used to identify the impact risk within the site (where a pressure is concentrated within a site) and whether it differs from the UK level risk. These assessments include all available information as of February 2019.

JNCC and the country SNCBs are working with the Regulators and Industry to ensure that a pragmatic approach to mitigation and management of pressures that may affect the integrity of the site is adopted. Any future guidance documents will be made available on the Site Information Centre on the JNCC website[16].

[15] SAC Selection Assessment Document: http://jncc.defra.gov.uk/page-7242

[16] http://jncc.defra.gov.uk/page-7242

**Table 2:** Operations occurring within/near to the North Channel site which may affect the integrity of the site.

| Operations | Pressure | Comment on current level of activity | Management considerations |
|---|---|---|---|
| Fisheries (commercial and recreational) with harbour porpoise bycatch | Removal of non-target (bycatch) species | Bycatch of harbour porpoise in fishing gear is one of the most significant anthropogenic pressures impacting the population at a UK level. The relevant commercial fisheries with harbour porpoise bycatch are bottom set nets, such as gillnets and tangle nets.<br><br>UK registered vessels >12m: According to Vessel Monitoring System (VMS) data, there is no evidence of large vessel UK static net fishing activity within the site[17].<br><br>UK registered vessels <12m: current exposure is unknown within the site boundary.<br><br>EU registered >12m vessels: VMS data show potential for low levels of dispersed static netting vessel activity in Northern Ireland waters. | Where bycatch may pose a risk to achieving the site's conservation objectives, mitigation may need to be considered.<br><br>Where management measures are required, the development of these would be led by fishery managers in discussion with fishing interests and informed by any detailed information about fishing activity that can be made available. Detailed measures, if required, will be developed by the relevant management authority (European Commission/MMO/DAERA /Defra).<br><br>The site sits within ICES area VIIa and as such, gillnetters > 12m are not legally obliged to use pingers under EU Regulation 812/2004.<br><br>Additional noise disturbance has to be considered if acoustic deterrent devices are considered to be used as mitigation. A fisheries guidance document will be developed in collaboration with management authorities and stakeholders.<br><br>Because the effort of static net fisheries within this site is currently considered low, the risk of bycatch is considered low. As such it is unlikely that further management would be required. A revised assessment of the risk would be required where new evidence of activity becomes available. |
| Discharge /run-off from land-fill, terrestrial/ offshore industries | Contaminants | Current exposure within or near the site is unknown. | This pressure generally cannot be managed effectively at the site level. Most of the relevant pollutants have been effectively phased out of use by action under the OSPAR Convention and, more recently, the EU (through Council Directives 67/548/EEC and 76769/EEC and the Stockholm Convention, which restrict the marketing and use of PCBs; plan for disposal of PCBs; and eliminate or restrict the production and use of persistent organic pollutants [POPs]). |

[17] The fisheries data are aggregated VMS data collected between 2006 and 2013.

| | | | |
|---|---|---|---|
| | | | However, human activities are the most likely cause of the re-release of these chemically stable chemicals into the environment or for introduction of other contaminants of which the impacts are poorly known.<br><br>Any novel sources of potential contamination and/or activities likely to cause re-release of pollutants form stores associated with a new plan or project will be assessed under HRA both within and outside the site where there is the potential to impact upon site integrity.<br><br>Current sources of exposure have to be identified and further efforts to limit or eliminate PCB discharges to the marine environment may still be needed. |
| Shipping | Anthropogenic underwater sound | The Northern Ireland port of Belfast is near the site resulting in large vessel shipping and ferry routes throughout the site. | Harbour porpoise use sound for foraging, navigation, social activities and predator detection. Underwater noise therefore has the potential to interrupt or affect these behaviours as well as cause hearing damage, particularly at short distances. The peak frequency of echolocation pulses produced by harbour porpoise is 120–130 kHz, corresponding to their peak hearing sensitivity although hearing occurs throughout the range of ~1 and 180 kHz (Southall *et al* 2007).<br><br>The underwater sounds created by large ships are unlikely to cause physical trauma but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance). However, additional management is unlikely to be required based on current levels of activity. Significant increases in vessel traffic (e.g. associated with the installation of wind farms in the area), would need further assessment. |
| Oil and gas drilling | | The northern-most area of the site overlaps with current licensed blocks for oil and gas. | Any future applications from existing or inactive (exploratory and dry) wells and oil and gas licensed blocks occurring within the site would be subject to an HRA. |
| Pile driving | | There is overlap with an offshore wind resource zone in the southwest of the site, however, there | A European Protected Species (EPS) licence is already required for any construction activity which carries the risk of significant disturbance or injury |

| | | | |
|---|---|---|---|
| | | are currently no plans in place for development of that zone.<br><br>Although there is currently no pile driving within the site there are planned developments at Belfast Harbour that will engage this activity. | to cetaceans. Developers are required to follow the 'Statutory Nature Conservation Agency protocol for minimising the risk of injury to marine mammals from piling noise'[18].<br><br>A Habitats Regulations Assessment (HRA) will be considered for all new (or review of consent) developments (coastal and marine) using pile driving within the site **or** within 26km of site boundaries. If additional mitigation (to that required under EPS licence) is required, planning and management of pile driving activities may be needed within the site to ensure the Conservation Objectives are met. There is potential for a reduction or limitation of the disturbance/displacement effects by varying the schedule of piling, particularly if several developments are constructing at the same time and pile driving footprints do not overlap (i.e. maximising area from which porpoise are excluded). Limited spatio-temporal restrictions may be needed.<br><br>Other examples of mitigation include the use of sound dampers, methods that create a barrier to sound transfer (e.g. bubble curtains) and, more effectively, the use of alternative foundation types (e.g. gravity foundations, suction cups, floating turbines, drilling). Scheduling of activities may minimise cumulative exclusion from areas.<br><br>Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs and Regulators in consultation with industry. |
| Dredging and disposal | | Development and maintenance works at Northern Ireland's primary port at Belfast are ongoing. | Dredging and disposal can cause disturbance leading to changes in harbour porpoise behaviour as well as to their habitat and prey. There is also potential for resuspension of pollutants from the sediment. The risk from single plans/projects may be considered relatively low but is assessed through HRA. However, there is currently considerable uncertainty regarding effects on habitat and prey. |

[18] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/50006/jncc-pprotocol.pdf

| | | | |
|---|---|---|---|
| | | | New dredge and disposal projects (or licence renewals) are subject to HRA. Cumulative impacts will be considered within the HRA. |
| Geophysical surveys (including seismic) surveys | | A range of acoustic ground discrimination surveys are undertaken within the site, including for scientific research and site surveys undertaken in association with various infrastructure projects. | Some geophysical surveys that may affect the integrity of the site may require consent and be subject to HRA.<br><br>Each case needs to be assessed individually, and the *JNCC Guidelines for minimising the risk of injury to marine mammals from geophysical surveys* (updated August 2017[19]) are available online. Within the guidance, seismic survey is defined as *'Any geophysical survey that uses airguns to generate sound which is sent into the seabed and the reflected energy is recorded and processed to produce images of the geological strata below; described as 2D, 3D and 4D and includes any similar techniques that use airguns.'*<br><br>It is currently not known whether sub-bottom profilers cause disturbance to harbour porpoise. Further research is needed to understand the sound propagation and effect ranges from these types of equipment.<br><br>Cumulative impacts of geophysical surveys will need to be considered.<br><br>Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs in consultation with Regulators, industry and NGOs. |
| Recreational boating activity | | Royal Yachting Association (RYA) cruising routes throughout the site, particularly along coast. | Adherence to relevant existing wildlife codes of conduct is already advocated.<br><br>UK SNCBs are looking at the option of developing an overarching wildlife watching code of conduct to sit alongside the Scottish code. |
| Acoustic deterrent/ mitigation devices | | No known use within the site. | No further management required |

[19] http://jncc.defra.gov.uk/pdf/jncc_guidelines_seismicsurvey_apr2017.pdf.

| | | | |
|---|---|---|---|
| Pinger devices | | The use of pingers is unknown but unlikely in the site given that the vessels >12m are not required to use pingers under Reg 812/2004 in the wider ICES area VIIa. | See 'Fisheries (commercial and recreational) with harbour porpoise bycatch'.<br><br>No further management required. |
| Military activity | | Although no active MOD areas are located within the site, MOD can operate anywhere in UK waters. | Activities take place under Range Standing Orders, command guidance and environmental risk management tools, which include measures to reduce the risk of killing, injury and disturbance of marine mammals (for example live firing trials are subject to confirmation that marine mammals are not present in the vicinity of targets). No further management is considered necessary as MOD, which are a Competent Authority, incorporates the SACs into their assessments via their MOD Environmental Protection Guidelines (Maritime) and Marine Environment and Sustainability Assessment Tool (MESAT)[20]. |
| Unexploded ordnance (UXOs) | | Unknown whether they exist in the site. However, unexploded ordnance from WWII can be found in many areas of UK seas.<br><br>Projects that could inadvertently explode UXOs must undertake a survey to search for possibly ordnance ahead of the project commencing. Any ordnance found must be exploded on site or removed for health and safety reasons. | Although the removal (detonation) of unexploded ordnance (UXOs) is short term, the noise is significant and can cause injury or death to harbour porpoise. A HRA may be required. A European Protected Species licence may also be required.<br><br>Mitigation is usually required to reduce risk of injury and killing. As a minimum, the JNCC guidelines for minimising the risk of disturbance and injury to marine mammals whilst using explosives are applied. A combination of Marine Mammal Observers (MMO)s, Acoustic Deterrent Devices (ADD) and occasionally scare charges are used to ensure harbour porpoise and other marine mammals are a sufficient distance from the explosion to prevent death or injury. Discussions are ongoing between industry, regulators and SNCBs on the most appropriate suite of mitigation measures for UXO clearance (including the possible use of bubble curtains). This will depend on the size of UXOs likely to be encountered and the practicality of deployment of the |

[20] http://www.royalnavy.mod.uk/-/media/royal-navy-responsive/documents/useful-resources/environmental-protection/environmental-protection-guidelines-maritime-v21.pdf?la=en-gb

| | | | |
|---|---|---|---|
| | | | mitigation measure, amongst other factors. |
| Shipping | Death or injury by collision | Busy shipping and ferry routes primarily accessing the port of Belfast. | Post mortem investigations of stranded harbour porpoise have revealed some deaths caused by trauma (potentially linked with vessel strikes). However, this is not currently considered a significant risk and no additional management is likely to be required. |
| Recreational boating activity | | RYA cruising routes cross the site, most are coastal. | See 'Shipping' (with death or injury by collision) above.<br>Boats conducting recreational activity should adhere to wildlife codes of conduct to avoid risk of collision (see 'recreational boating activity' with regards to underwater noise).<br>https://www.daera-ni.gov.uk/publications/watch-out-wildlife-crime-marine-wildlife-disturbance |
| Wet renewable energy installations | | There is a small overlap with a Tidal Energy Resource Zone at the Copeland Islands. However, this zone has not been considered suitable for commercial scale development due to potential significant adverse effects on the environment and other marine users (according to the Offshore Renewable Energy Strategic Action Plan for 2012-2020).<br>Test tidal devices (turbine and kite) are currently in operation at Strangford Narrows just west of the site in the entrance to Strangford Lough. | New tidal range, tidal stream and wave projects would be subject to a Habitats Regulations Assessment (HRA). Additionally, an EPS licence is already required if there is a risk of significant disturbance or injury. Any consented, but not yet built, tidal stream and tidal range developments likely to impact the SAC shall undergo a review of consent if the North Channel SAC has not already been taken into consideration.<br>Animal detection systems, e.g. active and passive acoustics, are used to monitor animal presence and behaviour around devices for consented projects. These systems might be used to automate a shutdown procedure which prevents collisions with moving parts or to establish any probable collisions and invoke adaptive management decisions. In addition, the use of ADDs is a possible mitigation tool to exclude animals from the vicinity of devices<br>Potential future mitigation related to death or injury by collision will be based on new and emerging research and evidence. |
| Commercial fisheries (and | Removal of target (prey) species | Fisheries (UK and EU) targeting pelagic prey species such as herring | Currently, most commercial species are managed at scales relevant for stock management via the Common |

| | | | |
|---|---|---|---|
| recreational set nets) | | and mackerel operate throughout the Celtic and Irish Seas although there is little evidence to suggest that they operate within the site boundaries. By contrast there is some demersal trawl activity in the site that could result in removal of potential prey species (e.g. whiting). | Fisheries Policy and not at the site level.<br><br>Harbour porpoise diet within UK waters includes a wide variety of fish and they will generally focus on the most abundant local species (De Pierrepont *et al* 2005; Camphuysen *et al* 2006). The predominant prey type appears to be whiting, gobies and sandeel, although shoaling fish such as mackerel and herring are also taken. Harbour porpoise diets overlap extensively with diets of other piscivorous marine predators (notably seals) and many of the main prey species are also taken by commercial fisheries, although porpoises tend to take smaller fish than those targeted by fisheries (Santos and Pierce 2003).<br><br>The overlap between commercial fisheries and harbour porpoise prey is unknown within the site. Further research is required to establish whether there is any potential for direct overlap. |

## 6.2 Limitations of the evidence

It is important to note that the information used to catalogue activities/operations occurring within the site is not complete. The available data are drawn from existing monitoring programmes (e.g. the UK's Bycatch Monitoring Scheme for Protected Species and other European datasets linked to VMS monitoring of fishing vessels) but these have limitations, including availability and accessibility of data at the time of preparing this advice. Caveats with how the data have been collected also need to be understood to correctly interpret the information. This has resulted in the use of expert judgement where sufficient evidence is lacking but risk is implied. Below are some points to consider alongside the above table to ensure the information is not taken out of context:

- **Data availability**
  - Globally, the marine environment is generally far behind the evidence levels of that on land, particularly in offshore areas, mainly due to scale and difficulty/cost of data acquisition.
  - There can be sensitivities surrounding data that have been gathered by industry, and some data are not available for use for advice and management purposes. Often these data can become available, but not in time to inform management decisions.

- **Fishing: Limitations of fishing Vessel Monitoring System (VMS) data**
  - VMS positional data are transmitted at approximately 2-hour intervals. There is no information transmitted regarding precise vessel activity, therefore assumptions about activity, based on logbook returns and vessel speed profile are often made.

- Vessel positional data (VMS) cannot inform regulators regarding extent of static gear deployment or soak times.
- Fishing vessels under 12m long, (and until 2013, vessels under 15m long) are not required to use the VMS, and therefore VMS data tells us nothing regarding the activity of this segment of the fleet. However, local information can be obtained from fisheries management authorities and will be used to develop more detailed guidance to assist with identification of any management measures where considered necessary.

- **Contaminants**
  - Although use of many of the relevant substances (e.g. PCBs) has been heavily regulated for many years, including a ban on further production, re-suspension or reintroduction of pollutants may occur. It is difficult to identify sources of contamination when dealing with highly mobile species.

# 7 References


Article 17 Report, 2013. European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012 Conservation status assessment for Species: S1351 - Harbour porpoise (*Phocoena phocoena*). Available at: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

Camphuysen, C.J., Scott, B.E.and Wanless, S. 2006. *Distribution and foraging interactions of seabirds and marine mammals in the North Sea: multispecies foraging assemblages and habitat-specific feeding strategies. Top Predators in Marine Ecosystems: Their Role in Monitoring and Management* (eds Boyd, I, Wanless, S, and Camphuysen, C.J.), pp. 82–97. Cambridge University Press, Cambridge, UK.

Dahne, M., Gilles, A., Lucke, K., Peschko, V., Adler, S., Krugel, K, Sundermeyer, J., and Siebert, U., 2013 Effects of pile-driving on harbour porpoises (*Phocoena phocoena*) at the first offshore wind farm in Germany. *Environmental Research Letters*, 8, 16pp.

Deaville, R. and Jepson, P D. (Eds). 2011. Final Report for the period 1st January 2005 – 31st December 2010. Cetacean Stranding Investigation Programme CSIP, Defra contracts CR0346 and CR0364. Available at: http://randd.defra.gov.uk/Document.aspx?Document=FinalCSIPReport2005-2010_finalversion061211released[1].pdf

DETR. 2000. A UK conservation strategy for the harbour porpoise (*Phocoena phocoena*). Department for the Environment Transport and the Regions; Ministry of Agriculture, Fisheries and Food; Scottish Executive Rural Affairs Department; Department of Agriculture and Rural Development (Northern Ireland); National Assembly for Wales Environment Division; Department of the Environment in Northern Ireland.

De Pierrepont, J.F. Dubois, B., Desormonts, S., Santos, M.B.A. and Robin, J.P. 2005. Stomach contents of English Channel cetaceans stranded on the coast of Normandy. *Journal of the Marine Biological Association of the United Kingdom*, **85**:1539-1546.

EC, 2012. Commission Note on Setting Conservation Objectives for Natura 2000 Sites. http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/commission_note2.pdf

Heinänen, S. and Skov H. 2015, The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area, JNCC Report 544, Peterborough, ISSN 0963 8091.

IAMMWG, 2015. Management Units for cetaceans in UK waters (January 2015). JNCC Report No. 547, JNCC, Peterborough. http://jncc.defra.gov.uk/pdf/Report_547_webv2.pdf

IAMMWG Camphuysen, CJ & Siemensma, M.L.. 2015. A Conservation Literature Review for the Harbour Porpoise (*Phocoena phocoena*). JNCC Report No. 566, JNCC, Peterborough, 96pp.

ICES, 2014. OSPAR request on implementation of MSFD for marine mammals. General Advice, May 2014. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/Special%20Requests/OSPAR_Implementation_of_MSFD_for_marine_mammals.pdf

JNCC, 2013. Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012. Conservation status assessment for Species:S1351 - Harbour porpoise (Phocoena phocoena). http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

Rojano-Doñate, L., McDonald, B. I., Wisniewska, D. M., Johnson, M., Teilmann, J., Wahlberg, M., Højer-Kristensen, J and Madsen, P. T. High field metabolic rates of wild harbour porpoises. Journal of Experimental Biology 2018 221: jeb185827 doi: 10.1242/jeb.185827 Published 6 December 2018

Santos, M.B. and Pierce, G.J. 2003. The diet of harbour porpoise (*Phocoena phocoena*) in the northeast Atlantic. *Oceanography and Marine Biology: an Annual Review*, **41**, 355-390.

Southall, B. Southall, A. E., Bowles, W., Ellison, T., Finneran, J.J., Gentry, R. L., Greene Jr. C. R., Kastak, D., Ketten, D.R., Miller, J. H., Nachtigall, P. E., Richardson, W. J., Thomas, J. A. and Tyack, P. L. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. *Aquatic Mammals*, **33**, (4).

Wisniewska, D. M., Johnson, M., Teilmann, J., Rojano-Doñate, L., Shearer, J., Sveegaard, S., Miller, L. A., Siebert, U and Madsen, P. T. 2016. Ultra-High Foraging Rates of Harbor Porpoises Make Them Vulnerable to Anthropogenic Disturbance. Current Biology. May 26, 2016 DOI: https://doi.org/10.1016/j.cub.2016.03.069

# 8 Annex A: Assessment of the level of impact risk from operations (activities) on UK harbour porpoise populations

The relative level of risk of impact to harbour porpoise from a range of pressures was assessed at UK level (Table A1) as part of the 3rd reporting round for Article 17[21]. See Annex B for the definitions of pressures as used for the harbour porpoise assessments. For the assessment, the relative importance of the pressure was assessed by considering the evidence available of an impact and the nature of that impact (direct/indirect) together with the area over which the pressure is acting in UK waters in relation to the species distribution. The relative levels are assigned according to the Article 17 guidance (Evans and Marvela, 2013) as:

| Code | Meaning | Comment |
|---|---|---|
| H | High importance/impact | Important direct or immediate influence and/or acting over large areas |
| M | Medium importance/impact | Medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally |
| L | Low importance/impact | Low direct or immediate influence, indirect influence and/or active over small part of the area/acting only regionally |

**Table A1:** Full assessment of level of the impact risk from activities/operations on harbour porpoise in UK waters based on considerations for Article 17 assessment for harbour porpoise conservation status[22].

| **Operations** | **Pressures** | **Impacts** | **Relative level of risk of impact** | **Evidence** | | **Key references** |
|---|---|---|---|---|---|---|
| | | | | **Spatial overlap (species & pressure)** | **Post-mortem examination** | |
| Commercial fisheries with bycatch (predominantly static nets) | Removal of non-target species | • Mortality through entanglement/ bycatch | High | ✓ | ✓ | Deaville and Jepson, 2011; Morizur *et al* 1999; Read *et al* 2006; Northridge and Kingston, 2010; Northridge *et al* 2016; ICES 2015b |
| Discharge/run-off from land-fill, terrestrial and offshore industries | Contaminants | • Effects on water and prey quality<br>• Bioaccumulation through | High | | ✓ | Jepson *et al* 2005; Jepson *et al* 2016; Deaville & Jepson, 2011; ICES, 2015a; Van De Vijver *et al* 2003; Law *et al* 2012; |

[21] http://jncc.defra.gov.uk/page-6564

[22] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

| | | | | | | |
|---|---|---|---|---|---|---|
| | | contaminated prey ingestion<br>• Health issues (e.g. on reproduction) | | | | Pierce *et al* 2008; Murphy *et al* 2015. |
| Noise from shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity | Anthropogenic underwater sound | • Mortality<br>• Internal injury<br>• Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising)<br>• Habitat change/loss | Medium | ✓ | | Deaville & Jepson, 2011; Stone & Tasker, 2006; Stone, 2015; Jepson *et al* 2005; Fernandez *et al* 2005; Würsig & Richardson, 2009; WGMME, 2012. |
| Shipping, recreational boating, renewable energy installations | Death or injury by collision | • Mortality<br>• Injury | Medium/ Low | ✓ | ✓ | Deaville & Jepson, 2011; Dolman *et al* 2006; ICES 2015a |
| Commercial fisheries, bycatch | Removal of target species | • Reduction in food availability<br>• Increased competition from other species<br>• Displacement from natural range<br>• Habitat change/loss | Medium | | ✓ | Simmonds and Isaac, 2007; OSPAR QSR 2010; MacLeod *et al* 2007a, b; Thompson *et al* 2007; Santos and Pierce, 2003; Pierce *et al* 2007; ICES 2015b |
| Agriculture, aquaculture, sewage | Nutrient enrichment | • Effects on water quality<br>• Increased risk of algal blooms may present health issues<br>• Habitat change/loss | Low | ✓ | ✓ | Craig *et al* 2013 |
| Agriculture, aquaculture, sewage | Organic enrichment | • Effects on water quality<br>• Increased risk of algal blooms may present health issues<br>• Habitat change/loss | Low | ✓ | | Craig *et al* 2013 |
| Waste disposal - navigational dredging (capital, maintenance) | Physical change (to another seabed type) | • Changes in availability of prey species<br>• Habitat change/loss | Low | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation) | Water flow (tidal current) changes - local | • Changes in location of prey species<br>• Displacement of harbour porpoise<br>• Habitat change/loss | Low | | | |
| Terrestrial and at-sea 'disposal' | Litter | • Mortality through entanglement<br>• Ingestion | Low | ✓ | ✓ | Deaville and Jepson, 2011 |
| Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation) | Barrier to species movement | • Habitat inaccessible<br>• Potential physiological effects<br>• Habitat change/loss | Low | ✓ | | WGMME., 2012; ICES 2015a |
| Sewage | Introduction of microbial pathogens | • Increased risk of disease | Low | | ✓ | Harvell *et al* 1999; Gulland and Hall, 2007; Van Bressem *et al* 2009 |

## Reference List for sources in Annex A


Craig, J.K., Crowder, L.B., Gray, C.D., McDaniel, C.J., Kenwood, T.A. and Hanifen, J.G. 2013. Ecological effects of hypoxia on fish, sea turtles, and marine mammals in the Northwestern Gulf of Mexico, in Coastal Hypoxia: Consequences for Living Resources and Ecosystems (eds Rabalais, N.N. and Turner, R.E.), American Geophysical Union, Washington, D. C.

Deaville, R. and Jepson, P D. (Eds). 2011. Final Report for the period 1st January 2005 – 31st December 2010. Cetacean Stranding Investigation Programme CSIP, Defra contracts CR0346 and CR0364. http://randd.defra.gov.uk/Document.aspx?Document=FinalCSIPReport2005-2010_finalversion061211released[1].pdf

Dolman, S., Williams-Grey, V., Asmutis-Silvia, R. and Isaac, S. 2006. Vessel collisions and cetaceans: what happens when they don"t miss the boat. WDCS Science Report.Chippenham. 25pp

Evans. D and Marvela, A. (2013). Assessment and reporting under Article 17 of the Habitats Directive: Explanatory notes and Guidelines. 123pp. https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

Fernandez, A., Edwards, J.F., Rodrigeau, F., Espinosa de los Monteros, P., Herraez, P., Castro, P., Jaber, J.R., Martin, V. and Arbelo, M. 2005. Gas and fat embolic syndrome involving mass stranding of beaked whales (Family Ziphiidae) exposed to anthropogenic sonar signals. Veterinary Pathology 42: 446.

Gulland, F.M.D. and Hall, A.J., 2007. Is marine mammal health deteriorating? Trends in the global reporting of marine mammal disease. Ecohealth, 4: 135-150

Harvell, C.D., Kim, K., Burholder, J.M., Colwell, R.R., Epstein, P.R., Grimes, D.J., Hofmann, E.E., Lipp, E.K., Osterhaus, A.D.M.E., Overstreet, R.M., Porter, J.W., Smith, G.W. and Vasta, G.R. 1999. Emerging marine diseases--climate links and anthropogenic factors. Science, 285: 1505-1510

ICES 2015a. Report of the Working Group on Marine Mammal Ecology (WGMME). ICES Advisory Committee, ICES CM 2015/ACOM:25. 9–12 February 2015 London, UK. http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2015/WGMME/wgmme_2015.pdf

ICES. 2015b. Report of the Working Group on Bycatch of Protected Species (WGBYC), 2-6 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM:26. 82 pp.

Jepson, P.D. Deaville, R., Patterson, I.A.P., Pocknell, A.M., Ross, H.M., Baker, J.R., Howie, F.E., Reid, R.J., Colloff, A. and Cunningham, A.A. 2005. Acute and chronic gas bubble lesions in cetaceans stranded in the United Kingdom. Veterinary Pathology, 42: 291.

Jepson, P. D., Deaville, R., Barber, J.L.,Aguilar, A., Borrell, A., Murphy, S., Barry, J., Brownlow,, A., Barnett, J., Berrow, S., Cunningham, A.A., Davison, N.J., Doeschate, M.t., Esteban, R., Ferreira, M., Foote, A.D., Genov, T., Gimenez, J., Loveridge, J., Llavona, A., Martin, V., Maxwell, D.L., Papachimitzou, A., Penrose, R., Perkins, M.W., Smith, B., Stephanis, R.d., Tregenza, N., Verborgh, P., Fernandez, A. and Law, R.J. 2016. PCB pollution continues to impact populations of orcas and other dolphins in European waters. *Sci. Rep.* **6**, 18573; doi: 10.1038/srep18573

Law, R.J., Barry, J., Barber, J.L., Bersuder, P., Deaville, R., Reid, R.J., Brownlow, A., Penrose, R., Barnett, J., Loveridge, J., Smith, B. and Jepson, P.D. 2012. Contaminants in cetaceans from UK waters: Status as assessed within the Cetacean Strandings Investigation Programme from 1990 to 2008. Marine Pollution Bulletin 64: 1485–1494

MacLeod, C.D., Santos, M.B., Reid, R.J., Scott, B.E. and Pierce, G.J. 2007a. Linking sandeel consumption and the likelihood of starvation in harbour porpoises in the Scottish North Sea: could climate change mean more starving porpoises? Biology Letters, 3: 185-188

MacLeod, C.D., Santos, M.B., and Pierce, G.J. 2007b. Starvation and sandeel consumption in harbour porpoises in the Scottish North Sea. Biology Letters, 3, 535-536.

Morizur, Y., Berrow, S.D., Tregenza, N.J.C., Couperus, A.S. and Pouvreau, S. 1999. Incidental catches of marine-mammals in pelagic trawl fisheries of the northeast Atlantic. Fisheries Research. 41: 297–307.

Murphy S, Barber JL, Learmonth JA, Read FL, Deaville R, Perkins MW, Brownlow, A., Davison, N, Penrose, R, Pierce, GJ, Law, RJ and Jepson, PD. 2015. Reproductive Failure in UK Harbour Porpoises *Phocoena phocoena*: Legacy of Pollutant Exposure? PLoS ONE 10(7): e0131085. doi:10.1371/journal.pone.0131085

Northridge, S. and Kingston, A. 2010. Annual report on the implementation of Council Regulation (EC) No 812/2004 – 2009. Sea Mammal Research Unit, University St Andrews. Report prepared to the European Commission.

Northridge, S., Kingston, A. and Thomas, L. 2016. Annual report on the implementation of Council Regulation (EC) No 812/2004 – 2015. Sea Mammal Research Unit, University St Andrews. Report prepared to the European Commission

OSPAR QSR. 2010. Quality Status Report 2010 for the northeast Atlantic. [Available from http://www.ospar.org/]

Pierce, G.J., Santos, M.B. and Cervino, S., 2007. Assessing sources of variation underlying estimates of cetacean diet composition: a simulation study on analysis of harbour porpoise diet in Scottish (UK) waters. Journal of the Marine Biological Association of the United Kingdom, 87: 213-221.

Pierce, G.J., Santos, M.B., Murphy, S., Learmonth, J.A., Zuur, A.F., Rogan, E., Bustamante, P., Caurant, F., Lahaye, V., Ridox, V., Zegers, B.N., Mets, A., Addink, M., Smeenk, C., Jauniaux, T., Law, R.J., Dabin, W., Lopez, A., Alonso Farre, J.M., Gonzalez, A.F., Guerra, A., Garcia-Hartmann, M., Reid, R.J., Moffat, C.F., Luckyer, C. and Boon, J.P., 2008. Bioaccumulation of persistent organic pollutants in female common dolphins (*Delphius delphis*) and harbour porpoises (*Phocoena phocoena*) from western European seas: Geographical trends, causal factors and effects on reproduction and mortality. Environmental Pollution, 153: 401-415.

Read, A.J; Drinker, P., Northridge, S., 2006. Bycatch of marine mammals in U.S. and global fisheries. Conservation Biology, 20:163-169.

Santos, M.B. and Pierce, G.J. 2003. The diet of harbour porpoise (*Phocoena phocoena*) in the northeast Atlantic. Oceanography and Marine Biology: an Annual Review, 41: 355–390.

Simmonds, M.P., and Isaac, S.J. 2007. The impacts of climate change on marine mammals: early signs of significant problems. Oryx 41(1): 19-26

Stone, C.J. 2015. Marine mammal observations during seismic surveys from 1995-2010. JNCC Report No: 463a. JNCC, Peterborough, 64pp. Available at: http://jncc.defra.gov.uk/pdf/JNCC%20Report%20463a_Final.pdf

Stone, C.J. and Tasker, M.L. 2006. The effects of seismic airguns on cetaceans in UK waters. Journal of Cetacean Research and Management, 8: 255-263.

Thompson, P., Ingram, S., Lonergan, M., Northridge, S., Hall, A. and Wilson, B. 2007. Climate change causing starvation in harbour porpoises? Biology Letters 3, 533-534.

Van Bressem, M.F., Raga, J.A., Di Guardo, J., Jepson, P.D., Duignan, P., Siebert, U., Barrett, T., Santos, M.C.O., Moreno, I.B., Siciliano, S., Aguilar, A. and Van Waerebeek, K., 2009. Emerging infectious diseases in cetaceans worldwide and the role of environmental stressors. Diseases of Aquatic Organisms. **86: 143-157**

Van De Vijver, K.I., Hoff, P.T., Das, K., Van Dongen, W., Esmans, E.L., Jaunaiux, T., Bouquegneau, J., Blust, R. and De Coen, W. 2003. Perfluorated chemicals infiltrate ocean waters: link between exposure levels and stable isotope ratios in marine mammals. Environmental Science andTechnology, 37: 5545-5550.

WGMME 2012. Assessment of the marine renewables industry in relation to marine mammals: synthesis of work undertaken by the ICES Working Group on Marine Mammal Ecology (WGMME). Available at http://www.researchgate.net/profile/Stefan_Braeger/publication/265728493_Assessment_of_the_marine_renewables_industry_in_relation_to_marine_mammals_synthesis_of_work_undertaken_by_the_ICES_Working_Group_on_Marine_Mammal_Ecology_%28WGMME%29/links/541a09080cf2218008bfa5ec.pdf

Würsig, B. and Richardson, W.J. 2009. Noise, effects of. Pp. 765–772. In: Perrin, W.F., Würsig, B., and J.G.M. Thewissen, Eds. The Encyclopedia of Marine Mammals, Ed. 2. Academic/Elsevier Press, San Diego, Ca. 1316 pp

# 9 Annex B: Definitions of Pressures as applied within harbour porpoise SAC Advice on Operations

| Pressures | Definition in the context of harbour porpoise advice |
|---|---|
| **Removal of non-target species** | The removal of species not targeted by the fishery; in this case the bycatch (and probable mortality) of harbour porpoise |
| **Contaminants** | Introduced material capable of contaminating harbour porpoise, prey or habitat important to harbour porpoise, with a negative impact directly or indirectly on porpoises |
| **Anthropogenic underwater sound** | Introduced noise with the potential to cause injury, stress or disturbance to harbour porpoise |
| **Death or injury by collision** | Introduction of physical objects; mobile or immobile, that may collide with or result in potential collision of harbour porpoise resulting in injury or mortality |
| **Removal of target species** | Removal of harbour porpoise prey, resulting in increased competition amongst porpoise and other species, and/or displacement from their natural range |

An Agency within the Department of the Environment

ENVIRONMENT AND HERITAGE SERVICE

# The Ramsar Convention on Wetlands

**Name:** Outer Ards.

**Unitary Authority/County:** North Down Borough Council,
Ards Borough Council
County Down

**Consultation proposal:** Outer Ards and Ballymacormick Point Areas of Special Scientific Interest have been selected for designation as a Ramsar site because of their important breeding and wintering populations of waterfowl.

**Site description:** The Outer Ards site extends from Grey Point on the north Down coast, to Ballyquintin Point in the south. The site mainly encompasses the inter-tidal areas, but with some additional adjoining areas of notable habitat. It includes sand and mud dominated shores, cobble and boulder beaches together with rocky shores. Off shore islands are also present. Adjoining habitat includes areas of maritime grassland and heath. The principal interests are the breeding colonies of Arctic Tern and Manx Shearwater, together with the wintering populations of Light-bellied Brent Goose, Golden Plover, Turnstone and Ringed Plover. The boundary of the Ramsar site is entirely coincident with the Outer Ards Area of Special Scientific Interest together with the Ballymacormick Point Area of Special Scientific Interest.

**Size of Ramsar site:** The Ramsar site covers an area of 1278.82 ha.

**International importance of Ramsar site:** Outer Ards is a Wetland of International Importance because it qualifies under **Criterion 6** as it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird in any season:

| Species | Count and season | Period | Biogeographic % |
|---|---|---|---|
| Arctic Tern *Sterna paradisaea* | 207 pairs – breeding | 5 year mean | 4.7% Irish population |
| Manx Shearwater *Puffinus puffinus* | Minimum 3581 pairs – breeding | 2000 | 1.3% world population |
| Light-bellied Brent Goose *Branta bernicla hrota* | 209 individuals – wintering | 5 year peak mean for 1991/92 – 1995/96 | 1.1% world population |
| Golden Plover *Pluvialis apricaria* | 2109 individuals – wintering | 5 year peak mean for 1991/92 – 1995/96 | 1.1% NW Europe population |
| Ringed Plover *Charadrius hiaticula* | 516 individuals – wintering | 5 year peak mean for 1991/92 – 1995/96 | 1.2 % Eastern Atlantic Flyway population |
| Turnstone *Arenaria interpres* | 1210 individuals – wintering | 5 year peak mean for 1991/92 – 1995/96 | 1.7 % Eastern Atlantic Flyway population |

Bird figures from: WeBS database and Seabird 2000 census

Wetland of International Importance
Ramsar Convention

Designated by the Department of the Environment

Date: ....6 April 2005

# Outer Ards Ramsar

Ramsar Site Code: UK12018

Wetland of International Importance, Ramsar Convention, shown thus:

The proposed Ramsar site includes all lands within the hatched red line down to low water mark. Marine areas below low water are not included.

The present map is for information purposes only. For queries relating to the boundary of this Ramsar site contact EHS.

Longitude: 05° 29' 02" W

Latitude: 54° 32' 47" N

Area of Ramsar Site: 1154.16 ha.

Map 1 of 1

Version number: 1 (13/02/06)

Projection: Irish National Grid

Reproduced from Ordnance Survey of Northern Ireland with the permission of the Director and Chief Executive
© Crown Copyright
© Environment and Heritage Service Copyright 2006

An Agency within the Department of the Environment

Environment & Heritage Service
www.ehsni.gov.uk

ARDS PENINSULA

STRANGFORD LOUGH

Scale 1:135,362

0 0.4 0.8 1.6 2.4 3.2 Kilometres

0 0.2 0.4 0.8 1.2 1.6 Miles

# OUTER ARDS -
# SPECIAL PROTECTION AREA (SPA)

## UK9020271

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | Outer Ards SPA Conservation Objectives |
| Prepared By | *Ian Enlander* |
| Approved By | *Mark Wright* |
| Date Effective From | *01/04/2015* |
| Version Number | *V4* |
| Next Review Date | January 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 01/12/2002 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA adjoins Belfast Lough SPA, Belfast Lough Open Water SPA and Strangford Lough SPA. It is also close to Copeland Islands SPA and adjoins the proposed East Coast Marine SPA.

The SPA boundary also includes the Outer Ards Ramsar site.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Down

Outer Ards ASSI G.R. J628 694 AREA: 1240.82 ha.
Outer Ards SPA G.R. J628 694 AREA: 4753.82 ha.

<u>REVIEW OF ANY ADJOINING OR REMOTE MARINE AREAS WILL BE INFORMED BY JNCC REPORT ON MARINE USAGE BY TERN SPECIES FROM EXISTING SPA'S DESIGNATED FOR BREEDING TERNS.</u>

<u>CONSERVATION OBJECTIVES WILL BE REVISED AS THESE ISSUE PROGRESS</u>

# 5 SUMMARY SITE DESCRIPTION

The coastal site extends from near Grey Point, Belfast Lough to north of Ballyquintin Point at the southern end of the Ards Peninsula. The site is contiguous with Belfast Lough SPA and Strangford Lough SAC/SPA. It comprises a variety of shoreline types including rock platforms, off-shore islands, boulder, gravel and sand beaches. Coastal relief is low so that no significant cliffs are present. While the wintering waterfowl utilise the open shore, breeding seabirds (tern species) are present on Cockle Island, Groomsport (SPA and Ramsar). A marine area has been included within the SPA adjoining the Cockle Island tern nest site. Limited adjoining habitat is included in the site, principally maritime heath and grassland.

## 5.1 BOUNDARY RATIONALE

The SPA and Ramsar sites comprise the Outer Ards ASSI together with Ballymacormick Point ASSI. In addition, the SPA includes a sea area adjoining Cockle Island, Groomsport (breeding terns). Such areas adjoining colonies are of importance to an extent for feeding although terns can be wide ranging in their search for food. Landward, the site is generally limited to the head of beaches and rock platforms but in places extends inland where habitat quality justifies this. Major harbour complexes have been excluded. Roost sites occurring outside the extent of natural or semi-natural habitat have not been included but their importance must not be underestimated.

# 6 SPA SELECTION FEATURES

| Feature Type | Feature | Population (5 year average 1995-2000) except where stated | Population at time of designation (ASSI) | Population at time of designation (SPA) | SPA Review population | Common Standards Monitoring baseline |
|---|---|---|---|---|---|---|
| Species | Arctic Tern breeding population [a] | 260 (current population) | 263 | 263 | 207 | 58 |
| Species | Golden Plover wintering population [a] | 2927 | 2109 | 2109 | 2079 | 735 |
| Species | Light-bellied Brent Goose wintering population [a] | 206 | 209 | 209 | 245 | 54 |
| Species | Ringed Plover wintering population [a] | 452 | 516 | 516 | 545 | 380 |
| Species | Turnstone wintering population [a] | 1084 | 1210 | 1210 | 1241 | 846 |
| Habitat[1] | Habitat extent | | | | | |
| Habitat[1] | Roost site locations | | | | | |

Table 1. List of SPA selection features.

[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area.

**Notes on SPA features – may not be applicable to all SPAs**
The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.
[a] – species cited in current SPA citation and listed on current N2K dataform
[b] – species selected post SPA designation through UK SPA Review 2001
[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1 ADDITIONAL ASSI SELECTION FEATURES

| Feature Type (i.e. habitat, species or earth science) | Feature | Size/ extent/ pop[.] | Population at time of designation (ASSI) | Common Standards Monitoring baseline |
|---|---|---|---|---|
| Habitat | Coastal saltmarsh | | | |
| Habitat | Coastal sand dunes | | | |
| Habitat | Intertidal mudflats | | | |
| Habitat | Maritime cliff and slope | | | |
| Habitat | Intertidal rock | | | |
| Species | Fungi assemblage | | | |
| Species | Higher plant assemblage | | | |
| Species | Cormorant wintering population | | 221 | 231 |
| Species | Great Crested Grebe wintering population | | 82 | 4 |
| Species | Eider wintering population | | 475 | 438 |
| Species | Curlew wintering population | | 917 | 473 |
| Species | Dunlin wintering population | | 2239 | 1187 |
| Species | Lapwing wintering population | | 5379 | 3099 |
| Species | Oystercatcher wintering population | | 1623 | 1593 |
| Species | Purple Sandpiper wintering population | | 78 | 54 |
| Species | Redshank wintering population | | 904 | 794 |
| Earth Science | Whiskin Rocks Structural Geology | | | |
| Earth Science | White House Port Structural Geology | | | |
| Earth Science | Ballyferris and Ballywhiskin Rocks Caledonian Igneous | | | |
| Earth Science | Ballyhabert Caledonian Igneous | | | |
| Earth Science | Kearney Point/Knockinelder Structural Geology | | | |
| Earth Science | Coalpit Bay Lower Palaeozoic stratigraphy | | | |
| Earth Science | Orlock Structural Geology | | | |
| Earth Science | Millin Bay Structural Geology | | | |

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7 CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

***To maintain each feature in favourable condition***.

For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8 OUTER ARDS SPA CONDITION ASSESSMENT 2014

| Species | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Arctic Tern (B) | 205 | 182 | 215 | 191 | 34 | 58 | 165.4 | **285.17** | Favourable |
| Light-bellied Brent Goose | 946 | 781 | 593 | 649 | 1311 | 54 | 856.0 | **1585.19** | Favourable |
| Golden Plover | 1148 | 721 | 439 | 362 | 181 | 735 | 570.2 | **77.58** | Unfavourable |
| Ringed Plover | 125 | 308 | 278 | 265 | 120 | 380 | 219.2 | **57.68** | Unfavourable |
| Turnstone | 930 | 1037 | 1000 | 780 | 692 | 846 | 887.8 | **104.94** | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
Fledging success sufficient to maintain or enhance population
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

| Feature | Component Objective |
|---|---|
| Arctic Tern breeding population | As above |
| Arctic Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Light-bellied Brent Goose wintering population | As above |
| Golden Plover wintering population | As above |
| Ringed Plover wintering population | As above |
| Turnstone | As above |

| | |
|---|---|
| wintering population | |
| Habitat extent | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species (1001 ha intertidal area), (breeding areas xx ha) subject to natural processes |
| Habitat extent | Maintain the extent of main habitat components subject to natural processes |
| Roost sites | Maintain or enhance sites utilised as roosts |

Table 3. List of SPA Selection Feature Component Objectives

Tern nesting localities current and historical (TO BE FINALISED)

| |
|---|
| Cockle Island – only site currently used |
| Bird Island |
| Burial Island |
| Green Island |
| South Rock |
| North Rock |

Table 4. Historical tern nesting locations within the SPA

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

| Feature | Component Objective |
|---|---|
| Coastal mosaic | |
| Intertidal mud/sand | |
| Intertidal rock | |
| Fungi | |
| Higher Plant Assemblage | |
| Cormorant wintering population | As for SPA selection feature objectives |
| Great Crested Grebe wintering population | As for SPA selection feature objectives |
| Eider wintering population | As for SPA selection feature objectives |
| Curlew wintering population | As for SPA selection feature objectives |
| Dunlin wintering population | As for SPA selection feature objectives |
| Lapwing wintering population | As for SPA selection feature objectives |
| Oystercatcher wintering population | As for SPA selection feature objectives |
| Purple Sandpiper wintering population | As for SPA selection feature objectives |
| Redshank wintering population | As for SPA selection feature objectives |
| Whiskin Rocks Structural Geology | Maintain the extent of exposures and access to them subject to natural processes |
| White House Port Structural Geology | Maintain the extent of exposures and access to them subject to natural processes |
| Ballyferris and Ballywhiskin Rocks Caledonian Igneous | Maintain the extent of exposures and access to them subject to natural processes |
| Ballyhabert Caledonian Igneous | Maintain the extent of exposures and access to them subject to natural processes |
| Kearney Point/Knockinelder Structural Geology | Maintain the extent of exposures and access to them subject to natural processes |
| Coalpit Bay Lower Palaeozoic stratigraphy | Maintain the extent of exposures and access to them subject to natural processes |
| Orlock Structural Geology | Maintain the extent of exposures and access to them subject to natural processes |
| Millin Bay Structural Geology | Maintain the extent of exposures and access to them subject to natural processes |

Table 5. ASSI Component objectives

## 10 MANAGEMENT CONSIDERATIONS

**See also Views About Management for relevant ASSI**

***Owner/Occupier's –*** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Approximately 170 individuals/organisations own land within the SPA. Major landowners and leasees within the SPA, relevant to the site management include, Crown Estate Commissioners, National Trust, NIEA, North Down and Ards Council, Commissioner of Irish Lights, RSPB and Private Individuals. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

The proposed new sewage treatment works for the greater Bangor area at Donaghadee and associated infrastructure may impact upon the SPA. Development pressures are significant along the entire SPA. Other threats include coastal protection works particularly in southern region of the site. The area is of importance for recreational activities. These can exist alongside the SPA feature populations but care is needed that activities do not result in any adverse impacts.

There are no management agreements within the SPA.

## 11 MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** - Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Outer Ards SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

**<u>Generic site/feature issues</u>**

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 1 | Adjoining habitat | Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, difficult. | Mostly improved agricultural land but provides high tide roosts, most notably for Golden Plover, and additional feeding habitat. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |
| 2 | Aquaculture | Disturbance is a minor consideration unless carried | No licensed sites presently but the area | Liaise with DARD Fisheries Division. Assess all license |

| | | | | |
|---|---|---|---|---|
| | | out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors. | has been identified as having potential. | applications individually. Consider the collective impact. |
| 3 | Bait digging – commercial or 'recreational' and shellfish gathering. | Disturbance and impact on sediment and invertebrate fauna – may be positive through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated. | Extent unknown | Monitor scale of activity. Consider the collective impact. |
| 4 | Beach cleaning | Disturbance consideration. Loss of seaweed and other driftline material especially represents a net loss to the system in terms of habitat and biomass. | Widespread on local authority and amenity beaches, main concern regards seaweed. Destination of gathered seaweed is unknown – should be returned to the system. | Liaise with local authority to limit frequency or timing of beach cleaning, restricting it to key sites through the summer. Consider best use of organic component, ideally returning it to the system. |
| 5 | Beach sand and gravel extraction. | Disturbance issue together with loss of biologically active upper sediments. Most beach systems are sedimentalogically closed thus material removed may not be renewed making the activity unsustainable. May lead to changed sediment character of beach ultimately impacting on birds. | Apparently widespread especially in Cloghy area. Impact is unclear but practise is unlikely to be sustainable. | 'Permitted' extraction of beach sand and gravel should be halted through management agreements. Ad hoc removal should be addressed in conjunction with local authorities. |
| 6 | Boating activity – commercial | Disturbance and potential for impact from high-speed liners. | Fishing boat activity is widespread, centred on the main harbours. Shipping within the Irish Sea may have a bearing with regard to the potential for pollution incidents. No immediate issues evident. | Formal consultation likely relating to new schemes. Consider the collective impact. |
| 7 | Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | Main boating centres are at Bangor and Donaghadee. Probably dispersed activity associated with most beaches also. Most activity is likely to be in the | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. |

| | | | | |
|---|---|---|---|---|
| | | | summer period. Implications for seabird nesting sites. | |
| 8 | Coastal protection schemes | Where there is no history of this, it impacts on natural beach systems with loss of habitat. | Much of the coastline is highly engineered. Ongoing erosion is a problem locally with ad hoc dumping as a response. | Liaise with Planning Service and other parties with an involvement in coastal management. |
| 9 | Cull of fledglings/ young | Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA. | Potentially an issue at tern colonies but numbers of breeding large gulls has declined considerably in recent years. | NIEA to review all licenses. Consider the collective impact. |
| 13 | Enhanced bird competition | Activities onsite or offsite that influences or results in a shift in balance of species utilising a site. | Future of landfill operations especially in the wider area could impact on breeding seabirds | Liaise with Planning Service. Review wider countryside changes. |
| 14 | Fishing – commercial or recreational | Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass. | Scallop dredging and other trawling is ongoing. | Liaise with DARD and fishing authority as required. Liaise with angling clubs as required. |
| 15 | Habitat extent – inter-tidal | Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds. | Main threat is from ad hoc coastal protection schemes. | Assess planning applications. Monitor using aerial photography. |
| 16 | Habitat extent – open water | Loss likely to be limited but expansion of commercial port facilities can impact on key localities. | Not a significant issue | Assess planning applications. Consider the collective impact. |
| 17 | Habitat quality – inter-tidal | Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes. | No major impact although seaweed cleaning/harvesting and sand/gravel extraction are issues of concern. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 18 | Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Not a significant issue given the sites position in open coastal waters. Impacts are localised. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution |

| | | | | |
|---|---|---|---|---|
| | | | | incidents. Consider the collective impact. |
| 19 | Habitat extent and quality-breeding | Alteration of habitat area or quality through inappropriate use or absence of site management. | Habitat management is main issue in context of seabirds. Tern site at Cockle Island | Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management. |
| 20 | High tide roosts | An essential component of sites hosting waders. Development of adjoining ground or actual traditional roost localities may adversely impact on the sites carrying capacity. Many such sites lie without the site making effective management of developments, other than those for which planning permission is required, difficult. | Localities should be mapped including extent of use of adjoining habitat. It is probable that there is movement of birds between Outer Ards and Strangford Lough. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |
| 21 | Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Extent unknown | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives. |
| 23 | Predation. | Mainly of concern on bird breeding sites. | Extent unknown but Cockle Island is accessible at extreme low tides. | Must be dealt with as part of wider countryside management considerations. |
| 24 | Recreational activities. | Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats.<br>Breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success. | Widespread in summer with main concerns being access to Cockle Island (this is positively managed but is very vulnerable in terms of position). Sections of shoreline are heavily used for recreational activities. Cumulative disturbance impacts (e.g. boating, wildfowlers, walkers, dogs etc) may be a significant factor for wintering bird populations impacting on both feeding (inter-tidal) and roosting birds. Mainly an issue during the summer period. | Liaise with local authorities and other managing parties. Signage at vulnerable sites should be reviewed. |
| 25 | Research activities. | Census and ringing activities especially have the potential to impact on bird populations, particularly at | Routine winter WEBS counts are undertaken. Breeding seabirds are surveyed annually. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In |

| | | | | |
|---|---|---|---|---|
| | | breeding sites. | | case of ringers, appropriate license must be held. |
| 27 | Seaweed harvesting | Either cutting living weed or gathering storm debris. The former, depending on scale and frequency, may fundamentally impact on shore communities and their ability to support waterfowl. The latter, represents a net loss to the system in terms of habitat and biomass. | See issue 4 – beach cleaning. In addition, commercial scale sublittoral seaweed cropping has been discussed. | |
| 28 | System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | Widespread engineered coastline and other management impacts. Ongoing localised erosion is also an issue. Separate embayments are possibly self-contained. Relationship between sand beaches and offshore sediments are presently unknown. | Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |
| 31 | Wildfowling | Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands. | Extent unknown – limited quarry species present within the site. | Liaise with relevant shooting bodies (BASC especially) to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the collective impact. |

Table 6. List of site/feature management issues

## 12. MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel

beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

## 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2 ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be

necessary, but this may need to form part of a network of strategic species action. Further research may be required.

2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13 SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Golden Plover | Fluctuating | - | Slight Fluctuation | - | Golden Plover is not included in the indexing processes |
| Arctic Tern | - | - | - | - | Not known, to be compiled. |
| Light-bellied Brent Goose | Stable | Fluctuating | Slight Fluctuation | Not Applicable | |
| Ringed Plover | Declining | Fluctuating | Stable | Fluctuating | Medium Alert for UK and NI |
| Turnstone | Declining | Fluctuating | Increasing | Fluctuating | Medium Alert for UK and NI |

# ANNEX I

## Feature (SPA) – Breeding Seabirds

* = primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Arctic Tern breeding population | Apparently occupied nests | No significant decrease in Arctic Tern breeding population against national trends | Requirement that annual data is collected, apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. . Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Arctic Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |

## Non-Avian Factors – habitat

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures or breeding sites, where this would lead to different usage by notified species. |

**Feature (SPA) – Wintering Waterfowl**

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Golden Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Light-bellied Brent Goose wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Ringed Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Turnstone wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

**Non-Avian Factors – habitat**

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species. |
| # Roost sites | Location of roost sites | Maintain all locations of roost sites. | Map roost site locations. Visit once every reporting cycle to ensure sites are available. |

# ANNEX II

## Feature 1 (ASSI) –

= primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| Coastal mosaic | | | |
| Intertidal mud/sand | | | |
| Intertidal rock | | | |
| Fungi | | | |
| Higher Plant Assemblage | | | |
| Cormorant wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Great Crested Grebe wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Eider wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Curlew wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Dunlin wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Lapwing wintering population | Bird numbers | No significant decrease in populations against national trends | |

| | | | |
|---|---|---|---|
| Oystercatcher wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Purple Sandpiper wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Redshank wintering population | Bird numbers | No significant decrease in populations against national trends | |
| Whiskin Rocks Structural Geology | | | |
| White House Port Structural Geology | | | |
| Ballyferris and Ballywhiskin Rocks Caledonian Igneous | | | |
| Ballyhabert Caledonian Igneous | | | |
| Kearney Point/Knockinelder Structural Geology | | | |
| Coalpit Bay Lower Palaeozoic stratigraphy | | | |
| Orlock Structural Geology | | | |
| Millin Bay Structural Geology | | | |

# REA'S WOOD & FARR'S BAY SAC
UK0030244

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Rea's Wood & Farr's Bay SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *01/04/2015* |
| Version Number | *V2* |
| Next Review Date | Nov 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | June 2013 | Internal working document | PC |
| V2 | Dec 2014 | Complete review | RMK |
| | | | |
| | | | |
| | | | |

## Site relationships

To fully understand the conservation requirements of this site, it is necessary to also refer to the Conservation Objectives for Lough Neagh SPA.

The Rea's Wood & Farr's Bay SAC boundary partially overlaps with the boundary of the Lough Neagh SPA.

# 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** ANTRIM

**GRID REFERENCE:** J091872, J142853

**AREA:** 38.02 ha

## 5. SUMMARY SITE DESCRIPTION

Rea's Wood and Farr's Bay have developed on a series of shorelines exposed by successive lowerings of Lough Neagh. The former lakebed has an undulating terrain consisting of raised ridges and wet, occasionally flooded hollows, with a resulting variation in the type of woodland cover.

The present foreshore supports inundation Willow/Alder woodland along the shore and Alder swamp woodland in the permanently flooded hollows behind, whilst the drier ridges support base-rich Ash woodland. The diversity of woodland types is reflected in the rich flora and fauna, which includes a large number of rare species.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website (www.doeni.gov.uk/niea).

## 5.1 BOUNDARY RATIONALE

The boundary takes in all of Rea's Wood NNR and Farr's Bay NR, and part of Randalstown Forest NR. It has been drawn to include the best examples of swamp woodland, in addition to other semi-natural habitats that form part of the natural transition, such as inundation zones, Ash woodland, swamp and fen

vegetation. The site boundary uses permanent boundary features where possible; however, at the eastern side of Farr's Bay the NR boundary was used.

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ population |
|---|---|---|---|
| Habitat | Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*) | B | 26 ha |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Rea's Wood & Farr's Bay SAC.

## 6.1 ASSI SELECTION FEATURES

### Rea's Wood & Farr's Bay ASSI

| Feature Type | Feature | Size/ extent/ population |
|---|---|---|
| Habitat | Wet Woodland | 26 ha |
| Species | Higher Plant Assemblage. *Alisma lanceolatum* (3), *Butomus umbellatus* (1), *Chenopodium polyspermum* (5), *Leucojum aestivum* (3), *Polygonum mite* (3), *Prunus padus* (2), *Cicuta virosa* (2), *Cardamine amara* (5), *Rorippa sylvestris* (1), *Lemna polyrhiza* (2), *Carex elongata* (5), *C. strigosa* (2) and *Scirpus sylvatica* (2) | ABCD score 36 |
| Species | Invertebrate Assemblage Survey at these two sites has amassed an extensive inventory of the various invertebrate groups present. A number of these groups are extremely rich in species, which include a large number of rare or very locally distributed individual species that have been recorded. Major groups recorded include Nemertea, Mollusca, Diplopoda, Coleoptera, Hemiptera, Lepidoptera, Diptera, Hymenoptera, Crustacea, Opiliones and Odonata | Further research required and the need to set firm selection criteria for invertebrate assemblages. |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

**To maintain (or restore where appropriate) the Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) to favourable condition.**

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| SAC Feature | Global Status | Component Objective |
|---|---|---|
| Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) | B | Maintain and expand the extent of existing swamp woodland. (There is an area of wetland and damp grassland which have the potential to develop into carr woodland) |
| | | Maintain and enhance swamp woodland species diversity and structural diversity |
| | | Maintain the diversity and quality of habitats associated with the swamp woodland, e.g. fen, swamp, especially where these exhibit natural transition to swamp woodland. |
| | | Seek nature conservation management over adjacent forested areas outside the ASSI where there may be potential for woodland rehabilitation. |
| | | Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion. |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| ASSI Feature | Component Objective |
|---|---|
| Wet Woodland | See SAC Selection Feature Objective Requirements table. |
| Higher Plant Assemblage | Map location of rare species |
| | Maintain abundance and distribution and if feasible enhance population. |
| | Establish the status of these species and if appropriate draw up further conservation priorities for this species. |
| Invertebrate assemblage | Map location of rare species |
| | Maintain abundance and distribution and if feasible enhance population. |
| | Establish the status of these species and if appropriate draw up further conservation priorities for this species. |

## 10. MANAGEMENT CONSIDERATIONS

*Ownership*

Both sections of this site are owned and managed as national nature reserves except for a small parcel of wood at the western end of Farr's Bay, which is in private ownership.

*Adjoining Land Use*

The extent of inundation is dependent on the level of Lough Neagh during the winter months. This level is regulated at the Toome Weir, which controls flow down the Lower Bann. Winter inundation of the marginal woodland supplies a renewable source of water borne seeds including exotics. Lough Neagh, already a major source of water for NI, will come under greater pressure from continual increase in demand for water resources.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Rea's Wood & Farr's Bay, or could affect it in the future. Although Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) is the qualifying SAC feature, factors affecting ASSI features are also considered.

NOTE - Carrying out <u>any</u> of the Notifiable Operations listed in the ASSI schedule could affect the site.

*Woodland Clearance*

Removal of woodland would lead to a reduction in diversity. No recent significant broadleaved woodland clearance has been recorded, although *ad hoc* clearance continues.

ACTION: No further removal of woodland from the site.

*Dead Wood Removal*

Dead wood should be left *in situ* if safe or practical to do so. This provides valuable habitat for fungi, invertebrates etc. Removal of wood or fire-wood should be discouraged.

ACTION: No removal of dead wood from the site.

*Invasion by Exotics*

Exotic species are widespread particularly in Rea's Wood, varying in their degree of impact and threat they pose. Very invasive species such as Sycamore *Acer pseudoplatanus*, Indian Balsam *Impatiens glandulifera*, Pick–a-Back Plant Tolmiea menziesii, Dogwood *Cornus sanguinea*, Japanese Knotweed *Fallopia japonica,* Salmon Berry *Rubus spectabilis*, Skunk Cabbage *Lysichiton americanus* and Giant Hogweed *Heracleum mantegazzianum* are seen as posing a current threat. Other invasives not seen as an immediate threat due to their limited occurrence, include Horse Chestnut *Aesculus hippocastanum*, Rhododendron *Rhododendron ponticum*, Bamboo *Bambosoideae*, Monkey Flower *Mimulus guttatus*, Common Comfrey *Symphytum officinale*, Monk's-hood *Aconitum napellus*, Ostrich fern *Matteuccia struthiopteris*, Hop *Humulus lupulus*, Cherry Laurel *Prunus laurocerasus*, Black Current *Ribes nigrum* or slow rate of spread Beech *Fagus sylvatic*a. Other species which have been established for a long time on the site such as Keeled Garlic *Allium carinatum*, Summer Snowflake *Leucojum aestivum*, Confused Michaelmas-daisy *Aster x salignus*, are not seen as a threat.

ACTION: The very invasive species require management to control their spread, which in most cases will require the current seed source to be removed from site. This is impractical with those species such as Indian Balsam *Impatiens glandulifera* and Giant Hogweed *Heracleum mantegazzianum* whose seed supply is partly recruited annually from water borne seeds, here other methods of control will be required. In the case of Indian Balsam *Impatiens glandulifera* it will probably be impossible to control its spread and so research should be carried out to identify the effect this species is having on the woodland community. Those species not posing a threat at present should be monitored and in the long-term controlled if required.

*Changes in Water Level*

The past series of lowering Lough Neagh's water levels has had a fundamental impact on the marginal habitats, including woodland. Each lowering of the water

level has resulted in a successional series of shoreline colonisation. Wet woodland which has developed on previously exposed lake bed has changed to dryer woodland community types, with the increasingly elevated shoreline, after each lowering of the loughs water level. The lowering of water levels also creates newly exposed beds which are subsequently colonised by new wet woodland. Proposals to increase water extraction from the Lough will lower the summer water level again but is unlikely to effect winter levels.
**ACTION: Monitor the effects of the increased summer drop down resulting from the increase in water-extraction.**

*Drainage of Swamp Woodland*
A series of foreshore ridges, created during past lowering of water levels, previously acted as a natural barrier to drainage resulting in impoundment of water. The impounded areas remained flooded throughout the year, supporting much of the best swamp woodland. A study of the changes in the vegetation of Rea's Wood between 1984 and 1991 by Rachel Shepperson and Brian Rushton, (Applied Ecology Research Group, UUC) found there has been a shift in the composition of the woodland flora in general from characteristic wetland species to those preferring drier conditions. No reasons for this vegetation community shift were proposed during the study. However, it was noted, woodland adjacent to drains that have been cut through these ridges, show pronounced signs of drying out.
**ACTION: Further study should be undertaken to assess the effect of the drains on the impounded areas, to evaluate the impacts of increased rate of water loss. If the effects of drainage are proven significant, the installation of weirs across these drains would allow for controlled retention of water during the summer.**

*Fly-tipping*
Water borne material is the major source of rubbish deposited onto the shore line wood, during winter flooding or storms.
**ACTION: Where practical, remove tide-line deposited rubbish from the woods to prevent the build up of debris and to discourage fly-tipping.**

*Nitrogen Deposition*
Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for Rea's Wood & Farr's Bay SAC.

**Designated feature/feature habitat not sensitive to eutrophication.**

(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.

*Changes to surrounding land use*
Activities occurring outside the site (e.g. agricultural intensification, drainage works, and development) may be detrimental to the site through remote affects.
Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.

*Climate Change*
Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.
ACTION:When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.

## 12. MONITORING

Monitoring of SACs takes place on using two monitoring techniques.

Site Integrity Monitoring (SIM) is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. woodland clearance, overwintering of stock, dumping etc), or will be comparatively slow. These longer-term changes will be picked up by monitoring of the feature via Site Condition Assessment - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

### 12.1 MONITORING SUMMARY

1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*
   Complete boundary survey to ensure that walls and fences are still intact. Ensure that there has been no tree felling, ground disturbance, dumping or inappropriate burning carried out within the SAC boundary. Evaluation of feral goat damage should be carried out throughout the site. SIM should be carried out once a year.

*2. Monitor the condition of the site (Condition Assessment)*
Monitor the key attributes for each selection feature. This will detect if the features are in favourable condition or not.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Wet Woodland.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

ANNEX 1

Feature 1 (SAC) – Alluvial forests with *Alnus glutinosa* and *Fraxinus exc*elsior (*Alno-Padion Alnion incanae, Salicion alvae*) (Status B)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Area of Wet woodland | Maintain the extent Wet woodland at 26ha. | Visual estimate in 10x10m plots and across the extent of the woodland using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable |
| Alder woodland community diversity | Maintain presence of the woodland community, W5 as established at base line survey. | Visual estimate in 10x10m plots | |
| Presence of associated features and semi-natural habitats | Maintain existing associated features and semi-natural habitats. | Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost.<br>Note: Loss of associated habitats to Wet woodland may be desirable in some instances. |

| | | | |
|---|---|---|---|
| * Structural variation (% cover) | Mean canopy cover greater than 50% | Estimate within the visual vicinity of the monitoring plots. | A well structured wood should have a well developed canopy and shrub layer. However, many Wet woodlands do not support a tall canopy or very mature trees. |
| | Mean shrub cover should be maintained between 15-50% | Estimate within the visual vicinity of the monitoring plots. | |
| | Maintain current levels of standard variation within reasonable limits for field, herb and moss cover. | Visual estimate in 10x10m plots. | At least the current level of structural diversity should be maintained for field cover, herb cover and moss cover. Limits to be set for each site after the baseline survey.<br>The ground flora may appear sparse, particularly where periodic flooding leaves areas of bare mud etc. Its composition may be variable.<br>Hydrology is difficult to assess given vagaries of climate. The regime should be allowed to revert to a natural one. Negative changes will be picked up in vegetation changes over time but more detailed recording may be necessary |
| | | Visual estimate in 10x10m plots. | |
| | | Visual estimate in 10x10m plots. | |
| | Water-filled pools and ditches (or mud) should be at least present in 50% of plots. | Visual estimate in 10x10m plots. | |
| * Age-class variation (DAFOR) | Young trees (5- 20cm diameter) at least occasional in 25% of plots. | Visual estimate in 10x10m plots. | Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age- |

| | | | |
|---|---|---|---|
| | Mature trees (20 - 75cm diameter) at least frequent in 75% of plots. | Visual estimate in 10x10m plots. | classes present, including young and over-mature trees.<br>Note, that in many cases achieving the set targets is a long term aim. However, providing the correct management practices are in place, this attribute may be recorded as Unfavourable -recovering. |
| | Over-mature trees (>75cm diameter) at least present in 10% of plots. | Visual estimate in 10x10m plots. | |
| * Presence of standing and fallen dead wood (DAFOR) | Standing dead wood at least occasional in 50% of plots. | Visual estimate in 10x10m plots. | Dead wood is often abundant but because there tend to be fewer big trees in wet woodland the size of the fallen wood is often small. Flooding may lead to local accumulations with other areas totally lacking fallen wood. |
| | Fallen dead wood at least occasional in 50% of plots. | Visual estimate in 10x10m plots. | |
| * Presence of epiphytes and climbers (DAFOR) | Epiphytes and climbers at least occasional in 50% of plots and at least frequent in 10% of plots. | Visual estimate in 10x10m plots. | Epiphytes and climbers are an important component in all woodlands. However, in Wet woodlands, their occurrence is much more sporadic than in other woodland types. |
| * Presence of Epiphytic bryophytes and lichens (DAFOR) | Epiphytic bryophytes and lichens at least occasional in 70% of plots and frequent in 30% of plots. | Visual estimate in 10x10m plots. | Epiphytic bryophytes and lichens are an important component in all woodlands. However, in the extreme south east of Northern Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites. |
| * Regeneration potential (DAFOR) | Regeneration of native seedlings. | Visual estimate in 10x10m plots. | The general aim is for the successful establishment of young stems (i.e. seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to |
| | Regeneration of native saplings. | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| Maintain current levels of native tree regeneration within reasonable limits for the current structure of the Wet Woodland. | | | maintain canopy density over a 10 year period. Regeneration of some native species is likely to be slow and sporadic; in some stands, there may currently not be sufficient and/or extensive enough gaps for young trees to regenerate. This does not necessarily indicate unfavourable condition. |
| * Cover of non-native species (all layers) (presence/absence) | Non–native invasive canopy species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | The canopy of the Wet Woodland should be largely comprised of Alder and Willow trees with associated native species. Non-native species are undesirable in the canopy, particularly invasive species such as Sycamore.<br><br>In addition, non-native invasive species in any one layer is un-desirable.<br>Note that non-invasive species are not viewed as a significant threat, and a low level of occurrence may be acceptable. |
| | Non–native invasive shrub species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| | Non-native invasive canopy species seedlings/saplings should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| | Non–native invasive ground flora species should be present in less than 20% of plots, but never frequent. | Visual estimate in 10x10m plots. | |
| * Frequency and cover of eutrophication indicators: (DAFOR) | No one negative species no more than occasional throughout the wood and/or singly or together comprising more than 5% cover. | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| | *Galium aparine, Urtica dioica, Heracleum spp, Epilobium spp. Rumex obtusifolius*<br><br>No more than occasional is equivalent to less than 40% occurrence in recorded plots. | | |
| * Cover of grasses (non-woodland species) (% cover) | The mean cover of grass for the wood should be less than 10%. | Visual estimate in 10x10m plots. | A high cover of grasses indicates past and/or present grazing. Where heavy grazing has been a past management practice, the natural woodland ground flora will take a considerable time to re-establish (time limits for restoration currently unknown). However, providing the grazing pressure has been addressed, and there is evidence that woodland flora is beginning to re-appear, this attribute may be recorded as unfavourable, recovering. |
| * Grazing (DAFOR) | Grazing should be recorded as no more than occasional over 80% of plots. | Estimate within the visual vicinity of the monitoring plots. | Grazing by domestic stock, where it occurs should be light resulting in minimal damage to the ground flora through poaching and damage to seedlings and saplings. |
| * Poaching by cattle (DAFOR) | Poaching should be absent, or recorded in less than 20% of plots and frequent or more in less than 10 % of plots. | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| * Frequency of recent goat damage (1-2 years) (DAFOR) | Recent goat damage should be absent, or recorded in less than 20% of plots. | Visual estimate in 10x10m plots. | |
| * Frequency of damage to seedlings/saplings (DAFOR) | Damage to seedling/saplings should be absent, or recorded in less than 20% of plots. | Visual estimate in 10x10m plots. | |
| Frequency of felling/coppicing (within 6 year monitoring cycle) (DAFOR) | There should be no felling or coppicing of native trees or shrubs. | Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Felling non-native species as part of management for conservation is acceptable. |
| Maintain the diversity of woodland species throughout the wood. | Record the % of plots with each of the wet woodland indicators (W5 community) listed below:-<br>*Filipendula ulmaria,*<br>*Galium palustris,*<br>*Caltha palustris,*<br>*Cardamine pratensis,*<br>*Lysimachia. nummularia,*<br>*Ranunculus repens,*<br>*Mentha aquatica,*<br>*Angelica sylvestris,*<br>*Potentilla palustris,*<br>*Lythrum salicaria,* | Visual estimate in 10x10m plots. | |

| | | | |
|---|---|---|---|
| | *Myosotis scorpioides,*<br>*Oenanthe crocata,*<br>*Lycopus europaeus,*<br>*Angelica sylvestris,*<br>*Scutellata,*<br>*Solanum dulcamara,*<br>*Valeriana officinalis*<br>*Iris pseudacorus,*<br>*Equisetum fluviatile,*<br>*Phragmites australis,*<br>*Carex rostrata,*<br>*C. paniculata,*<br>*C. remota,*<br>*C. vesicaria*. | | |
| Indicators of Local Distinctiveness | | | |
| Presence of rare or scarce species specific to the site. | Maintain current levels of standard variation within reasonable limits for rare and notable species.<br><br>If these species are not recorded on any one visit, it does not automatically make the site unfavourable. | Name the species at least present along the length of the Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

**SKERRIES AND CAUSEWAY SAC**
UK0030383

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Skerries and Causeway SAC Conservation Objectives* |
| Prepared By | *L. Pothanikat* |
| Approved By | *J. Breen* |
| Date Effective From | *20/03/2017* |
| Version Number | *V2* |
| Next Review Date | *March 2023* |
| Contact | cdp@daera-ni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | February 2016 | Internal working document | LP |
| V2 | March 2017 | Complete review | LP |

# 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended). However, the Environment Order only extends to the Mean Low Water (jurisdictional limit of local authorities); therefore, some marine Natura 2000 sites are not underpinned by ASSI designations.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** ANTRIM

**REFERENCE COORDINATES:** 55.2425 -6.5967

**AREA:** 10,862 ha

## 5. SUMMARY SITE DESCRIPTION

Skerries and Causeway proposed SAC is sited on the north coast of Northern Ireland. It is the eastern part of a 30km wide embayment that has the Inishowen peninsular to its west and Benbane Head to its east. The site is influenced oceanographically and biologically both by the warming gulf stream and by the strong tidal currents that flow through the North Channel to and from the Irish Sea. It is subject to considerable wave action being open to the Atlantic to the northwest, but is relatively sheltered from other prevailing swells and includes areas of relative shelter such as behind the Skerries islands. The site is predominantly marine although there are significant influxes of freshwater, from the River Bann to the west and the River Bush to the east, which can influence the immediate coastal areas.

The Skerries and Causeway site is located adjacent to the coastline of Portstewart, Portrush, Bushmills and the Giant's Causeway World Heritage Site (which lends part of its name to the SAC site; the other half of the SAC name comes from the Skerries islands and rocks off Portrush). The site contains the qualifying Features: Annex I *Reef*; Annex I *Sandbanks which are slightly covered by seawater at all times*; Annex I *Submerged or partially submerged sea caves;* and Annex II *Harbour porpoise.* It also contains non-qualifying Annex II species, *grey seal, common seal, and bottlenose dolphin*.

Much of the reef in this area is sand scoured reef (which is an unusual type of reef in a Northern Ireland context). This produces a close relationship between the

reef and the adjacent sediments: as well as the sand scoured areas of reef and stony reef, there are also large areas of bedrock reef that have a thick veneer of sediment, but still support bedrock epifauna (attached to the bedrock but growing up through the sediment); and conversely, there are also areas of coarse and mixed sediments that support epifauna communities more reminiscent of the reef habitat.

The Annex I *Reef* is noted for its southern species, rare and priority species, and a number of species first described from the Skerries and Causeway area, including one nudibranch species that has not yet been found elsewhere. As well as the coarse and mixed sediments noted above, the Annex I *Sandbanks which are slightly covered by sea water all the time* also contains areas of subtidal eel grass *Zostera marina* (sheltered behind the Skerries) and varied and dramatic sand waves, some over 30m high. There are also many Annex I *Submerged and partially submerged sea caves* that can be found in a range of rock types including the basalts of the Giant's Causeway and the metamorphosed chalk of the Ulster White Limestone series.

Harbour porpoise (*Phocoena phocoena*) have been consistently recorded during more than 140 dedicated effort watches at six sites within the proposed boundary. These records span every month of the year, including months outside of the breeding and calving seasons and confirm the continuous presence of harbour porpoise within this area. Continuous or regular presence is graded A (excellent conservation).

### Non-qualifying habitats and species

Up to 35 adult Grey Seal (*Halichoerus grypus*) and three adult Common seal (*Phoca vitulina*) have been recorded on surveys carried out by the Department (2006-2009). Both species have been graded as D, non-significant presence. Bottlenose dolphin (*Tursiops truncatus*) was recorded during two effort watches in 2009 but due to low numbers this species has been graded as D, non-significant presence.

Further details of the site are available on the DAERA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-skerries-and-causeway).

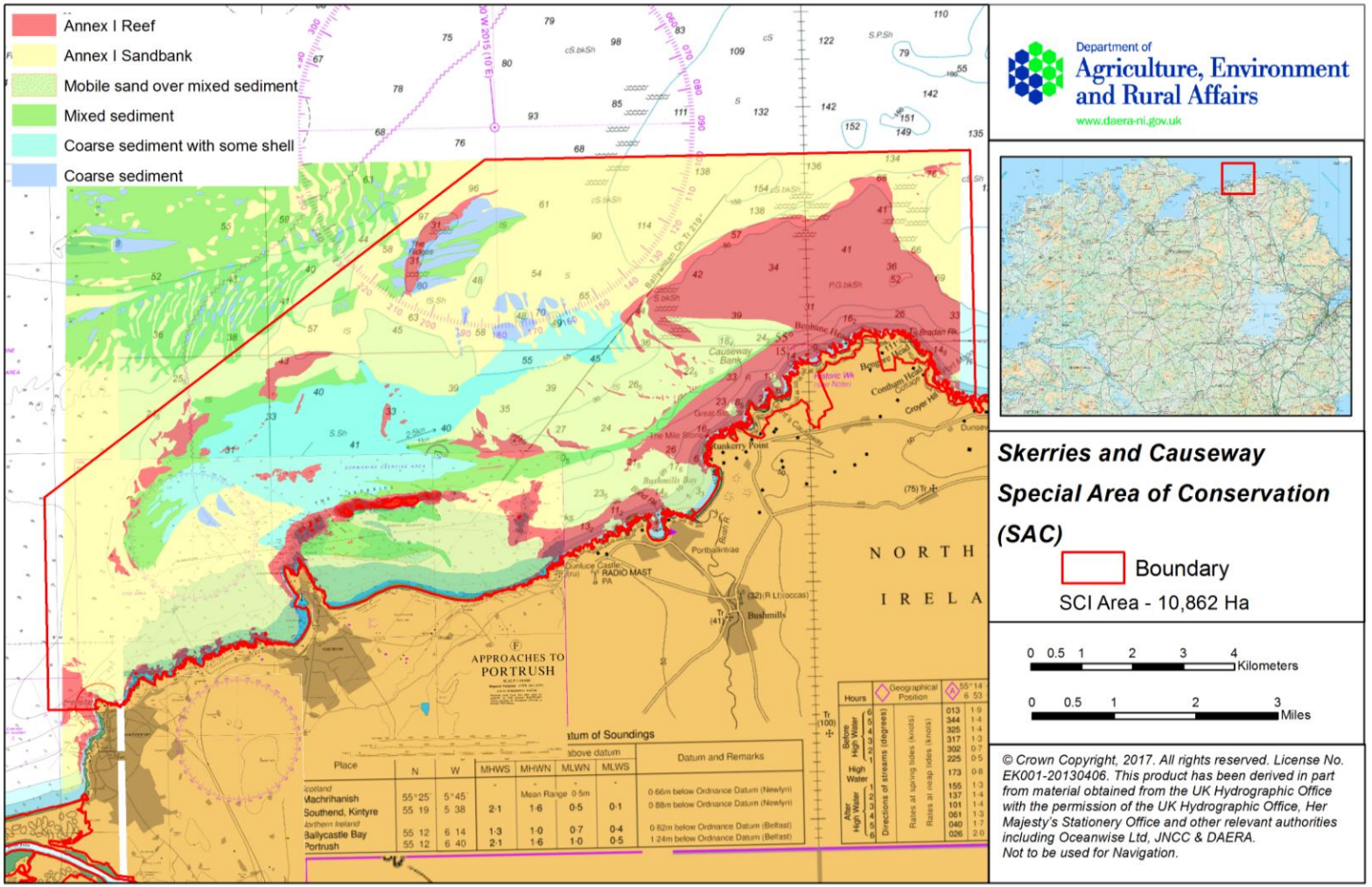
## 5.1 BOUNDARY RATIONALE

This area was first identified as being of marine conservation interest in the Northern Ireland Sub-littoral Survey (NISS), (Erwin *et al*. 1986). More recent dive surveys to determine the extent of its conservation interest (2006-2008 as part of the Sub-littoral Survey of Northern Ireland (SSNI) and 2009-2010 as part of the

Nationally Important Marine Features (NIMF) project) were completed by the Northern Ireland Environment Agency/National Museums Northern Ireland partnership (NIEA/NMNI) (Goodwin *et al.,* 2012; Goodwin *et al.*, 2011). The dive surveys of 2009-2010 also targeted the survey of reefs that had been identified for the first time from the multi-beam mapping of the Joint Irish Bathymetric Survey (JIBS, 2008). The JIBS work also allowed the first sight of the many sand waves and the dramatic submerged cliff of the Benbane Reef Complex. In 2010, the Department contracted the University of Ulster to provide a habitat map of the Causeway Coast (Clements *et al*., 2010). This habitat map was based on the bathymetric and backscatter data acquired as part of the JIBS work with ground-truthing provided by various surveys (NIEA dive and ROV surveys, AFBI surveys, NISS and any other relevant sources). Map 1 shows the results of this work, detailing the boundary of the SAC and seabed habitat map.

The boundary around the Skerries and Causeway site has been drawn using the guidance provided by the Joint Nature Conservation Committee (JNCC) (2004, amended by Aish *et al*. 2008), and was defined through GIS modelling using data from the mapping survey and considered against the guidelines. The key parts of this guidance are that the boundary should be restricted to only include Annex I habitat or that which is required for the maintenance of that habitat and the boundary line defined in whole degrees and minutes and seconds where possible. NIEA have used minutes to two decimal places as an equivalence of seconds as it is more commonly displayed on vessel Global Positioning System (GPS)/Chartplotter systems. The guidance also states that the boundary should include as little non-Annex I habitat as possible and should also be sufficient to allow for elimination of potential damage to the area from activities such as trawling and dredging.

The seaward boundary of the Skerries and Causeway site conforms to the guidance of JNCC in Aish *et al.* (2008) in being "drawn as straight lines to ensure ease of identification on charts and at sea" (Brown *et al*. 1997, McLeod *et al.* 2002). The northern limit of the site is therefore based on a line of latitude that allows inclusion of the Benbane Reef Scarp Complex and the reef marked on the Admiralty Charts as The Ridges. The eastern boundary is a line of longitude that allows the inclusion of the deep reef to the east of the Benbane Reef Scarp Complex. The western boundary is a line to allow the inclusion of a part of the Portstewart stony reef and the outlying reefs north-west of the Skerries. The southern boundary is the coastal Mean Low Water mark which permits a clearly defined 'real' boundary; while the rocks and islands of the Skerries have a boundary of Mean High Water to include seal haul-out areas, an area already designated in national legislation as an Area of Special Scientific Interest (ASSI).




**Map 1** Skerries and Causeway SAC with Annex I habitats 'Reef' and 'Sandbanks which are slightly covered by seawater all the time' and other ground types as provided under contract by the University of Ulster (Clements *et al., 2010*)

SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ pop~ |
|---|---|---|---|
| Habitat | Reefs | B | 2280 ha |
| Habitat | Sandbanks which are slightly covered by sea water all the time | B | 1601 ha |
| Habitat | Submerged and partially submerged sea caves | B | Approximately 30 |
| Species | Harbour porpoise *Phocoena phocoena* | C | |
| Species | Common Seal *Phoca vitulina* | D | |
| Species | Grey Seal *Halichoerus grypus* | D | |
| Species | Bottlenose Dolphin *Tursiops truncatus* | D | |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the threshold for SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for the Skerries and Causeway SAC.

## 6. *CONSERVATION OBJECTIVES*

The ***Conservation Objective*** for this site is:

***To maintain (or restore where appropriate) the***

- ***Reefs***
- ***Sandbanks which are slightly covered by sea water all the time, and***
- ***Submerged and partially submerged sea caves***
- ***Harbour porpoise (Phocoena phocoena)***

***to favourable condition.***

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 7. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objective |
|---|---|---|
| Reefs | B | Maintain and enhance, as appropriate the extent of the reefs. |
| | | Allow the natural processes which determine the development, structure, function and distribution of the habitats associated with the reefs, to operate appropriately. |
| | | Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat. |
| Sandbanks which are slightly covered by sea water | B | Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes. |
| | | Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately. |
| | | Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat. |

| | | |
|---|---|---|
| Submerged and partially submerged sea caves | B | Maintain and enhance, as appropriate the extent of the sea caves. |
| | | Allow the natural processes which determine the development, structure, function and distribution of habitats associated with the sea caves, to operate appropriately. |
| | | Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat. |
| Harbour Porpoise (*Phocoena phocoena*) | C | Ensure the species is a viable component of the site. |
| | | Ensure there is no significant disturbance of the species. |
| | | Ensure the supporting habitats and processes relevant to harbour porpoises and their prey are maintained. |

## 8. MANAGEMENT CONSIDERATIONS

The Skerries is a fairly natural open coast SAC with few significant issues which are not currently being managed successfully. The exception to this the potential for impact on reef features by vessels without knowledge of the exact location of the sensitive low-lying reefs. The current voluntary measure has been shown to be ineffective and will be replaced with a fisheries regulation which manages what type of fishing gear can be used within specific zones in the SAC boundary. Enforcement of this activity will require the use of enhanced vessel tracking. The Department is currently developing a scheme of management for the site which will go out for consultation in 2017. The following issues relate to many marine sites and in certain circumstances may have some bearing on the management of the Skerries and Causeway SAC.

## 9. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC features. The list below is not exhaustive, but deals with the most likely factors that are either affecting the Skerries and Causeway SAC, or could affect it in the future.

*Aggregate extraction/Maerl extraction*

Extraction of aggregates or extraction of maerl, either within or adjacent to the SAC, have the potential to cause direct loss or deterioration of qualifying habitats

and communities; including the deterioration of qualifying habitats and communities by smothering and increased turbidity from re-suspended material.

*Agriculture and Forestry*

Diffuse run-off from agriculture and forestry practices has the potential to cause deterioration of qualifying habitats and communities, primarily through the deterioration of water quality due to organic or inorganic pollutants. Changes in agricultural or forestry practices or changes of land use have the potential to cause deterioration of qualifying habitats and communities through changes in the nature and loading of sediments in rivers that discharge to coastal areas.

*Aquaculture – finfish farming*

Finfish farming has the potential to cause deterioration of qualifying habitats and communities through changes in water quality, smothering from waste material and physical disturbance from mooring systems. There is potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals which are already widely distributed in the UK. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

*Aquaculture – shellfish farming*

Shellfish farming has the potential to cause deterioration of the qualifying habitats and communities through physical damage (e.g. installation of mooring blocks and continued scouring by riser chains) and changes in community structure caused by smothering from pseudo-faeces (undigested waste products) and debris (including dead shells) falling from the farm. There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through importation or translocation of shellfish stocks. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

*Diving*

The study of the seabed by divers is in harmony with conservation interests provided no damage is done. Over collection of marine life could, however, prove damaging to the populations of certain species.

*Coastal and Marine Development*

The construction and maintenance of structures, both within and adjacent to the sea, have the potential to cause direct loss or deterioration of qualifying habitats and communities. An example is coastal defence or harbour/marina structures that may change local patterns of sediment suspension or deposition. Other examples include: renewable and other energy installations (including offshore wind, tide and wave energy and oil and gas installations); pipelines and cables; and marina and harbour developments and maintenance including the dredging of harbours, marinas and navigation channels. In many of these cases

disturbance of the seabed may cause increased turbidity and smothering in adjacent areas as well as the direct impact in the area of operation.

*Discharge of commercial effluent or sewage*
Commercial effluent has the potential to cause deterioration of qualifying habitats and communities, through pollution or nutrient enrichment, which may cause subsequent changes in community structure. Pollution is considered a significant threat to harbour porpoises and may result in suppression immune function and reduction in breeding success.

*Disposal of dredge spoil*
The disposal of either capital or maintenance dredge spoil, either within or adjacent to the SAC, has the potential to cause deterioration of qualifying habitats and communities, through smothering, increased turbidity, or re-suspension of pollutants.

*Marine litter*
Discarded inorganic debris such as plastic bags, bottles and fishing gear may become ingested, resulting in death through starvation or internal injury. Accidental entanglement in package wrap and fishing debris may result in external injury and asphyxiation. Sources of marine litter include commercial and recreational vessels, land-based sources, and offshore installations.

*Commercial Fishing – Mobile gear (dredging and bottom trawling)*
Benthic dredging and bottom trawling have the potential to cause deterioration and damage to qualifying habitats and communities (particularly maerl, Hall-Spencer, 2000) through direct contact with the dredge/trawl gear, and sedimentation when dredging/trawling occurs close to the qualifying interest. Loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities. The Department is currently engaging with the fishing community and other stakeholders to gather detailed evidence and to identify the areas which are sensitive to specific types of fishing gear in order to introduce fisheries regulations to ensure the long term protection of those features. This includes full analysis of all known fishing activities gathered over recent years.

*Commercial Fishing – Mobile gear (pelagic mid-water trawling)*
Pelagic mid-water trawling has minimal potential to cause deterioration of qualifying habitats and communities through direct contact, as the trawl gear is mostly well above the seabed (except occasionally for vessel turning in shallow water). However loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities.

*Commercial Fishing – Static gear (creel/pot fishing)*
The use of creels and / or pots in a localised area has the potential to cause deterioration of qualifying habitats and communities through direct contact,

particularly during their deployment and / or recovery. Loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities.

*Marine Traffic – Boat anchorages and moorings*

Anchors and moorings have the potential to cause deterioration of qualifying habitats and communities through the direct impact of riser chains. The Department is currently working with the Harbour Authority to identify a specific mooring site for visiting cruise ships. The management scheme will also inform boat users of the exact location of sensitive habitats such as seagrass beds in which mooring and anchoring will be managed.

*Marine Traffic – Boat maintenance and antifoulant use*

Most antifoulant products are designed to kill or discourage naturally occurring organisms and, as such, cause damage to the water environment if used carelessly. Under such circumstances use of antifoulant has the potential to cause deterioration of qualifying habitats and communities within this site.

*Marine Traffic – Commercial and recreational vessels*

The majority of large commercial shipping passes well to the North of The Skerries and Causeway SAC. However, smaller coastal vessels on-route to The River Bann and/or Lough Foyle pass through the SAC boundary. It should also be noted that the area inshore of The Skerries is a designated anchorage for ships sheltering from adverse weather. The pumping of bilges, discharge of ballast water, accidental grounding, or accidental oil (or other chemical) spillage from commercial vessels could therefore all occur close to the SAC. Such incidents have the potential to cause deterioration of qualifying habitats and communities through direct or indirect impacts. Emergency and oil spillage contingency plans should take into account specific qualifying interests and recognise the importance of marine SACs should such incidents occur. Smaller recreational and fishing vessels also have the potential to cause deterioration of qualifying habitats and communities through fuel spillage and grounding.

There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through bilge or ballast water, sea chests, and bio-fouling on hulls (identified as a particular risk on vessels for sale that are in the water for some time before being moved to a new location). Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Physical disturbance from recreational activity and vessel strikes can also be an issue in coastal areas where high densities of porpoises coincide with high densities of boat traffic, particularly during the summer season.

*Marine Renewables*

The Strategic Environmental Assessment (SEA) of Offshore Wind and Marine Renewable Energy by the Department of Energy, Trade and Investment (DETI, 2009) assessed the potential for commercial and test/demonstration sites in NI waters. This assessment identified potential impacts of such developments and related mitigating actions to be considered at the project developments stage. A possible commercial scale Tidal Resource Zone was identified off the North Coast within which the Crown Estate as managers of the seabed has offered development rights to two consortia, Tidal Ventures Ltd and Fair Head Tidal. However there are no tidal energy developments in this area at present and the Department is engaging with the developers in considering their respective marine licence applications.

The UK's Department of Business, Energy and Industrial Strategy (UK BEIS) administers marine environmental regulations associated with oil and gas exploration and production and the decommissioning of marine installations, wells, pipelines and associated infrastructure in the UK marine area (excluding internal waters). At present there is no oil or gas exploration licence for the 5 offshore blocks in the Antrim Coast (the Skerries and Causeway SAC lies partly within this area).

The development of marine renewables has the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these qualifying interests and their associated species. Furthermore, deterioration of qualifying habitats and disturbance of species may occur through the use of pile driving or powerful sonar required for surveys or construction phases as these may directly harm cetaceans or act as a barrier to cetaceans using the area.

*Scientific Research, Geological surveys and Military exercises*

Research activities, Geological surveys and Military exercises have the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these qualifying interests and their associated species. Furthermore, deterioration of qualifying habitats and disturbance of species may occur through the use of seismic surveys or powerful sonar that may directly harm cetaceans or act as a barrier to cetaceans using the area. These activities should be communicated to the Department for specific advice about the potential of impact and subsequent mitigation.

*Wildlife watching trips*

Wildlife watching trips (boat and land based) have the potential to cause disturbance to species if operators are not appropriately trained in how to approach species while minimising potential disturbance. In addition, damage to sensitive habitats may occur through lack of knowledge of their location. Various wildlife training courses are available which teach best practice when dealing with wildlife.

*Climate Change*
Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events. The Northern Ireland Climate Change Adaptation Programme was published in January 2014. This contains the Northern Ireland Executive's response to the risks and opportunities identified in the Climate Change Risk Assessment for Northern Ireland (published January 2012) as part of the overall UK Climate Change Risk Assessment. The Adaptation Programme provides the strategic objectives in relation to adaptation to climate change, the proposals and policies by which each department will meet these objectives and the timescales associated with the proposals and policies identified in the period up to 2019.

## 10. MONITORING

The SACs are surveyed using two forms of monitoring:

Site Integrity Monitoring (SIM) is carried out to ensure compliance with the SAC conservation objectives. Potentially damaging activities may be picked up through the active marine ranger programme or by members of the public raising concerns with the Department. These reports are followed up through consultation with the relevant competent authorities.

Site Condition Assessment of the designated features is carried out on a rolling 6 year basis to pick up subtle changes in the condition of the feature and to ensure that the conservation objectives are being met.

Site condition assessments include a variety of techniques such as diving, remote cameras, sediment sampling and acoustic seabed mapping. Marine mammal monitoring programmes also contribute.

### 10.1 MONITORING SUMMARY

*1. Monitor the integrity of the site (SIM or Compliance Monitoring)*
This SIM should be carried out at least once every year.

*2. Monitor the condition of the site (Condition Assessment)*
Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. Refer to Annex I.

The favourable condition table provided in Annex I is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on

which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## REFERENCES


ACKERS, R.G., MOSS, D. PICTON, B.E. STONE, S.M.K., MORROW, C.C. 2007. *Sponges of the British Isles (Sponge V), 1992 edition reset with modifications.* Marine Conservation Society/Ulster Museum, Belfast.

Agri-Food and Biosciences Institute (2009) Position statement on sharks, skates and rays in Northern Ireland waters. Northern Ireland Environment Agency Research and Development Series No. 09/03

AISH, A., Johnston, C., and Turnbull, C. (2008). Selection criteria and guiding principles for selection of Special Areas of Conservation (SACs) for marine Annex 1 habitats and Annex II species in UK waters. Joint Nature Conservation Committee (JNCC MN2KPG17_SAcCRIT)

Berrow, S (2008) Review of Cetacean Sightings and Strandings Data from Northern Ireland, with recommendations for the designation of Special Areas of Conservation (unpublished).

CEC, COMMISSION OF THE EUROPEAN COMMUNITY. (1995). Natura 2000 Standard Data Form: Explanatory notes. Brussels: European Commission DG Environment.

CLEMENTS, A., PLETS, R., AND QUINN, R. (2010). Habitat Mapping of the Skerries/Causeway Proposed Marine SAC.

CONNOR, D., ALLEN, J.H., GOLDING, N., HOWELL, K.L., LIEBERKNECHT, L.M., NORTHERN, K.O., and REKER, J.B. 2004. The Marine Habitat Classification for Britain and Ireland Version 04.05 JNCC, Peterborough. ISBN 1 861 07561 8 (internet version) www.jncc.gov.uk/MarineHabitatClassification

CONNOR, D.W., GILLIAND, P.M. GOLDING, N. ROBINSON, P., TODD, D. & VERLING, E, (2006). UKSeaMap: the mapping of seabed and water column features of UK Seas.

DUCK, C (2006) Results of the thermal image survey of seals around the coast of Northern Ireland. Northern Ireland Environment Agency Research and Development series No 06/09.

ERWIN, D.G., PICTION, P.E., CONNOR, D.W., HOWSON, C.M., GILLEECE, P. AND BOGUES, M.J.(1986). The Northern Ireland Sublittoral Survey. Report for the Department of the Environment Northern Ireland, Ulster Museum, Belfast

EUROPEAN UNION DG ENVIRONMENT (2007a). Interpretation manual of European habitats (EUR27)

FOLK, R.L. (1954). The distinction between grain size and mineral composition in sedimentary rock nomenclature. *Journal of Geology* 62(4):344-359

GOODWIN, C.E., BREEN, J., EDWARDS, H., BENNETT, S., BURROWS, G. & PICTON, B.E. (2012). Skerries and Causeway Survey – A survey report from the Nationally Important Marine Features Project 2006-2009. Northern Ireland Environment Agency Research and Development Series No. 12/01.

GOODWIN, C.E., PICTON, B.E., BREEN, J. & EDWARDS, H. 2011. Sublittoral Survey Northern Ireland (2006-2008): A review of the status of Northern Ireland Priority Species of marine invertebrates. Northern Ireland Environment Agency Research and Development Series No. 11/01.

GOODWIN, C., PICTON, B., BREEN, J., and EDWARDS, H., 2010. The Maidens, Report from the Sublittoral Survey Northern Ireland (May 2006-May 2009).

GOODWIN, C.E. & PICTON, B.E. 2009. Demosponges of the genus *Hymedesmia* (Poecilosclerida: Hymedesmiidae) from Rathlin Island, Northern Ireland with a description of six new species. Zoological Journal of the Linnean Society 156:896-912.

HISCOCK, K. ed. 1996. Marine Nature Conservation Review: rationale and methods. Peterborough,Joint Nature Conservation Committee. (Coasts and seas of the United Kingdom. MNCR series.)

JNCC (2004). UK guidance on defining boundaries for marine SACs for Annex I habitat sites fully detached from the coast [online]. http://www.jncc.gov.uk/pdf/SACHabBoundaryGuidanceFinal.pdf

KING, G.L. (2006). Review of marine turtle records in Northern Ireland. Northern Ireland Environment Agency, Research and Development Series. No 07/02.

MOORE, J. 2002. An atlas of marine biodiversity action plan species and habitats and Species of Conservation Concern in Wales. 2nd Edition. CCW Contract Science Report No. 509. A report for the Countryside Council of Wales. Coastal Assessment Liason and Monitoring: Pembrokeshire.

MORTON, O.M. (1994). Marine Algae of Northern Ireland. Ulster Museum, Belfast.

NYKANEN, M., MALDINI, D. and JESSOP, M. (2017). Review and analysis of Northern Ireland land based cetacean monitoring and recommendations for future monitoring. Report to the Department of Agriculture, Environment and Rural Affairs.

PICTON, B.E. and GOODWIN, C.E. (2007a). Sponge Biodiversity of Rathlin Island. Journal of the Marine Biological Association of the United Kingdom, 87:1441-1458.

PICTON, B. and GOODWIN, C. (2007b). Sponge Biodiversity of Rathlin Island. Project report for EU BSP and EHS. Ulster Museum, Department of Zoology.

STRONG, J.A., 2010. Bathymetric and Habitat Maps of the Maidens/Klondyke Rocky Reef Complex (Proposed Special Area of Conservation), Northern Ireland. Agri-Food and Bioscience Institute, Northern Ireland.

## ANNEX I

The marine Annex I habitats are very broadly defined habitats that are often represented by large and complex sites. To effectively describe, monitor and manage such complex features, it has been necessary to divide some of them into smaller units called *sub-features*. Sub-features are distinctive biological communities (e.g. eelgrass beds, maerl beds, horse-mussel reefs), or particular structural or geographical elements of the feature. Due to the broad nature of marine Annex I features, it has often proved helpful, both in the development of conservation objectives, and of monitoring programs, to separate the feature into a number of constituent sub-features, and then to identify attributes and targets for the sub-features. The use of sub-features has been found to be particularly helpful for those marine Annex I features that represent whole physiographic units and permits a level of flexibility in the application of the UK's Common Standards Monitoring which has been found necessary when applying the standards at the site level.

### Feature 1 (SAC) - Sandbanks which are slightly covered by sea water all the time (status B)

*=primary attribute. One failure among primary attribute = unfavourable condition

| Feature | Sub-feature | Attribute | Measure | Target | Comments |
|---|---|---|---|---|---|
| Subtidal sandbanks | | * Extent | Area (ha) of the subtidal sandbanks to be measured periodically (frequency to be determined). | Ensure that quality and extent of sandbank are not threatened by aggregate removal. | Currently there is no licensed aggregate removal activity within or near to this SAC. |

| Feature | Sub-feature | Attribute | Measure | Target | Comments |
|---|---|---|---|---|---|
| | | * Sediment character | Particle size analysis (PSA). Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Sediment character to be measured once during the reporting cycle. | Average PSA parameters should not deviate significantly from an established baseline subject to natural change. | Sediment character defined by PSA is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it. This is currently addressed through WFD monitoring programme. |

| Feature | Sub-feature | Attribute | Measure | Target | Comments |
|---|---|---|---|---|---|
| | | * Topography | Depth distribution of sandbanks from selected sites, measured periodically (frequency to be determined). | Depth distribution should not deviate significantly from an established baseline, subject to natural change. | Depth and distribution of the sandbank reflects the energy conditions and stability of the sediment, which is key to the structure of the feature. Depth of the feature is a major influence on the distribution of communities throughout. The baseline for this feature was delivered through the JIBS programme. It is not envisaged that this will be repeated in the near future, however, marine license requirements for site specific projects may result in local bathymetric charts being produced for comparison against baseline data. |

| Feature | Sub-feature | Attribute | Measure | Target | Comments |
|---|---|---|---|---|---|
| | | Water density | Average temperature/salinity in the subtidal measured periodically throughout the reporting cycle (frequency to be determined). | Average temperature/salinity should not deviate significantly from an established baseline, subject to natural change. | Temperature and salinity are characteristic of the overall hydrography of the area. Changes in temperature and salinity influence the presence and distribution of species (along with recruitment processes and spawning behaviour) including those at the edge of their geographic ranges and non-natives. This is delivered through the AFBI coastal buoy monitoring network. |
| | Eelgrass bed communities (*Zostera marina*) | Extent | Area (ha) of eelgrass beds, measured during peak growth period twice during the reporting cycle. | No decrease in extent from an established baseline subject to natural change. | The extent and distribution eelgrass beds provide a long-term integrated measure of environmental conditions. Location of a single seagrass bed is known but the exact extent and boundary has not yet been accurately mapped. This is due to be carried out as part of the ongoing monitoring programme. |

| Feature | Sub-feature | Attribute | Measure | Target | Comments |
|---|---|---|---|---|---|
| | Subtidal Sand and Gravel Communities<br><br>Subtidal Fine Sand and Mud Communities | *Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of the selected biotopes as identified by the NI Sublittoral survey at selected sites measured once during the reporting cycle. This was further refined by the University of Ulster in the production of a broadscale habitat map for the designation of the SAC (http://www.tandfonline.com/doi/pdf/10.1080/17445647.2012.661957). | Results should not deviate significantly from the established baseline, subject to natural change. | Changes in extent and distribution may indicate long term changes in the physical conditions at the site. |
| | | * Species composition of selected biotopes at monitoring sites. | Species composition of the selected biotopes as identified by the NI Sublittoral survey measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

Feature 2 (SAC) Reefs (status B)

*=primary attribute. One failure among primary attribute = unfavourable condition

| Feature | Sub-feature | Attribute | Measure | Targets | Comments |
|---|---|---|---|---|---|
| Reef | Subtidal Rock and Boulder Communities<br><br>Subtidal Rocky Reef Communities | * Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-feature. | Presence of the selected biotopes at selected sites measured once sure the reporting cycle. This was further refined by the University of Ulster in the production of a broadscale habitat map for the designation of the SAC (http://www.tandfonline.com/doi/pdf/10.1080/17445647.2012.661957). | Results should not deviate significantly from the established baseline, subject to natural change. | Changes in extent and distribution may indicate long term changes in the physical conditions at the site. Some of the reefs in the SAC are unique in that they are sand scoured and low profile in nature and may be subject to natural burial. This will present problems in monitoring due to the fact the temporary absence of the reef through burial may be entirely natural cyclical process. |
| | | * Species composition of selected biotopes at monitoring sites. | Species composition of the selected biotopes measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

Feature 3 (SAC) Submerged and partially submerged sea caves (status B)

*=primary attribute. One failure among primary attribute = unfavourable condition

| Feature | Sub-feature | Attribute | Measure | Targets | Comments |
|---|---|---|---|---|---|
| Sea caves | | * Extent | Number and location, measured once during the reporting cycle. | No decrease in extent from a baseline to be established, subject to natural change. | Extent is an attribute on which reporting is required by the Habitats Directive. The extent may alter as a result of natural erosion and collapses as well as a result of human activity, hence the need for periodic measurement. |
| | | * Distribution of characteristic sea cave communities | Distribution of intertidal cave biotopes. Measured during summer, once during reporting cycle. This will only be delivered for a representative number of the caves. Access to these caves given their exposed Atlantic location is problematic and subject to comprehensive risk assessment. | Baseline yet to be established. Distribution should not deviate significantly from a baseline to be established, subject to natural change. | Distributions of certain biotopes are an important structural component of the sea caves of the Skerries and Causeway. Changes in extent and distribution may indicate long term changes in physical conditions at the site |

Feature 4 (SAC) Harbour Porpoise (status C)

*=primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| Mean abundance of adults within the SAC | * Maintain and enhance the population as appropriate. | Sightings rate from land based watches not less than 0.314 harbour porpoise per hour (based at Ramore Head). | Data generated by ongoing DAERA Marine and Fisheries Division survey.<br>A recent report (Nykanen *et al*., 2017) examining the land based Harbour porpoise watch data for Northern Ireland suggested that an effort watch of 11 watches per month (130/year) is required to detect a 57% change in the HP population. |
| Presence/absence of young | * Maintain and enhance the population as appropriate. | | At the time of designation approximately 30.6% of the total numbers counted were young (all ages i.e. young, juveniles and calves). |

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.*

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands.* Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

**1. Name and address of the compiler of this form:**

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number


**Joint Nature Conservation Committee**
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk


**2. Date this sheet was completed/updated:**

Designated: 09 March 1998 / updated 12 May 2005

**3. Country:**

**UK (Northern Ireland)**

**4. Name of the Ramsar site:**

**Strangford Lough**

**5. Map of site included:**

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

**a) hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □

**b) digital (electronic) format** (optional): Yes

**6. Geographical coordinates** (latitude/longitude)**:**

54 26 40 N 05 35 40 W

**7. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Belfast

Strangford Lough is a large marine inlet on the east coast of County Down. Its northern end lies some 15 km east of Central Belfast (6 km from the outskirts). Downpatrick lies 5 km west of the south-west corner. Strangford, Killyleagh, Whiterock, Comber, Newtownards, Greyabbey, Kircubbin and Portaferry are situated on the edge of the Lough.

**Administrative region:** Ards; Down

**8. Elevation** (average and/or max. & min.) (metres)**:** **9. Area** (hectares)**:** 15581.3

Min. 0
Max. 10
Mean 0

## 10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

A shallow sea lough with an indented shoreline and a wide variety of marine and intertidal habitats. The west shore has numerous islands typical of flooded drumlin topography. The Lough contains extensive areas of mudflat, saltmarsh and rocky coastline.

## 11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**1, 2, 5, 6**

**Secretariat comment: The RIS provides information requiring the application of Criterion 4. This needs to be included in the next update.**

## 12. Justification for the application of each Criterion listed in 11. above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

This site supports a variety of important wetland features. Areas of fringing saltmarsh and freshwater habitats support a diversity of wetland plant species. Strangford Lough supports one of the most extensive saltmarsh areas in Northern Ireland.

Ramsar criterion 2

This site supports an important assemblage of vulnerable and endangered wetland plants and animal species. These include a number of marine sponges, marine hydroids, marine mollusc and sea urchins which are restricted to Strangford Lough in Northern Ireland or, in some cases unknown or very rare elsewhere in the British Isles. The mudflats support luxuriant beds of eelgrass; *Zostera noltei*, *Zostera angustifolia*, *Zostera marina* and *Ruppia maritima* are all present, with the latter widespread but quite local in its distribution. Such extensive 'beds' are rare in the British Isles.

Ramsar criterion 5

**Assemblages of international importance:**

**Species with peak counts in winter:**
74876 waterfowl (5 year peak mean 1998/99-2002/2003)

**Ramsar criterion 6 – species/populations occurring at levels of international importance.**

**Qualifying Species/populations (as identified at designation):**

**Species regularly supported during the breeding season:**

| | |
|---|---|
| Sandwich tern , *Sterna* *(Thalasseus) sandvicensis sandvicensis*, W Europe | 894 apparently occupied nests, representing an average of 1% of the breeding population (Seabird 2000 Census) |
| Common tern , *Sterna hirundo hirundo*, N & E Europe | 554 apparently occupied nests, representing an average of 17.8% of the all-Ireland population (Seabird 2000 Census) |

**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Light-bellied brent goose, *Branta bernicla hrota*, East Canada/Ireland | 10863 individuals, representing an average of 54.3% of the population (5 year peak mean 1998/9-2002/3) |
| Common redshank , *Tringa totanus totanus*, | 4145 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3) |

**Species with peak counts in winter:**

| | |
|---|---|
| Red knot , *Calidris canutus islandica*, W & Southern Africa (wintering) | 4796 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3) |

**Species/populations identified as internationally important subsequent to designation**

**Species with peak counts in winter:**

| | |
|---|---|
| Common shelduck , *Tadorna tadorna*, NW Europe (br) | 3504 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3) |

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
Details of bird species occuring at levels of National importance are given in Section 20

---

## 13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Atlantic

**b) biogeographic regionalisation scheme** (include reference citation):

Council Directive 92/43/EEC

---

## 14. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|---|---|
| Soil & geology | shingle, sand, mud, nutrient-rich, slate/shale, limestone/chalk, biogenic reef |
| Geomorphology and landscape | island, coastal, subtidal rock (including rocky reefs), shingle bar, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), enclosed coast (including embayment), estuary, islands, tidal rapids, lagoon, ob (fjard) |
| Nutrient status | no information |
| pH | no information |
| Salinity | brackish / mixosaline, fresh, saline / euhaline |
| Soil | mainly mineral |
| Water permanence | usually permanent |

| | |
|---|---|
| Summary of main climatic features | Annual averages (Aldergrove, 1971–2000)<br>(www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html)<br>Max. daily temperature: 12.5° C<br>Min. daily temperature: 5.8° C<br>Days of air frost: 39.1<br>Rainfall: 862.4 mm<br>Hrs. of sunshine: 1313.7 |

**General description of the Physical Features:**

Strangford Lough is a shallow sea lough with an indented shoreline and a wide variety of marine and intertidal habitats. The west shore has numerous islands typical of flooded drumlin topography. The lough contains extensive areas of mudflat, saltmarsh and rocky coastline.

## 15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

Strangford Lough is a shallow sea lough with an indented shoreline and a wide variety of marine and intertidal habitats. The west shore has numerous islands typical of flooded drumlin topography. The lough contains extensive areas of mudflat, saltmarsh and rocky coastline.

## 16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces

## 17. Wetland types

Marine/coastal wetland

| Code | Name | % Area |
|---|---|---|
| A | Shallow marine waters | 61 |
| D | Rocky shores | 15 |
| G | Tidal flats | 20 |
| H | Salt marshes | 1 |
| Tp | Freshwater marshes / pools: permanent | 1 |
| U | Peatlands (including peat bogs swamps, fens) | 1 |
| 6 | Reservoirs / barrages / dams | 1 |

## 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The main ecological feature of the Ramsar site is the sea inlet of Strangford Lough itself. This sea inlet emerged from under the melting ice-sheets of the Ice Age and is for the most part less than 10 m in depth. There is a deeper Y-shaped channel (possibly an old river-valley or geological fault-line) which is up to 66 m deep which extends from the Narrows up the central portion of the Lough. The underlying rock is largely Silurian. The surface of the bed and shore of the Lough ranges from bedrock in areas with strong currents to fine mud in sheltered waters. The narrow entrance channel is an important feature with extremely strong tidal streams of up to 8 knots (4 m/sec).

The water is virtually fully saline except at the mouths of two moderate-sized rivers and where several streams drain into it from the catchment of about 900 km2 where it may be somewhat brackish. The area enjoys an equable climate with low rainfall, infrequent frosts and prevailing westerly to south-

westerly winds. The primarily freshwater Quoile Pondage Basin Nature Reserve is included in the Ramsar site.

The site supports an impressive range of marine habitats and communities with over 2,000 recorded species. It is important for marine invertebrates, algae and saltmarsh plants, for wintering and breeding wetland birds, and for marine mammals.

### 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Nationally important species occurring on the site.**

**Higher Plants.**

*Zostera noltei, Zostera angustifolia, Zostera marina, Ruppia maritima*

### 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Birds**

**Species currently occurring at levels of national importance:**

**Species regularly supported during the breeding season:**

| | |
|---|---|
| Great cormorant , *Phalacrocorax carbo carbo*, NW Europe | 278 apparently occupied nests, representing an average of 5.9% of the all-Ireland population (Seabird 2000 Census) |
| Black-headed gull , *Larus ridibundus*, N & C Europe | 1706 apparently occupied nests, representing an average of 3.1% of the all-Ireland population (Seabird 2000 Census) |
| Mew gull , *Larus canus canus*, Europe to N Africa | 82 apparently occupied nests, representing an average of 2.2% of the all-Ireland population (Seabird 2000 Census) |
| Lesser black-backed gull , *Larus fuscus graellsii*, W Europe/Mediterranean/W Africa | 128 apparently occupied nests, representing an average of 2.4% of the all-Ireland population (Seabird 2000 Census) |
| Arctic tern , *Sterna paradisaea*, Europe/N Atlantic | 54 apparently occupied nests, representing an average of 2.1% of the all-Ireland population (Seabird 2000 Census) |

**Species with peak counts in spring/autumn:**

| | |
|---|---|
| Great cormorant , *Phalacrocorax carbo carbo*, NW Europe | 268 individuals, representing an average of 5.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Barnacle goose , *Branta leucopsis*, Greenland/Ireland, UK | 170 individuals, representing an average of 2.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Gadwall , *Anas strepera strepera*, NW Europe | 62 individuals, representing an average of 10.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Mallard , *Anas platyrhynchos platyrhynchos*, NW Europe | 1719 individuals, representing an average of 3.4% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common coot , *Fulica atra atra*, NW Europe | 440 individuals, representing an average of 1.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

| | |
|---|---|
| Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa | 199 individuals, representing an average of 1.5% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common greenshank , *Tringa nebularia*, Europe/W Africa | 64 individuals, representing an average of 7.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| **Species with peak counts in winter:** | |
| Little grebe , *Tachybaptus ruficollis ruficollis*, Europe to E Urals, NW Africa | 95 individuals, representing an average of 1.9% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Great crested grebe , *Podiceps cristatus cristatus*, NW Europe | 142 individuals, representing an average of 4% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Whooper swan , *Cygnus cygnus*, Iceland/UK/Ireland | 172 individuals, representing an average of 1.6% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Greylag goose , *Anser anser anser*, Iceland/UK, Ireland | 420 individuals, representing an average of 11% of the all-Ireland population (5 year peak mean 1992/3-1996/7) |
| Eurasian wigeon , *Anas penelope*, NW Europe | 2544 individuals, representing an average of 2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Eurasian teal , *Anas crecca*, NW Europe | 1866 individuals, representing an average of 2.8% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Northern pintail , *Anas acuta*, NW Europe | 318 individuals, representing an average of 5.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Northern shoveler , *Anas clypeata*, NW & C Europe | 167 individuals, representing an average of 2.5% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common eider , *Somateria mollissima mollissima*, NW Europe | 144 individuals, representing an average of 7.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Common goldeneye , *Bucephala clangula clangula*, NW & C Europe | 239 individuals, representing an average of 2.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Red-breasted merganser , *Mergus serrator*, NW & C Europe | 205 individuals, representing an average of 10.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Eurasian oystercatcher , *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering | 7382 individuals, representing an average of 14.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic | 7063 individuals, representing an average of 3.5% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering | 284 individuals, representing an average of 7.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Northern lapwing , *Vanellus vanellus*, Europe -breeding | 7390 individuals, representing an average of 2.9% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

| | |
|---|---|
| Dunlin , *Calidris alpina alpina*, W Siberia/W Europe | 4119 individuals, representing an average of 3.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe | 165 individuals, representing an average of 1.8% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Bar-tailed godwit , *Limosa lapponica lapponica*, W Palearctic | 1155 individuals, representing an average of 7.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Eurasian curlew , *Numenius arquata arquata*, N. a. arquata Europe<br>(breeding) | 1673 individuals, representing an average of 1.9% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |
| Ruddy turnstone , *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa | 235 individuals, representing an average of 1% of the all-Ireland population (5 year peak mean 1998/9-2002/3) |

**Species Information**

**Nationally important species occurring on the site.**

**Mammals.**

*Lutra lutra*

## 21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Archaeological/historical site
Environmental education/ interpretation
Fisheries production
Non-consumptive recreation
Scientific research
Sport fishing
Sport hunting
Tourism
Traditional cultural
Transportation/navigation

## 22. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|---|---|---|
| Non-governmental organisation (NGO) | + | |
| Local authority, municipality etc. | + | |
| National/Crown Estate | + | |
| Private | + | |
| Public/communal | + | |

## 23. Current land (including water) use:

| Activity | On-site | Off-site |
|---|---|---|
| Nature conservation | + | + |
| Tourism | + | + |
| Recreation | + | + |
| Current scientific research | + | |
| Collection of non-timber natural products: commercial | + | |

| | | |
|---|---|---|
| Fishing: commercial | + | |
| Fishing: recreational/sport | + | |
| Marine/saltwater aquaculture | + | |
| Gathering of shellfish | + | |
| Bait collection | + | |
| Grazing (unspecified) | + | |
| Hunting: commercial | + | |
| Hunting: recreational/sport | + | |
| Harbour/port | + | |
| Urban development | | + |

## 24. Factors adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

*Explanation of reporting category:*

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

*NA = Not Applicable because no factors have been reported.*

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|---|---|---|---|---|---|
| Introduction/invasion of non-native plant species | 2 | *Spartina* encroachment extent increasing. Monitoring of extent ongoing. | + | | + |
| | | | | | |

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Introduction/invasion of non-native plant species - Spartina encroachment extent increasing. Consevation Objectives for the site have been developed. These highlight the need for addressing the Spartina issue. Extent of *Spartina* extent being monitored. Future trials of selective herbicides to be undertaken ASAP.

Is the site subject to adverse ecological change? YES

## 25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---|---|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| National Nature Reserve (NNR) | + | |
| Marine Nature Reserve (MNR) | + | |
| Special Protection Area (SPA) | + | |

| | | |
|---|---|---|
| Land owned by a non-governmental organisation for nature conservation | + | |
| Management agreement | + | |
| Site management statement/plan implemented | + | |
| Area of Outstanding National Beauty (AONB) | + | |
| Special Area of Conservation (SAC) | + | |

### 26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

### 27. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

**Miscellaneous.**

For its size, Strangford Lough contains a remarkably wide range of habitats and species, many of which are representative of types not found elsewhere in Northern Ireland. The importance of the Lough as a natural laboratory for carrying out marine biological and oceanographic research is unsurpassed in Northern Ireland.

Much is known as to the species present in the Lough and their distribution.

**Flora and Fauna.**

In addition to invertebrate studies, research has been carried out on many other topics including plankton, mullet, seals, eelgrass *Zostera*, common cord-grass *Spartina anglica*, seabirds, wildfowl, waders, currents, sediment transfer, wave power, geomorphology and human impact to name but a few.

The acquisition of further scientific information about Strangford Lough is, however, a high priority. This information will be essential as a basis for understanding the Lough's ecology, drawing up management proposals and determining their effectiveness. Information is needed on numbers necessary for populations to be sustained and on the effects of man's activities, including harvesting, on wildlife.

Benthic surveys of the Lough have been conducted in 1990 and 1993. Much of the technology (Roxann/side-scan sonar etc) is now available in NI.

A number of CAST studentships have looked at brent/wigeon interactions, bird disturbance, *Spartina* control. A detailed examination of the northern mudflats: sedimentology/flora/fauna has been completed ahead of some major sea-defence works scheduled for the area. It is hoped that this work will progress to include 'construction' and 'post-construction' monitoring.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

### 28. Current conservation education:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Strangford Lough is much used for field studies at all levels of education, with many school groups visiting interpretive centres which have been established around the Lough. In addition residential centres use the Lough for study and recreational training by Primary and Secondary school parties. The Queen's University of Belfast Marine Biology Station at Portaferry was established in 1945 and has been used in the training in marine biology of generations of students from several higher education establishments.

Interpretive Centres: 6 interpret aspects of Strangford Lough

Residential Centres: 5 use the Lough for fieldwork

### 29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

**Activities, Facilities provided and Seasonality.**

Strangford Lough has long attracted people who enjoy outdoor recreation, in particular water sports and more recently wildlife-watching.

Boating: Strangford Lough has a number of natural assets making it particularly suitable for boat-based activities. It is sheltered from open sea waves but not from winds, allowing a prolonged sailing season. Sailing for recreation has a history of about 150 years in Strangford Lough. Yachting instruction takes place at three centres and clubs have their own cadet classes. Windsurfing (sail-boarding) has become increasingly popular over recent years. Jet-skiing has only recently appeared as a water-based recreational pursuit on the Lough. The shelter afforded by the islands and the variety of scene they afford make the western side of the Lough popular for sea canoeing.

Bathing and Diving: Bathing itself is harmless but efforts by local authorities to keep beaches pleasant for recreation often include the removal of drift seaweed along with litter here may also be a wish to provide amenities such as promenades and sandy beaches. Diving, principally scuba-diving, has greatly increased in popularity. About 10 diving clubs from the Greater Belfast area regularly use Strangford Lough, with participation by a core of about 100 divers.

Sea angling: This sport was popular in the 1970s when specimen weight Common Skate and Tope were regularly taken from the deep trenches. With the demise of the large skate and decline in Tope, the popularity of the Lough for sea angling declined, but has recently begun to revive mainly for local recreational anglers rather than serious enthusiasts, with pollack, coalfish and mackerel being targeted in the Lough with the addition of cod in the outer triangle.

Wildlife Watching: Many people enjoy watching the wildlife most from dry land above high water mark. The Lough's international reputation for waterfowl is underlined by the number of bird-watchers who are attracted to the area, many from Britain or overseas.

The National Trust has provided public hides from which the birds may be observed. Interpretive information concerning the wildlife of Strangford is provided at many of the facilities around the Lough. More and more people are enjoying not just the birds, but the wide variety of wildlife to be seen. Many are well equipped with binoculars, telescopes, cameras and field-guides.

Seal-watching from the car park at Cloghy Rocks is popular. Interpretive centres, in particular Exploris (formerly the Northern Ireland Aquarium), help the visitor both to appreciate the wildlife they see on the Lough and its shore and that which only divers are privileged to see in its waters.

Wildfowling: There is a very long tradition of wildfowling on Strangford Lough.

Currently about 250 permit-holders may shoot on areas of foreshore in accordance with a strict code of practice.

Horse-riding: Firm beaches have long been used as uninterrupted gallops for exercising horses where the sand is fairly level and not too hard. The seawater is also said to be good for the horses' hooves.

Walking: Some people use the shore for walking or exercising their dogs. However, few areas of shore within the Lough are particularly well suited for this activity, much being muddy, cobble-covered or difficult of access.

Flying: Ards Airfield lies adjacent to the Reserve. Light aircraft, gliders and small helicopters use it. Some flights are commercial, but most are for recreation.

Tourism: All of the above activities contribute to Strangford Lough's appeal as a venue for tourism. Many visitors come to take part in recreational or interpretive activities. Others come to see historic sites, wildlife and to enjoy the scenic quality and tranquility of the area. The attractions of the Strangford Lough area are beginning to be widely recognised and promoted throughout Britain and Ireland. The trend for activity-based holidays is increasing.

## 30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

## 31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Department of the Environment (Northern Ireland), Environment and Heritage Service,
Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

## 32. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **13** above), list full reference citation for the scheme.

### Site-relevant references


Barne, JH, Robson, CF, Kaznowska, SS, Doody, JP, Davidson, NC & Buck, AL (eds.) (1997) *Coasts and seas of the United Kingdom. Region 17. Northern Ireland.* Joint Nature Conservation Committee, Peterborough. (Coastal Directories Series.)

Boaden, PJS & Dring, MT (1980) A quantitative evaluation of the effect of *Ascophyllum* harvesting on the littoral ecosystem. *Helgoländer Meeresuntersuchungen* **22**, 700-710

Brown, RA (1989) Bottom trawling in Strangford Lough: problems and policies. In: *Proceedings of the Third North Sea Seminar, Rotterdam*

Brown, RA (1990) *Strangford Lough – The wildlife of an Irish sea lough.* Queen's University of Belfast, Institute of Irish Studies, Belfast.

Buck, AL & Donaghy, A (eds.) (1996) *An inventory of UK estuaries. Volume 7. Northern Ireland.* Joint Nature Conservation Committee, Peterborough

Cooper, EA, Crawford, I, Malloch, AJC & Rodwell, JS (1992) *Coastal vegetation survey of Northern Ireland*. (Contractor: University of Lancaster, Unit of Vegetation Science). Unpublished report to Department of the Environment (Northern Ireland), Belfast

Corbett, SL (1980) *Strangford Lough: Some aspects of conservation*. Unpublished MSc dissertation, Queens University of Belfast

Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Crowe, O (2005) *Ireland's wetlands and their waterbirds: status and distribution*. BirdWatch Ireland, Newcastle, Co. Wicklow

Davison AJ & Boaden PJS (1990) *The management of Strangford Lough: a study of the marine environment, its conservation and its exploitation*. Queen's University, Belfast

Davison, DM (1996) Sargassum muticum *in Strangford Lough, 1995 – 1998; a review of the introduction and colonisation of Strangford Lough MNR and cSAC by the invasive brown algae* Sargassum muticum. (Contractor: Dee Davison Associates, Dunbar.) Report to the Environment & Heritage Service, DoE (NI), Belfast. www.ehsni.gov.uk/pubs/publications/sargassum.pdf

Environment and Heritage Service (nd) *Strangford Lough Management Scheme. Public information booklet.* Environment and Heritage Service, Belfast. www.ehsni.gov.uk/pubs/publications/StrangfordLoughPubInfoBooklet_web.pdf

Environment and Heritage Service (nd) *Strangford Lough SAC/SPA Management Scheme*. Environment and Heritage Service, Belfast. www.ehsni.gov.uk/pubs/publications/StrangfordManagementScheme.pdf

Erwin, DG, Picton, BE, Connor DW, Hawson CM, Gilleece, P & Bogues, MJ (1986) *The Northern Ireland Sublittoral Survey*. Ulster Museum, Belfast

Fox, AD, Bell, MC, Brown, RA, Mackie, P & Madsen, J (1994) An analysis of the abundance and distribution of brent geese and wigeon at Strangford Lough, 1965/6–1988/9. *Irish Birds*, **5**, 139-150

Industrial Science Division (1990) *The impact of commercial trawling on the benthos of Strangford Lough*. Department of Economic Development, Co. Antrim (Interim report, No. TI/3160/90)

Irish Sea Study Group (1990) *The Irish Sea: an environmental review. Part 1 – nature conservation*. Liverpool University Press

Jepsen, PU (1990) *A review of the Strangford Lough Wildlife Scheme*. International Waterfowl and Wetlands Research Bureau, Slimbridge 1990

Kirby, R (1989) *Tidal flat instability and fine-grained sediment transport at Ardmillan Bay, Strangford Lough, in relation to* Spartina *eradication and oyster trestle burial.* Ravensrodd Consultants Ltd.

McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK.* 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection

Musgrove, AJ, Langston, RHW, Baker, H & Ward, RM (eds.) (2003) *Estuarine waterbirds at low tide. The WeBS Low Tide Counts 1992–93 to 1998–99.* WSG/BTO/WWT/RSPB/JNCC, Thetford (International Wader Studies, No. 16)

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Portig, AA (1997) *Strangford Lough: overwintering birds and variation in eelgrass (*Zostera *spp.) productivity and distribution*. Unpublished PhD thesis, Queens University of Belfast

Roberts, D, Davies, C, Mitchell, A, Moore, H, Picton, B, Portig, A, Preston, J, Service, M, Smyth, D, Strong, D & Vize, S (2004) *Strangford Lough Ecological Change Investigation (SLECI)*. Report to Environment and Heritage Service by the Queen's University, Belfast. www.ehsni.gov.uk/pubs/publications/0ExecSum.pdf

Portig, AA, Mathers, RG, Montgomery, RN & Govier, RN (1994) The distribution and utilisation of *Zostera* species in Strangford Lough, Northern Ireland. *Aquatic Botany*, **47**, 317-328

Strangford Lough Information Network (2004) *Strangford Lough online*. Strangford Lough Information Network. www.strangfordlough.org

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Way, LS, Grice, P, MacKay, A, Galbraith, CA, Stroud, DA & Pienkowski, MW (1993) *Ireland's Internationally Important Bird Sites: a review of sites for the EC Special Protection Area network*. Joint Nature Conservation Committee, Peterborough for Department of the Environment (NI), Belfast, and Irish Wildlife Service, Dublin

Weighell, AJ, Donnelly, AP & Calder, K (eds.) (2000) *Directory of the Celtic coasts and seas*. Joint Nature Conservation Committee, Peterborough

Whatmough, J (1995) Classic wildlife sites – Strangford Lough, Northern Ireland. *British Wildlife*, **7**(2), 98-109

Wilkinson, M, Fuller, IWA, Telfer, TC, Moore, CG & Kingston, PF (1988) *Northern Ireland Littoral Survey: A conservation-orientated survey of the intertidal seashore of Northern Ireland*. Institute of Offshore Engineering, Heriot-Watt University, Edinburgh

---

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

# STRANGFORD LOUGH SAC
UK0016618

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Strangford Lough SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *20/03/2017* |
| Version Number | *V4* |
| Next Review Date | November 2020 |
| Contact | cdp@daera-ni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | June 2013 | Internal working document | PC |
| V2 | January 2015 | Complete review | RMK |
| V3 | February 2017 | Review marine features | LP |
| V4 | November 2018 | Review seal targets | LP |

## Site relationships

To fully understand the conservation requirements of this site, it is necessary to also refer to the Conservation Objectives for Strangford Lough SPA and the Strangford Lough and Lecale Heritage Management Strategy 2013-2018.

Strangford Lough SAC boundary overlaps with the boundary for Strangford Lough SPA and adjoins Outer Ards SPA. Strangford Lough SAC and SPA also lie within Strangford Lough Marine Conservation Zone (MCZ).

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:** IJ 560579

**AREA:** 15398.54 ha

## 5. SUMMARY SITE DESCRIPTION

Strangford Lough is a large (150 km$^2$) marine inlet on the east coast of County Down, of which about 50 km$^2$ lies between high water mark mean tide (HWMMT) and low water mark mean tide (LWMMT). Its northern end lies some 15 km east of Central Belfast (6 km from the outskirts). Downpatrick lies 5 km west of the south west corner. Strangford, Killyleagh, Whiterock, Comber, Newtownards, Greyabbey, Kircubbin and Portaferry are situated on the edge of the Lough. About 60,000 people live around its shores and about one million people live within one hour's drive.

Almost land-locked, Strangford Lough is separated from the Irish Sea by the Ards Peninsula to the east and is bounded to the south by the Lecale coast. It is connected to the open sea by the Strangford Narrows, an 8 km long channel with a minimum width of 0.5 km. The Lough is 30 km long from head to mouth and up to 8 km wide.

This sea inlet is made up of a drowned drumlin field (created by inundation of the landscape which emerged from under the melting ice-sheets of the Ice Age) which is for the most part less than 10 m in depth and a deeper Y-shaped channel (possibly an old river-valley or geological fault-line) which is up to 66 m deep. The underlying rock is largely Silurian. The surface of the bed and shore of the Lough ranges from bedrock in areas with strong currents to fine mud in sheltered waters.The narrow entrance channel is an important feature with extremely strong currents of up to 8 knots (4 m/sec).

The tidal flats of Strangford Lough form extensive deposits around its northern limits in a partially eroded drumlin and late-glacial landscape. The sedimentary dynamics of the contemporary tidal flats are controlled by exposure to waves and tidal currents and vary from current- to wave-dominated sandy areas to suspension-dominated muddy areas. At a number of locations indicators of former sea levels are preserved which offer the opportunity to define the evolution of the area.

The triangular area around the Lough mouth is subject to greater wave energy. It has broad, almost level rock platforms, steeply-shelving rocky shores, sandy beaches and a largely sandy sea-bed. The water in the Lough is virtually fully saline except at the mouths of the two moderate-sized rivers and several streams which drain into it from the catchment of about 900 km$^2$ where it may be somewhat brackish. The area enjoys an equable climate with low rainfall, infrequent frosts and prevailing west to south west winds.

The Lough supports an impressive range of marine habitats and communities with over 2,000 recorded species. It is important for marine invertebrates, algae and saltmarsh plants, for wintering and breeding wetland birds, and for marine mammals.

Further details of the site are available on the DAERA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-strangford-lough).

## 5.1 BOUNDARY RATIONALE

The landward boundary of the SAC is entirely coincident with the landward boundary of the following five Areas of Special Scientific Interest: Strangford Lough Part 1, Strangford Lough Part 2, Strangford Lough Part 3, Killard and Ballyquintin Point. Marine areas below mean low water are also included.

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ pop~ |
|---|---|---|---|
| Habitat | Large shallow inlet and bay | A | 15090.6 ha |
| Habitat | Coastal lagoons | B | 45.0 ha |
| Habitat | Mudflats and sandflats not covered by sea water at low tide | B | 2000.0 ha |
| Habitat | Reefs | B | 1600.0 ha |
| Habitat | Annual vegetation of drift lines | C | 250 km |
| Habitat | Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | C | 75.0 ha |
| Habitat | Perennial vegetation of stony banks | C | 30.0 ha |
| Habitat | *Salicornia* and other annuals colonising mud and sand | C | |
| Species | Harbour (Common) Seal *Phoca vitulina* | C | 210 |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

**D** - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Strangford Lough SAC.

## 6.1 ASSI SELECTION FEATURES

### Strangford Lough ASSI

| Feature Type | Feature | Size/ extent/ pop~ | Comments |
|---|---|---|---|
| **Habitat** | Intertidal Rock | 1645 ha | |
| **Habitat** | Mudflats | 2000 ha | |
| **Habitat** | Coastal Vegetated Shingle | 250km | |
| **Habitat** | Coastal Saltmarsh | 75 ha | |
| **Habitat** | Maritime Cliff & Slope | | |
| **Species** | Higher Plant Assemblage | | |
| **Species** | Invertebrate Assemblage | | |
| **Species** | Waterbird Assemblage | | |
| **Species** | Harbour (Common) Seal *Phoca vitulina* | | |
| **Earth Science** | Contemporary coastal processes – the inter-tidal zone between Greyabbey and Ardmillan Bay | | This refers to the entire inter-tidal zone |
| **Earth Science** | Holocene sea-level history – buried and semi-buried components within the inter-tidal and adjoining areas | | Key localities are at Rough Island, Greyabbey Bay, Ringneill Quay |
| **Earth Science** | Pleistocene – Late Glacial Sediments | | |

Table 2. *List of ASSI features*

## 7. CONSERVATION OBJECTIVES

The *Conservation Objective* for this site is:

*To maintain (or restore where appropriate) the*

- Large shallow inlet and bay
- Coastal lagoons
- Mudflats and sandflats not covered by sea water at low tide
- Reefs
- Annual vegetation of drift lines
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Perennial vegetation of stony banks
- *Salicornia* and other annuals colonising mud and sand
- Harbour (Common) Seal *Phoca vitulina*

*to favourable condition.*
Maintain implies that the feature is in favourable condition and will, subject to natural change, remain at its condition at designation. Restore implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment can refer to natural recovery through the removal of unsustainable physical, chemical and biological pressures, as well as intervention.

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objective |
|---|---|---|
| Large shallow inlet and bay | A | Maintain the extent of the large shallow inlet and bay |
| | | Allow the natural processes which determine the development, structure, function and extent of the large shallow inlet and bay, to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |

| | | |
|---|---|---|
| Coastal lagoons | B | Maintain the extent of the coastal lagoons |
| | | Allow the natural processes which determine the development, structure, function and extent of the coastal lagoons, to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |
| Mudflats and sandflats not covered by sea water at low tide | B | Maintain the extent of mudflats and sandflats not covered by sea water at low tide |
| | | Allow the natural processes which determine the development, structure and extent of mudflats and sandflats not covered by sea water at low tide, to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |
| Reefs | B | To restore the reefs and their characteristic species to favourable condition, allowing for natural change. |
| | | Allow the natural processes which determine the development, structure, function and extent of the reefs, to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |
| Annual vegetation of drift lines | C | Maintain and enhance the extent of annual vegetation of drift lines subject to natural processes |
| | | Allow the natural processes which determine the development and extent of annual vegetation of drift lines to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this community including the presence of notable species |

| | | |
|---|---|---|
| Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | C | To restore the Atlantic salt meadows and their characteristic species to favourable condition, allowing for natural change. |
| | | To maintain or enhance, as appropriate, the composition of the saltmarsh communities |
| | | To maintain transitions between saltmarsh communities and to other adjoining habitats |
| | | To permit the continued operation of formative and controlling natural processes acting on the saltmarsh communities |
| Perennial vegetation of stony banks | C | To restore the perennial vegetation of stony banks and their characteristic species to favourable condition, allowing for natural change. |
| | | Allow the natural processes which determine the development and extent of perennial vegetation of stony banks to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this community including the presence of notable species |
| *Salicornia* and other annuals colonising mud and sand | C | To restore the *Salicornia* and other annuals colonising mud and sand and their characteristic species to favourable condition, allowing for natural change. |
| | | Allow the natural processes which determine the development and extent of *Salicornia* and other annuals colonising mud and sand, to operate appropriately |
| | | Maintain and enhance, as appropriate, the species diversity within this habitat. |
| Harbour (Common) Seal *Phoca vitulina* | C | Maintain and enhance, as appropriate, the Harbour (Common) Seal population |

| | | |
|---|---|---|
| | | Maintain and enhance, as appropriate, physical features used by Harbour (Common) Seals within the site |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| Intertidal Rock | See SAC Selection Feature Objective Requirements table. |
| Mudflats | See SAC Selection Feature Objective Requirements table. |
| Coastal Vegetated Shingle | See SAC Selection Feature Objective Requirements table. |
| Coastal Saltmarsh | See SAC Selection Feature Objective Requirements table. |
| Maritime Cliff & Slope | To be finalised |
| Higher Plant Assemblage | To be finalised |
| Invertebrate Assemblage | To be finalised |
| Waterbird Assemblage | See SPA Conservation Objectives. |
| Harbour (Common) Seal *Phoca vitulina* | See SAC Selection Feature Objective Requirements table. |
| Contemporary coastal processes – the inter-tidal zone between Greyabbey and Ardmillan Bay | Permit the continued operation of formative and controlling natural processes acting on the inter-tidal system. Maintain natural site morphology subject to natural processes. |
| Holocene sea-level history – buried and semi-buried components within the inter-tidal and adjoining areas | Maintain the potential for access to buried and semi-buried components necessary for the demonstration of sea-level history as related to this site. |
| Pleistocene - Late Glacial Sediments | Maintain extent and quality of exposure, together with access to the features subject to natural processes. |

## 10. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Strangford Lough SAC, or could affect it in the future.

Although Reefs, Large shallow inlet and bay, Coastal lagoons, Mudflats and sandflats not covered by sea water at low tide, Atlantic salt meadows, Perennial vegetation of stony banks, Annual vegetation of drift lines, *Salicornia* and other annuals colonising mud and sand and Common Seal *Phoca vitulina* are the qualifying SAC features, factors affecting ASSI features are also considered.

**NOTE - Carrying out <u>any</u> of the Notifiable Operations listed in the ASSI schedule could affect the site.**

*Changes in Surrounding Land Use Impacts*

Activities occurring outside the site (e.g. land surrounding Strangford Lough such as agricultural intensification, coastal engineering, and development) may be detrimental to the site through remote affects – some of these outside impacts are considered, as follows:

*Housing and Industrial Development*

Pressure for development around the Lough is evident from the number of planning applications submitted in recent years. Substantial housing developments have proceeded at Portaferry, Greyabbey, Kircubbin and Killyleagh and others are under consideration. The area also attracts applications for individual houses in rural locations which may be effect wildlife or landscape.

Development close to the shore may have adverse effects on areas of saltmarsh and other habitats or lead to disturbance of feeding and nesting birds. The cumulative effect of such development is difficult to assess accurately but is unlikely to be insignificant. There are also indirect impacts associated with development, for example the increased load on sewage treatment plants or additional septic tanks and the effects of storm water drainage.

Shoreline housing may also create demand for further sea defences, causeways and boat slips.

*Coastal Engineering*

Much of the larger scale sea defences are located in the northern end of the Lough. The sea defences at Newtownards have recently been repaired and improved. A monitoring programme has been set up by the Rivers Agency to assess the effects of these major repair works on the ecology of the Lough.

In recent years rock armouring has been a favoured strategy for road protection against erosion. Unlike the traditional sea walls, armouring helps to dissipate wave energy with less drawdown of sediment. However, it is rarely aesthetically pleasing and tends to encroach onto the shore. There have also been attempts by some landowners to prevent erosion by using rocks and boulders from the intertidal area.

Coastal engineering works have affected a number of shallow bays, saltmarshes and areas of tidal flat around the Lough. Causeways, boat slips and other restrictions have modified current and tidal flow patterns and, in turn, affected sediment transport patterns. In some cases this has resulted in the incidental creation of new habitat including saltmarsh, brackish ponds and wetlands.

The effect of rising sea levels and changing weather patterns in the long-term may create a desire for new or additional flood defences at existing settlements.

*Sand and Gravel Extraction*
Traditional rights to remove sand, gravel and shingle from the shores are attached to the folios of some land-holdings in the area. These materials were formerly extracted by shovel and horse-drawn cart for use on the land. Nowadays tractors, trailers and earth-moving machinery are more likely to be used. The removal of intertidal sediments increases the risk of erosion by removing some of the wave-absorbing materials and altering the beach profile. The exercise of extraction rights is not, however, currently a major issue within the SAC/SPA.

*Farming*
Farmers and landowners have helped to shape the Strangford Lough landscape and its habitats and contributed to the conservation interests around the Lough. For example, many of the islands which are important for wildfowl or nesting terns are grazed by sheep or cattle. By and large farmers have tolerated the habit of Brent Geese to graze agricultural land when eelgrass is in short supply. Some farming practices, however, can cause localised damage.

Livestock which are free to wander onto the shore may result in damage to strandline vegetation and saltmarsh. Their trampling can seriously poach the ground and exacerbate erosion. The practice of sand-ploughing on the shore to clean the plough can have damaging effects both on eel-grass beds and on invertebrates in the sand. Recovery from this seemingly harmless activity can take years in some situations.

ACTION: Reduce the risk of surrounding agricultural intensification by encouraging owner/occupiers to enter into agri-environment schemes. Use appropriate assessments, through the planning process, to minimise any development risks adjacent to the SAC.

*Recreational & Educational Impacts*

*Tourism*
Areas of high scenic and amenity value such as Strangford Lough are an important part of Northern Ireland's tourism product. Investment in tourism capital projects and support systems such as environmental and heritage visitor centres has helped bring employment and new prosperity to rural towns and presents diverse business opportunities for local communities. As the trend towards activity and special interest holidays increases, Strangford Lough's environmental designations may provide additional impetus to the promotion of the marine life as a tourist attraction.

Increasing pressure from the public for access to the water and the surrounding countryside for recreation and enjoyment has to be balanced with the need to sustain the environment and the fabric of local communities.

*Informal Recreation*
Strangford Lough is an attractive and popular venue for a variety of informal recreational pursuits, such as walking (often with dogs), bathing and wildlife watching.

Individuals or small groups of walkers rarely cause any problems for conservation. Walkers can, however, cause considerable disturbance to bird-life in certain sensitive locations. Localised problems have been experienced with dogs disturbing birds, particularly on the upper shore at low tides and at nesting islands. The problem is particularly acute with loose dogs and at certain periods of the year critical to the bird's feeding cycles.

Efforts to keep beaches suitable for recreation often include the removal of drift seaweed along with litter. Seaweed is an important component of the marine ecosystem and in most instances is better left in place unless there are compelling reasons for its removal. There have been proposals to create or extend sandy beaches for bathing. In addition to loss of natural foreshore, such efforts can be counterproductive if they fail to take account of the local sediment regime. There may also be a desire to provide amenities such as promenades and car parking areas. These are likely to increase the numbers of people using the area with the consequent risk of increased disturbance.

The Lough's international reputation for waterfowl is underlined by the number of bird-watchers who are attracted to the area, many from Britain or overseas. The National Trust and the Wildfowl and Wetlands Trust have provided hides from which the birds may be observed by the public. Seal watching from the car park at Cloghy Rocks is also popular.
The observation of wildlife for enjoyment is a popular activity. However some enthusiasts fail to consider either owners' property rights or the welfare of the wildlife. Disturbance can prevent wildlife feeding and can cause desertion of nests with eggs or young birds. Litter and discarded angling materials are unsightly and may cause injury to wildlife. There has been an increase in charter boats specialising in wildlife watching trips, which without appropriate training may cause disturbance to protected species.

*Boating and Sailing*
About 2000 yachts are located around the Lough and there are approximately 5000 active boaters. Most yachting is organised through the eleven clubs around the Lough. Club races and regattas take place throughout the summer with frequent all-Ireland and international events for particular classes. Yachting instruction takes place at several centres and clubs have their own cadet classes.

Most cruisers are moored on permanent swing moorings close to club premises. There are also a few public moorings and scattered private moorings elsewhere. Some craft are mud-berthed and a few are berthed at marina type jetties. Some areas, particularly Whiterock, are popular for water-skiing. There is limited public access to the shore for boats. Cook Street Pier owned by Ards Borough Council and the Pontoons at Portaferry are the two main areas.

Windsurfing (sailboarding) has become increasingly popular over recent years, particularly at Cunningburn, Kircubbin and Whiterock. Little depth of water is required and insulating suits enable enthusiasts to sail throughout the year when weather permits. Jet skiing has developed on a small scale on the Lough notably at Whiterock.

Although generally a benign activity, boating may result in a number of potentially harmful impacts on the Lough and its wildlife. It may cause physical disturbance to the seabed and shore, particularly at moorings and where slipways and jetties are built. It is often difficult to maintain water quality at anchorage's and harbours. Boating may also cause noise and general disturbance to wildlife, particularly to breeding or over-wintering birds. Fast powered craft including jet-skis tend to be the worst in this regard. Windsurfing during the winter could potentially conflict with wildlife in refuges.

*Diving*

Strangford Lough is one of the principal areas in Northern Ireland used by recreational divers for training, exploring wrecks and observing marine life. The Lough's sheltered waters are ideal as training areas for novice divers, while also affording some of the most challenging dives to be found in Northern Ireland for the more experienced.

The study of the seabed by divers is in harmony with conservation interests provided no damage is done. Over-collection of marine life could, however, prove damaging to the populations of certain species. The Strangford Lough Regulation of anchoring, mooring and diving byelaws 2012 () prohibit anchoring, mooring or diving within a restricted zone at any time. This byelaw applies to all waters deeper than 10m below chart datum in the restricted zone which is bounded by a Northern Limit and a Southern Limit. Diving for the purposes of monitoring condition and recovery of the designated features within the zone may be permitted by the Department following an assessment of the proposed methodology and qualifications of the Dive Team. Any such Permit will be time bounded and require the production of a detailed survey report.

*Horse Riding*

Newtownards, Mount Stewart and Ballyhornan are the most popular areas for horse riding on the foreshore. Firm beaches provide uninterrupted gallops for exercising horses.

The areas most sensitive to horse riding are wildlife refuges over the winter months and areas supporting Eelgrass. Birds may not be unduly disturbed by riders hacking across the shore, but are more likely to move where several horses are using the same stretch of shore as a gallop. There is some conflict with displacement of wildfowl from the shore at Castle Espie where there is a bird watching hide. Otherwise there are few significant problems at present.

*Wildfowling*

There is a very long tradition of wildfowling on Strangford Lough. The five wildfowling clubs around the Lough, (all affiliated to the British Association for Shooting and Conservation), co-ordinate their activities through the Joint Council of Strangford Lough Wildfowling Associations. Wildfowling on the foreshore and on adjacent lands owned or controlled by the National Trust is subject to controls under the Wildlife Scheme. A system of refuges has been established where wildfowling is either banned or restricted to certain times of year and where efforts are being made to minimise all forms of disturbance. Bag returns provide information on the

composition of birds shot and their location. Mallard is the main quarry species, followed by teal.

Wildfowling inevitably causes some disturbance to the birds though this is minimised by the wildfowlers. Participants try to reach their positions unseen, and shoot birds on a flightline, rather than on the feeding grounds. Dogs retrieving birds may cause some disturbance to feeding birds, but with well-trained animals this is minimal.

The revised system of refuges, including time-share zones and shooting regulated zones, has been designed to increase the birds' opportunity to feed and roost undisturbed, so maintaining the Lough's attraction for them. Work to determine the effectiveness and sustainability of the current refuge system is on-going.

*Aircraft*

Newtownards Airfield lies adjacent to the SAC/SPA. Light aircraft, gliders and small helicopters use the airfield, mostly for recreation. An annual fund-raising air-show attracts large crowds.

The evidence to date suggests that birds generally become accustomed to the movements of light aircraft. Microlites and helicopters cause greater disturbance.

*Education and Research*

The Lough provides a natural laboratory for carrying out marine biological and oceanographic research and this is evident from the number and diversity of research projects that it supports. Strangford Lough is much used for field studies at all levels of education, with many school groups visiting the interpretative centres which have been established around the Lough. In addition, residential centres bring Primary and Secondary school parties to the Lough for study and training.

Generally speaking these activities have little lasting impact on the Lough's ecology. There is, however, a risk of disturbance from large parties repeatedly using sensitive areas. Repeated collecting at favoured sites may also lead to local depletion of species in that area.

**ACTION: The increasing recreational pressure needs to be continuously monitored and assessed for any possible adverse impacts on the loughs SAC/ASSI habitats and associated species. Recreational pressure also needs to be considered in appropriate assessments when assessing the possible adverse impacts of proposed recreational developments, on or around the lough.**

*Operations Affecting Water Quality*

Anthropogenic inputs entering Strangford Lough include those from sewage out-falls, watercourses, recreational and commercial craft and associated facilities, and the open sea. They include nutrients from effluent discharges, organic wastes and fertiliser run-off; some particulate material including bacteria; small amounts of petroleum and oils; some metal ions and other more complex chemicals derived from industrial processes; fuel additives, pesticides, anti-fouling paints, slip-way treatments etc.; and plastic and other floating waste. Some fly-tipping of refuse

onto the shore also takes place, which may result in chemicals leaching into the Lough.

Sewage effluent is discharged directly into Strangford Lough from eight main outfalls. In addition, treated sewage effluent from a number of neighbouring settlements is discharged into the Quoile system. Slurry, silage effluent, effluent from septic tanks and leachate from landfill sites may enter the rivers and some of the smaller streams, particularly the Quoile. A certain amount of agricultural run-off enters the Lough directly from adjacent fields, or indirectly via watercourses.

Effluent discharged from in-board toilets on boats may cause localised pollution.

Water quality in the Lough is generally good, although there be locally significant effects from discharges of storm water and sewage from peripheral housing areas. High nutrient levels from sewage outfalls can adversely modify the local biota though such inputs may increase productivity and carrying capacity. Some forms of wildlife thrive in nutrient enriched areas but nutrient overload can also lead to some species having a blanketing effect on the habitat. Enrichment tends to result in an increase in the abundance of a few tolerant species such as ragworms and in the growth of green algae.

Nutrification may be having a detrimental effect particularly at the northern end of the Lough. Increases in the suspension of organic or inorganic material in the water column increases turbidity and reduces light levels, which along with changes in sedimentation may be affecting the growth of eelgrass.

The potential exists for any spillage from shipping in the Irish Sea to enter the Lough system. The scale of impact would depend on the amount of spill, its location and type of oil etc.

**ACTION: The ongoing water quality monitoring of the lough should identify any potential water quality problems. In the case of accidental oil spills from shipping in the Irish Sea, there needs to be an up to date Oil Spill Contingency Plan, in place, to deal with such an eventuality.**

### *Commercial Fisheries Impacts*

#### *Commercial Fishing*

Fishing on a commercial scale can affect the seabed in a variety of ways. Several studies of the impact of fishing operations on the seabed were undertaken during the 1990s. These studies concluded that only those areas where fishing boats could not easily gain access remained unmodified. Following concerns about a serious decline in the biogenic reef (*Modiolus modiolus*) in Strangford Lough, Queen's University Belfast were commissioned by EHS to undertake a wide ranging investigation into the probable causes of this decline. The final report (Strangford Lough Ecological Change Investigation) identified trawling and dredging for scallop species as the main cause for the demise of the *Modiolus* biogenic reef structure. Subsequently, DARD Fisheries Division introduced the Strangford Lough

(Prohibition of Fishing for Shellfish) Regulations (Northern Ireland) 2001 which prohibits the use of mobile fishing gear within the Lough.

In 2008, DOE and DARD developed a comprehensive restoration plan for the *Modiolus* biogenic reef, which was submitted to and accepted by the European Commission. This included surveying the extent and condition of the remaining biogenic reef, identification of sites in good condition, investigation of practical methodologies and introducing total protection measures where required. The Restoration plan was modified and resubmitted to the European Commission in October 2012. As part of the restoration plan DARD brought forward proposals to prohibit, through regulations, fishing in two areas of Strangford Lough, known to contain *Modiolus* biogenic reef. These regulations (The Strangford Lough (Sea Fishing Exclusion Zones) Regulations (Northern Ireland) 2012) came into operation in January 2013 and prohibit all fishing within two zones at a depth of 10m or more below chart datum.

Potting takes place mainly in the Narrows and the periphery of the Lough. There is pot fishing of Dublin Bay Prawns and more recently of Shore Crabs, Velvet Swimming Crabs, Common Whelks and Lobsters are also taken. Fishing effort can disturb sediment and over-fishing of some species might affect the conservation interests.

### *Harvesting of Wild Shellfish*

Though economically viable beds of the Native Oyster were worked out in the 19th century, other shellfish are still gathered. Cockles are gathered by hand raking the sediment. While the collection of Common Mussels and Winkles for personal use is unlikely to have a significant impact on the designated features of the Lough, there has been an increase in unregulated shellfish harvesting by large groups or 'gangs'. Some commercial harvesting may be sustainable but large-scale harvesting may be detrimental. Mechanical harvesting of cockles for example would be very likely to severely damage other fauna and flora that live in the mudflats. Eelgrass may be physically damaged and harvesting may interfere with birdlife such as oystercatchers, for which cockles are a major food source.

People on the shore engaged in such activities may reduce bird feeding times and increase their energy requirements as they fly to other areas. Common and Grey seals hauled out onto rocks within the intertidal area may also be disturbed by people harvesting wild shellfish.

### *Seaweed Harvesting*

Historically in Strangford Lough seaweeds have been both harvested and cultured. Drift wrack and kelp (brown seaweeds) were used on the land as fertiliser. Up to the Second World War seaweed - in particular the Knotted Wrack - was extensively cut for fertiliser and for burning to produce a powder used in glass-making. At certain sites, for example around Greyabbey, large boulders were placed on sandy areas of shore for seaweeds to attach and create a crop of material.

The red algae known as Dulse is also a traditional crop, being cut from the stipes of kelp, on which it grows particularly in the Narrows, then dried for human consumption.

Were extensive commercial exploitation of seaweed to take place in Strangford Lough the loss in ecological terms would be likely to be on a significant scale. Research has indicated that large scale commercial harvesting would probably alter populations over a wider area with consequent decline in larval supply, increase in sediment mobility and loss of organic maternal from the inshore system.

There is interest in the cultivation of seaweed in Strangford Lough which may have implications for the features.

*Bait Digging*

Bait digging has traditionally taken place on a small scale in many places around the Lough and today digging for Lugworm and Ragworm is commonplace at Island Hill. Small-scale bait digging by anglers for individual use may be insignificant in its effect in many situations but if undertaken in sensitive habitats, at certain times of the year or on a commercial scale, it may be incompatible with the aims of nature conservation. It may damage eelgrass beds and large numbers of bait diggers are likely to cause disturbance to waterfowl. Raking or digging for burrowing invertebrates buries oxygen-rich surface sediments often killing the animals they contain.

*Aquaculture*

There has been a steady growth in interest in shellfish cultivation in Strangford Lough in recent years. Some 350 hectares of seabed and intertidal area within the Lough are now subject to shellfish culture licences. A number of different techniques are used for growing oysters, mussels, clams and scallops. Oyster farming is the most economically important fishery in the Lough with an annual turnover in excess of that from commercial fishing. Both Native Oyster and Pacific Oyster are cultivated in the Lough; these are grown in mesh sacks on trestles at low water and finished on ground mats.

Shellfish culture is generally regarded as an activity that has relatively low negative impact on the environment. A high standard of water quality is required and no chemicals or antibiotics are used in shellfish production. It can, however, cause loss or modification of habitat, disruption of sediment movement, and disturbance to wildlife. Care has to be taken to avoid the accidental introductions of other species with commercial shellfish. Imports of juvenile shellfish for cultivation are therefore routinely inspected by the Department.

The impact of areas set aside for the shellfish cultivation on bird feeding is generally limited. Sown areas cover only a small proportion of the foreshore and are usually well spaced. Harvesting and net cleaning occurs only during periods of spring tides. However, harvesting does occur during the winter months when bird feeding may be at its most intense. The cumulative impacts of shellfish cultivation on all designated features should be considered, in particular with each new application.

Caged fin-fish farming is presently considered to be an inappropriate practice in Strangford Lough for various environmental reasons including risks to native

marine life from waste products and parasite treatments, incompatibility with predator species and its impact on maintaining visual amenity.

**ACTION: Commercial fisheries operations need to be constantly monitored and reviewed to assess the sustainability of the operations to prevent any adverse impacts on the loughs water-quality and foodchain ecology.**

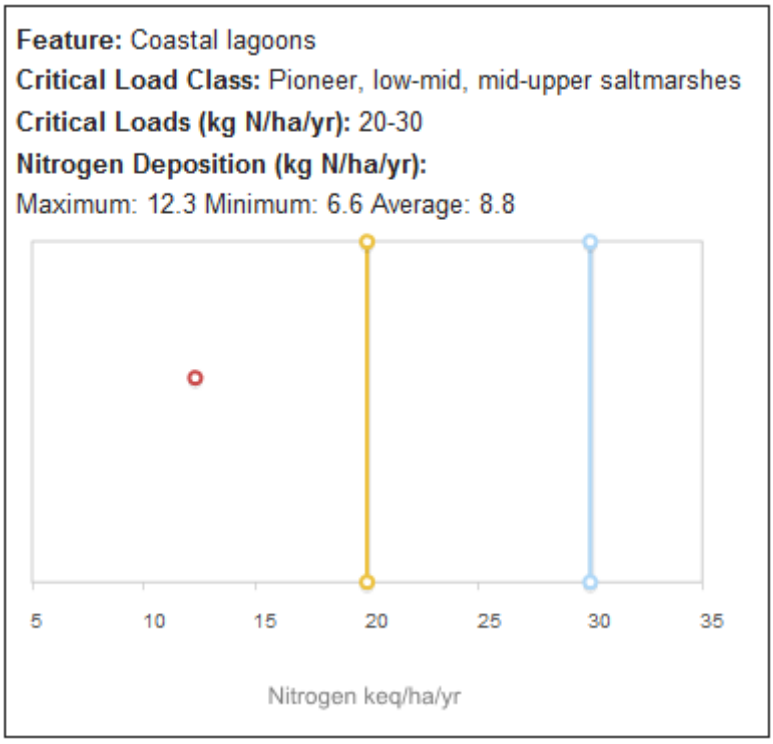
*Wildlife watching trips*
Wildlife watching trips (boat and land based) have the potential to cause disturbance to species if operators are not appropriately trained in how to approach species while minimising potential disturbance. In addition, damage to sensitive habitats may occur through lack of knowledge of their location. Various wildlife training courses are available which teach best practice when dealing with wildlife.

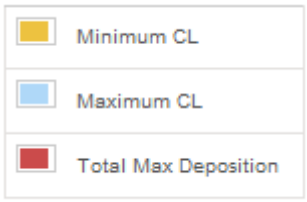
*Nitrogen Deposition*
Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for Strangford Lough SAC.

**Large Shallow Inlets and Bays** - Designated feature/feature habitat not sensitive to eutrophication.

**Reefs** - Designated feature/feature habitat not sensitive to eutrophication.

**Annual Vegetation of Drift Lines** - Designated feature/feature habitat not sensitive to eutrophication.





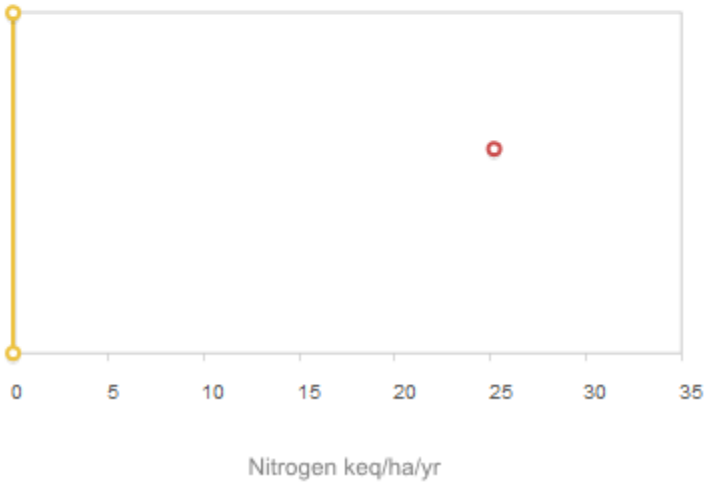

**Feature:** Mudflats and sandflats not covered by seawater at low tide

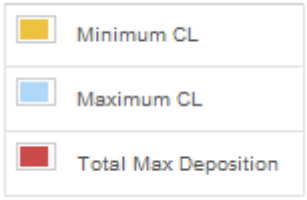
**Critical Load Class:** No comparable habitat with established critical load estimate available

**Critical Loads (kg N/ha/yr):** no critical loads available for this feature

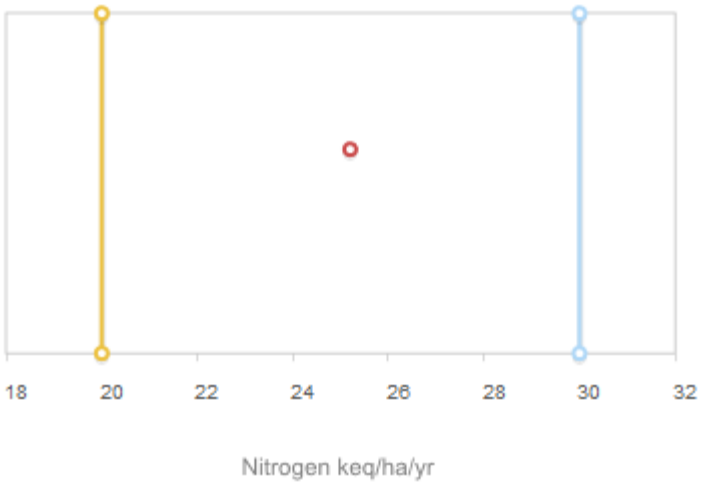
**Nitrogen Deposition (kg N/ha/yr):**

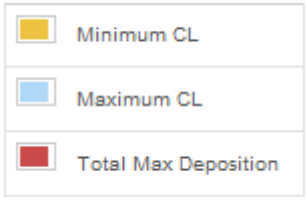
Maximum: 25.2 Minimum: 14.3 Average: 18



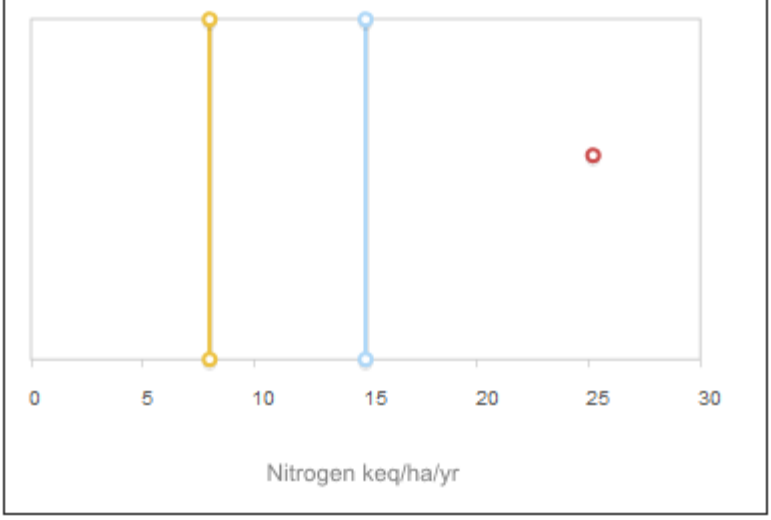



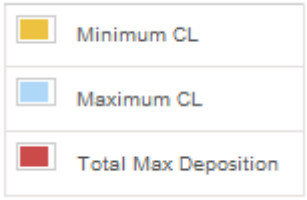
**Feature:** Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
**Critical Load Class:** Pioneer, low-mid, mid-upper saltmarshes
**Critical Loads (kg N/ha/yr):** 20-30
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 25.2 Minimum: 14.3 Average: 18

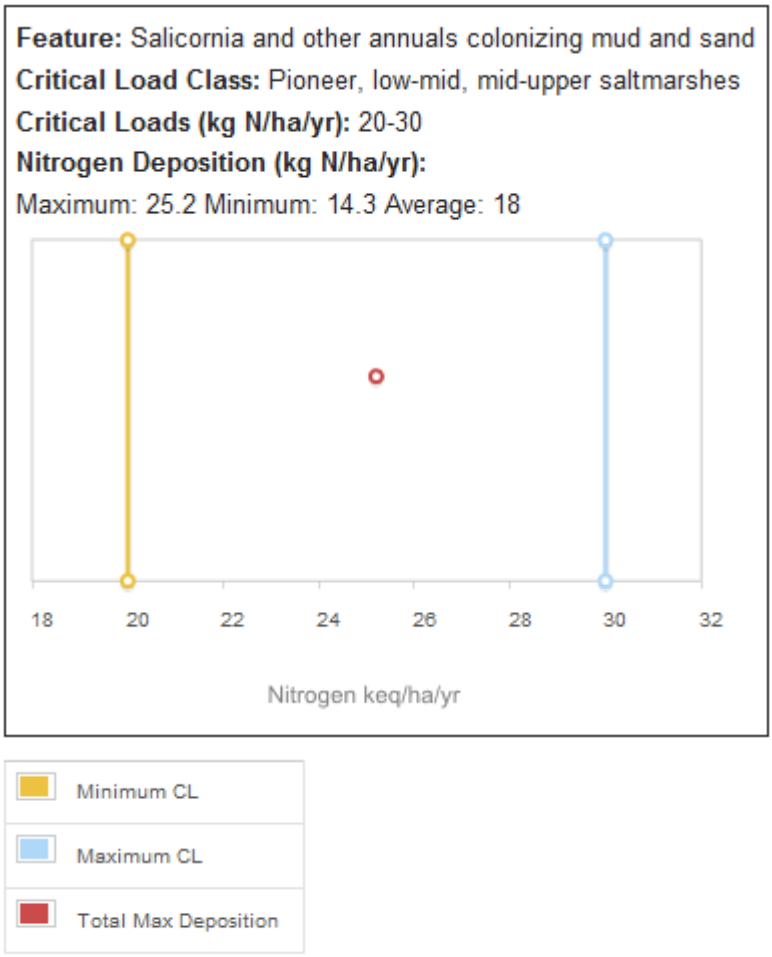


**Feature:** Perennial vegetation of stony banks
**Critical Load Class:** Coastal stable dune grasslands
**Critical Loads (kg N/ha/yr):** 8-15
**Nitrogen Deposition (kg N/ha/yr):**
Maximum: 25.2 Minimum: 14.3 Average: 18






(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*

Any changes in local land-use e.g. agricultural intensification, drainage works and development) may be detrimental to the SAC.

**ACTION: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events. The Northern Ireland Climate Change Adaptation Programme was published in January 2014. This contains the Northern Ireland Executive's response to the risks and opportunities identified in the Climate Change Risk Assessment for Northern Ireland (published January 2012) as part of the overall UK Climate Change Risk Assessment. The Adaptation Programme provides the strategic objectives in relation to adaptation to climate change, the

proposals and policies by which each department will meet these objectives and the timescales associated with the proposals and policies identified in the period up to 2019.

**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered.**

## 11. MONITORING

The SACs are surveyed using two forms of monitoring:

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC conservation objectives. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat). In addition, potentially damaging activities may be picked up through the active marine ranger programme or by members of the public raising concerns with the Department. These reports are followed up through consultation with the relevant competent authorities.

**Site Condition Assessment** of the designated features is carried out on a rolling 6 year basis to pick up subtle changes in the condition of the feature and to ensure that the conservation objectives are being met.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland. For marine features, condition assessments include a variety of techniques such as diving, remote cameras, sediment sampling and acoustic seabed mapping. Marine mammal monitoring programmes also contribute.

### 11.1 MONITORING SUMMARY

*1. Monitor the integrity of the site (SIM or Compliance Monitoring)*
This SIM should be carried out at least once every year.

*2. Monitor the condition of the site (Condition Assessment)*
Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex I is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12. REFERENCES

AFBI (2015). Bathymetric and Habitat Map for Strangford Lough (Special Area of Conservation and Marine Conservation Zone). Northern Ireland. Report to the Department of the Environment.

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan – Mudflats.

Department of the Environment for Northern Ireland (2003). Northern Ireland Habitat Action Plan –Saline Lagoons.

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan – Coastal Saltmarsh.

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan – Coastal Vegetated Shingle.

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan – *Modiolus modiolus* beds.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

## ANNEX I

The marine Annex I habitats are very broadly defined habitats that are often represented by large and complex sites. To effectively describe, monitor and manage such complex features, it has been necessary to divide some of them into smaller units called *sub-features*. Sub-features are distinctive biological communities (e.g. eelgrass beds, maerl beds, horse-mussel reefs), or particular structural or geographical elements of the feature. Due to the broad nature of marine Annex I features, it has often proved helpful, both in the development of conservation objectives, and of monitoring programs, to separate the feature into a number of constituent sub-features, and then to identify attributes and targets for the sub-features. The use of sub-features has been found to be particularly helpful for those marine Annex I features that represent whole physiographic units , and permits a level of flexibility in the application of the UK's Common Standards Monitoring which has been found necessary when applying the standards at the site level.

### Feature 1 (SAC) - Large shallow inlet and bay (Status A)

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| | Extent | Area (ha) of the large shallow inlet and bay, measured once per reporting cycle. | No decrease in extent from an established baseline, subject to natural change. | |
| | Water clarity | Light attenuation measured on a monthly basis from March to September. | Seasonal light attenuation should not deviate from the baseline, subject to natural change. | The extent and diversity of plant and algal communities is affected by water clarity. Clarity is reduced through increases in the suspension of organic or inorganic material in the water column. |

| | | | | |
|---|---|---|---|---|
| | Water salinity & temperature | Salinity and water temperature measured on a monthly basis. | Temperature & salinity should not deviate significantly from the long-term trends, subject to natural change. | Temperature and salinity are characteristics of the overall hydrography of the area, thus the overall functioning of the Lough. |
| | Nutrient status | Phytoplankton concentration in summer measured annually. | No significant increase in phytoplankton concentration from the established baseline, subject to natural change. | Nutrient enrichment stimulating excessive growth of phytoplankton is a common factor contributing to a reduction in water clarity. Single species-dominated phytoplankton blooms can also be harmful. |

Feature 1 (SAC) - Large shallow inlet and bay (Status A) – continued.

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| Subtidal Sand and Gravel Communities<br><br>Subtidal Fine Sand and Mud Communities | Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of selected biotopes at selected sites measured once during the reporting cycle | Results should not deviate significantly from the established baseline, subject to natural change. | Changes in extent and distribution may indicate long term changes in the physical conditions at the site.<br><br>Previously, AFBI was involved in a range of mapping exercises (ROXANN) to produce habitat maps, however, the complex heterogeneity of Strangford Lough seabed has rendered this maps of limited use. In 2015 AFBI produced a comprehensive bathymetric and habitat map (https://www.afbini.gov.uk/sites/afbini.gov.uk/files/publications/strangford_lough.pdf) and the Department is engaged in follow-up monitoring in ground truthing to further refine the precision of this map. |
| | Species composition of selected biotopes at monitoring sites. | Species compositio n of selected biotopes measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by both spyball and diving surveys will be utilised to determine the achievement of the conservation objectives throught presence/absence at monitoring sites . |

NOTE: As they are all part of the single system, the condition of other features which occur within a large shallow inlet and bay will also contribute to the overall assessment of the large shallow inlet and bay

Feature 2 (SAC) – Coastal Lagoons (Status B)

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| **Tide-swept communities (The Dorn Sill)** | Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of selected biotopes at selected sites measured once during the reporting cycle | Results should not deviate significantly from the established baseline, subject to natural change. | Baseline survey was carried out as part of the Northern Ireland Littoral Survey between 1984 and 1987 by Heriot-Watt University. Changes in extent and distribution may indicate long term changes in the physical conditions at the site |
| | Species composition of selected biotopes at monitoring sites. | Presence and abundance of composite species, measured during summer, once per reporting cycle. | Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change. | Tide-swept communities are characteristic of inlet lagoons and are therefore integral to the structure and function of such lagoons. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |
| | Extent | Area (ha) measured once per reporting cycle. | No decrease in extent from an established baseline, subject to natural change. | Use of aerial photographs and subsequent ground truthing to determine this. |

Feature 3 (SAC) - Mudflats and sandflats not covered by sea water at low tide (Status B)

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| | Morphological naturalness (extent, mobility and substrate) | Ensure that any loss in extent and change in system dynamics is only due to natural processes | No human induced developments impacting on the natural system. | This habitat occupies a naturally dynamic position in coastal systems. Provided that no human developments result in direct loss of habitat, or change the site dynamics, then the attribute should be deemed to be in favourable condition. Substrate supply and distribution should be regulated by natural coastal processes.<br>Aerial photos can be used to monitor natural movement of channels and any encroachment from unregulated planning. |
| Intertidal Sand and Gravel Communities<br><br>Intertidal Fine Sand and Mud Communities | Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of selected biotopes at selected sites measured once during the reporting cycle | Results should not deviate significantly from the established baseline, subject to natural change. | Baseline survey was carried out as part of the Northern Ireland Littoral Survey between 1984 and 1987 by Heriot-Watt University. Changes in extent and distribution may indicate long term changes in the physical conditions at the site |
| | Species composition of selected biotopes at monitoring sites. | Species composition of selected biotopes measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

| | | | | |
|---|---|---|---|---|
| *Zostera* Spp Beds<br><br>(*Z noltii, Z. angustifolia Z. marina*) | Distribution of *Zostera* beds. | Distribution of *Zostera* beds, measured during autumn once during the reporting cycle. | Distribution should not deviate significantly from the established baseline, subject to natural change. | The distribution of the beds is of key importance to their conservation condition.<br>It is important that any consideration of *Zostera* within the context of these conservation objectives fits with the UK Biodiversity Action Plan for Seagrass Beds.<br><br>A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data.<br><br>The Department is currently gathering data on the distribution, extent and quality of subtidal *Zostera marina* beds (at present these are located at Ballyhenry and Strangford Harbour, but others may be found through subtidal survey). |
| | Extent. | Area (ha) of *Zostera* spp. Beds | Extent should not deviate significantly from the established baseline, subject to natural change. | A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data. |

Feature 3 (SAC) - Mudflats and sandflats not covered by sea water at low tide (Status B) – continued.

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| *Zostera* Spp Beds<br><br>(*Z noltii, Z. angustifolia Z. marina*) | Taxonomic composition | Presence of selected taxa | Taxonomic species should not deviate significantly from the established baseline, subject to natural change. | A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data. |
| | Density | Measuring *Zostera* shoot density | Target: Average shoot density should not deviate significantly from the long term average. | An early indicator of seagrass under stress is a reduction in the number of plants and loss of plants on the lower shore.<br>This will probably concentrate only on *Z. angustifolia* which, being a larger plant, is found at lower densities than *Z. noltii*. |

Feature 4 (SAC) - Reefs (Status B)

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| Subtidal Rock and Boulder Communities<br><br>Subtidal Rocky Reef Communities<br><br>Intertidal Rock and Boulder Communities | Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of the selected biotopes at selected sites measured once during the reporting cycle. | Results should not deviate significantly from the established baseline, subject to natural change | AFBI was involved in a range of mapping exercises (ROXANN) to produce habitat maps, however, the complex heterogeneity of Strangford Lough seabed has rendered these maps of limited use. In 2015 AFBI produced a comprehensive bathymetric and habitat map (https://www.afbini.gov.uk/sites/afbini.gov.uk/files/publications/strangford_lough.pdf) and the Department is engaged in follow-up monitoring in ground truthing to further refine the precision of this map.<br><br>For intertidal rock and boulder communities, baseline surveys were carried out as part of the Northern Ireland Littoral Survey between 1984 and 1987 by Heriot-Watt University. Changes in extent and distribution may indicate long term changes in the physical conditions at the site. |
| | Species composition of selected biotopes at monitoring sites | Species composition of the selected biotopes measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

Feature 4 (SAC) - Reefs (Status B) - continued

| SUB-FEATURE | ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|---|
| *Modiolus modiolus* Beds | Distribution of *Modiolus* beds. | Distribution of *Modiolus modiolus* biotope SCR.ModCVar and biotopes with *Modiolus /Ophiothrix* measured once during the reporting cycle. | *Modiolus* beds (SCR.ModCVar) and other biotopes should be present in those areas of the Lough where they historically occurred. | The *Modiolus beds* are currently in unfavourable condition and are subject to a restoration plan which has been agreed with the EU Commission and all relevant stakeholders. It has been agreed that no direct intervention (by way of transplants etc.) will be conducted, instead favouring a natural resettlement of the feature, facilitated by enhanced fishery management plans. Periodic monitoring for indicators of natural restoration will be conducted by the Department and others but natural restoration is likely to take decades. |
| | Extent and percentage cover of *Modiolus* beds. | Extent and percentage cover occupied by *Modiolus* beds i.e biotope SCR.Mod.Cvar and biotopes with *Modiolus/ Ophiothrix* measured once during the reporting cycle. | This target will reflect the potential for natural recovery of *Modiolus modiolus* beds in areas where it has been impacted.<br><br>Lower limit: No decrease in extent or percentage cover from established baseline, subject to natural change. | It will be important to ensure that the beds do not become further reduced or fragmented even if the distribution does not change significantly.<br><br>A considerable amount of data has recently been collated and is being updated regarding this attribute. Periodic monitoring for indicators of natural restoration will be conducted by the Department and others but natural restoration is likely to take decades. |

| | | | | |
|---|---|---|---|---|
| | Species index of *Modiolus* beds. | The diversity (number of species and their abundance) of the mussel beds is a key measure of its health. | Species index of the *Modiolus modiolus* beds should not deviate from the established baseline, subject to natural change. | *Modiolus* beds are a habitat for many other species. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. |

Feature 5 (SAC) - Annual vegetation of drift lines (Status C)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Targets | Method of Assessment | Comments |
|---|---|---|---|
| * Morphological naturalness (extent, mobility and substrate) | No human induced developments impacting on the natural system. | | This community occupies a naturally dynamic position in coastal systems. Provided that no human developments result in direct loss of habitat or of areas with the potential to develop this habitat, or change the site dynamics, then the attribute should be deemed to be in favourable condition. Both inorganic and organic substrates are important precursors to development of annual vegetation of drift lines. Substrate supply should be regulated by natural coastal processes. |
| * Characteristic species | Maintain the presence and broad distribution of stands of *Honckenya peploides – Cakile maritima* SD2 community and the SD3 *Matricaria maritima - Galium aparine* community together with other local variants across the feature. Assessments will need to be made during late summer(July/August) | | These communities are found in a narrow strip at the extreme high water mark. Changes in the frequency and abundance of these species should be expected to occur seasonally as a result of storm events, but the communities are also sensitive to disturbance by human activities. Some communities on coarse substrates do not match well with SD 2 but are important as regional variants. Such communities are dominated by *Beta* and *Atriplex* spp. and show affinities to MC 6 *Atriplex hastata-Beta vulgaris* ssp *maritima* Sea-bird cliff community. |
| Disturbance | No increase in area where vegetation colonisation/recolonisation is prevented by human activity | | To be assessed once per reporting cycle in late summer (July/August) |
| Rare and notable species | To maintain the presence of notable species at localities with historical records. | | Check historical records to determine applicability |

Feature 6 (SAC) - Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (Status C)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Target | Method of assessment | Comments |
|---|---|---|---|
| * Area of saltmarsh | Subject to natural processes, maintain the overall extent of saltmarsh vegetation. | Visual estimate in 2 x 2 m plots and across the extent of the saltmarsh using a combination of aerial photographs and SIM.<br>The area should be measured once per reporting cycle (6 years) during the summer months of June, July, August or early September. | Judgements in changes to extent/area will have to take particular care to distinguish changes as a result of natural erosion vs. anthropogenic actions. |
| * Mobility | No increase in either the linear extent or the area constrained by introduced structures or landforms. | Visual inspection of aerial photographs, SIM and Condition assessment structured walk.<br>Check for any new physical structures that may impact on this community. | Introduction of physical constraints would reduce the extent of this community and affect its structure. |
| Physical structure: creeks and pans | Realignment of creeks absent or rare.<br>No further anthropogenic alteration of creek patterns or loss of pans compared to an established baseline. | Visual inspection of aerial photographs, SIM and Condition assessment structured walk.<br>Check for man-made influences on creeks and pans. | Creeks and pans vary in size and density. Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network. |

| | | | |
|---|---|---|---|
| * Saltmarsh community diversity | Maintain presence of saltmarsh communities SM10, SM13, SM16, SM18, SM19, SM20 and SM28 as established at baseline survey. | Visual estimate in 2x2m plots. | |
| *Presence of associated semi-natural habitats | Maintain other saltmarsh communities and transitions to freshwater/flush and grassland<br>- e.g. some of the samples to contain open SM8 communities with *Salicornia*;<br>S21 communities with *Scirpus maritimus*; and<br>S4d communities with *Phragmites* | Visual estimate in 2x2 m plots | *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types.<br>Where they occur with saltmarsh communities, their presence should be recorded. |
| * Maintain frequency of positive indicators for low-level marsh (SM10) | At least 5 of the indicator species listed below at least occasional, of which 3 are at least frequent throughout the sward: *Suaeda maritima, Salicornia* agg., *Puccinellia maritima, Aster tripolium, Limonium humile, Glaux maritima, Cochlearia officinalis, Plantago maritima, Triglochin maritima Armeria maritima.*<br><br>At least occasional is equivalent to greater than | Visual estimate in 2x2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.<br><br>**Note:** *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features. |

| | | | |
|---|---|---|---|
| | 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | | |
| * Sward Height (SM10) | Maintain short sward in areas of species-rich vegetation.<br>Maintain mean sward height at less than 12 cm. | Visual estimate in 2 x 2 m plots | Measure during summer (July/August/early September) |
| * Maintain frequency of positive indicators for low-level marsh (SM13a, b, c and d) | At least 5 of the indicator species listed below at least occasional, of which 3 are at least frequent throughout the sward: *Suaeda maritima, Salicornia* agg., *Puccinellia maritima, Aster tripolium, Limonium humile, Glaux maritima, Cochlearia officinalis, Plantago maritima, Triglochin maritima, Armeria maritima.*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than | Visual estimate in 2 x 2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.<br><br>Note: *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features.. |

| | | | |
|---|---|---|---|
| | 41% occurrence in recorded plot. | | |
| * Sward Height (SM13a, b, c and d) | Maintain short sward in areas of species-rich vegetation.<br>Maintain mean sward height at less than 15 cm. | Visual estimate in 2 x 2 m plots | Measure during summer (July/August/early September) |
| * Maintain frequency of positive indicators for middle marsh communities (SM16b, c, d and e) | At least 6 of the indicator species listed below at least occasional, of which 4 are at least frequent throughout the sward: *Puccinellia maritima, Aster tripolium, Limonium humile, Glaux maritima, Cochlearia officinalis, Plantago maritima, Triglochin maritima Armeria maritima, Festuca rubra, Juncus gerardii, Agrostis stolonifera, Trifolium repens, Leontodon autumnalis, Carex flacca*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | Visual estimate in 2 x 2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.<br><br>**Note:** *Zostera* and *Ruppia* beds (SM1 and SM2) and stands of *Salicornia* and *Suaeda* (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features. |

| | | | |
|---|---|---|---|
| * Sward Height (SM16b, c, d and e) | Maintain short sward in areas of species-rich vegetation.<br>Maintain mean sward height at less than 20 cm. | Visual estimate in 2 x 2 m plots | Measure during summer (July/August/early September) |
| * Maintain frequency of positive indicators for upper marsh communities (e.g.SM18a, SM19 and SM20 and SM28) | At least 6 of the indicator species listed below at least occasional, of which 4 are at least frequent throughout the sward:<br>*Juncus maritimus, Agrostis stolonifera, Festuca rubra*, *Glaux maritima*, *Juncus gerardii, Triglochin maritima, Plantago maritima, Armeria maritima, Aster tripolium, Elymus repens, Atriplex prostrata, Potentilla anserina, Phragmites australis, Blysmus rufus, Eleocharis uniglumis*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | Visual estimate in 2 x 2 m plots | Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities. |
| Sward Height (Upper marsh communities) | Maintain mean sward height less than 1m. | Visual estimate in 2x2 m plots | Measure during summer (July/August/early September) |

| | | | |
|---|---|---|---|
| | | | As upper saltmarsh communities are tall, often mono-dominant stands of vegetation, the height of the vegetation is not critical. |
| * Frequency and/or % cover of *Spartina* encroachment into the saltmarsh communities (% Cover) | *Spartina* be should be recorded as absent or rare across the saltmarsh communities.<br><br>Mean cover should be less than 2 %.<br><br>No more than rare is equivalent to less than 20% occurrence in recorded plots | Visual estimate within a 10x10 m radius of monitoring plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | *Spartina* is extremely invasive across all saltmarsh communities and its occurrence should be carefully recoded to ensure that it does not pose a threat to these valuable communities. |
| * Frequency and % cover of negative indicators excluding *Spartina* (DAFOR and % cover) | Negative indicators no more than occasional across the saltmarsh communities<br><br>Mean cover should be less than 2 %.<br><br>No more than occasional is equivalent to less than 40% occurrence in recoded 2x2m plots. | Visual estimate in 2x2 m plots | |
| * Frequency and % cover of scrub/tree encroachment into transitional communities (DAFOR and % cover) | Scrub encroachment no more than occasional in transitional communities.<br><br>Mean cover should be less than 5 %. | Visual estimate within a 10x10 m radius of monitoring plots and across the feature using a combination of aerial photographs and | |

| | | | |
|---|---|---|---|
| | No more than occasional is equivalent to less than 40% occurrence in recoded 10x10m plots. | Condition Assessment structured walk. | |
| * Cover of litter/thatch accumulation (% cover) | Less than 25% mean cover.<br><br>Lower thresholds may be appropriate for short SM 10 communities. | Visual estimate in 2x2m plots. | More than 25% litter cover indicates insufficient removal of biomass by grazing, particularly in middle and upper saltmarsh communities such as SM13 and SM16. A lower threshold for thatch should be set - perhaps 10%<br>For SM10 communities (to be determined). |
| * % cover of bare ground | Bare areas resulting from trampling by stock or human activity (vehicle use, etc.) should account for less than 10 % of the extent of all communities with the exception of SM 10. | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Saltmarsh can be severely affected by persistent heavy trampling<br>Note: UK CSM suggests 25% upper limit for poaching – a lower limit is recommended for SM13 and SM16 at most saltmarsh areas in N. Ireland. |
| Lack of disturbance | There should be no management activities leading to erosion. | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Saltmarsh can be severely affected by persistent heavy trampling<br>Lower marsh communities naturally have higher cover of bare ground than middle and upper marsh communities. |
| Lack of pollution | No evidence of oil or other forms of pollution | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and | |

| | | | |
|---|---|---|---|
| | | Condition Assessment structured walk. | |
| Saltmarsh hydrology | Artificial drainage channels adversely affecting hydrology are absent or rare, | Visual estimate across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |
| * Maintain distinctive elements at current extent/levels and/or in current locations | Maintain distinctive elements at current extent/levels and/or in current locations (e.g. maintain existing populations of notable species, important structural attributes or notable transitions between habitats) | Visual estimate in 2x2 m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk.<br>Check for presence of species/structural attributes, and/or transitions. | This attribute is intended to cover any site-specific aspects of this habitat feature which are not adequately covered by the previous attributes. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

Feature 7 (SAC) - Perennial vegetation of stony banks (Status C)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Target | Method of assessment | Comments |
|---|---|---|---|
| * Extent | Subject to natural processes, maintain the overall extent of the vegetation at 1.92 ha.<br><br>Gransha Point - 1.02 ha<br>Mid Island (at least partially on shingle) – 0.9 ha | Visual estimate in 2 x 2m plots and across the extent of the community using SIM and aerial photos.<br><br>Measured once per reporting cycle. | Although the habitat on Strangford Lough (and at Ballyquintin Point in particular) is comparatively stable, there may be some natural variation as a result of dynamic coastal processes at Gransha Point, which appears to be active in places. |
| * Physical structure: functionality and sediment supply | No increase in either the linear extent or the area constrained by introduced structures or landforms. | Visual inspection of aerial photographs, SIM and Condition Assessment structured walk. | Potentially relevant to Gransha Point. |
| Sward Height | Sward height should be between 5-15 cm over at least 75% of the sample plots within grassland habitats | Visual estimate in 2x2m plots. | Grassland makes up the bulk of the community at Gransha Point; requires sufficient (but not excessive) grazing to maintain it. |
| Litter | Average litter cover (i.e. dense thatch-like material in a more or less continuous layer) should be less than 10 %.<br><br>May be distributed either in patches or in one larger | Visual estimate in 2x2m plots. | Excessive build-up of litter indicates inadequate grazing levels. |

| | | | |
|---|---|---|---|
| | area within grassland areas. | | |
| Bare ground | Bare areas resulting from disturbance should account for less than 10 % of the extent of any of the habitat<br><br>No management activities leading to erosion. | Visual estimate in 2x2m plots. | Note that some parts of the site are naturally bare, with only a rudimentary cover of lichens over the stable cobbles. |
| * Zonation of vegetation | The current range of NVC communities and their approximate distribution should be maintained – i.e.<br><br>shingle banks (SD2, SD3), saltmarsh (SM9, SM10, SM13, SM14, SM16 and SM28), grasslands (SD8, MC8, MC9, MG1, MG11 and MG12) and scrub (W23,W24).<br><br>In particular, there should be no loss in extent of the more species-rich communities. | Visual estimate in 2x2m plots. | Ballyquintin Point has a mosaic of different habitats and vegetation types. Gransha Point is much more limited in communities present on shingle – essentially saltmarsh, strandline and grassland.<br><br>Note:<br>1. Gransha Point was mapped as SD8 (NI Coastal Survey), but perhaps should more accurately be described as MC8/9<br><br>2. only a limited range of these communities are actually **perennial** vegetation on shingle |
| * Presence of positive indicator species in the dry grassland plots | Frequency of community character species. At least four of the following at least frequent and four at least occasional throughout the sward: | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| | *Agrostis spp., Aira spp., Armeria maritima, Carex panicea, Centaurea nigra, Cladonia spp., Danthonia decumbens, Festuca rubra, Galium saxatile, Galium verum, Hypochaeris radicata, Jasione montana, Koeleria macrantha, Lotus corniculatus, Molinia caerulea, Plantago lanceolata, Polypodium agg., Potentilla erecta, Rumex acetosella, Scilla verna, Sedum spp., Succisa pratensis, Thymus praecox* | | |
| Agricultural weed species : | No more than one negative species should more than frequent; or singly or together contribute more than 5% cover: - *Cirsium arvense, Cirsium vulgare, Senecio jacobaea, Urtica dioica, Arrhenatherum elatius* | Visual estimate in 2x2m plots. | |
| Bracken | Less than 5% *Pteridium aquilinum* over the area as whole | Visual estimate in 2x2m plots and across the extent of the feature using Condition Assessment structured walk. | |
| Indicators of Improvement | Mean cover values from the sample plots for eutrophic broad-leaved grasses (i.e. | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| | *Lolium perenne, Holcus lanatus, Dactylis glomerata*.) should be less than 10% cover | | |
| Trees/shrubs | Trees and/or shrubs no more than occasional on W-Walk, with seedlings rare or absent<br><br>Less than 10 % tree or shrub cover (over the area as a whole) | Visual estimate in 2x2m plots and across the extent of the feature using Condition Assessment structured walk. | |
| Presence of Dung | Dung no more than occasional (as recorded in monitoring plots) | Visual estimate in 2x2m plots. | |
| Presence of Tracks | Tracks no more than occasional (over the total area) | Visual estimate across the extent of the feature using Condition Assessment structured walk. | |
| Stock Feeding | No evidence of stock feeding (over the total area) | Visual estimate across the extent of the feature using Condition Assessment structured walk. | |
| Stone Removal | No evidence of stone removal (over the total area) | Visual estimate across the extent of the feature using Condition Assessment structured walk. | |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

NOTE: “Perennial vegetation of stony banks” occurs on Strangford Lough at two discrete and rather different locations. Gransha Point is still an active shingle bank, and the importance of ensuring that active processes are maintained is one of the fundamental aims here. In contrast, Ballyquintin Point is no longer an active system, so coastal processes are not particularly relevant, except for occasional storm events which may cause some erosion.

The “habitat” at both sites is actually a complex of many different habitats, and the main aim is to maintain the full range of communities represented at both sites. Particular issues of note are grazing levels (leading to scrub encroachment over more valuable grassland communities) and enrichment.

Feature 8 (SAC) - *Salicornia* and other annuals colonising mud and sand (Status C)

* = primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Target | Method of assessment | Comments |
|---|---|---|---|
| * Extent | Subject to natural processes, maintain the overall extent of the vegetation. | Visual estimate in 2 x 2 m plots and across the extent of the community using SIM.<br><br>Aerial photographs can be useful if taken at the appropriate scale and time of year.<br><br>Measured once per reporting cycle, preferably during the summer months of July or August | These communities are important precursors to more stable vegetation of low to mid marsh. Communities may be dynamic in their distribution and are linked with the physical processes operating on the site - e.g., topography, creek patterns, sea-level rise etc. |
| * Mobility/Coastal Processes | No increase in either the linear extent or the area constrained by introduced structures or landforms. | Visual inspection of aerial photographs, SIM and Condition assessment structured walk. Check for any new physical structures that | Colonisation of mud and sand by saltmarsh plants will only occur if adequate sediment is accreting - this is influenced by extent of fronting mudflat which can dissipate wave energy and affect availability of suspended sediment. Introduced structures could interfere with these processes. |

| | | | |
|---|---|---|---|
| | | may impact on this community.<br><br>Aerial photographs are particularly valuable for this, if available. | |
| * Vegetation composition | Maintain extent and species composition of low-level marsh communities *Salicornia* and *Suaeda* (SM8 and SM9) –<br>At least 1 of the species below recorded as frequent and at least a further 2 as occasional or rare:<br>*Salicornia* agg.,<br>*Suaeda maritima,*<br>*Zostera* spp.,<br>*Ruppia* spp.,<br>*Puccinellia maritima,*<br>*Aster tripolium,*<br>*Spergularia media,*<br>*Limonium humile,*<br>*Cochlearia officinalis*<br><br>At least occasional is equivalent to greater than 21% occurrence in recorded plots.<br><br>At least frequent is equivalent to greater than 41% occurrence in recorded plot. | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| * Frequency and/or % cover of *Spartina* encroachment into the *Salicornia* communities | *Spartina* be should be recorded as absent or rare in *Salicornia* communities.<br><br>Mean cover should be less than 2 %.<br><br>No more than rare is equivalent to less than 20% occurrence in recoded plots | Visual estimate within a 10x10 m radius of monitoring plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | *Spartina* often invades these lower marsh communities and its spread needs to be controlled. |
| * Vegetation Structure | Area and thickness of algal mats should not deviate significantly from an established baseline, subject to natural change | Area and thickness of algal mat, measured during summer periodically (frequency to be determined). | Algal mats are often associated with the pioneer saltmarsh communities, and are important primary producers. However, they can be affected by changes to water quality – nutrient enrichment/eutrophication may lead to expansion and smothering of vegetation. On the other hand, pollution can cause a decline, leading to destabilisation of sediment surfaces and initiate erosion. An increase in algal cover can also indicate a decline in grazing invertebrates. |
| * % cover of bare ground | Bare areas resulting from trampling by stock or human activity (vehicle use, etc.) should account for less than 10 % of the extent of the habitat | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Lower marsh communities naturally have higher cover of bare ground than middle and upper marsh communities.<br>*Salicornia* communities on mud and sand can be severely affected by persistent heavy trampling |
| Lack of disturbance | There should be no management activities leading to erosion. | Visual estimate in 2x2m plots and across the extent | |

| | | | |
|---|---|---|---|
| | | of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | |
| Lack of pollution | No evidence of oil or other forms of pollution | Visual estimate in 2x2m plots and across the extent of the saltmarsh using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Check for direct and indirect evidence of pollution. |

Frequency -
1-20% = Rare
21-40% = Occasional
41- 60% = Frequent
> 60% = Constant

Feature 9 (SAC) - *Phoca vitulina* Harbour (Common) Seal (Status C)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| ATTRIBUTE | MEASURE | TARGETS | COMMENTS |
|---|---|---|---|
| *Population | Number of Habour Seals counted during the autumn moult period. | Maintain a population of at least 210 Harbour Seals. | The minimum population declared at the time of designation was 210. The target should be calculated as a mean maximum count over the 6 year rolling cycle. When monitoring Harbour Seal numbers, ideally 2 counts would be performed during the moult season and 2 counts would be performed during the pupping season each year to give a reasonable estimate of the population.<br><br>The population within this area could be influenced by factors including population trends within the wider Irish Sea, food availability and disturbance.<br><br>Strangford Lough data to be considered in the context of both long-term trends and existing seal numbers in Co. Down, all Ireland, UK and North East Atlantic. |
| Number of Pups | Percentage of pups in relation to number of seals counted in the moult period. | Maintain a pup percentage of at least 25%. | |
| *Haul-outs | Integrity of haul-outs. | Maintain integrity of traditional haul-outs. | Changes to traditional haul-outs should only be through natural processes e.g. coastal erosion/deposition. |
| Disturbance | Disturbance events | Contain disturbance events to a level which do not significantly impact the population. | Disturbance can result in injury to pups, separation of pups from their mothers and reduced opportunities to feed and rest. Disturbance events reported previously within this SAC include recreational activities on the shore and on water. Deliberate disturbance by boating activities has also been reported. Incidents reported to DAERA should be logged and investigated where practicable. |

# STRANGFORD LOUGH - SPECIAL PROTECTION AREA (SPA)

## UK9020111

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| **Title** | Strangford Lough SPA Conservation Objectives |
| **Prepared By** | *Ian Enlander* |
| **Approved By** | *Mark Wright* |
| **Date Effective From** | *01/04/2015* |
| **Version Number** | *V4* |
| **Next Review Date** | January 2020 |
| **Contact** | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials | Changes Marked |
|---|---|---|---|---|
| V1 | 09/03/1998 | Internal working document | IE | |
| V1.1 | August 2013 | Review | IE | |
| V2.0 | February 2015 | Draft | IE | Complete review |
| | | | | |
| | | | | |
| | | | | |

**Site relationship**

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA overlaps with Strangford Lough SAC and adjoins Outer Ards SPA and the proposed East Coast Marine SPA.

The SPA also includes the Strangford Lough Ramsar site.

See also Boundary Rationale

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site"**.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4 GENERAL INFORMATION

COUNTY: Down

G.R. J560 579 AREA: 15580 ha.

REVIEW OF ANY ADJOINING OR REMOTE MARINE AREAS WILL BE INFORMED BY JNCC REPORT ON MARINE USAGE BY TERN SPECIES FROM EXISTING SPA'S DESIGNATED FOR BREEDING TERNS.

CONSERVATION OBJECTIVES WILL BE REVISED AS THESE ISSUE PROGRESS

## 5 SUMMARY SITE DESCRIPTION

Strangford Lough is a large (150 $km^2$) marine inlet on the east coast of County Down, of which about 50 $km^2$ lies between high water mark mean tide (HWMMT) and low water

mark mean tide (LWMMT). It is connected to the open sea by the Strangford Narrows, an 8 km long channel with a minimum width of 0.5 km. The Lough is 30 km long from head to mouth and up to 8 km wide. The tidal flats of Strangford Lough form extensive areas around the northern and north-eastern shorelines. The Lough supports an impressive range of marine habitats and communities with over 2,000 recorded species. It is important for marine invertebrates, algae and saltmarsh plants, for a range of wintering and breeding waterbirds, and for marine mammals.

## 5.1 BOUNDARY RATIONALE

The landward boundary of the SPA is entirely coincident with the landward boundary of the following five Areas of Special Scientific Interest: Strangford Lough Part 1, Strangford Lough Part 2, Strangford Lough Part 3, Killard and Ballyquintin Point. Roost sites occurring outside the extent of natural or semi-natural habitat, together with those agriculturally improved areas utilised by swans and geese, have not been included but their importance must not be underestimated.

## 6 SPA SELECTION FEATURES

| Feature Type | Feature | Population (5 year average 1995-2000) except where stated | Population at time of designation (ASSI) | Population at time of designation (SPA) | SPA Review population | Common Standards Monitoring baseline (min. peak 1991/92-1997/98) |
|---|---|---|---|---|---|---|
| Species | Sandwich Tern [a] | 1405 (current population 2003) | | 593 | 593 | 346 |
| Species | Common Tern [a] | 894 (current population 2003) | | 603 | 603 | 560 |
| Species | Arctic Tern [a] | 272 (current population 2003) | | 210 | 210 | 47 |
| Species | Golden Plover [b] | 8401 | 7570 | 8277 | 6526 | 3123 |
| Species | Bar-tailed Godwit [b] | 1452 | 1587 | 1058 | 882 | 291 |
| Species | Light-bellied Brent Goose [a] | 12141 | 14400 | 10527 | 10527 | 8367 |
| Species | Shelduck [b] | 3081 | 1271 | 2358 | 3871 | 1755 |
| Species | Knot [a] | 9191 | 12294 | 8723 | 8723 | 4200 |
| Species | Redshank [a] | 3748 | 2591 | 3176 | 3176 | 2336 |
| Assemblage species | Great Crested Grebe | 102 | 35 | 94 | 90 | 40 |
| Assemblage species | Cormorant | 219 | | Not listed | 183 | 123 |
| Assemblage species | Greylag Goose | 352 | 265 | 420 | 419 | 173 |
| Assemblage species | Wigeon | 2183 | 6655 | 1975 | 1921 | 1630 |
| Assemblage species | Gadwall | 82 | 107 | 110 | 108 | 63 |
| Assemblage species | Teal | 2021 | 905 | 1662 | 1435 | 1133 |
| Assemblage species | Mallard | 1441 | 188 | 1562 | 1633 | 1238 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Assemblage species | Pintail | 264 | 196 | 214 | 209 | 159 |
| Assemblage species | Shoveler | 143 | 135 | 140 | 147 | 101 |
| Assemblage species | Goldeneye | 249 | 479 | 298 | 335 | 157 |
| Assemblage species | Red-breasted Merganser | 290 | 274 | 338 | 328 | 191 |
| Assemblage species | Coot | 414 | 898 | 510 | 392 | 222 |
| Assemblage species | Oystercatcher | 6621 | 3542 | 8248 | 5243 | 4125 |
| Assemblage species | Ringed Plover | 244 | 197 | 305 | 291 | 134 |
| Assemblage species | Grey Plover | 282 | 114 | 284 | 194 | 48 |
| Assemblage species | Lapwing | 9971 | 12644 | 9108 | 8359 | 3779 |
| Assemblage species | Dunlin | 7885 | 6220 | 6900 | 5317 | 2403 |
| Assemblage species | Curlew | 1761 | 1838 | 1980 | 1911 | 1344 |
| Assemblage species | Turnstone | 261 | 446 | 350 | 401 | 207 |
| Waterfowl Assemblage | Waterfowl Assemblage wintering population [a] (Component species: Golden Plover, Bar-tailed Godwit, Light-bellied Brent Goose, Shelduck, Knot, Redshank, Great Crested Grebe, Cormorant, Greylag Goose, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Goldeneye, Red-breasted Merganser, Coot, Oystercatcher, Ringed Plover, Grey Plover, Lapwing, Dunlin, Curlew, Turnstone) | 55097 | 72880 | 70200 | 60220 | 35667 |
| Habitat[1] | Habitat extent | | | | | |
| Habitat[1] | Roost site locations | | | | | |

Table 1. List of SPA selection features.

[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area.

**Notes on SPA features – may not be applicable to all SPAs**
The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.
[a] – species cited in current SPA citation and listed on current N2K dataform
[b] – species selected post SPA designation through UK SPA Review 2001
[c] – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

## 6.1 ADDITIONAL ASSI SELECTION FEATURES
## SEE STRANGFORD LOUGH SAC CONSERVATION OBJECTIVES

| | Feature Type (i.e. habitat, species or earth science) | Feature | Size/ extent/ pop[·] |
|---|---|---|---|

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7 FEATURE OBJECTIVES

The Conservation Objectives for this site are:

***To maintain each feature in favourable condition***.

For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8 STRANGFORD LOUGH SPA CONDITION ASSESSMENT 2014

| Species | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | CSM | 5 yr mean | % CSM | Status |
|---|---|---|---|---|---|---|---|---|---|
| Sandwich Tern (B) | 1092 | 1137 | 1528 | 1398 | 1994 | 346 | 1429.8 | **413.24** | Favourable |
| Common Tern (B) | 1104 | 962 | 832 | 650 | 1174 | 560 | 944.4 | **168.64** | Favourable |
| Arctic Tern (B) | 582 | 663 | 628 | 316 | 645 | 47 | 566.8 | **1205.96** | Favourable |
| Light-bellied Brent Goose | 21885 | 24658 | 30487 | 25605 | 26041 | 8367 | 25735.2 | **307.58** | Favourable |
| Bar-tailed Godwit | 1378 | 529 | 1305 | 969 | 1158 | 291 | 1067.8 | **366.94** | Favourable |
| Redshank | 4099 | 3632 | 4029 | 4969 | 4488 | 2336 | 4243.4 | **181.65** | Favourable |
| Shelduck | 4201 | 3346 | 6084 | 5583 | 2825 | 1755 | 4407.8 | **251.16** | Favourable |
| Knot | 6220 | 5193 | 7360 | 6376 | 7452 | 4200 | 6520.2 | **155.24** | Favourable |
| Waterbird assemblage | 77553 | 66955 | 87771 | 86292 | 79823 | 54080 | 79678.8 | **147.34** | Favourable |

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species
Fledging success sufficient to maintain or enhance population
To maintain or enhance the range of habitats utilised by the qualifying species
To ensure that the integrity of the site is maintained;
To ensure there is no significant disturbance of the species and
To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

| **Feature** | **Component Objective** |
|---|---|
| Sandwich Tern breeding population | As above |
| Sandwich Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Common Tern breeding population | As above |
| Common Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Arctic Tern breeding population | As above |
| Arctic Tern breeding population | Fledging success sufficient to maintain or enhance population |
| Golden Plover wintering population | As above |
| Bar-tailed Godwit wintering population | As above |
| Light-bellied Brent Goose wintering population | As above |
| Shelduck wintering population | As above |
| Knot wintering population | As above |
| Redshank wintering population | As above |
| Great Crested Grebe wintering population | As above |
| Cormorant wintering population | As above |
| Greylag Goose wintering population | As above |
| Wigeon wintering population | As above |
| Gadwall wintering population | As above |
| Teal wintering population | As above |
| Mallard wintering population | As above |
| Pintail wintering population | As above |
| Shoveler wintering population | As above |
| Goldeneye wintering population | As above |
| Red-breasted Merganser wintering population | As above |
| Coot wintering population | As above |
| Oystercatcher wintering population | As above |
| Ringed Plover wintering population | As above |
| Grey Plover wintering population | As above |
| Lapwing wintering population | As above |
| Dunlin wintering population | As above |
| Curlew wintering population | As above |
| Turnstone wintering population | As above |
| Waterfowl Assemblage | No significant decrease in population against national trends |
| Waterfowl Assemblage wintering population | Maintain species diversity contributing to the Waterfowl Assemblage |
| Habitat Extent | To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species (3781 ha intertidal area), (breeding areas X ha) subject to natural processes |

| | |
|---|---|
| Habitat Extent | Maintain the extent of main habitat components subject to natural processes |
| Roost sites | Maintain or enhance sites utilised as roosts |

Table 3. SPA Component objectives

Tern nesting localities current and historical (TO BE FINALISED)

| |
|---|
| |
| |

Table 5. Tern nesting locations within the SPA

## 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES SEE ALSO STRANGFORD LOUGH SAC CONSERVATION OBJECTIVES

| | **Feature** | **Component Objective** |
|---|---|---|
| Strangford Lough Part 1 (North) | Coastal saltmarsh | |
| Strangford Lough Part 1 (North) | Sealevel history | |
| Strangford Lough Part 1 (North) | Coastal processes | |
| Strangford Lough Part 1 (North) | Common Seal | |
| Strangford Lough Part 1 (North) | Intertidal mud/sand | |
| Strangford Lough Part 1 (North) | Intertidal rock | |
| Strangford Lough Part 1 (North) | Large shallow inlets and bays | |
| Strangford Lough Part 1 (North) | Higher Plant Assemblage | |
| Strangford Lough Part 2 | Coastal saltmarsh | |
| Strangford Lough Part 2 | Common Seal | |
| Strangford Lough Part 2 | Inter-tidal rock | |
| Strangford Lough Part 2 | Coastal vegetated shingle | |
| Strangford Lough Part 2 | Intertidal mud/sand | |
| Strangford Lough Part 2 | Coastal mosaic | |
| Strangford Lough Part 3 | Coastal vegetated shingle | |
| Strangford Lough Part 3 | Higher Plant Assemblage | |
| Strangford Lough Part 3 | Sealevel history | |
| Strangford Lough Part 3 | Coastal processes | |
| Strangford Lough Part 3 | Coastal mosaic | |
| Strangford Lough Part 3 | Intertidal mud/sand | |
| Strangford Lough Part 3 | Intertidal rock | |
| Strangford Lough Part 3 | Common Seal | |

Table 4. ASSI Component objectives

## 10. MANAGEMENT CONSIDERATIONS

### See also Views About Management for relevant ASSIs

***Owner/Occupier's –*** (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

The ownership details for Strangford Lough were not complete at time of designation. However, based on available information there are approximately 260 individuals/organisations who own lands within the SPA. Major landowners and leasees within the SPA, relevant to the site management, include The National Trust, Crown Estate Commissioners, RSPB, NIEA, DARD and Private Individuals. There may be conflicts of

interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

Recreational activities can cause disturbance throughout the year, particularly to feeding wintering wildfowl and breeding seabirds. The sewage treatment works at Ballyrickard, Portaferry and Killyleagh may impact upon the SPA. Development pressures are significant along the entire SPA. Other threats include coastal protection works particularly in southern region of the site.

There are a number of management agreements within the SPA.

## 11 MAIN THREATS, PRESSURES, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

***Notifiable Operations*** **-** Carrying out <u>any</u> of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Carlingford Lough SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

**<u>Generic site/feature issues</u>**

| No | Issue | Threat/comments | Local considerations | Action |
|---|---|---|---|---|
| 1 | Adjoining habitat | Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, difficult. | Not utilised by feature species but management can have a bearing on transitional habitat. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |
| 2 | Aquaculture | Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors. | Widespread especially in the Ardmillan area. Represents a change of substrate in areas important for wintering wildfowl. Spread of Sargassum is assumed to be associated with introduced shellfish stock. | Liaise with DARD Fisheries Division. Assess all license applications individually. Consider the collective impact. |
| 3 | Bait digging – commercial or ‘recreational’ | Disturbance and impact on sediment and invertebrate fauna – may be positive | Commercial cockle harvesting at the north end of the lough could | Monitor scale of activity. Consider the collective impact. |

| | | | | |
|---|---|---|---|---|
| | and shellfish gathering. | through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated. | potentially be a serious impact through direct disturbance of bird and sediment mobility. Scale of other activities unknown. | |
| 5 | Beach sand and gravel extraction. | Disturbance issue together with loss of biologically active upper sediments. Most beach systems are sedimentalogically closed thus material removed may not be renewed making the activity unsustainable. May lead to changed sediment character of beach ultimately impacting on birds. | Ongoing at Killard through exercising permitted rights. Position elsewhere is unclear. | 'Permitted' extraction of beach sand and gravel should be halted through management agreements. Ad hoc removal should be addressed in conjunction with local authorities. |
| 7 | Boating activity – recreational | Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site. | Recreational boating is an important activity on the lough. Main consideration would be impacts on nesting tern colonies. Winter disturbance probably limited. | Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. |
| 8 | Coastal protection schemes | Where there is no history of this, it impacts on natural beach systems with loss of habitat. | Widespread especially along the north and east shores. Ongoing monitoring of impacts of the Newtownards seawall construction. | Liaise with Planning Service and other parties with an involvement in coastal management. |
| 9 | Cull of fledglings/ young | Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA. | Control of large gull nests may have been undertaken at the tern colonies. To be continued as necessary. | NIEA to review all licenses. Consider the collective impact. |
| 14 | Fishing – commercial or recreational | Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass. | Commercial trawling is undertaken but unlikely to impact on inter-tidal areas. | Liaise with DARD and fishing authority as required. Liaise with angling clubs as required. |
| 15 | Habitat extent – inter-tidal | Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds. | Unlikely to be an ongoing issue. There has been encroachment onto the inter-tidal zone from coastal defence and housing developments. Future issues probably related to marina developments. Aquaculture cultivation is also a | Assess planning applications. Monitor using aerial photography. |

| | | | | |
|---|---|---|---|---|
| | | | consideration. | |
| 16 | Habitat extent – open water | Loss likely to be limited but expansion of commercial port facilities can impact on key localities. | Minimal concern. | Assess planning applications. Consider the collective impact. |
| 17 | Habitat quality – inter-tidal | Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes. | Principle issue is from alien species – especially Spartina and Sargassum. Progressive loss of inter-tidal mudflats and impact on saltmarsh habitat. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 18 | Habitat quality – open water | Alteration of habitat quality through diminution of water quality or invasive species. | Other than sewage discharges causing localised problems, not a major issue. Upgrading of STW is ongoing. | Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact. |
| 19 | Habitat extent and quality-breeding | Alteration of habitat area or quality through inappropriate use or absence of site management. | Ongoing management of the islands hosting tern colonies will be required with regard to vegetation succession. | Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management. |
| 20 | High tide roosts | An essential component of sites hosting waders. Development of adjoining ground or actual traditional roost localities may adversely impact on the sites carrying capacity. Many such sites lie without the site making effective management of developments, other than those for which planning permission is required, difficult. | Localities should be mapped. | Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact. |
| 21 | Introduced species | Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site. | Issue of Spartina and Sargassum. See 17. | Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives. |
| 23 | Predation. | Mainly of concern on bird breeding sites. | Need to assess large gull impact on tern colony. See culling issue above. | Must be dealt with as part of wider countryside management considerations. Carry out appropriate site management. |
| 24 | Recreational activities. | Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats. Breeding birds, | Areas of the lough are heavily used by walkers and dogs, horse riders, boats, windsurfers, kite surfers etc. | Liaise with local authorities and other managing parties. |

| | | | | |
|---|---|---|---|---|
| | | especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success. | Cumulative disturbance impacts (e.g. boating, wildfowlers, walkers, dogs etc) may be a significant factor for wintering bird populations impacting on both feeding (inter-tidal) and roosting birds | |
| 25 | Research activities. | Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. | Routine WEBS counts (high and low tide) and nesting tern surveys. A wide range of ongoing research is undertaken on Strangford, generally unrelated to birds. | Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held. |
| 27 | Seaweed harvesting | Either cutting living weed or gathering storm debris. The former, depending on scale and frequency, may fundamentally impact on shore communities and their ability to support waterfowl. The latter, represents a net loss to the system in terms of habitat and biomass. | Some permitted rights are exercised. Position overall is unclear. | |
| 28 | System dynamics | Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound. | Historical reclamation at the north end of the lough especially. Locally extensive aquaculture represents an alteration to substrate. New sea defences in the Newtownards area could influence mudflat behaviour. The eastern shoreline especially is heavily engineered. Mechanised cockle harvesting could also affect sediment mobility. | Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted. |
| 31 | Wildfowling | Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands. | Managed under the Strangford Wildlife Scheme through National Trust. | Liaise with relevant shooting bodies (BASC especially) to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the |

| | | | | |
|---|---|---|---|---|
| | | | | collective impact. |

Table 3. List of site/feature management issues

## 12 MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

### 12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 12.2 ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

## 13 SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering

populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

| SPECIES | SITE TREND | NI TREND | ROI TREND | UK TREND | COMMENTS |
|---|---|---|---|---|---|
| Golden Plover | Stable | - | Slight Fluctuation | - | Golden Plover is not included in the indexing processes |
| Bar-tailed Godwit | Increasing | Declining | Large Fluctuation | Stable/Declining | High Alert for NI |
| Sandwich Tern | - | - | - | - | Not known, to be compiled. |
| Common Tern | - | - | - | - | Not known, to be compiled. |
| Artic Tern | - | - | - | - | Not known, to be compiled. |
| Light-bellied Brent Goose | Stable | Fluctuating | Slight Fluctuation | - | |
| Shelduck | Increasing | Fluctuating/Increasing | Slight Fluctuation | Stable | |
| Knot | Fluctuating | Fluctuating | Large Fluctuation | Stable | High Alert for NI. Medium Alert for UK. |
| Redshank | Increasing | Fluctuating/Increasing | Stable | Stable/Fluctuating | |
| Great Crested Grebe | Stable | Increasing | Moderate Fluctuation | Increasing/Stable | |
| Cormorant | Stable | Increasing | Stable | Increasing/Stable | |
| Greylag Goose | Declining | - | Moderate Fluctuation | Increasing/Stable | |
| Wigeon | | Fluctuating | Stable | Stable | |
| Gadwall | Declining | Fluctuating | Increasing | Increasing | Medium Alert for NI. |
| Teal | Increasing | Fluctuating | Increasing | Increasing | |
| Mallard | Fluctuating | Stable | Stable | Stable | Declining since 1990 in UK. Medium Alert for UK. |
| Pintail | Fluctuating | Fluctuating | Stable | Stable | |
| Shoveler | Stable | Stable | Stable | Stable | |
| Goldeneye | Declining | Declining | Moderate Fluctuation | Fluctuating | |
| Red-breasted Merganser | Fluctuating | Stable | Stable | Fluctuating/Increasing | |
| Coot | Fluctuating | Fluctuating | Moderate Fluctuation | Stable | |
| Oystercatcher | Increasing | Increasing | Stable | Stable | |
| Ringed Plover | Declining | Fluctuating | Stable | Fluctuating | Medium Alert for UK and NI. |
| Grey Plover | Fluctuating | Stable | Moderate Fluctuation | Increasing | |
| Lapwing | Stable | - | Slight Fluctuation | - | Lapwing is not included in the indexing processes. |
| Dunlin | Fluctuating | Stable | Slight Fluctuation | Fluctuating | Medium Alert for UK. |
| Curlew | Stable | Stable | Slight Fluctuation | Stable | |
| Turnstone | Declining | Fluctuating | Increasing | Fluctuating | Medium Alert for UK and NI. |

# ANNEX I

## Feature (SPA) – Breeding Seabirds

* = primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Sandwich Tern breeding population | Apparently occupied nests | No significant decrease in Sandwich Tern breeding population against national trends | Requirement that annual data is collected, then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Sandwich Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |
| * Common Tern breeding population | Apparently occupied nests | No significant decrease in Common Tern breeding population against national trends | Requirement that annual data is collected, then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Common Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |

| | | | |
|---|---|---|---|
| * Arctic Tern breeding population | Apparently occupied nests | No significant decrease in Arctic Tern breeding population against national trends | Requirement that annual data is collected, then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Arctic Tern fledging success | Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather. | >1 fledgling per pair successfully raised per year over five year period | Appropriate level of fledgling survival to be determined |

## Non-Avian Factors – habitat

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | No significant decrease in bird populations against national trends, caused by on-site factors. | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures or breeding sites, where this would lead to different usage by notified species. |

## Feature (SPA) – Wintering Waterfowl

* = primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Golden Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Bar-tailed Godwit wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Light-bellied Brent Goose wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site |
| * Shelduck wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site |
| * Knot wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| * Redshank wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| | | | |
|---|---|---|---|
| # Great Crested Grebe wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Cormorant wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Greylag Goose wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Wigeon wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Gadwall wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Teal wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Mallard wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Pintail wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |

| | | | |
|---|---|---|---|
| # Shoveler wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Goldeneye wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Red-breasted Merganser wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Coot wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Oystercatcher wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Ringed Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Grey Plover wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Lapwing wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Dunlin wintering | Bird numbers | No significant decrease in population against | Five year running averages will be used to monitor population trends |

| | | | |
|---|---|---|---|
| population | | national trends | through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Curlew wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| # Turnstone wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| *Waterfowl assemblage wintering population | Bird numbers | No significant decrease in population against national trends | Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site. |
| Waterfowl assemblage wintering population | Species diversity | Maintain species diversity contributing to the Waterfowl Assemblage | |

## Non-Avian Factors – habitat

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| * Habitat extent | Area of natural and semi-natural habitat | Maintain the area of natural and semi-natural habitats used or potentially usable by notified species, within the SPA, subject to natural processes. | Monitor once every reporting cycle by aerial photography. |
| # Extent of different habitats | Extent of different habitats | Maintain the extent of main habitat components subject to natural processes | Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species. |
| # Roost sites | Location of roost | Maintain all locations of roost sites. | Map roost site locations. Visit once every reporting cycle to ensure sites |

| | | | |
|---|---|---|---|
| | sites | | are available. |

# ANNEX II

## Feature (ASSI) –

= primary attribute. One failure among primary attribute = unfavourable condition
# = optional factors. These can be in unfavourable condition without the site being in unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| | | | |

**THE MAIDENS SAC**
UK0030384

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *The Maidens SAC Conservation Objectives* |
| Prepared By | *L. Pothanikat* |
| Approved By | *J. Breen* |
| Date Effective From | *20/03/2017* |
| Version Number | *V2* |
| Next Review Date | *March 2023* |
| Contact | cdp@daera-ni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | January 2016 | Internal working document | LP |
| V2 | March 2017 | Complete review | LP |

# 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**REFERENCE COORDINATES:** 54.9436 -5.7519

**AREA:** 7461.36 ha

## 5. SUMMARY SITE DESCRIPTION

The Maidens proposed SAC is a group of rocky reefs detached from the coast, north east of Larne, Northern Ireland. The Maidens (or Hulin Rocks) are identified on the Admiralty Charts as a group of small rocky reefs either awash or just emergent. In only two cases are they large enough to be termed islands and to carry buildings, namely the West Maiden, which has a disused lighthouse and the East Maiden, which supports the present lighthouse (cover photograph inset). As well as the main reef plateau of East and West Maiden, there are also four other reef areas that form a part of the proposed SAC: North Klondyke Shoal which is a large submerged reef or shoaling, approximately 9 km north of West Maiden; Outer Klondyke Pinnacle, a submerged pinnacle 6km east of West Maidens; an unnamed small deep reef 8km north west of West Maiden; and Hunter Rock 5km to the south of West Maiden.

The primary reason for the proposed designation of The Maidens as an SAC is for the Annex I habitat *Reef*. Most of the reef area of The Maidens is bedrock reef with a smaller proportion of stony reef. From the multibeam echo sounding (MBES) survey analysis, combined with video tow ground truthing, some of the area has been classified as 'rock with sand infill'. It is suggested that most of this 'rock with sand infill' should be classed as Annex I *Reef* as the ground truthing suggests that the mobile sand veneer would cover and uncover that reef area.

A small area to the south of East Maiden island has been shown by diving surveys to be shallow stable sandy gravels (partially sheltered by East and West Maiden

islands) that includes maerl and other long lived species and this small area has therefore been classed as Annex I *Sandbanks slightly covered by sea water all of the time*.

Like Annex I *Sandbanks slightly covered by seawater all the time*, Annex II *Grey seals* are not the primary feature of The Maidens proposed SAC. However, these relatively remote rocks, islands and the waters surrounding them in the North Channel are important for providing haul-out sites, resting sites and foraging areas for *Grey seals*, with a maxima count of 70 adults recorded in a July 2000 survey. Recent surveys in 2009 confirmed use of the site for both pupping and breeding.

Further details of the site are available on the NIEA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-maidens).

## 5.1 BOUNDARY RATIONALE

The boundary around The Maidens site has been drawn using the guidance provided by the JNCC (2004, amended by Aish *et al*. 2008), and was defined through GIS modelling using data from the mapping survey and considered against the guidelines. The key parts of this guidance are that the boundary should be restricted to only include Annex I habitat or that which is required for the maintenance of that habitat and the boundary line defined in whole degrees and minutes and seconds where possible. NIEA have used minutes to two decimal places as an equivalence of seconds as it is more commonly displayed on vessel GPS/Chartplotter systems. The guidance also states that the boundary should include as little non-Annex I habitat as possible, and should also be sufficient to allow for elimination of potential damage to the area from activities such as trawling and dredging.

The Maidens site is made up of five blocks of Annex I Reef:

1. The Maidens plateau
2. North Klondyke shoal
3. Deep reef west of North Klondyke
4. Outer Klondyke pinnacle
5. Hunter Rock

The North Klondyke shoal and the Outer Klondyke pinnacle are separated from each other and from the main Maidens plateau by deep sediment channels, over 200m deep in places, and these deep sediment channels have been excluded from the SAC area.

The Annex I sandbank (maerl and sandy gravel) feature is small and sited on The Maidens plateau reef area south of the East Maiden lighthouse.

The site is almost entirely subtidal and is remote from the coast. At the small islands of East Maiden and West Maiden and on the emergent outlying rocks the boundary of the proposed SAC extends up to Mean High Water. These intertidal areas include haul-outs for Annex II Grey seal and Common seal and are already designated in national legislation as an Area of Special Scientific Interest (ASSI).

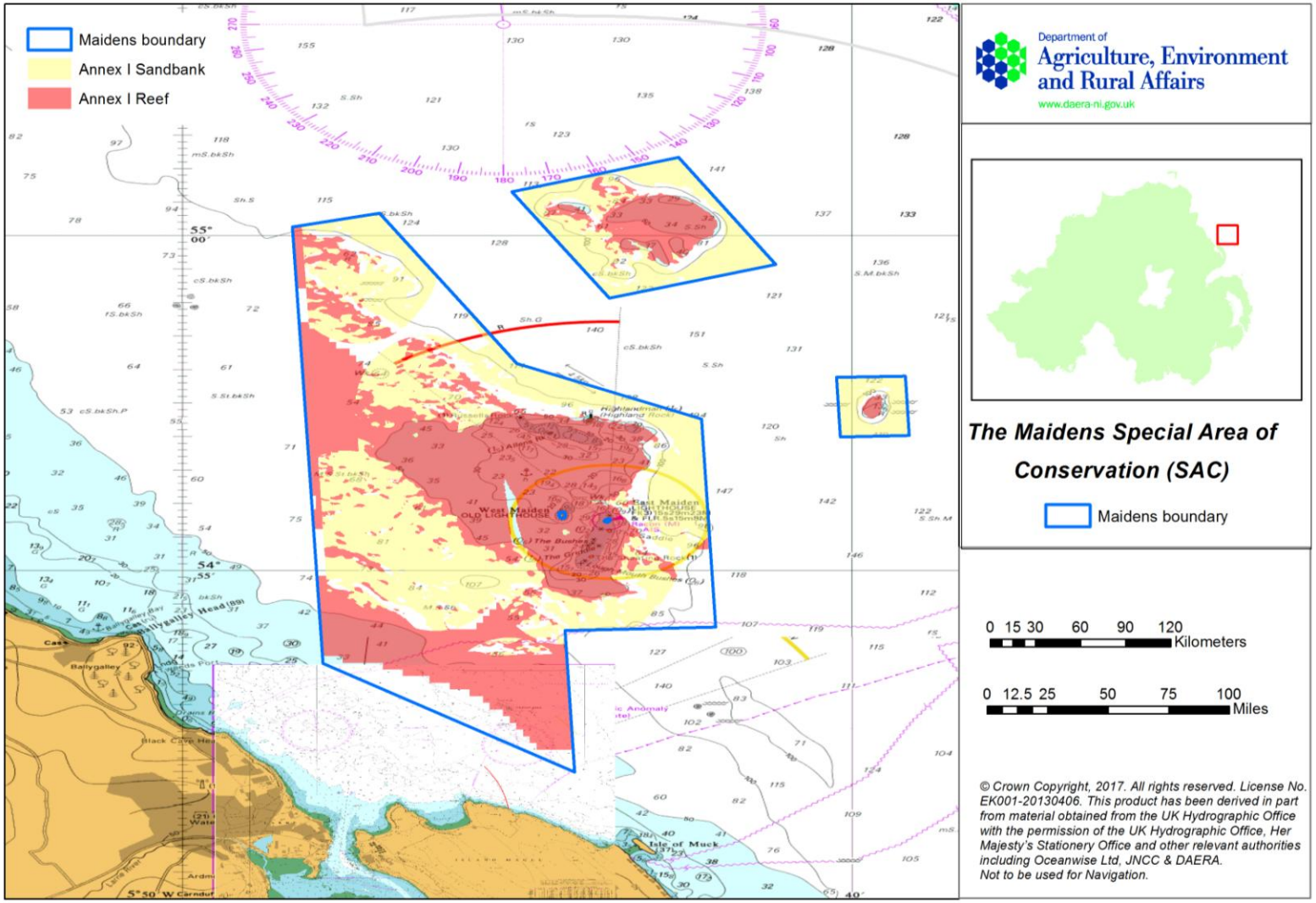



**Figure 1** The Maidens SAC with Annex I habitats Reef and Sandbanks which are slightly covered by seawater all of the time

## 6. SAC SELECTION FEATURES

| Feature type | Feature | Global Status | Size/ extent/ pop· |
|---|---|---|---|
| Habitat | Reef | A | 2550 ha |
| Habitat | Sandbanks which are slightly covered by sea water all the time | B | 200 ha |
| Species | Grey Seal *Halichoerus grypus* | C | 50 individuals |
| Species | Common Seal *Phoca vitulina* | D | |
| Species | Harbour Porpoise *Phocoena phocoena* | D | |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the threshold for SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for The Maidens SAC.

## 6.1 ASSI SELECTION FEATURES

### The Maidens ASSI

| Feature Type | Feature | Size/ extent/ pop~ |
|---|---|---|
| Habitat | Intertidal rock | XXha |
| Species | European Shag breeding population | 97 individuals |
| Species | Common Seal (*Phoca vitulina*) | 20[2] individuals |
| Species | Grey Seal (*Halichoerus grypus*) | 60[2] individuals |

*[1] Population given as number of nests/individuals recorded during the Seabird 2000 survey*
*[2] Population given as number of individuals recorded during the 2008 seal survey*

**Table 2** List of ASSI features

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

***To maintain (or restore where appropriate) the***

- **Reefs**
- **Sandbanks which are slightly covered by sea water all the time**
- **Grey Seal *Halichoerus grypus***

***to favourable condition.***
Maintain implies that the feature is in favourable condition and will, subject to natural change, remain at its condition at designation. Restore implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment can refer to natural recovery through the removal of unsustainable physical, chemical and biological pressures, as well as intervention.

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in Annex I.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objective |
|---|---|---|
| **Reefs** | A | Maintain and enhance, as appropriate the extent of the reefs |
| | | Allow the natural processes which determine |

| | | |
|---|---|---|
| | | the development, structure, function and distribution of the habitats associated with the reefs, to operate appropriately. |
| | | Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat. |
| **Sandbanks which are slightly covered by sea water all the time** | B | Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes. |
| | | Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately. |
| | | Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat. |
| **Grey Seal *Halichoerus grypus*** | C | Maintain (and if feasible enhance) population numbers and distribution of Grey Seal. |
| | | Maintain and enhance, as appropriate, physical features used by Grey Seals within the site. |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| European Shag breeding population | No significant decrease in population against national trends, caused by on-site factors |
| Intertidal Rock | Maintain and enhance species diversity within the maritime communities |
| | Maintain and enhance, as appropriate, transitions to other communities |
| Grey Seal *Halichoerus grypus* | See SAC Selection Feature Objective Requirements table |
| Common Seal *Phoca vitulina* | No significant decrease in population against national trends, caused by on-site factors |

## 10. MANAGEMENT CONSIDERATIONS

The following issues relate to many marine sites and in certain circumstances may have some bearing on the management of the Maidens SAC.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting The Maidens, or could affect it in the future. Although **Reefs, Sandbanks which are slightly covered by sea water all the time, and Grey Seal *Halichoerus grypus*** are the qualifying SAC features, factors affecting coastal ASSI features are also considered.

**NOTE - Carrying out any of the Notifiable Operations listed in The Maidens ASSI schedule could affect the site.**

*Aggregate extraction/Maerl extraction*
Extraction of aggregates or extraction of maerl, either within or adjacent to the SAC, have the potential to cause direct loss or deterioration of qualifying habitats and communities; including the deterioration of qualifying habitats and communities by smothering and increased turbidity from re-suspended material.

*Agriculture and Forestry Operations*
Diffuse run-off from agricultural practices has the potential to cause deterioration of qualifying habitats and communities, primarily through the alteration of water quality by discharge of organic or inorganic pollutants. Changes in agricultural (including grazing regimes) or forestry practices or changes of land use have the potential to cause deterioration of qualifying habitats and communities through changes in the nature and loading of sediments in rivers that discharge to coastal areas.

*Aquaculture – Finfish farming*
Finfish farming has the potential to cause deterioration of qualifying habitats and communities through changes in water quality, smothering from waste material and physical disturbance from mooring systems. There is potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals which are already widely distributed in the UK. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

*Aquaculture – Shellfish farming*
Shellfish farming has the potential to cause deterioration of the qualifying habitats and communities through physical damage (e.g. installation of mooring blocks and continued scouring by riser chains) and changes in community structure caused by smothering from pseudo-faeces (undigested waste products) and debris (including dead shells) falling from the farm. There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through importation or translocation of

shellfish stocks. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

*Coastal and Marine Development and Infrastructure Maintenance*
The construction and maintenance of structures, both within and adjacent to the sea, have the potential to cause direct loss or deterioration of qualifying habitats and communities. An example of this may be coastal defence structures that may change local patterns of sediment suspension or deposition. Other examples include: renewable and other energy installations (including offshore wind, tide and wave energy and oil and gas installations); pipelines and cables; and marina and harbour developments and maintenance including the dredging of harbours, marinas and navigation channels. In many of these cases disturbance of the seabed may cause increased turbidity and smothering in adjacent areas as well as the direct impact in the area of operation.

*Discharge of Commercial effluent or sewage*
Commercial effluent has the potential to cause deterioration of qualifying habitats and communities, through pollution or nutrient enrichment, which may cause subsequent changes in community structure. Contaminants may enter species food chains, including those that are persistent and those that tend to bioaccumulate and biomagnify. Lipophyllic contaminants such as organohalides are of particular concern as they tend to accumulate within fatty tissue and are remobilised during lactation in seals. Contamination of female seals by hydrocarbon residues may be detrimental to suckling pups.

*Disposal of dredge spoil*
The disposal of either capital or maintenance dredge spoil, either within or adjacent to the SAC, has the potential to cause deterioration of qualifying habitats and communities, through smothering, increased turbidity, or re-suspension of pollutants.

*Commercial Fishing – Mobile gear (dredging and bottom trawling)*
Benthic dredging and bottom trawling have the potential to cause deterioration and damage to qualifying habitats and communities (particularly maerl, Hall-Spencer, 2000) through direct contact with the dredge gear, and sedimentation when dredging occurs close to the qualifying interest. Loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities. The Department is currently engaging with the fishing community to gather detailed evidence on the locations of specific gear usage with a view to producing a fisheries management plan for the SAC. This includes a full analysis of all known fishing activities gathered over recent years.

*Commercial Fishing – Pelagic mid-water trawling*
Pelagic mid-water trawling has minimal potential to cause deterioration of qualifying habitats and communities through direct contact, as the trawl gear is

mostly well above the seabed (except occasionally for vessel turning in shallow water). However loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities.

*Commercial Fishing – Static gear (creel/pot fishing)*
The use of creels and / or pots in a localised area has the potential to cause deterioration of qualifying habitats and communities through direct contact, particularly during their deployment and / or recovery. Loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities. Seals can be accidentally captured and drowned in static fishing gear and persistent synthetic fishing gear debris, in particular, pups.

*Marine Traffic – Boat maintenance and antifoulant use*
Most antifoulant products are designed to kill or discourage naturally occurring organisms and, as such, cause damage to the water environment if used carelessly. Under such circumstances use of antifoulant has the potential to cause deterioration of qualifying habitats and communities within this site.

*Marine Traffic – Commercial and recreational vessels*
The Maidens SAC is within the confines of the North Channel, a busy shipping route. The ferry route between Larne and Lough Ryan passes through The Maidens SAC boundary. The Port of Larne has a Port Marine Safety Code and the following documents should be reviewed: 'Safety Management System' and 'Safety Policy Objectives'. The pumping of bilges, discharge of ballast water, accidental grounding, or accidental oil (or other chemical) spillage from commercial vessels could therefore all occur close to the SAC. Such incidents have the potential to cause deterioration of qualifying habitats and communities through direct or indirect impacts. Emergency and oil spillage contingency plans should take into account specific qualifying interests and recognise the importance of marine SACs should such incidents occur. Smaller recreational and fishing vessels also have the potential to cause deterioration of qualifying habitats and communities through fuel spillage and grounding.

There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through bilge or ballast water, sea chests, and bio-fouling on hulls (identified as a particular risk on vessels for sale that are in the water for some time before being moved to a new location). Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Disturbance at seal haul-outs may disrupt the mother-pup bond and cause separation. Disturbance during the breeding season may lead to modifications of pupping activity as seen through avoidance of sites easily accessible by boats or through habituation to human presence.

*Marine Traffic – Boat anchorages and moorings*

Anchors and moorings have the potential to cause deterioration of qualifying habitats and communities through the direct impact of the anchor/mooring and the riser chains.

*Marine Renewables*

The Strategic Environmental Assessment (SEA) of Offshore Wind and Marine Renewable Energy by the Department of Energy, Trade and Investment (DETI, 2009) assessed the potential for commercial and test/demonstration sites in NI waters. This assessment identified potential impacts of such developments and related mitigating actions to be considered at the project developments stage. A possible commercial scale Tidal Resource Zone was identified off the North Coast within which the Crown Estate as managers of the seabed has offered development rights to two consortia, Tidal Ventures Ltd and Fair Head Tidal. However there are no tidal energy developments in this area at present and the Department is engaging with the developers in considering their respective marine licence applications.

The UK's Department of Business, Energy and Industrial Strategy (UK BEIS) administers marine environmental regulations associated with oil and gas exploration and production and the decommissioning of marine installations, wells, pipelines and associated infrastructure in the UK marine area (excluding internal waters). At present there is no oil or gas exploration licence for the 5 offshore blocks in the Antrim Coast (the Maidens SAC lies approximately 22km from this area).

The development of marine renewables has the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these qualifying interests and their associated species. Furthermore, deterioration of qualifying habitats and disturbance of species may occur through the use of pile driving or powerful sonar required for surveys or construction phases as these may directly harm marine mammals or act as a barrier to marine mammals using the area.

*Scientific research*

Research activities have the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these qualifying interests and their associated species. In addition, disturbance of seals may occur through various research activities, including the use of remotely operated technology (e.g. drones) especially when hauled out. These activities should be communicated to the Department for specific advice about the potential of impact and subsequent mitigation.

*Geological surveys and military exercises*

Geological and other surveys and military exercises all have the potential to cause deterioration of qualifying habitats and species, particularly through the use of

seismic surveys or powerful sonar that may harm cetaceans or act as a barrier to cetaceans using the area. These activities should be communicated to the Dept for specific advice for the potential of impact and subsequent mitigation.

*Wildlife watching trips*

Wildlife watching trips (boat and land based) have the potential to cause disturbance to species if operators are not appropriately trained in how to approach species while minimising potential disturbance. In addition, damage to sensitive habitats may occur through lack of knowledge of their location. Various wildlife training courses are available which teach best practice when dealing with wildlife.

*Climate Change*

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events. The Northern Ireland Climate Change Adaptation Programme was published in January 2014. This contains the Northern Ireland Executive's response to the risks and opportunities identified in the Climate Change Risk Assessment for Northern Ireland (published January 2012) as part of the overall UK Climate Change Risk Assessment. The Adaptation Programme provides the strategic objectives in relation to adaptation to climate change, the proposals and policies by which each department will meet these objectives and the timescales associated with the proposals and policies identified in the period up to 2019.

## 12. MONITORING

The SACs are surveyed using two forms of monitoring:

Site Integrity Monitoring (SIM) is carried out to ensure compliance with the ASSI/ SAC conservation objectives. The most likely processes of change will either be picked up by SIM (e.g. fishing, disturbance etc.) or will be comparatively slow (e.g. gradual degradation of the habitat). Although the Maidens are remote, SIM is combined with regular seal counts as well as through the active marine ranger programme.

Site Condition Assessment of the designated features is carried out on a rolling 6 year basis to pick up subtle changes in the condition of the feature.

Site condition assessments include a variety of techniques such as diving, remote cameras, sediment sampling and acoustic seabed mapping. Marine mammal monitoring programmes also contribute.

## 12.1 MONITORING SUMMARY

### 1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*

This SIM should be carried out at least once a year.

### *2. Monitor the condition of the site (Condition Assessment)*

Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. Refer to Annex I.

The favourable condition table provided in Annex I is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES


Ackers, R.G., Moss, D. Picton, B.E. Stone, S.M.K., Morrow, C.C. 2007. *Sponges of the British Isles (Sponge V), 1992 edition reset with modifications.* Marine Conservation Society/Ulster Museum, Belfast.

Agri-Food and Biosciences Institute, AFBI (2009) Position statement on sharks, skates and rays in Northern Ireland waters. Northern Ireland Environment Agency Research and Development Series No. 09/03

Aish, A., Johnston, C., and Turnbull, C. (2008). Selection criteria and guiding principles for selection of Special Areas of Conservation (SACs) for marine Annex 1 habitats and Annex II species in UK waters. Joint Nature Conservation Committee (JNCC MN2KPG17_SAcCRIT)

CEC, Commission of the European Community. (1995). Natura 2000 Standard Data Form: Explanatory notes. Brussels: European Commission DG Environment.

Clements, A., Plets, R., and Quinn, R. (2010). Habitat Mapping of the Skerries/Causeway Proposed Marine SAC.

Connor, D., Allen, J.H., Golding, N., Howell, K.L., Lieberknecht, L.M., Northern, K.O., and Reker, J.B. 2004. The Marine Habitat Classification for Britain and Ireland Version 04.05 JNCC, Peterborough. ISBN 1 861 07561 8 (internet version) www.jncc.gov.uk/MarineHabitatClassification

Connnor, D.W., Gilliad, P.M. Golding, N. Robinson, P., Todd, D. & Verling, E, (2006). UKSeaMap: the mapping of seabed and water column features of UK Seas.

Duck, C (2006) Results of the thermal image survey of seals around the coast of Northern Ireland. Northern Ireland Environment Agency Research and Development series No 06/09.

Erwin, D.G., PICTON, B., Connor, D.W., Howson, C.M., Gilleece, P. and Bogues, M.J.(1986). The Northern Ireland Sublittoral Survey. Report for the Department of the Environment Northern Ireland, Ulster Museum, Belfast

European Union DG Environment (2007a). Interpretation manual of European habitats (EUR27)

Folk, R.L. (1954). The distinction between grain size and mineral composition in sedimentary rock nomenclature. *Journal of Geology* 62(4):344-359

Goodwin, C.E., Picton, B.E., Breen, J. & Edwards, H. 2008. Sublittoral Survey Northern Ireland: A review of the status of Northern Ireland Priority Species of marine invertebrates. National Museums Northern Ireland/Northern Ireland Environment Agency.

Goodwin, C.E. & Picton, B.E. 2009. Demosponges of the genus *Hymedesmia* (Poecilosclerida: Hymedesmiidae) from Rathlin Island, Northern Ireland with a description of six new species. Zoological Journal of the Linnean Society 156:896-912.

Goodwin, C., Picton, B., Breen, J., and Edwards, H., 2010. The Maidens, Report from the Sublittoral Survey Northern Ireland (May 2006-May 2009).

Hiscock, K. ed. 1996. Marine Nature Conservation Review: rationale and methods. Peterborough,Joint Nature Conservation Committee. (Coasts and seas of the United Kingdom. MNCR series.)

JNCC (2004). UK guidance on defining boundaries for marine SACs for Annex I habitat sites fully detached from the coast [online]. http://www.jncc.gov.uk/pdf/SACHabBoundaryGuidanceFinal.pdf

King, G.L. (2006). Review of marine turtle records in Northern Ireland. Northern Ireland Environment Agency, Research and Development Series. No 07/02.

Moore, J. 2002. An atlas of marine biodiversity action plan species and habitats and Species of Conservation Concern in Wales. 2nd Edition. CCW Contract Science Report No. 509. A report for the Countryside Council of Wales. Coastal Assessment Liason and Monitoring: Pembrokeshire.

Morton, O.M. (1994). Marine Algae of Northern Ireland. Ulster Museum, Belfast.

Picton, B. and Goodwin, C.E. (2007a). Sponge Biodiversity of Rathlin Island. Journal of the Marine Biological Association of the United Kingdom, 87:1441-1458.

Picton, B. and Goodwin, C. E. (2007b). Sponge Biodiversity of Rathlin Island. Project report for EU BSP and EHS. Ulster Museum, Department of Zoology.

Strong, J.A., 2010. Bathymetric and Habitat Maps of the Maidens/Klondyke Rocky Reef Complex (Proposed Special Area of Conservation), Northern Ireland. Agri-Food and Bioscience Institute, Northern Ireland.

Wilson, S (2009) Marine Mammal Activity in the coastal area between Larne Lough, Islandmagee and the Maidens Rocks in relation to the proposed brine outfall works for the gas storage project.

## ANNEX I

The marine Annex I habitats are very broadly defined habitats that are often represented by large and complex sites. To effectively describe, monitor and manage such complex features, it has been necessary to divide some of them into smaller units called *sub-features*. Sub-features are distinctive biological communities (e.g. eelgrass beds, maerl beds, horse-mussel reefs), or particular structural or geographical elements of the feature. Due to the broad nature of marine Annex I features, it has often proved helpful, both in the development of conservation objectives, and of monitoring programs, to separate the feature into a number of constituent sub-features, and then to identify attributes and targets for the sub-features. The use of sub-features has been found to be particularly helpful for those marine Annex I features that represent whole physiographic units and permits a level of flexibility in the application of the UK's Common Standards Monitoring which has been found necessary when applying the standards at the site level.

### Feature 1 (SAC) – Reef (status A)

*=primary attribute. One failure among primary attribute = unfavourable condition

| Feature | Sub-feature | Attribute | Measure | Targets | Comments |
|---|---|---|---|---|---|
| Reef | Subtidal Rock and Boulder Communities<br><br>Subtidal Rocky Reef Communities<br><br>Intertidal Rock and Boulder Communities | * Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-feature. | Presence of the selected biotopes at selected sites measured once sure the reporting cycle. | Results should not deviate significantly from the established baseline, subject to natural change. | Baseline survey conducted by the Department with NMNI 2006-2009 and as a contract with AFBI (Strong, 2010). Changes in extent and distribution may indicate long term changes in the physical conditions at the site. |
| | | * Species composition of selected biotopes at | Species composition of the selected biotopes measured once during the | Composite species of selected biotopes | Species composition will be used to determine the biotope classification. A list of selected indicator species identified by field surveys will be |

| | | | | | |
|---|---|---|---|---|---|
| | | monitoring sites. | reporting cycle. | should not deviate significantly from the established baseline, subject to natural change. | utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites.<br><br>The species composition of some biotopes may provide further information on changes/trends in these communities. |

Feature 2 (SAC) – Sandbanks which are slightly covered by seawater all of the time (status B)
*=primary attribute. One failure among primary attribute = unfavourable condition

| Feature | Sub-feature | Attribute | Measure | Targets | Comments |
|---|---|---|---|---|---|
| Subtidal sandbanks | | *Extent | Area (ha) of the subtidal sandbanks to be measured periodically (frequency to be determined). | Ensure that quality and extent of sandbank are not threatened by aggregate removal. | Currently there is no licensed aggregate removal activity within or near to this SAC. |
| | | *Sediment character | Particle size analysis (PSA). Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Sediment character to be measured once during the reporting cycle. | Average PSA parameters should not deviate significantly from an established baseline subject to natural change. | Sediment character defined by PSA is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it. This is currently addressed through WFD monitoring programme. |
| | | *Topography | Depth distribution of sandbanks from selected sites, measured periodically (frequency to | Depth distribution should not deviate significantly from an established | Depth and distribution of the sandbank reflects the energy conditions and stability of the sediment, which is key to the |

| | | | | | |
|---|---|---|---|---|---|
| | | | be determined). | baseline, subject to natural change. | structure of the feature. Depth of the feature is a major influence on the distribution of communities throughout. The baseline for this feature was delivered through work carried out by AFBI (2010) on to provide habitat maps. |
| | Subtidal Sand and Gravel Communities<br><br>Subtidal Fine Sand and Mud Communities | *Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature. | Presence of the selected biotopes as identified by the NI Sublittoral survey at selected sites measured once during the reporting cycle | Results should not deviate significantly from the established baseline, subject to natural change. | Baseline survey required. Changes in extent and distribution may indicate long term changes in the physical conditions at the site |
| | | *Species composition of selected biotopes at monitoring sites. | Species composition of the selected biotopes as identified by the NI Sublittoral survey measured once during the reporting cycle. | Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change. | Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. |

Feature 3 (SAC) – Grey Seal *Halichoerus grypus* (status C)

*=primary attribute. One failure among primary attribute = unfavourable condition

| Attribute | Measure | Targets | Comments |
|---|---|---|---|
| *Number of Adults | Maintain and enhance the population as appropriate. | The number of adults to be at least 50 individuals. | Data generated by ongoing DAERA Marine and Fisheries Division survey. |
| *Distribution of adults | Maintain the range and distribution of grey seals. | | Ensure individuals operations or activities (in combination with other operations or activities) do not cause a change in range, distribution or population structure which would result in unfavourable conditions for the future conservation interests of this species. |
| *Habitat availability | Number of areas used for moulting, haul-out and breeding. | Ensure that there is a sufficiently large habitat (haul-outs) of suitable quality available to support the long term survival of this species. | |

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.*

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

**1. Name and address of the compiler of this form:**

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number


**Joint Nature Conservation Committee**
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk


**2. Date this sheet was completed/updated:**

Designated: 24 March 2002 / update 12 May 2005

**3. Country:**

**UK (Northern Ireland)**

**4. Name of the Ramsar site:**

**Turmennan Lough**

**5. Map of site included:**

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps.

**a) hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐

**b) digital (electronic) format** (optional): Yes

**6. Geographical coordinates** (latitude/longitude)**:**

54 22 46 N 05 42 51 W

**7. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Turmennan is situated some 5 km north of Downpatrick within the drumlin belt of County Down, in the south-east of Northern Ireland.

**Administrative region:** Down

**8. Elevation** (average and/or max. & min.) (metres)**:** **9. Area** (hectares)**:** 14.83

Min. 0
Max. 0
Mean 0

**10. Overview:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The valley mire, transitional between fen and bog, is characterised by a broad range of surface conditions, ranging from slightly base-rich to markedly acidic, influenced by the position of the

groundwater table in the surface peat layer, which is partly related to the extent of past peat-cutting over the site. The main plant community of the mire surface is an extensive mixed sedge sward dominated by bottle sedge *Carex rostrata*, growing over a carpet of brown mosses that are replaced by *Sphagnum* bog-mosses where the water is more acidic. The central area at Turmennan consists of swamp dominated by common reed *Phragmites australis*, with other associated fen species. Other, more localised fen communities within the area include a mixed sedge sward dominated by lesser tussock-sedge *Carex diandra*, floating mats of bogbean *Menyanthes trifoliata* and 'soakways' with the notable marsh St John's-wort *Hypericum elodes* prominent. Additional diversity is provided by a range of other habitats, including wet heath associated with areas of more acidic peat, scattered pockets of species-rich wet grassland, areas of species-rich dry grassland on thinner soils over rocky outcrops and small pockets of woodland and scrub. Turmennan contains a number of rare plants, including floating club-rush *Eleogiton fluitans* and least bur-reed *Sparganium natans*. The diversity of wetland habitats also supports a rich invertebrate community that includes notable water beetles and several locally distributed species of Odonata. Thirty-nine species of aquatic Coleoptera have been recorded, including many of the uncommon and rare fen species characteristic of the best fen sites in Down and Armagh.

## 11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**1**

## 12. Justification for the application of each Criterion listed in 11. above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar Criterion 1

Turmennan is a lowland valley mire with a range of edaphic conditions.

## 13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Atlantic

**b) biogeographic regionalisation scheme** (include reference citation):

Council Directive 92/43/EEC

## 14. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

| | |
|---|---|
| Soil & geology | acidic, mud, nutrient-rich, peat, sandstone, slate/shale |
| Geomorphology and landscape | lowland, valley |
| Nutrient status | mesotrophic |
| pH | acidic, circumneutral |
| Salinity | fresh |
| Soil | mainly organic |
| Water permanence | usually permanent |

| | |
|---|---|
| Summary of main climatic features | Annual averages (Aldergrove, 1971–2000)<br>(www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html)<br>Max. daily temperature: 12.5° C<br>Min. daily temperature: 5.8° C<br>Days of air frost: 39.1<br>Rainfall: 862.4 mm<br>Hrs. of sunshine: 1313.7 |

**General description of the Physical Features:**

No information available

## 15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

No information available

## 16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Flood water storage / desynchronisation of flood peaks

## 17. Wetland types

Inland wetland

| Code | Name | % Area |
|---|---|---|
| Ts | Freshwater marshes / pools: seasonal / intermittent | 10 |
| U | Peatlands (including peat bogs swamps, fens) | 50 |
| W | Shrub-dominated wetlands | 10 |
| 4 | Seasonally flooded agricultural land | 15 |
| Other | Other | 10 |
| Xf | Freshwater, tree-dominated wetlands | 5 |

## 18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The main plant community of the mire surface is formed by an extensive mixed sedge sward dominated by bottle sedge *Carex rostrata* and includes species such as common sedge *Carex nigra*, star sedge *Carex echinata*, ragged-robin *Lychnis flos-cuculi*, marsh pennywort *Hydrocotyle vulgaris* and water horsetail *Equisetum fluviatile*. These species grow over a carpet of brown mosses dominated by *Calliergon cuspidatum* and *C. cordifolium*. Where the water is more acidic, *Sphagnum* bog-mosses such as *S. squarrosum* and *S. subnitens* replace the brown mosses. The central area at Turmennan consists of swamp dominated by common reed *Phragmites australis*, with associated plants such as water mint *Mentha aquatica*, common marsh-bedstraw *Galium palustre*, marsh cinquefoil *Potentilla palustris*, lesser spearwort *Ranunculus flammula*, meadowsweet *Filipendula ulmaria*, bulrush *Typha latifolia* and creeping bent *Agrostis stolonifera*. Other, more localised fen communities within the area include a mixed sedge sward dominated by lesser tussock-sedge *Carex diandra*, floating mats of bogbean *Menyanthes trifoliata* and ‘soakways’ with the notable marsh St John's-wort *Hypericum elodes* prominent. Turmennan also includes a range of other habitats providing additional diversity. Wet heath is associated with areas of more acidic peat and is dominated by cross-leaved Heath *Erica tetralix* and heather *Calluna vulgaris*, with purple moor-grass *Molinia caerulea*, common cottongrass *Eriophorum angustifolium* and bog asphodel *Narthecium ossifragum* also present. Scattered pockets of species-rich wet grassland are dominated by sharp-flowered rush *Juncus acutiflorus* and soft-rush *Juncus effusus*. On thinner soils over rocky outcrops, there are areas of species-rich dry grassland, dominated by grasses with frequent herbs including cat’s-ear *Hypochaeris radicata*, common bird’s-

foot trefoil *Lotus corniculatus* and lesser stitchwort *Stellaria graminea*, growing over a moss layer dominated by *Rhytidiadelphus squarrosus*. Small pockets of woodland and scrub are also present. Turmennan contains a number of rare plants, including floating club-rush *Eleogiton fluitans* and least bur-reed *Sparganium natans*. The diversity of wetland habitats supports a rich invertebrate community, including 39 aquatic Coleoptera species, many of which are uncommon and rare fen species that have been found to be characteristic of the best fen sites in Down and Armagh. Turmennan also supports a number of locally distributed species of Odonata, characterised by the four-spotted chaser *Libellula quadrimaculata*, large red damselfly *Pyrrhosoma nymphula*, azure damselfly *Coenagrion puella* and variable damselfly *C. pulchellum*. Notable water beetles include *Acilius canaliculatus*, *Gyrinus natator*, *Rhantus suturellus*, *R. grapii*, *Hydaticus seminiger* and *Cymbiodyta marginellus*. An uncommon species of pond-skater, *Gerris lateralis* has also been recorded.

### 19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important habitats occurring at this site
Transition mire

Nationally important species occurring at this site
Higher Plants
Floating Club-rush *Eleogiton fluitans*
Least Bur-reed *Sparganium natans*

### 20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Species Information**

Assemblages of national importance
Aquatic Coleoptera

### 21. Social and cultural values:

e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Environmental education/ interpretation
Livestock grazing

### 22. Land tenure/ownership:

| Ownership category | On-site | Off-site |
|---|---|---|
| Private | + | + |
| Public/communal | + | + |

### 23. Current land (including water) use:

| Activity | On-site | Off-site |
|---|---|---|
| Livestock watering hole/pond | + | |
| Grazing (unspecified) | + | + |

### 24. Factors adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

*Explanation of reporting category:*

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

*NA = Not Applicable because no factors have been reported.*

| Adverse Factor Category | Reporting Category | Description of the problem (Newly reported Factors only) | On-Site | Off-Site | Major Impact? |
|---|---|---|---|---|---|
| No factors reported | NA | | | | |
| | | | | | |

| |
|---|
| For category 2 factors only.<br>What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors? |
| Is the site subject to adverse ecological change? NO |

### 25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

| Conservation measure | On-site | Off-site |
|---|---|---|
| Site/ Area of Special Scientific Interest (SSSI/ASSI) | + | |
| National Nature Reserve (NNR) | + | |
| Management agreement | + | |
| Site management statement/plan implemented | + | |
| Special Area of Conservation (SAC) | + | |

### 26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

### 27. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Monitoring by EHS staff.

### 28. Current conservation education:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Site is a National Nature Reserve with ad hoc usage for conservation education

### 29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Site not utilised for recreation or tourism activities

### 30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

### 31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Department of the Environment (Northern Ireland), Environment and Heritage Service, Commonwealth House, Castle Street, Belfast, Northern Ireland, BT1 1GU

### 32. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **13** above), list full reference citation for the scheme.

### Site-relevant references

McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection

Nelson, B (1998) *A survey of the invertebrates of fens in Counties Armagh and Down.* (Contractor: Ulster Museum, Department of Zoology). Report to Environment and Heritage Service, Belfast. www.ehsni.gov.uk/pubs/publications/Fenrpt.doc

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone**: +41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

**TURMENNAN SAC**
UK0030291

# CONSERVATION OBJECTIVES

Document Details

| | |
|---|---|
| Title | *Turmennan SAC Conservation Objectives* |
| Prepared By | *R. McKeown* |
| Approved By | *P. Corbett* |
| Date Effective From | *01/04/2015* |
| Version Number | *V2* |
| Next Review Date | Nov 2020 |
| Contact | cdp@doeni.gov.uk |

Revision History:

| Version | Date | Summary of Changes | Initials |
|---|---|---|---|
| V1 | June 2013 | Internal working document | PC |
| V2 | January 2015 | Complete review | RMK |
| | | | |
| | | | |
| | | | |

# 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

[1] 92/43/EEC and 2009/147/EC (codified version of Directive79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

## 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

## 4. SITE INFORMATION

**COUNTY:** DOWN

**GRID REFERENCE:** IJ 485503

**AREA:** 14.8 ha

## 5. SUMMARY SITE DESCRIPTION

This small valley mire, being in a transitional stage between fen and bog, shows a broad range of surface conditions, from slightly base-rich to markedly acidic. These zones reflect the position of the ground water table in the surface peat layer. The main plant community of the mire surface is formed by an extensive species rich mixed sedge sward over a carpet of brown mosses. In more acidic places a carpet of *Sphagnum* mosses is found, whilst the central area of the site is dominated by Common Reed swamp. Other fen communities are more localised.

A number of notable plants such as *Anagallis tenella*, *Hypericum elodes*, *Carex diandra* and *Eleogiton fluitans* can be found. The site also supports a range of other habitats, such as small open pools, species rich wet and dry grassland, small pockets of woodland/scrub and wet heath, providing additional diversity. A rich invertebrate community with several uncommon and rare species is present. The land surrounding the mire is generally unimproved rough grazing with rocky outcrops.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website (www.doeni.gov.uk/niea).

## 5.1 BOUNDARY RATIONALE

Wherever possible a physical boundary, often a stone wall, has been used to define the site boundary on the ground. The boundary has been drawn to include all areas of good quality fen and associated semi-natural habitats, including scrub, woodland and pockets of species-rich grassland. Turmennan Fen occupies a narrow valley, which is surrounded by rough pasture with rocky knolls. Grass-dominated, species-poor areas with dense Gorse and pockets of Bracken were excluded from the site where practical. It should be noted however, that some areas of less interesting grassland have been included within the ASSI where it links to an adjacent area of fen, or where there is no suitable boundary on the ground to exclude it.

## 6. SAC SELECTION FEATURES

| Feature type | SAC Feature | Global Status | Size/ extent/ pop~ |
|---|---|---|---|
| Habitat | Transition mires and quaking bogs | B | 4.6 ha |

*Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.*

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the thresholdfor SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary

interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Turmennan SAC.

## 6.1 ASSI SELECTION FEATURES

### Turmennan ASSI

| Feature Type | Feature | Size/ extent/ pop~ |
|---|---|---|
| **Habitat** | Fens | **4.6 ha** |
| **Species** | Invertebrate Assemblage | |

*Table 2. List of ASSI features.*

## 7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

***To maintain (or restore where appropriate) the Transition mires and quaking bogs to favourable condition.***

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

| Feature | Global Status | Component Objective |
|---|---|---|
| Transition mires and quaking bog | B | Maintain the extent and diversity of existing wetland community types. |
| | | Maintain and enhance wetland species diversity within each community and the site as a whole. |
| | | Maintain the populations of rare plant species. |
| | | Maintain and enhance the diversity and quality of associated other habitats. |
| | | Maintain the diversity of invertebrate communities. |
| | | Seek nature conservation management over suitable areas immediately outside the ASSI boundary, where habitats still retain some semi-natural interest, particularly where good quality lowland heath and species-rich grassland could be re-instated. |

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

| Feature | Component Objective |
|---|---|
| Fens | See SAC Selection Feature Objective Requirements table. |
| Invertebrate Assemblage | To be finalised |

## 10. MANAGEMENT CONSIDERATIONS

### Ownership

The site is mainly owned by NIEA with four other private owners identified.

### Adjoining Land Use

The land surrounding the mire is greatly modified by grazing (livestock and rabbits) and largely grass-dominated. In some parts scrubby woodland predominates, in others, dense Gorse scrub and a mosaic of bracken/grassland can be found. The fen is generally fenced from the semi-improved surrounding pasture within the site. Main adjacent agricultural uses outside the ASSI boundary are silage and grazing.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Turmennan, or could affect it in the future. Although Transition mires and quaking bog is the qualifying SAC feature, factors affecting ASSI features are also considered.

**NOTE - Carrying out any of the Notifiable Operations listed in the ASSI schedule could affect the site.**

*Drainage*

The fen remains because inherent hydrological characteristics have precluded drainage in past processes of agricultural improvement. However, reclamation for agriculture remains an incentive for drainage.

**ACTION: Ensure no drainage takes place through liaison and management agreements with landowners.**

*Application of fertiliser/manure/slurry*

Whilst some fen areas are managed for grazing, at least in part, eutrophication derived from drift and run-off from adjacent agricultural areas remains probably more of a threat than direct application on site. Thus intensification of adjacent agriculture, particularly without nutrient budgeting and strict adherence to good practices would compromise the site. Much of the area immediately outside the ASSI is already in intensive agriculture. An abundance of Reedmace *Typha sp.* and grasses at the western edge of the fen suggests that the small stream entering the fen system here, is a run-off enriched input.

**ACTION: Promote the adoption of nutrient management plans and good practice in slurry disposal.**

*Grazing*

Grazing levels are important on these sites. Overgrazing/poaching could damage the site, but the exclusion of grazing from the more nutrient-rich fen areas is also likely to result in the development of a rank and less diverse stand. The main fen area is largely fenced off and presently ungrazed. The ground appears to be too wet to be suitable for stock access, but within the rough pasture along the north-western edge of the fen, cattle grazing would need to be greatly increased to control the abundant re-growth of Gorse. This has been cut over the last few years to encourage the development of species-rich grassland. Introduction of grazing may also be beneficial in the small area of fen in the south-east of the ASSI, which is in private ownership.

**ACTION: Through liaison with landowners and monitoring, ensure sustainable grazing levels for the conservation interest features.**

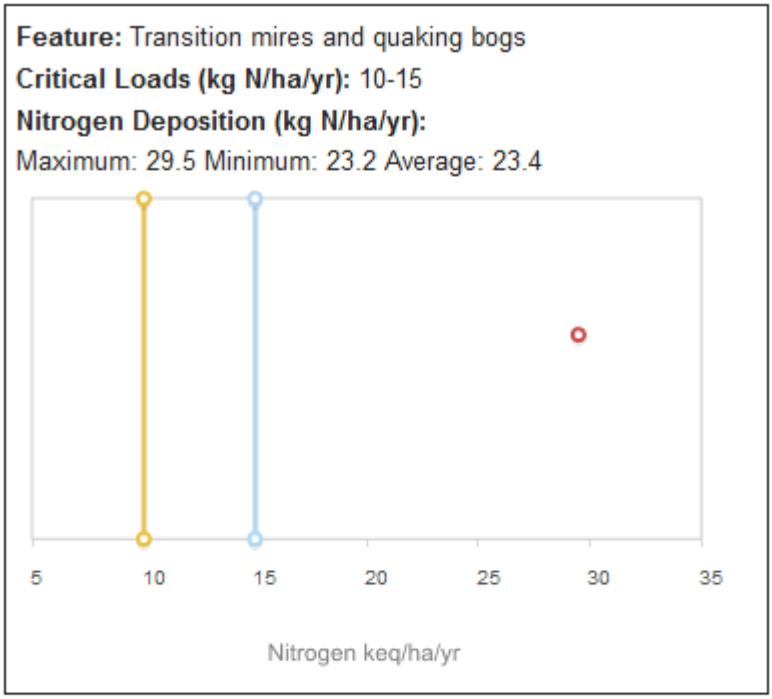
*Fly-tipping*

Both local fly tipping and more extensive infilling, have proved to be a threat to fens in this part of Northern Ireland.

**ACTION: Removal of any fly-tipped material from the site, to prevent the build-up of debris and to discourage further tipping.**

*Nitrogen Deposition*

Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for habitats and species present on Turmennan SAC.




(Source: Air Pollution Information System (APIS) website- www.apis.ac.uk)

**ACTION: Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.**

*Changes to surrounding land use*
Any changes in local land-use e.g. drainage, road improvements, afforestation, agricultural intensification and development, may be detrimental to the SAC.
**Action: Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.**

*Climate Change*
Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.
**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## 12. MONITORING

Monitoring of SACs takes place using two monitoring techniques.

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat).

These longer-term changes will be picked up by monitoring of the feature via **Site Condition Assessment** - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

### 12.1 MONITORING SUMMARY

1. *Monitor the integrity of the site (SIM or Compliance Monitoring)*
Site to be checked periodically, particularly for any evidence of fly-tipping or infilling, signs of inappropriate grazing levels, evidence of drainage (including over-deepening of existing drains, but not their periodic maintenance) or signs of drying out (the fen area should be 'soft, bouncy and squelchy'), evidence of slurry or fertiliser application or signs of eutrophication from agricultural run-off or any other source. This SIM should be carried out once a year.

*2. Monitor the condition of the site (Condition Assessment)*
Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## 13. REFERENCES

Cooper, A., McCann, T. and Rogers, D. (2009). Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency Research and Development Series No.09/06

Department of the Environment for Northern Ireland (2005). Northern Ireland Habitat Action Plan - Fens.

European Commission (2000). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2014). Establishing conservation measures for Natura 2000 Sites.

Joint Nature Conservation Committee (JNCC) (2013). 3rd UK Habitats Directive Report.

ANNEX I

## Feature 1 (SAC) – Transition mires and quaking bogs (Status B)

(* = primary attribute. One failure among primary attribute = unfavourable condition)

| Attribute | Targets | Method of Assessment | Comments |
|---|---|---|---|
| Extent | | | |
| *Area of Fen | Maintain the extent of fen. | Visual estimate in 2x2m plots and across the extent of the fen should be monitored using a combination of aerial photographs, SIM and Condition Assessment structured walk. | Variety within fens is determined by water supply mechanism, hydroseral succession and land management practices. Account should be taken of successional processes and management aims/priorities. |
| *Mire community diversity | Maintain presence of fen communities e.g. M9, M10 as established at base line survey. | Visual estimate in 2x2m plots. | Natural succession may lead to an increase in the area of certain communities and a decrease in others.<br>The most likely changes are subtle shifts in species composition as a result of eutrophication or water-level changes. Repeat monitoring of plots using GPS should indicate whether fen communities have changed or been lost. |
| Presence of associated semi-natural habitats | Maintain existing associated semi-natural habitats | Visual estimate in 2x2m plots and across the ASSI | Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost.<br>Note: Loss of associated habitats to fen communities may be |

| | | | |
|---|---|---|---|
| | (wet grassland, wet woodland, wet heath etc.) | using a combination of aerial photographs, SIM and Condition Assessment structured walk. | desirable in some instances. |
| Vegetation structure | | | |
| Vegetation height (cm) | Mean vegetation height of medium fen communities (e.g. M9, M22) should be 30–75cm. | Visual estimate in 2x2 m plots. | Tall herb fen is highly variable. After the baseline survey, these can be set with more precision. |
| Cover of litter/thatch accumulation (% cover) | Less than 10% mean cover in medium fen communities (e.g. M9, M22)<br>Less than 5% mean cover in short fen communities (e.g. M10, M13) | Visual estimate in 2x2m plots. | A high litter cover indicates insufficient removal of biomass by grazing. |

| | | | |
|---|---|---|---|
| Extent of bare mud visible without disturbing the vegetation (% cover) | Less than 10% mean cover in medium fen communities (e.g. M9, M22 – check m22)<br><br>Less than 25% mean cover in short fen communities (e.g. M10, M13) | Visual estimate in 2x2m plots. | A high cover of exposed substrate will usually be undesirable and may indicate over-grazing and water scour.<br>Patches of exposed substrate are likely to be more typical/desirable for short fen communities such as M10 which is often based on unconsolidated peat exposed beneath a water film.<br>At a later stage it might be better to merge these two targets and have just one<br>threshold of less than 15%. |
| Vegetation composition – Positive Indicators | | | |
| *Combined cover of herbs<br>and sedges in fen areas (only applicable to medium height sedge fen<br>communities e.g. M9) | Maintain cover greater than 45% | Visual estimate in 2x2m plots. | |
| Cover of all bryophytes (only applicable to medium height sedge fen communities e.g. M9) | Maintain moss cover (40%) appropriate to fen vegetation communities recorded for the site. | Visual estimate in 2x2m plots. | Refer to Common Standards Monitoring guidance for lowland wetland habitats. |

| | | | |
|---|---|---|---|
| *Combined cover of key species – small *Carex*, all bryophytes, *Eleocharis* spp., *Eriophorum* spp., *Schoenus nigricans* and *Molinia caerulea* (% cover)<br>(only applicable to short sedge fen communities e.g. M10) | At least 75% of the vegetation cover should be made up of key species.<br>(exclude bare peat) | Visual estimate in 2x2m plots. | This is only applicable to short calcareous and alkaline fen. |
| *Frequency of positive indicators for tall herb fen (DAFOR scale) *Alisma plantago-aquatica, Anagallis tenella, Angelica sylvestris, Berula erecta, Briza media, Caltha palustris, Carex curta, C. diandra, C. dioica, C. disticha, C. flacca, C. hostiana, C. nigra, C. panicea, C. pulicaris, C. rostrata, C. vesicaria, C. viridula, Cicuta virosa, Crepis paludosa, Dactylorhiza sp., Epilobium palustris,* | At least six indicator species at least occasional, of which three are at least frequent throughout the sward: | Visual estimate in 2x2m plots. | The suite of key communities to be monitored is chosen on a site specific basis.<br><br>In some instances short sedge communities (e.g. M10, M13) may fail on this attribute as they are naturally species poor. However, providing they have passed on the % cover of combined key species they should be recorded as favourable for this attribute. |

| | | | |
|---|---|---|---|
| *Equisetum fluviatile, E. palustre, Eriophorum angustifolium, Euphrasia spp., Galium palustris, Hydrocotyle vulgaris, Juncus articulatus, Linum catharticum, Lotus pedunculatus, Lychnis flos-cuculi, Lycopus europaeus, Lysimachia vulgaris, Lythrum salicaria, Mentha aquatica, Menyanthes trifoliata, Oenanthe crocata, Parnassia palustris, Pedicularis palustris, Pinguicula vulgaris, Potamogeton spp., Potentilla erecta, Potentilla palustris, Ranunculus flammula, Sagina nodosa, Selaginella selaginoides, Succisa pratensis, Triglochin palustre, Valeriana officinalis, Veronica scutellata, Viola* | | | |

| | | | |
|---|---|---|---|
| *palustris. Aulacomnium palustre, Bryum pseudotriquetrum, Calliergon spp., Campylium stellatum, Cratoneuron/Drepanocladus, Ctenidium molluscum, Polytrichum commune, Scorpidium scorpioides, Sphagnum denticulatum, Sphagnum fallax, Sphagnum palustre, Sphagnum squarrosum* | | | |
| Vegetation composition – Indicators of Negative Change | | | |
| *Frequency and % cover of scrub/tree encroachment on the fen communities (DAFOR and % cover). | Scrub/tree encroachment including *Betula*, *Salix*, *Rhododendron* etc. should be no more than occasional over the fen communities. | Visual estimate within a 10x10 m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk. | Scrub and woodland are integral components of many fen systems and may be particularly important for invertebrates. However, invasion by woody species, primarily *Betula* and *Salix*, and their development to maturity may indicate drying out, dereliction, disturbance and/or enrichment. |

| | | | |
|---|---|---|---|
| | Mean cover should be less than 10%. | | |
| Height of trees and scrub within fen communities (cm) | Average height of scrub, where it is recorded. | Visual estimate within a 10x10 m radius of plots. | The average height of Betula and Salix scrub will help to access their maturity and help to inform management. |
| Frequency of seedlings/ saplings. (DAFOR) | Seedlings/saplings should be no more than rare over the fen communities. | Visual estimate within a 10x10 m radius of plots. | High levels of seedlings and saplings indicate recent dereliction or other change in management. These fen communities are under threat from significant scrub encroachment. |
| *Frequency and % cover of negative indicator species- eutrophication indicators: *Phalaris arundinacea, Glyceria maxima, Typha latifolia, Epilobium hirsutum, Urtica dioica*. | No one negative indicator species more than rare throughout the fen and/or singly or together comprising more than 5% cover. | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| *% cover of negative species – indicating lack of management/ successional changes: *Filipendula ulmaria, Phragmites australis.* | No one negative indicator species singly or together comprising more than 10% cover. In short fen communities (M10/M13) *Phragmites* cover should be no more than rare. | Visual estimate in 2x2m plots. | |
| *% cover of *Juncus* spp in Group A and B<br>Group A: jointed rushes (*Juncus acut/arti/subnod*)<br>Group B: *J. conglomeratus, J. effusus and J. inflexus.* | All species combined less than 20% cover and less than 5% made up of species from Group B. | Visual estimate in 2x2m plots. | Where M22 vegetation is dominated by *Juncus subnodulosus* a higher mean cover may be considered. |
| *Cover of grasses (excludes *Phalaris* and *Phragmites*, but includes the rank grasses *Arrhenatherum elatius, Deschampsia cespitosum, Brachypodium sylvaticum*) | All grass species combined less than 20% cover and less than 10% made up of rank grasses. | Visual estimate in 2x2m plots. | |

| | | | |
|---|---|---|---|
| *% cover of *Molinia caerulea* (only applicable to the NVC communities M9/S27, M10 and M13) | % cover in M10 or M13 should be less than 25%<br>% cover in M9/S27 should be less than 5% | Visual estimate in 2x2m plots. | |
| Fen hydrology | | | |
| * Groundwater elevation (Ground soft, bouncy and squelchy) | Maintain the water table height as determined at baseline survey. | Test with foot | Maintain the water table height as determined at baseline survey. The water table level will obviously fluctuate seasonally and with local weather conditions. However, this assessment should try and gauge if the hydrology of the site is being adversely affected. |
| Indicators of Local Distinctiveness | | | |
| *Presence of locally distinctive species specific to the site (Include any other species of note mentioned in the site citation) e.g. *Epipactis palustris, Stellaria palustris, Hypericum elodes etc* | Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk. | Name the species at least present along the length of the Condition Assessment structured walk. | If these species are not recorded on any one visit, it does not automatically make the site unfavourable.<br>Some sites may not have any notable or locally distinctive species recorded. |

**Annex A**

**Conservation Objectives / Ramsar Citation**

**Republic of Ireland Sites**

ISSN 2009-4086

# National Parks and Wildlife Service

## *Conservation Objectives Series*

## Lambay Island SAC 000204

NPWS
An tSeirbhís Páirceanna Náisiúnta agus Fiadhúlra
National Parks and Wildlife Service

**National Parks and Wildlife Service,**
**Department of Housing, Local Government and Heritage,**

**90 King Street North, Dublin 7, D07 N7CV, Ireland.**

**Web: www.npws.ie**
**E-mail: natureconservation@npws.gov.ie**

**Citation:**

**NPWS (2024) Conservation Objectives: Lambay Island SAC 000204. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.**

**Series Editors: Maria Long and Colin Heaslip**
**ISSN 2009-4086**

# Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

**Notes/Guidelines:**

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

| 000204 | Lambay Island SAC |
|---|---|
| 1170 | Reefs |
| 1230 | Vegetated sea cliffs of the Atlantic and Baltic coasts |
| 1351 | Harbour Porpoise *Phocoena phocoena* |
| 1364 | Grey Seal *Halichoerus grypus* |
| 1365 | Harbour Seal *Phoca vitulina* |

**Please note that this SAC overlaps with Lambay Island SPA (004069), Rockabill to Dalkey Island SAC (003000) and North-west Irish Sea SPA (004236). See map 2. The conservation objectives for this site should be used in conjunction with those for overlapping sites as appropriate. IMPORTANT: This 'Version 2' document includes 1 additional QI (1351). The conservation objectives for pre-existing QIs have generally not been updated.**

# Supporting documents, relevant reports & publications

*Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications*

## NPWS Documents

| | |
|---|---|
| **Year :** | 1988 |
| **Title :** | A second report on Areas of Scientific Interest in County Dublin |
| **Author :** | Goodwillie, R.N.; Ni Lamhna, E.; Webb, R. |
| **Series :** | Unpublished Report |
| **Year :** | 2004 |
| **Title :** | Harbour seal population assessment in the Republic of Ireland: August 2003 |
| **Author :** | Cronin, M.; Duck, C.; O Cadhla, O.; Nairn, R.; Strong, D.; O'Keeffe, C. |
| **Series :** | Irish Wildlife Manual No. 11 |
| **Year :** | 2004 |
| **Title :** | Summary of National Parks and Wildlife Service surveys for common (harbour) seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*), 1978 to 2003 |
| **Author :** | Lyons, D.O. |
| **Series :** | Irish Wildlife Manual No. 13 |
| **Year :** | 2007 |
| **Title :** | Grey seal moult population survey in the Republic of Ireland, 2007 |
| **Author :** | Ó Cadhla, O.; Strong, D. |
| **Series :** | Unpublished report to NPWS |
| **Year :** | 2008 |
| **Title :** | An assessment of the breeding population of grey seals in the Republic of Ireland, 2005 |
| **Author :** | O Cadhla, O.; Strong, D.; O'Keeffe, C.; Coleman, M.; Cronin, M.; Duck, C.; Murray, T.; Dower, P.; Nairn, R.; Murphy, P.; Smiddy, P.; Saich, C.; Lyons, D.O.; Hiby, L. |
| **Series :** | Irish Wildlife Manual No. 34 |
| **Year :** | 2010 |
| **Title :** | Irish Sea reef survey |
| **Author :** | MERC |
| **Series :** | Unpublished report to NPWS |
| **Year :** | 2011 |
| **Title :** | National survey and assessment of the conservation status of Irish sea cliffs |
| **Author :** | Barron, S.J.; Delaney, A.; Perrin, P.M.; Martin, J.; O'Neill, F. |
| **Series :** | Irish Wildlife Manual No. 53 |
| **Year :** | 2013 |
| **Title :** | Lambay Island SAC (000204) Conservation objectives supporting document- coastal habitats V1 |
| **Author :** | NPWS |
| **Series :** | Conservation objectives supporting document |
| **Year :** | 2013 |
| **Title :** | Lambay Island SAC (site code 204) Conservation objectives supporting document- marine habitats and species V1 |
| **Author :** | NPWS |
| **Series :** | Conservation objectives supporting document |
| **Year :** | 2024 |
| **Title :** | Lambay Island SAC (site code 000204) Conservation objectives supporting document - Harbour Porpoise V1 |
| **Author :** | NPWS |
| **Series :** | Conservation objectives supporting document |

## Other References


| | |
|---|---|
| **Year :** | 1983 |
| **Title :** | The grey seal (*Halichoerus grypus*) in Ireland |
| **Author :** | Summers, C.F. |
| **Series :** | Unpublished Report to the Minister for Fisheries, Forestry and Wildlife |
| **Year :** | 2000 |
| **Title :** | Grey Seals: status and monitoring in the Irish and Celtic Seas |
| **Author :** | Kiely, O.; Lidgard, D.C.; McKibben, M.; Baines, M.E.; Connolly, N. |
| **Series :** | Maritime Ireland/Wales INTERREG Report no. 3. Marine Institute |
| **Year :** | 2001 |
| **Title :** | The status of breeding grey seals (*Halichoerus grypus*) on the east and south-east coast of Ireland |
| **Author :** | Lidgard, D.C.; Kiely, O.; Rogan, E.; Connolly, N. |
| **Series :** | Mammalia 65 (3): 283-294 |
| **Year :** | 2002 |
| **Title :** | New atlas of the British and Irish flora |
| **Author :** | Preston, C.D.; Pearman, D.A.; Dines, T.D. |
| **Series :** | Oxford University Press, Oxford |
| **Year :** | 2005 |
| **Title :** | National inventory of sea cliffs and coastal heaths |
| **Author :** | Browne, A. |
| **Series :** | Unpublished Report to NPWS |
| **Year :** | 2012 |
| **Title :** | Intertidal reef survey of Lambay Island SAC and SPA, Rockabill Island SPA, Ireland's Eye SAC, Dalkey Islands SPA and Muglins |
| **Author :** | MERC |
| **Series :** | Unpublished report to the Marine Institute and NPWS |
| **Year :** | 2012 |
| **Title :** | Subtidal reef survey of Intertidal reef survey of Lambay Island SAC and SPA, Rockabill Island SPA, Ireland's Eye SAC, Dalkey Islands SPA and Muglins |
| **Author :** | MERC |
| **Series :** | Unpublished report to the Marine Institute and NPWS |

## Spatial data sources

| | |
|---|---|
| **Year :** | Interpolated 2013 |
| **Title :** | 2010 intertidal survey; 2011 subtidal survey |
| **GIS Operations :** | Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data. Expert opinion used as necessary to resolve any issues arising |
| **Used For :** | Marine community types, 1170 (maps 3 and 4) |
| **Year :** | 2005 |
| **Title :** | OSi Discovery series vector data |
| **GIS Operations :** | High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present |
| **Used For :** | Marine community types base data (map 4) |
| **Year :** | 2005 |
| **Title :** | National inventory of sea cliffs and coastal heaths |
| **GIS Operations :** | Lines clipped to SAC boundary and used to indicate habitat extent |
| **Used For :** | 1230 (map 5) |
| **Year :** | 2008 |
| **Title :** | OSi 1:5000 IG vector data |
| **GIS Operations :** | Naturalfeatures line clipped to extent of national inventory of sea cliffs and coastal heaths polyline |
| **Used For :** | 1230 (map 5) |
| **Year :** | 2013 |
| **Title :** | NPWS rare and threatened species database |
| **GIS Operations :** | Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising |
| **Used For :** | 1364, 1365 (maps 6 and 7) |
| **Year :** | 2005 |
| **Title :** | OSi Discovery series vector data |
| **GIS Operations :** | High Water Mark (HWM) polyline feature class converted into polygon feature class; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising |
| **Used For :** | 1364, 1365 (maps 6 and 7) |

## 1170 Reefs

**To maintain the favourable conservation condition of Reefs in Lambay Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Habitat area | Hectares | The permanent area is stable or increasing, subject to natural processes. See map 3 | Habitat area estimated as 58ha from intertidal and subtidal reef surveys in 2010 and 2011 (MERC, 2010, 2012a,b) |
| Distribution | Occurrence | The distribution of reefs is stable or increasing, subject to natural processes. See map 3 | Based on information from intertidal and subtidal reef surveys in 2010 and 2011 (MERC, 2010, 2012a,b) |
| Community structure | Biological composition | Conserve the following community types in a natural condition: Intertidal reef community complex; *Laminaria*-dominated community complex. See map 4 | Reef community mapping based on information from intertidal and subtidal reef surveys in 2010 and 2011 (MERC, 2010, 2012a,b) |

## 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts

**To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Lambay Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Habitat length | Kilometres | Area stable, subject to natural processes, including erosion. Total length of cliff section mapped: 7.27km. See map 5 | Based on data from Browne (2005). Cliff extent re-digitised onto 1:5000 OSi map background. Cliffs are linear features and are therefore measured in kilometres. See coastal habitats supporting document for further details |
| Habitat distribution | Occurrence | No decline, subject to natural processes. See map 5 | Cliffs distributed along north, east and south coasts of Lambay Island. Hard cliffs are the dominant type. See coastal habitats supporting document for further details |
| Physical structure: functionality and hydrological regime | Occurrence of artificial barriers | No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures | Maintaining natural geomorphological processes including natural erosion is important for the health of vegetated sea cliffs. Hydrological processes maintain flushes and in some cases tufa formations that can be associated with sea cliffs. See coastal habitats supporting document for further details |
| Vegetation structure: zonation | Occurrence | Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession | On Lambay Island, grazing has resulted in a zone of cliff vegetation that is very narrow and confined to the cliff edge. This is observed as an abrupt change from cliff vegetation to semi-improved pasture. See coastal habitats supporting document for further details |
| Vegetation structure: vegetation height | Centimetres | Maintain structural variation within sward | Excessive grazing close to the cliff edge has confined the maritime vegetation to a narrow zone. See coastal habitats supporting document for further details |
| Vegetation composition: typical species and sub-communities | Percentage cover at a representative sample of monitoring stops | Maintain range of sub-communities with typical species listed in the Irish Sea Cliff Survey (Barron et al., 2011) | Based on Goodwillie et al. (1988). Locally distinctive species include knotted clover (*Trifolium striatum*), Spring vetch (*Vicia lathyroides*) and spring squill (*Scilla verna*), which are locally common on the east coast of Ireland (Preston et al., 2002). See coastal habitats supporting document for further details |
| Vegetation composition: negative indicator species | Percentage | Negative indicator species (including non-natives) to represent less than 5% cover | Based on data from the ISCS (Barron et al., 2011). See coastal habitats supporting document for further details |
| Vegetation composition: bracken and woody species | Percentage | Cover of bracken (*Pteridium aquilinum*) on grassland and/or heath less than 10%. Cover of woody species on grassland and/or heath less than 20% | Based on data from the ISCS (Barron et al., 2011). Bracken is common on the gently sloping northern cliffs. Some sheltered gullies support scrub with stunted elder (*Sambucus nigra*). See coastal habitats supporting document for further details |

## 1351 Harbour Porpoise *Phocoena phocoena*

**To maintain the Favourable conservation condition of Harbour Porpoise (*Phocoena phocoena*) in Lambay Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Access to suitable habitat | Number of artificial barriers | Species range within the site should not be restricted by artificial barriers to site use. See map 1 | See the Lambay Island SAC conservation objectives supporting document - Harbour Porpoise for further details (NPWS, 2024) |
| Disturbance | Level of impact | Human activities should occur at levels that do not adversely affect the Harbour Porpoise community at the site | See the Lambay Island SAC conservation objectives supporting document - Harbour Porpoise for further details (NPWS, 2024) |

## 1364 Grey Seal *Halichoerus grypus*

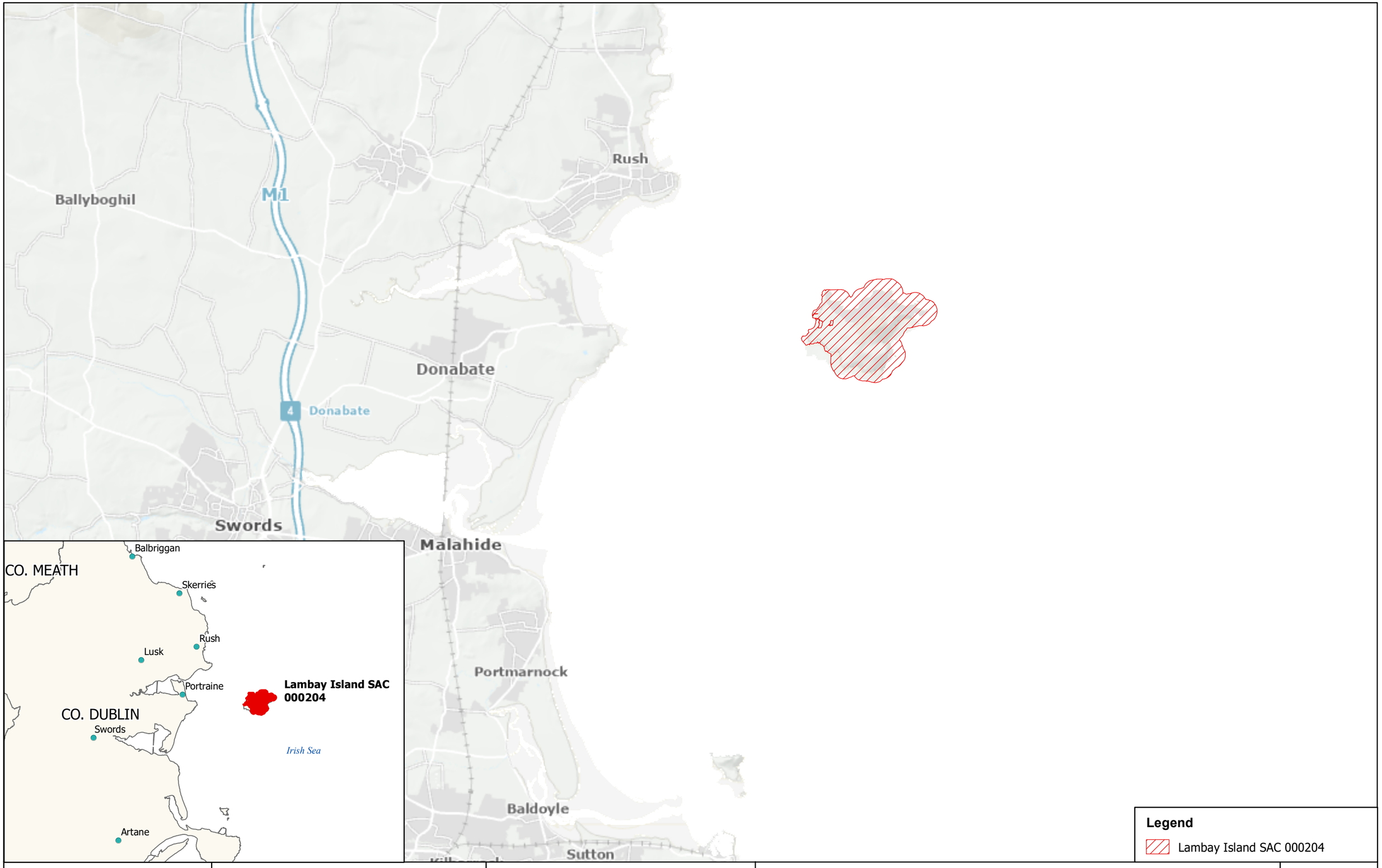
**To maintain the favourable conservation condition of Grey Seal in Lambay Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Access to suitable habitat | Number of artificial barriers | Species range within the site should not be restricted by artificial barriers to site use. See map 6 | See marine supporting document for further details |
| Breeding behaviour | Breeding sites | The breeding sites should be maintained in a natural condition. See map 6 for known sites | Attribute and target based on background knowledge of Irish breeding populations, review of data from Summers (1983), Kiely et al. (2000), Lidgard et al. (2001), Lyons (2004), a comprehensive breeding survey in 2005 (Ó Cadhla et al., 2008) and unpublished NPWS records. See marine supporting document for further details |
| Moulting behaviour | Moult haul-out sites | The moult haul-out sites should be maintained in a natural condition. See map 6 for known sites | Attribute and target based on background knowledge of Irish populations, research by Kiely et al. (2000), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records. See marine supporting document for further details |
| Resting behaviour | Resting haul-out sites | The resting haul-out sites should be maintained in a natural condition. See map 6 for known sites | Attribute and target based on review of data from Kiely et al. (2000), Lyons (2004), Cronin et al. (2004) and unpublished NPWS records. See marine supporting document for further details |
| Disturbance | Level of impact | Human activities should occur at levels that do not adversely affect the grey seal population at the site | See marine supporting document for further details |

## 1365 Harbour Seal *Phoca vitulina*

**To maintain the favourable conservation condition of Harbour Seal in Lambay Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Access to suitable habitat | Number of artificial barriers | Species range within the site should not be restricted by artificial barriers to site use. See map 7 | See marine supporting document for further details |
| Breeding behaviour | Breeding sites | The breeding sites should be maintained in a natural condition. See map 7 | Attribute and target based on background knowledge of Irish breeding populations and a review of ancillary data provided by Kiely et al. (2000), Lidgard et al. (2001), Ó Cadhla and Strong (2007), Ó Cadhla et al. (2008) and unpublished NPWS data. See marine supporting document for further details |
| Moulting behaviour | Moult haul-out sites | The moult haul-out sites should be maintained in a natural condition. See map 7 | Attribute and target based on background knowledge of Irish populations, review of data from Cronin et al. (2004), data provided by Kiely et al. (2000), Lidgard et al. (2001), Ó Cadhla and Strong (2007), Ó Cadhla et al. (2008) and unpublished NPWS data. See marine supporting document for further details |
| Resting behaviour | Resting haul-out sites | The resting haul-out sites should be maintained in a natural condition. See map 7 | Attribute and target based on background knowledge of Irish populations and the review of ancillary data provided by Kiely et al. (2000), Lidgard et al. (2001), Ó Cadhla and Strong (2007), Ó Cadhla et al. (2008) and unpublished NPWS data. See marine supporting document for further details |
| Disturbance | Level of impact | Human activities should occur at levels that do not adversely affect the harbour seal population at the site | See marine supporting document for further details |




**Legend**

Lambay Island SAC 000204

NPWS An tSeirbhís Páirceanna Náisiúnta agus Fiadhúlra National Parks and Wildlife Service

**MAP 1:**
**LAMBAY ISLAND SAC**
**CONSERVATION OBJECTIVES**
**SAC DESIGNATION**

Map to be read in conjunction with the NPWS Conservation Objectives Document

**SITE CODE:**
**SAC 000204; version 3.02**
**CO. DUBLIN**

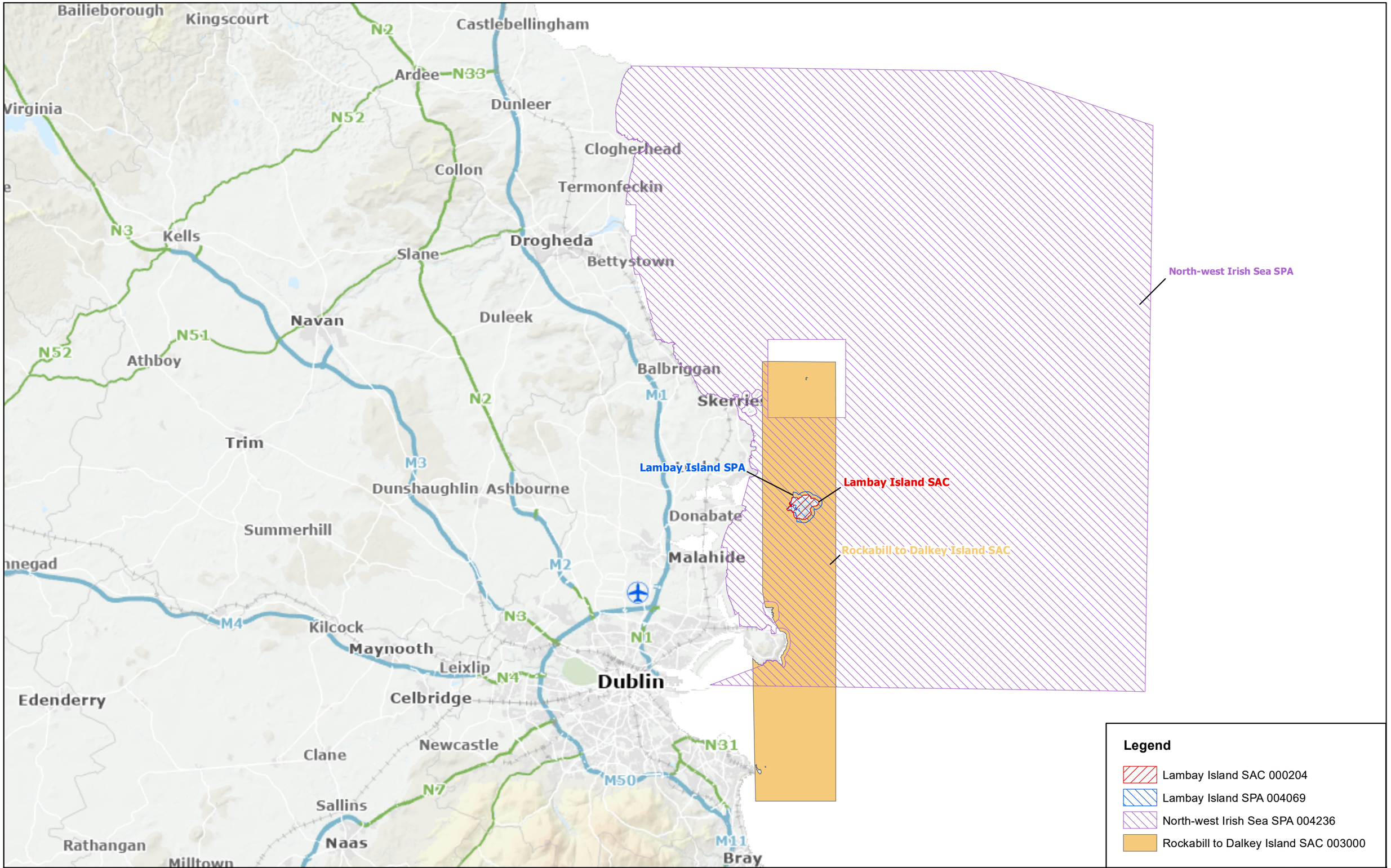
0 0.5 1 2 Kilometres

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
© Includes National Mapping Division of Tailte Éireann data
reproduced under National Mapping Division of Tailte Éireann Licence number CYAL50351092.

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. © Folaíonn sé rannán Náisiúnta Mapála de shonraí Tailte Éireann
arna atáirgeadh faoin rannán mapála Náisiúnta d'uimhir cheadúnais Táilte Éireann CYAL50351092

N

**Map version 2**
**Date: November 2024**




**Legend**

- Lambay Island SAC 000204
- Lambay Island SPA 004069
- North-west Irish Sea SPA 004236
- Rockabill to Dalkey Island SAC 003000

NPWS An tSeirbhís Páirceanna Náisiúnta agus Fiadhúlra National Parks and Wildlife Service

**MAP 2:**
**LAMBAY ISLAND SAC**
**CONSERVATION OBJECTIVES**
**OVERLAPPING AND ADJACENT SITES**

Map to be read in conjunction with the NPWS Conservation Objectives Document

**SITE CODE:**
**SAC 000204; version 3.02**
**CO. DUBLIN**

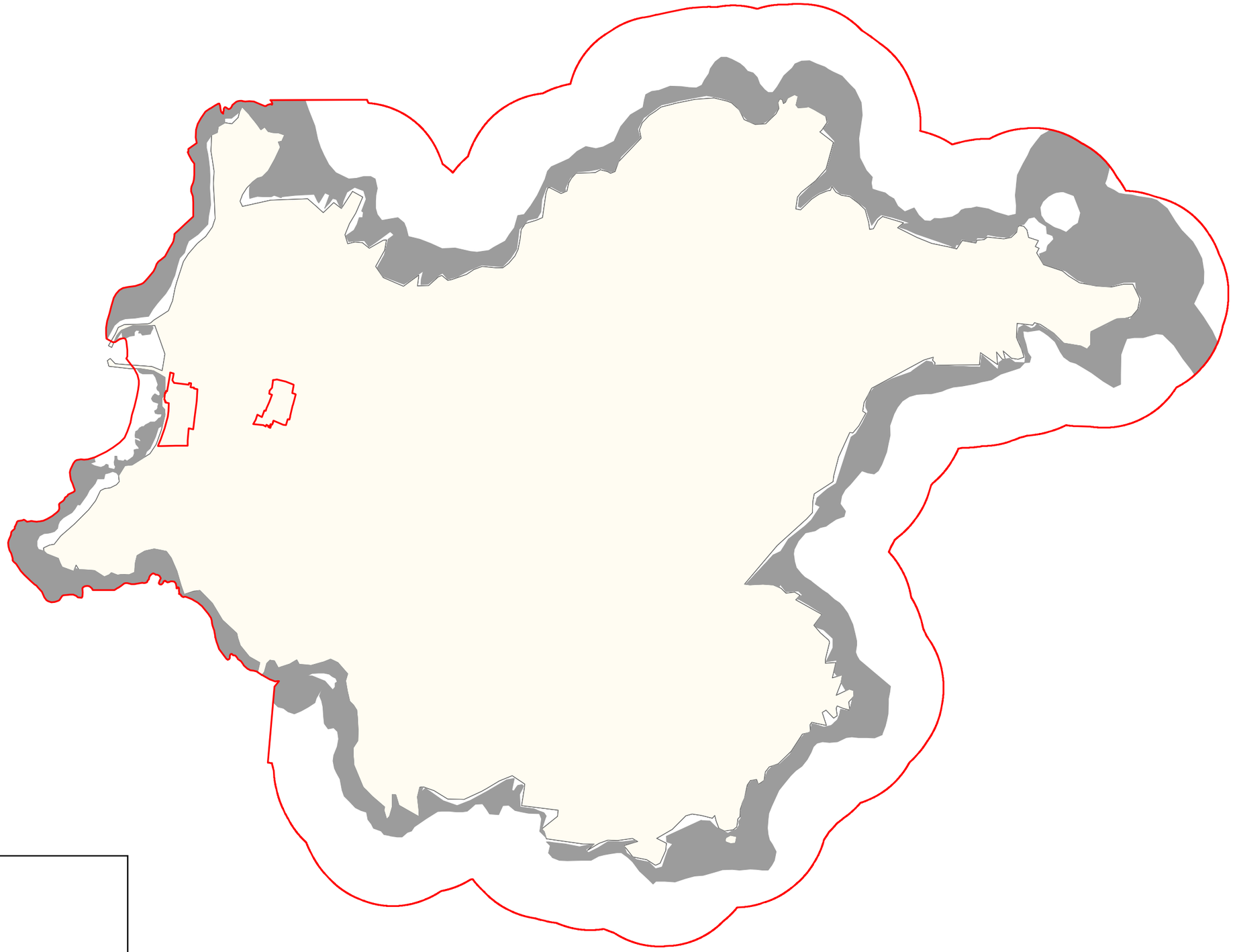
0 3 6 12 Kilometres

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
© Includes National Mapping Division of Tailte Éireann data
reproduced under National Mapping Division of Tailte Éireann Licence number CYAL50351092.

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. © Folaíonn sé rannán Náisiúnta Mapála de shonraí Tailte Éireann
arna atáirgeadh faoin rannán mapála Náisiúnta d'uimhir cheadúnais Táilte Éireann CYAL50351092

N

**Map version 2**
**Date: December 2024**



## Legend

- SAC 000204
- 1170 Reefs
- OSi Discovery Series Coastal Boundary

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

**MAP 3:**
**LAMBAY ISLAND SAC**
**CONSERVATION OBJECTIVES**
**REEFS**

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE: SAC 000204; version 3**
**County Dublin**

0 100 200 300 400 500 m

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: June 2013**

## Legend

- SAC 000204
- OSi Discovery Series Coastal Boundary

**Marine Community Types**

- Intertidal reef community complex
- *Laminaria*-dominated community complex
- Sediment community

*An Roinn*
*Ealaíon, Oidhreachta agus Gaeltachta*
*Department of*
*Arts, Heritage and the Gaeltacht*

# MAP 4:
# LAMBAY ISLAND SAC
# CONSERVATION OBJECTIVES
# MARINE COMMUNITY TYPES

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE: SAC 000204; version 3**
**County Dublin**

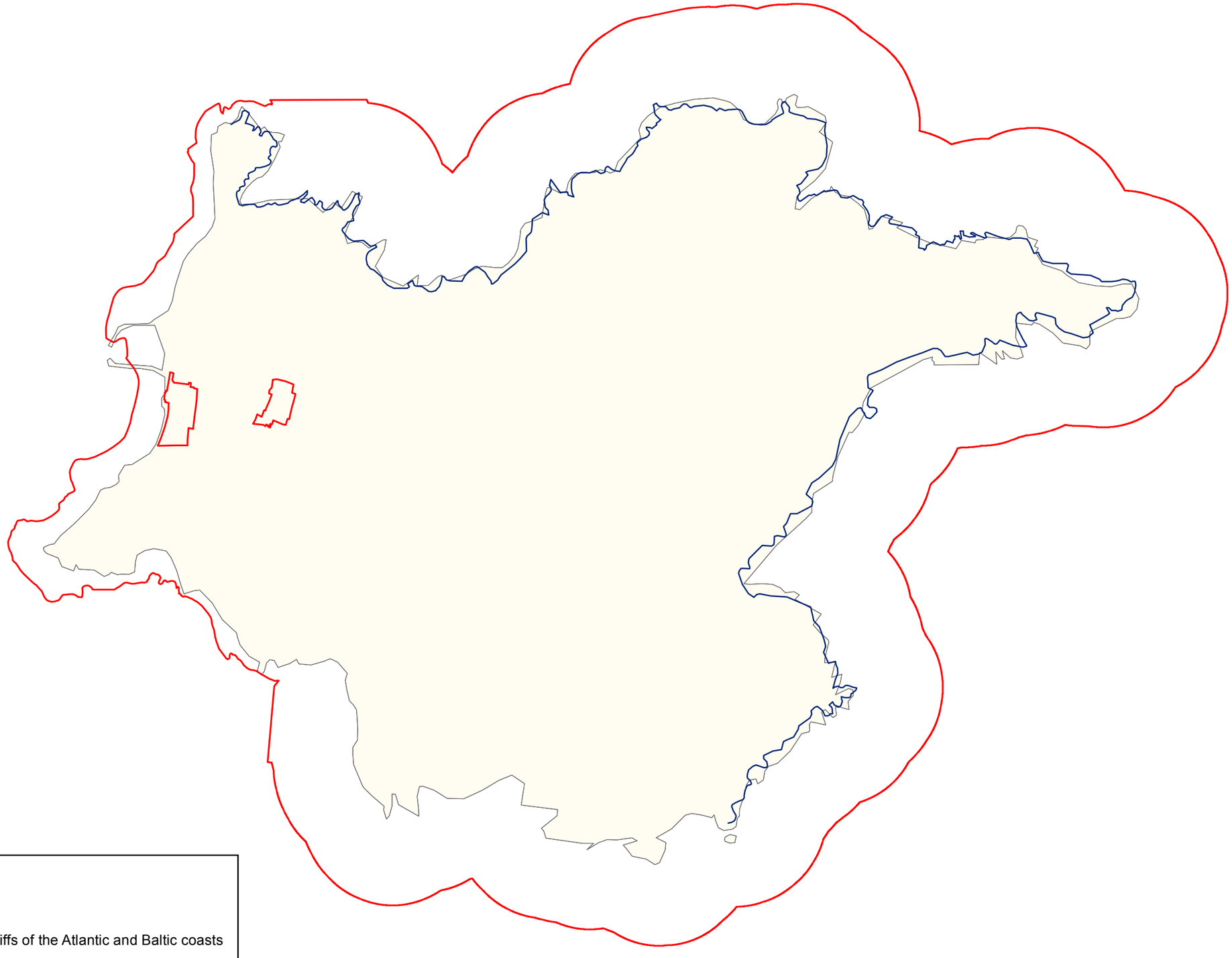
0 100 200 300 400 500 m

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: June 2013**



## Legend

- SAC 000204
- 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts
- OSi Discovery Series Coastal Boundary

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

# MAP 5:
# LAMBAY ISLAND SAC
# CONSERVATION OBJECTIVES
# VEGETATED SEA CLIFFS

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE: SAC 000204; version 3**
**County Dublin**

0 100 200 300 400 500 m

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: June 2013**

## Legend

- SAC 000204
- 1364 Grey Seal - *Halichoerus grypus* breeding sites
- 1364 Grey Seal - *Halichoerus grypus* moulting sites
- 1364 Grey Seal - *Halichoerus grypus* resting sites
- 1364 Grey Seal - *Halichoerus grypus* habitat
- OSi Discovery Series Coastal Boundary

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

# MAP 6:
# LAMBAY ISLAND SAC
# CONSERVATION OBJECTIVES
# GREY SEAL

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE: SAC 000204; version 3**
**County Dublin**

0 100 200 300 400 500 m

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: June 2013**

## Legend

- SAC 000204
- 1365 Harbour Seal - *Phoca vitulina* breeding sites
- 1365 Harbour Seal - *Phoca vitulina* moulting sites
- 1365 Harbour Seal - *Phoca vitulina* resting sites
- 1365 Harbour Seal - *Phoca vitulina* habitat
- OSi Discovery Series Coastal Boundary

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

# MAP 7:
# LAMBAY ISLAND SAC
# CONSERVATION OBJECTIVES
# HARBOUR SEAL

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE: SAC 000204; version 3**
**County Dublin**

0 100 200 300 400 500 m

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: June 2013**

ISSN 2009-4086

# National Parks and Wildlife Service

## *Conservation Objectives Series*

## Rockabill to Dalkey Island SAC 003000

*An Roinn*
*Ealaíon, Oidhreachta agus Gaeltachta*
*Department of*
*Arts, Heritage and the Gaeltacht*



**National Parks and Wildlife Service,**
**Department of Arts, Heritage and the Gaeltacht,**

**7 Ely Place, Dublin 2, Ireland.**

**Web: www.npws.ie**
**E-mail: nature.conservation@ahg.gov.ie**

**Citation:**

**NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.**

**Series Editor: Rebecca Jeffrey**
**ISSN 2009-4086**

## Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

**Notes/Guidelines:**

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

| 003000 | Rockabill to Dalkey Island SAC |
|---|---|
| 1170 | Reefs |
| 1351 | Harbour porpoise *Phocoena phocoena* |

**Please note that this SAC overlaps with North Bull Island SPA (004006), Rockabill SPA (004014), Lambay Island SPA (004069), Howth Head Coast SPA (004113), Ireland's Eye SPA (004117) and Dalkey Islands SPA (004172). It is also adjoins Howth Head SAC (000202), Lambay Island SAC (000204) and Ireland's Eye SAC (002193). See map 2. The conservation objectives for this site should be used in conjunction with those for overlapping and adjacent sites as appropriate.**

# Supporting documents, relevant reports & publications

*Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications*

## References

| | |
|---|---|
| **Year :** | 2010 |
| **Title :** | Irish sea reef survey project report |
| **Author :** | MERC |
| **Series :** | Unpublished report to NPWS |
| **Year :** | 2012 |
| **Title :** | Intertidal reef survey of Lambay Island SAC and SPA, Rockabill Island SPA, Ireland's Eye SAC, Dalkey Islands SPA and Muglins |
| **Author :** | MERC |
| **Series :** | Unpublished report to the Marine Institute and NPWS |
| **Year :** | 2012 |
| **Title :** | Subtidal reef survey of Lambay Island SAC and SPA, Rockabill Island SPA, Ireland's Eye SAC, Dalkey Islands SPA and Muglins |
| **Author :** | MERC |
| **Series :** | Unpublished report to the Marine Institute and NPWS |

## NPWS Documents

| | |
|---|---|
| **Year :** | 2013 |
| **Title :** | Rockabill to Dalkey Island SAC (site code 3000) Conservation objectives supporting document- marine habitats and species V1 |
| **Author :** | NPWS |
| **Series :** | Conservation objectives supporting document |

## Spatial data sources

| | |
|---|---|
| **Year :** | Interpolated 2013 |
| **Title :** | 2009 and 2010 subtidal and intertidal reef surveys |
| **GIS Operations :** | Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data. Expert opinion used as necessary to resolve any issues arising |
| **Used For :** | Marine community types, 1170 (maps 3 and 4) |
| **Year :** | 2005 |
| **Title :** | OSi Discovery series vector data |
| **GIS Operations :** | High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present |
| **Used For :** | Marine community types base data (map 4) |
| **Year :** | 2005 |
| **Title :** | OSi Discovery series vector data |
| **GIS Operations :** | Low Water Mark (LWM) polyline feature class converted into polygon feature class; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising |
| **Used For :** | 1351 (map 5) |

## 1170 Reefs

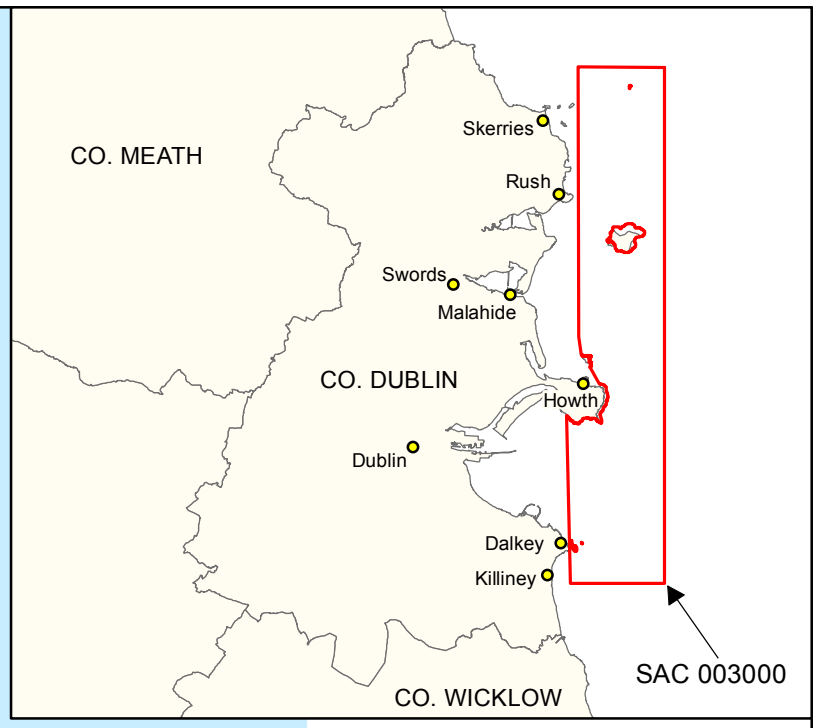
**To maintain the favourable conservation condition of Reefs in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Habitat area | Hectares | The permanent area is stable or increasing, subject to natural processes. See map 3 | Habitat area estimated as 182ha using 2010 and 2011 intertidal and subtidal reef survey data (MERC, 2010, 2012a,b), InfoMar bathymetry and the Arklow to Skerries Islands Admiralty Chart (1468_0) |
| Habitat distribution | Occurrence | Distribution is stable or increasing, subject to natural processes. See map 3 | Distribution derived from 2010 and 2011 intertidal and subtidal reef survey data (MERC, 2010, 2012a,b), InfoMar bathymetry and the Arklow to Skerries Islands Admiralty Chart (1468_0). See marine supporting document for further details |
| Community structure | Biological composition | Conserve the following community types in a natural condition: Intertidal reef community complex; and Subtidal reef community complex. See map 4 | Reef community mapping based on 2010 and 2011 intertidal and subtidal reef survey data (MERC, 2010, 2012a,b). See marine supporting document for further details |

## 1351 Harbour porpoise *Phocoena phocoena*

**To maintain the favourable conservation condition of Harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets:**

| Attribute | Measure | Target | Notes |
|---|---|---|---|
| Access to suitable habitat | Number of artificial barriers | Species range within the site should not be restricted by artificial barriers to site use. See map 5 | See marine supporting document for further details |
| Disturbance | Level of impact | Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site | See marine supporting document for further details |






**Legend**

SAC 003000

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

# MAP 1:
# ROCKABILL TO DALKEY ISLAND SAC
# CONSERVATION OBJECTIVES
# SAC DESIGNATION

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE:**
**SAC 003000; version 3**

0 1 2 3 4 5 km

The mapped boundaries are of an indicative and general nature only.
Boundaries of designated areas are subject to revision.
Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).
Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta.
Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: May 2013**

SPA 004014

SAC 003000

SAC 000204

SPA 004069

SPA 004117

SAC 002193

SAC 000202

SPA 004113

SPA 004006

SAC 003000

SPA 004172

## Legend

- SAC 003000 Rockabill to Dalkey Island
- SAC 000202 Howth Head
- SAC 000204 Lambay Island
- SAC 002193 Ireland's Eye
- North Bull Island SPA 004006
- Rockabill SPA 004014
- Lambay Island SPA 004069
- Howth Head Coast SPA 004113
- Ireland's Eye SPA 004117
- Dalkey Islands SPA 004172
- OSI Discovery Series Coastline

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

**MAP 2:**
**ROCKABILL TO DALKEY ISLAND SAC CONSERVATION OBJECTIVES ADJOINING / OVERLAPPING DESIGNATIONS**

Map to be read in conjunction with the NPWS Conservation Objectives Document.

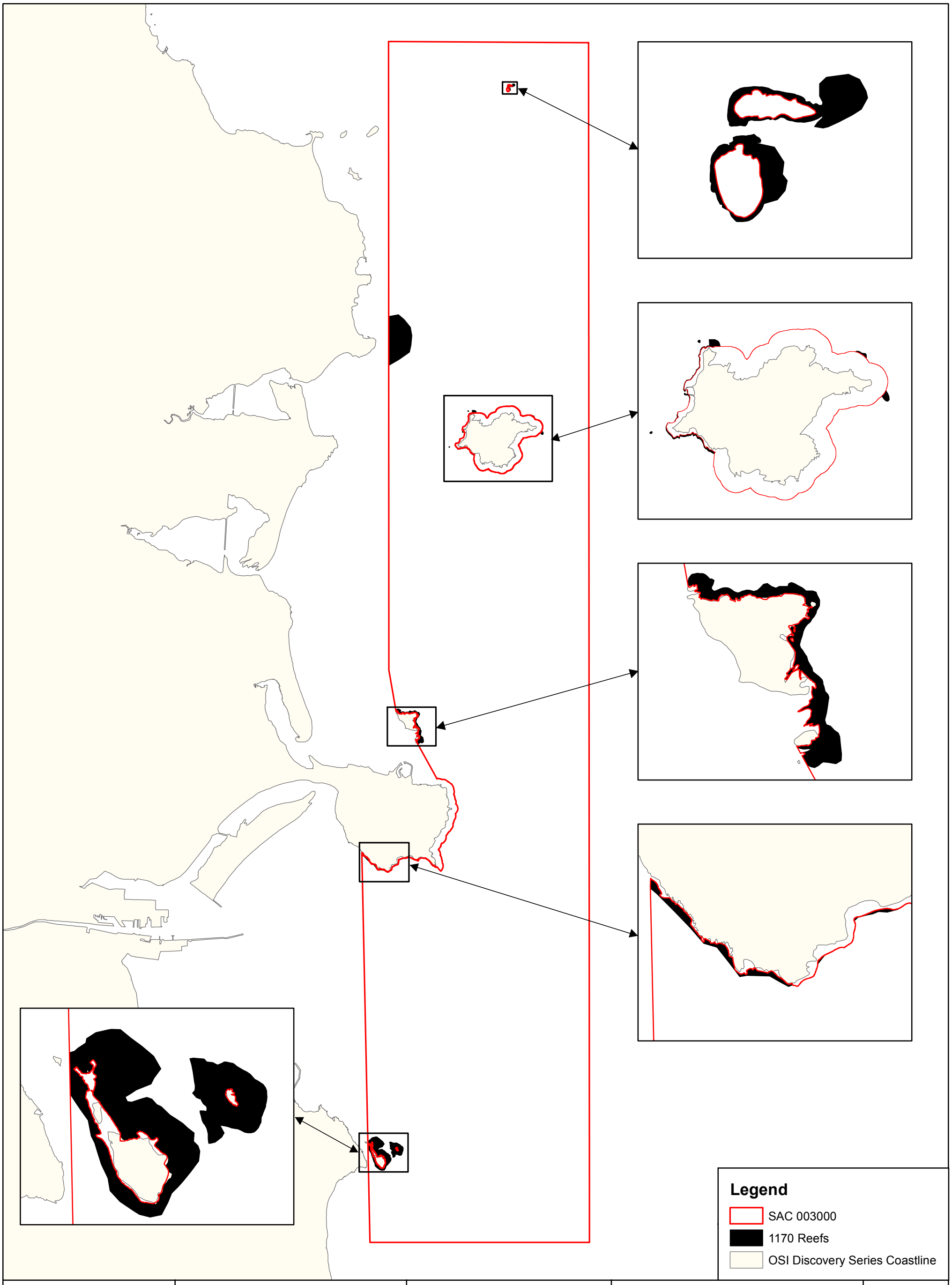
SITE CODE:
SAC 000202; version 3, SAC 000204; version 3
SAC 002193;version 3, SAC 003000; version 3
SPA 004006; version 2, SPA 004014; version 2.01
SPA 004069; version 1.01, SPA 004113; version 2
SPA 004117; version 1.02, SPA 004172; version 2

0 1 2 3 4 5 km

The mapped boundaries are of an indicative and general nature only.
Boundaries of designated areas are subject to revision.
Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059212).
Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta.
Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: May 2013**




*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

**MAP 3:**
**ROCKABILL TO DALKEY ISLAND SAC**
**CONSERVATION OBJECTIVES**
**REEFS**

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE:**
**SAC 003000; version 3**

0 1 2 3 4 5 km

The mapped boundaries are of an indicative and general nature only.
Boundaries of designated areas are subject to revision.
Reproduced from Ordnance Survey material by permission
of the Government (Permit number EN 0059212).
Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta.
Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar
comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis
le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: May 2013**

## Legend

- SAC 003000
- OSI Discovery Series Coastline

### Marine Community Types

- Intertidal reef community complex
- Sediment community
- Subtidal reef community complex

*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

# MAP 4:
# ROCKABILL TO DALKEY ISLAND SAC
# CONSERVATION OBJECTIVES
# MARINE COMMUNITY TYPES

Map to be read in conjunction with the NPWS Conservation Objectives Document.

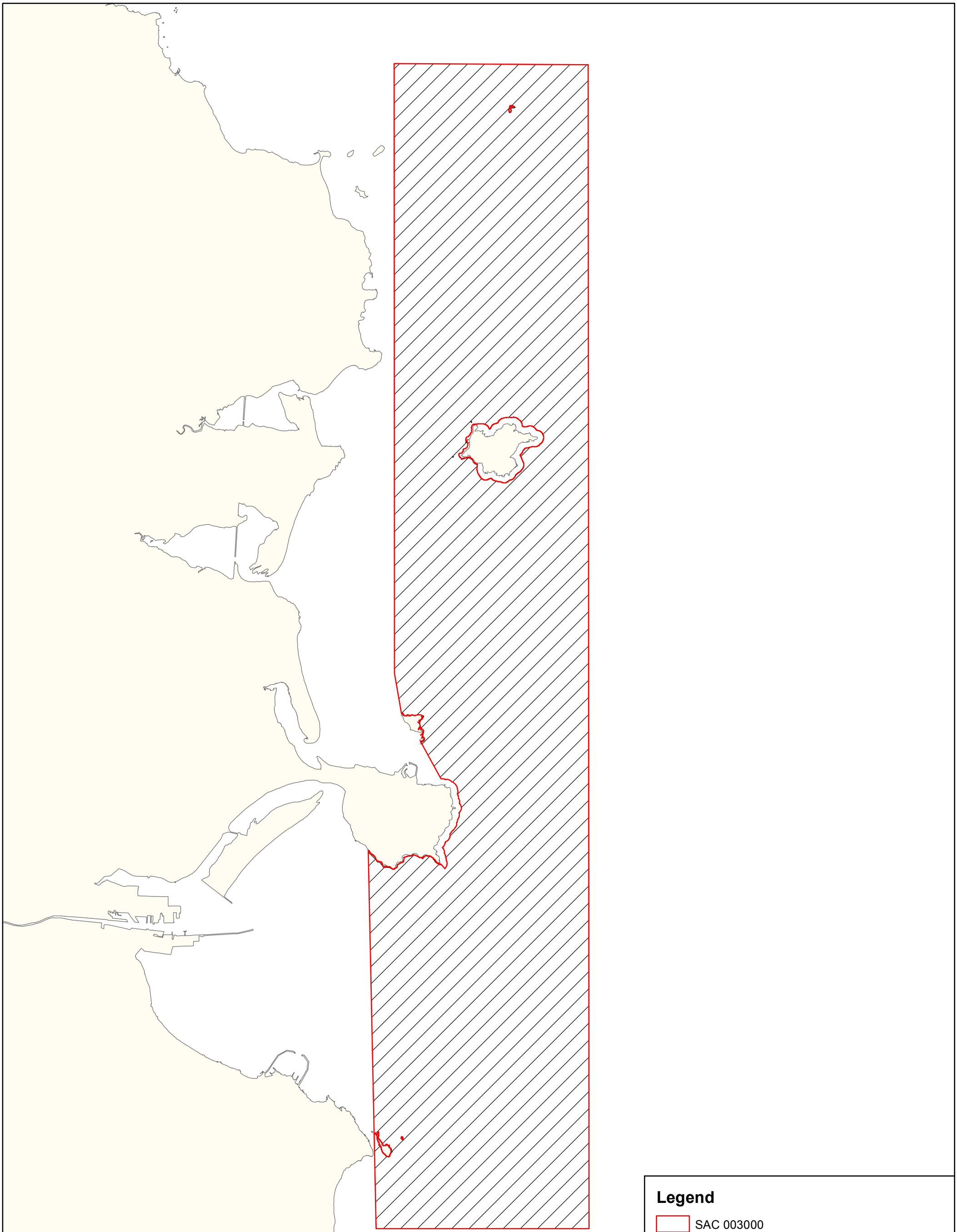
**SITE CODE:**
**SAC 003000; version 3**

0 1 2 3 4 5 km

The mapped boundaries are of an indicative and general nature only.
Boundaries of designated areas are subject to revision.
Reproduced from Ordnance Survey material by permission
of the Government (Permit number EN 0059212).
Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta.
Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar
comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis
le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: May 2013**




*An Roinn Ealaíon, Oidhreachta agus Gaeltachta*
*Department of Arts, Heritage and the Gaeltacht*

**MAP 5:**
**ROCKABILL TO DALKEY ISLAND SAC**
**CONSERVATION OBJECTIVES**
**HARBOUR PORPOISE**

Map to be read in conjunction with the NPWS Conservation Objectives Document.

**SITE CODE:**
**SAC 003000; version 3**

0 1 2 3 4 5 km

The mapped boundaries are of an indicative and general nature only.
Boundaries of designated areas are subject to revision.
Reproduced from Ordnance Survey material by permission
of the Government (Permit number EN 0059212).
Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta.
Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar
comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis
le chead ón Rialtas (Ceadunas Uimh. EN 0059212)

N

**Map Version 1**
**Date: May 2013**

**Annex A**

**Conservation Objectives**

**Wales Sites**




# Harbour Porpoise (*Phocoena phocoena)* Special Area of Conservation: North Anglesey Marine/ Gogledd Môn Forol

## Conservation Objectives and Advice on Operations

March 2019

Advice under Regulation 21 of The Conservation of Offshore Marine Habitats and Species Regulation 2017 and Regulation 37(3) of the Conservation of Habitats and Species Regulations 2017

## Further information

This document is available as a pdf file on the JNCC website for download if required (www.jncc.defra.gov.uk).

**Contact details:**

**JNCC**
Marine Species Advice Team
Joint Nature Conservation Committee
Inverdee House
Aberdeen
AB11 9QA

Email: OffshoreMPAs@jncc.gov.uk
Tel: +44 (0) 1224 266550

**NRW**
Marine Advice Team
Natural Resources Wales
Maes y Ffynnon
Bangor
LL57 2DW

Email: marine.n2k@naturalresourceswales.gov.uk
Tel: +44 (0) 300 065 3000

**DAERA**
Marine Conservation and Reporting Team
Marine and Fisheries Division
Department of Agriculture, Environment and Rural Affairs
Klondyke Building
1 Cromac Avenue
Gasworks Business Park
Malone Lower
Belfast
BT7 2JA

Email: Marine.InfoRequests@daera-ni.gov.uk
Tel: +44 (0) 28 90569262

## Summary of Conservation Objectives and Advice on Operations

The Conservation Objectives and Advice on Operations are set out for the North Anglesey Marine/Gogledd Môn Forol Special Area of Conservation (SAC) for harbour porpoise (*Phocoena phocoena*). The site covers both inshore (within 12 nautical miles of coast) and offshore (beyond 12 nautical miles of coast) waters where Natural Resources Wales (NRW) and the Joint Nature Conservation Committee (JNCC) have respective advisory responsibilities as the Statutory Nature Conservation Body (SNCB).

The general objective of achieving or maintaining Favourable Conservation Status (FCS) for all species and habitat types listed in Annexes I and II of the Habitats Directive needs to be translated into Conservation Objectives for SACs. These objectives describe the condition to be achieved by a site for it to contribute in the best possible way to achieving FCS at the national, bio-geographical and European level[1]. The Advice on Operations is site-specific but based on a broad assessment of the sensitivity of the harbour porpoise to anthropogenic pressures at a UK scale.

The advice in this document has been developed using the best available scientific information and expert interpretation as of February 2019. The advice provided here may be subject to change as our knowledge about the site and the impacts of human activities improves.

To ensure the site contributes in the best possible way to achieving FCS, management of human activities occurring in or around the site is required if these activities are likely to have an adverse impact (directly or indirectly) on the integrity of the site, with regards to its Conservation Objectives. It should be noted that as a European Protected Species under Annex IV of the Habitats Directive, harbour porpoises are already strictly protected throughout their European range. As such, several conservation measures are already in place in the UK.

To achieve the Conservation Objectives for the North Anglesey Marine/ Gogledd Môn Forol SAC, the relevant[2] and competent[3] authorities should consider human activities within their remit which might affect the integrity of the site.

[1] http://jncc.defra.gov.uk/PDF/comm02D07.pdf

[2] Relevant authorities are those who are already involved in some form of relevant marine regulatory function and would therefore be directly involved in the management of a marine site lying within territorial waters. The bodies which may be relevant authorities are listed in Regulation 6 of the Conservation of Habitats and Species Regulations 2017. All relevant authorities are also competent authorities.

[3] Competent authorities are defined in Regulation 5 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 and Regulation 7 of the Conservation of Habitats and Species Regulations 2017. In summary, a competent authority is any person or organisation that has the legally delegated or invested authority (e.g. Minister, government department, public body of any kind or statutory undertaker) to perform a designated function.

## Crynodeb o Amcanion Cadwraeth a Chyngor ynglŷn â Gweithgareddau

Mae'r Amcanion Cadwraeth a Chyngor ynglŷn â Gweithgareddau wedi'u cyflwyno ar gyfer yr ymgeisydd Ardal Cadwraeth Arbennig (yACA) North Anglesey Marine / Gogledd Môn Forol ar gyfer yr rhywogaeth Atodiad II, y llamhidydd (*Phocoena phocoena*). Mae'r safle'n cwmpasu dyfroedd y glannau (o fewn 12 morfilltir o'r arfordir) a dyfroedd alltraeth (tu hwnt i 12 morfilltir o'r arfordir) lle mae gan Cyfoeth Naturiol Cymru (CNC), Natural England (NE) a'r Cyd-bwyllgor Gwarchod Natur (JNCC) gyfrifoldebau cynghori perthnasol.

Mae angen trosi'r amcan cyffredinol o gyrraedd neu gynnal Statws Cadwraeth Ffafriol i bob rhywogaeth a math o gynefin sydd wedi'u rhestru yn Atodiadau I a II o'r Gyfarwyddeb Cynefinoedd yn Amcanion Cadwraeth ar lefel safle. Mae rhain yn disgrifio'r cyflwr y dylai rhywogaethau a mathau o gynefin o fewn safle ei wireddu er mwyn i'r safle gyfrannu yn y ffordd orau posibl tuag at wireddu Statws Cadwraeth Ffafriol ar lefel genedlaethol, bio-ddaearyddol ac Ewropeaidd.

Mae'r Cyngor ynglŷn â Gweithgareddau yn benodol i safleoedd ond mae'n seiliedig ar asesiad ehangach o ba mor sensitif yw'r llamhidydd i bwysau anthropogenig ar lefel y DU. Datblygwyd y cyngor gan ddefnyddio'r wybodaeth gwyddonol orau bosibl a dehongliad arbenigol fel yr oedd ym mis Chwefror 2019. Bydd y cyngor a ddarperir yma yn newid wrth i'n gwybodaeth am y safle ac effeithiau gweithgareddau dyn wella.

Er mwyn sicrhau bod y safle'n cyfrannu at Statws Cadwraeth Ffafriol, mae angen rheoli gweithgareddau dyn ar y safle ac o'i gwmpas os ydynt yn debygol o gael effaith andwyol ar gyfanrwydd y safle (yn uniongyrchol neu'n anuniongyrchol) o safbwynt ei Amcanion Cadwraeth. Dylid nodi bod y llamhidydd yn ei warchod drwy Ewrop gyfan fel Rhywogaeth a Warchodir Gan Ewrop yn Atodiad IV y Gyfarwyddeb Cynefinoedd. O ganlyniad mae llawer o fesurau rheoli ar waith eisoes yn y DU.

Er mwyn diwallu Amcanion Cadwraeth safle llamhidydd North Anglesey Marine / Gogledd Môn Forol, dylai'r awdurdodau perthnasol[1] a chymwys[2] ystyried gweithgareddau dyn yn rhan o'u cylch gwaith a allai gael effaith ar gyfanrwydd y safle.

[1] Awdurdodau perthnasol yw'r rhai sydd eisoes yn ymwneud â rhyw fath o swyddogaeth reoleiddiol forol berthnasol a fyddai'n ymwneud yn uniongyrchol felly â rheoli safle morol sydd o fewn dyfroedd tiriogaethol. Mae'r cyrff a all fod yn awdurdodau perthnasol wedi eu rhestru yn Rheoliad 6 Rheoliadau Gwarchod Cynefinoedd a Rhywogaethau 2017. Mae'r holl awdurdodau perthnasol hefyd yn awdurdodau cymwys.

[2] Mae awdurdodau cymwys yn cael eu diffinio yn Rheoliad 5, Rheoliadau Cadwraeth Cynefinoedd a Rhywogaethau Morol Alltraeth 2017 a Rheoliad 7, Rheoliadau Gwarchod Cynefinoedd a Rhywogaethau 2017. I grynhoi, mae awdurdod cymwys yn unrhyw berson neu sefydliad y rhoddwyd awdurdod cyfreithiol neu ddirprwyedig iddo (e.e. Gweinidog, adran o'r llywodraeth, unrhyw fath o gorff cyhoeddus neu ymgymerydd statudol) i gyflawni swyddogaeth ddynodedig.

# Contents

1 Introduction ..... 1
1.1 Background ..... 1
2 Responsibilities of Relevant and Competent Authorities ..... 2
3 Conservation Objectives for harbour porpoise SACs ..... 2
3.1 The role of Conservation Objectives ..... 2
3.2 Background to Conservation Objectives ..... 3
3.3 The North Anglesey Marine/ Gogledd Môn Forol SAC Conservation Objectives ..... 3
4 Advice on Operations ..... 6
4.1 Purpose of advice ..... 6
4.2 Background ..... 7
5 Operation assessments at UK scale ..... 7
6 Site specific considerations: North Anglesey Marine/ Gogledd Môn Forol SAC ..... 9
6.1 Sensitivity of harbour porpoise to existing activities within or impacting on the site ..... 9
6.2 Limitations of the evidence ..... 16
7 References ..... 18
8 Annex A: Assessment of the level of impact risk from operations (activities) on UK harbour porpoise populations ..... 20
9 Annex B: Definitions of Pressures as applied within harbour porpoise SAC Advice on Operations ..... 25

# 1 Introduction

## 1.1 Background

Initial advice on a network of sites identified within UK waters for harbour porpoise (*Phocoena phocoena*) was submitted to UK and Devolved Governments as a series of draft SACs in June 2015. The sites were identified within the UK portions of Management Units (MUs[4]) defined for the species (ICES, 2014; IAMMWG, 2015). The Welsh and Northern Ireland Governments, along with Defra on behalf of England and relevant offshore waters, gave approval for sites within their areas of jurisdiction to proceed to consultation (January to May 2016). In light of the responses to the consultation, five sites were submitted to the European Commission as candidate SACs in January 2017. These five sites were adopted by the EC as Sites of Community Importance (SCIs) on 12 December 2017 and designated as SACs by Ministers on 26th February 2019. These sites are shown in Figure 1.

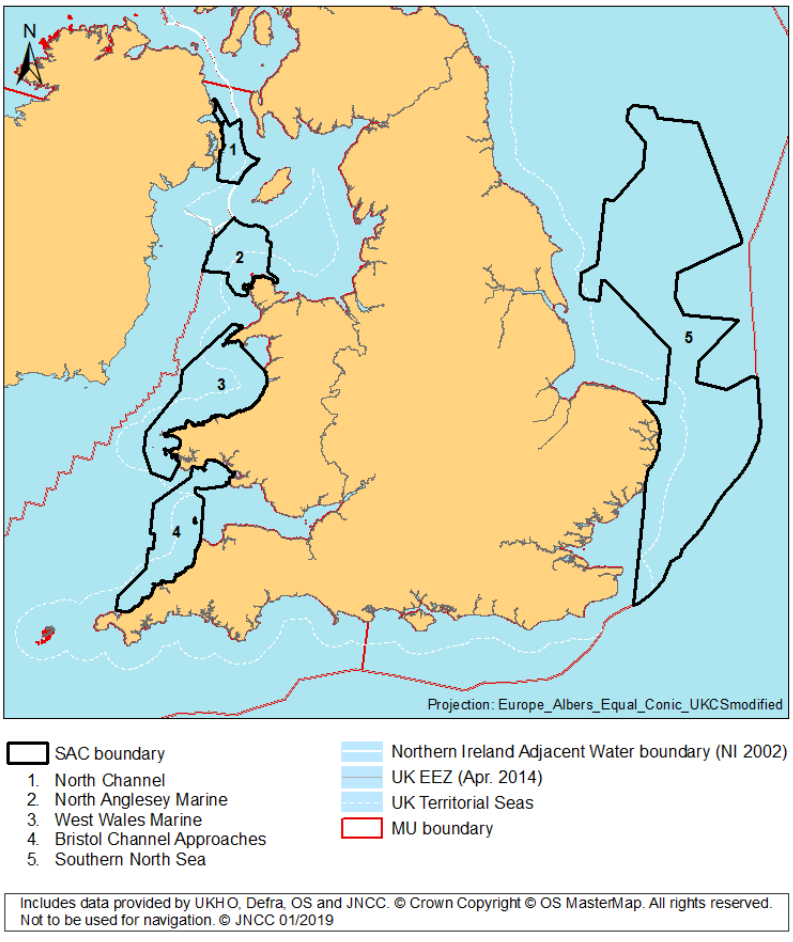



**Figure 1:** Special Areas of Conservation for the harbour porpoise, *Phocoena phocoena* identified in Northern Ireland, England, Wales and offshore waters. The Management Unit (MU) boundary (red line) refers to the UK portion of the North Sea and Celtic and Irish Seas MUs.

[4] For conservation and management purposes it is practical to divide the population into smaller units, termed Management Units (MUs). These MUs were developed to take account of biological populations of animals but were also be determined by political boundaries and are at an appropriate scale at which to assess human activities. In the UK, three MUs have been defined for harbour porpoise: West of Scotland, Celtic and Irish Seas, and North Sea (IAMMWG, 2015)

This advice document is for the North Anglesey Marine/ Gogledd Môn Forol SAC (Figure 2) which is subject to protection under the Conservation of Habitats and Species Regulations 2017[5] and the Conservation of Offshore Marine Habitats and Species Regulation 2017[6] (collectively referred to as the Habitats Regulations). The advice is given in fulfilment of the duty of the Statutory Nature Conservation Bodies (SNCBs) under the Habitats Regulations to advise Relevant and Competent Authorities as to (a) the Conservation Objectives for the site; and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. The SNCBs aim to ensure that the Conservation Objectives are up-to-date, accessible and enable the assessment of the potential effects of plans and projects.

# 2 Responsibilities of Relevant and Competent Authorities

Competent Authorities (including those which are also Relevant Authorities) are required to exercise their functions to comply with the Habitats Regulations. Competent Authorities must, within their areas of jurisdiction, consider both direct and indirect effects on the site. This includes considering operations inside and outside the boundary of the SAC, if the impacts could affect the achievement of the site's Conservation Objectives. Decisions on management measures (e.g. the scale and type of mitigation) are the responsibility of the relevant regulatory or management bodies. These bodies will consider SNCB advice and hold discussions with the sector concerned, where appropriate. Where consent is required and the operation (if considered a plan or project) is likely to significantly affect a European Site, Article 6(3) of the Habitats Directive requires that an Appropriate Assessment (AA) is carried out. The AA is part of the "Habitat Regulations Assessment" (HRA), which is a case-specific assessment made in view of the Conservation Objectives for the affected site or sites. Each HRA requires case-specific advice from the SNCB but the assessment is the responsibility of the competent authority concerned.

The variability of harbour porpoise distribution and abundance within sites is in part due to their mobility and wide-ranging nature as well as natural and anthropogenic changes in habitat and prey. Relevant and Competent Authorities are not required to undertake any actions to ameliorate changes in the condition of the site if it is shown that the changes result wholly from natural causes. It is therefore important to contextualise any apparent deterioration of harbour porpoise presence in the site in terms of natural variability and the abundance and distribution patterns at the population level (i.e. MU).

# 3 Conservation Objectives for harbour porpoise SACs

## 3.1 The role of Conservation Objectives

Site level Conservation Objectives (COs) are a set of specified objectives that must be met to ensure that the site contributes in the best possible way to achieving Favourable Conservation Status (FCS) of the designated site feature(s) at the national and biogeographic level (EC, 2012). Conservation Objectives constitute a necessary reference for:

- identifying any site-based conservation measures that may be required;
- carrying out HRAs of the implications of plans or projects.

The purpose of the HRA is to determine whether a plan or project adversely affects a site's integrity. The critical consideration in relation to site integrity is not the extent or degree of an impact, or whether an impact is direct or indirect, but whether a plan or project, either

[5] http://www.legislation.gov.uk/uksi/2017/1012/contents/made
[6] http://www.legislation.gov.uk/uksi/2017/1013/contents/made

individually or in combination with other plans or projects, affects the site's ability to achieve its Conservation Objectives and therefore contribute to Favourable Conservation Status.

Harbour porpoise are protected everywhere in European waters under the provisions of the Habitats Regulations. The harbour porpoise in UK waters are considered part of a wider European population and the highly mobile nature of this species means that the concept of a 'site population' is not considered an appropriate basis for expressing Conservation Objectives for this species. Site based conservation measures will complement wider ranging measures that are in place for the harbour porpoise.

### 3.2 Background to Conservation Objectives

The Conservation Objectives are designed to help ensure that the obligations of the Habitats Directive can be met. Article 6(2) of the Directive requires that there should be no deterioration or significant disturbance of the qualifying species or to the habitats upon which they rely. Therefore, the focus of the Conservation Objectives for harbour porpoise sites is on addressing pressures that affect site integrity and would include:

- killing or injuring harbour porpoise (directly or indirectly);
- preventing their use of significant parts of the site (disturbance / displacement);
- significantly damaging relevant habitats; or
- significantly reducing the availability of prey.

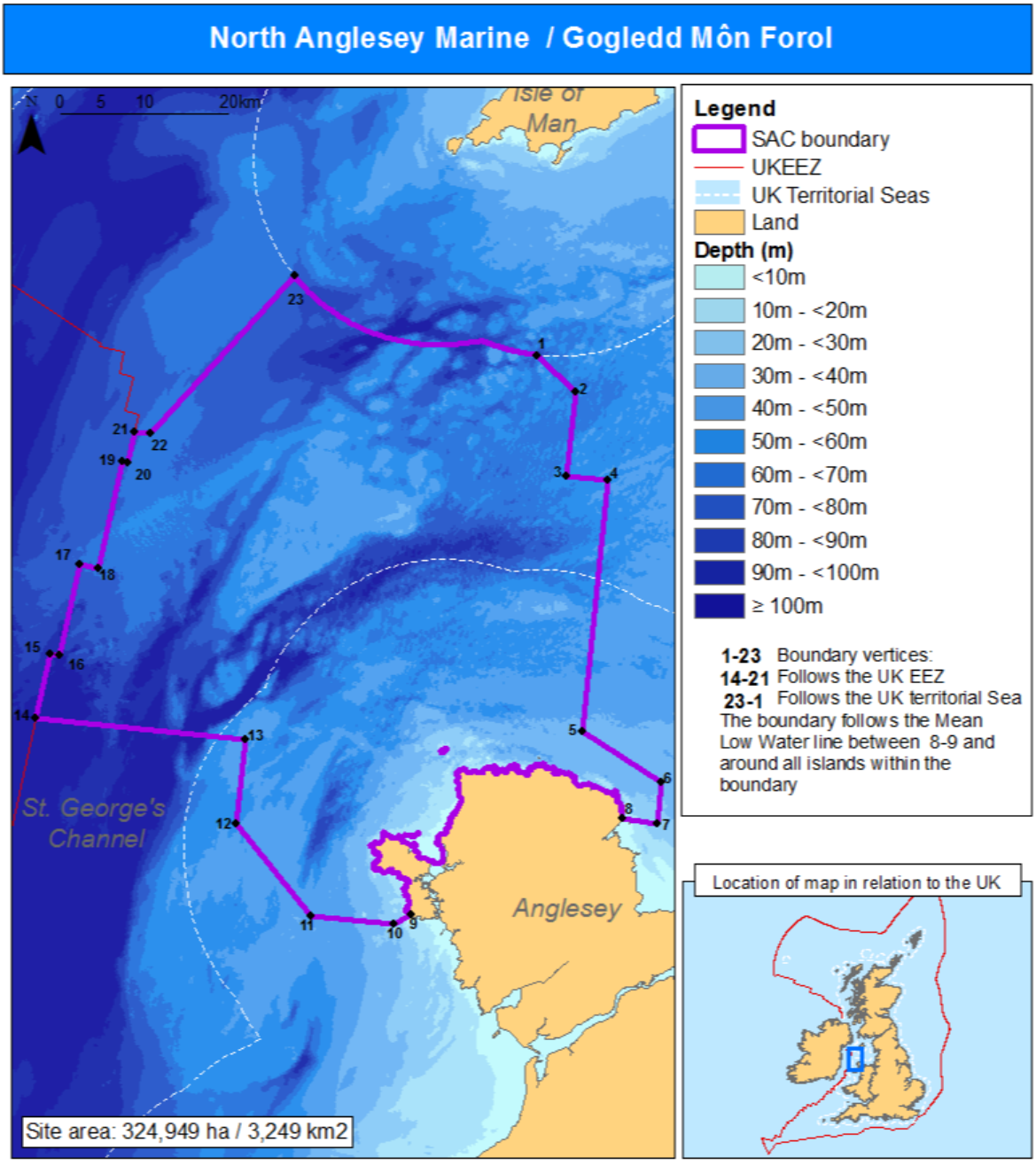
This document includes both a statement of the Conservation Objectives and explanatory text on their intent and interpretation specific to the site. The Objectives have been set taking account of European Commission guidance (EC, 2012). Further guidance on the management of specific pressures of harbour porpoise is being developed.

### 3.3 The North Anglesey Marine/ Gogledd Môn Forol SAC Conservation Objectives

The qualifying feature of the site is the Habitats Directive Annex II species:

- harbour porpoise (*Phocoena phocoena*)

Seasonal differences in the relative use of the site have been identified based on the analyses of Heinänen and Skov (2015). Harbour porpoise sightings data were modelled seasonally (Summer: April-September and Winter: October-March) for each MU. The outputs of this analysis were maps of areas by season and MU, that persistently contained elevated densities of harbour porpoises. These areas were used as the basis for site identification and as a consequence, sites may have seasonal components which should be considered in the assessment of impacts and proposed management. North Anglesey Marine / Gogledd Môn Forol (Figure 2) has been designated because of its importance to harbour porpoises in the summer months (April to September).




Includes data provided by UKHO, Defra, OS and JNCC. © Crown Copyright © OS MasterMap. All rights reserved.
Not to be used for navigation. © JNCC 02/2019. Coordinates displayed in WGS84 geographic coordination system.
Site area calculated using modified Europe Albers Equal Area Conic UK projection.

| ID | Latitude | Longitude | ID | Latitude | Longitude | ID | Latitude | Longitude | ID | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 53° 51' 13.5" N | 4° 35' 25.8" W | 7 | 53° 23' 31.3" N | 4° 12' 22.2" W | 13 | 53° 23' 20.3" N | 4° 57' 33.8" W | 19 | 53° 38' 60" N | 5° 17' 0" W |
| 2 | 53° 49' 25.9" N | 4° 30' 32.1" W | 8 | 53° 23' 27.2" N | 4° 16' 4.9" W | 14 | 53° 21' 47.7" N | 5° 20' 0.0" W | 20 | 53° 38' 60" N | 5° 16' 20.4" W |
| 3 | 53° 44' 5.1" N | 4° 29' 34.5" W | 9 | 53° 14' 36.2" N | 4° 36' 12.8" W | 15 | 53° 25' 60" N | 5° 20' 0" W | 21 | 53° 40' 59.383" N | 5° 16' 20.401" W |
| 4 | 53° 44' 22.0" N | 4° 25' 4.0" W | 10 | 53° 13' 49.5" N | 4° 37' 45.7" W | 16 | 53° 25' 60" N | 5° 19' 0" W | 22 | 53° 41' 6.545" N | 5° 14' 35.945" W |
| 5 | 53° 28' 19.3" N | 4° 22' 14.9" W | 11 | 53° 13' 14.7" N | 4° 46' 40.1" W | 17 | 53° 32' 0" N | 5° 19' 0" W | 23 | 53° 52' 54.106" N | 5° 2' 58.412" W |
| 6 | 53° 26' 11.8" N | 4° 12' 49.5" W | 12 | 53° 17' 59.8" N | 4° 56' 34.0" W | 18 | 53° 32' 0" N | 5° 17' 0" W | | | |

**Figure 2:** The North Anglesey Marine / Gogledd Môn Forol Special Area of Conservation for harbour porpoise.

The Conservation Objectives for the site are:

**To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters**

In the context of natural change, this will be achieved by ensuring that:

1. Harbour porpoise is a viable component of the site;

2. There is no significant disturbance of the species; and

3. The condition of supporting habitats and processes, and the availability of prey is maintained.

**Conservation Objective 1: Harbour porpoise is a viable component of the site**

This SAC has been selected primarily based on the long-term, relatively higher densities of porpoise in contrast to other areas of the MU. The implication is that the SAC provides relatively good foraging habitat and may also be used for breeding and calving. However, because the number of harbour porpoise using the site naturally varies (e.g. between seasons), there is no exact number of animals within the site.

The intent of this objective is to minimise the risk of injury and killing or other factors that could restrict the survivability and reproductive potential of harbour porpoise using the site. Specifically, this objective is primarily concerned with operations that would result in unacceptable levels of those impacts on harbour porpoises using the site. Unacceptable levels can be defined as those having an impact on the FCS of the populations of the species in their natural range. The reference population for assessments against this objective is the MU population in which the SAC is situated (IAMMWG, 2015).

Harbour porpoise is a European Protected Species (EPS) listed on Annex IV of the Habitats Directive and as such is protected under the Habitats Directive Article 12 and transposing regulations from deliberate killing (or injury), capture and disturbance throughout its range. In addition, Article 12 (4) of the Habitats Directive is concerned with incidental capture and killing. It states that Member States 'shall establish a system to monitor the incidental capture and killing of the species listed on Annex IV (all cetaceans). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned'. Site based measures should therefore be aligned with the existing strict protection measures in place throughout UK waters. Significant disturbance within or affecting the site is considered in the second conservation objective.

**Conservation Objective 2: There is no significant disturbance of the species**

Disturbance of harbour porpoise typically, but not exclusively, originates from operations that cause underwater noise including, as examples, seismic surveys, pile driving and sonar. Responses to noise can be physiological and/or behavioural. JNCC has produced guidelines to minimise the risk of physical injury to cetaceans from various sources of loud, underwater noise[7]. However, disturbance is primarily a behavioural response to noise and may, for example, lead to harbour porpoises being displaced from the affected area.

This SAC was identified as having persistently higher densities of harbour porpoises (Heinänen and Skov, 2015) compared to other areas of the MU. This is likely linked to the habitats within the site providing good feeding opportunities. Therefore, operations within or affecting the site should be managed to ensure that the animals' potential usage of the site is

[7] http://jncc.defra.gov.uk/page-4273

maintained. Disturbance is considered significant if it leads to the exclusion of harbour porpoise from a significant portion of the site. Specifically, draft SNCB advice / guidance for assessing the significance of noise disturbance to a site suggests:

Noise disturbance within an SAC from a plan/project individually or in combination is significant if it excludes harbour porpoises from more than:

1. 20% of the relevant area[8] of the site in any given day[9], and

2. an average of 10% of the relevant area of the site over a season[10,11].

**Conservation Objective 3: The condition of supporting habitats and processes, and the availability of prey is maintained**

Supporting habitats, in this context, means the characteristics of the seabed and water column. Processes encompass the movements and physical properties of the habitat. The maintenance of supporting habitats and processes contributes to ensuring that prey is maintained within the site and is available to harbour porpoises using the site. Some evidence shows that the harbour porpoise has a high metabolic rate compared to terrestrial mammals of similar size (Rojano-Doñate et al. 2018) and high feeding rates (Wisniewska et al., 2016). The harbour porpoise is therefore thought to be a species that is highly dependent on a year-round proximity to food sources and its distribution and condition may strongly reflect the availability and energy density of its prey (Brodie 1995 in Santos & Pierce, 2003). The densities of porpoise using a site are likely linked to the availability (and density) of prey within the site. Harbour porpoise eat a variety of prey including gobies, sandeel, whiting, herring and sprat. However, the diet of porpoises when within the sites is not well known but is likely comparable to that in the wider seas.

There are several operations (Table 2) which potentially affect the achievement of this Conservation Objective. Whilst some plans/projects are unlikely to have a significant effect alone, an effect might become significant when considered in combination with other plans/projects and against the background of existing activities/pressures on the site. Further work is needed to assess historic, existing and planned levels of plans/projects in the sites and to better understand their impacts on the habitats and prey within the sites.

# 4 Advice on Operations

## 4.1 Purpose of advice

This section details the activities specifically occurring within or close to the North Anglesey Marine/ Gogledd Môn Forol SAC that would be expected to impact the site; this is known as Advice on Operations. Initial assessments were conducted at a UK scale, with subsequent

[8] The relevant area is defined as that part of the SAC that was designated on the basis of higher persistent densities for that season (summer defined as April to September inclusive, winter as October to March inclusive).

[9] Applicable only in Habitats Regulations Assessments (HRA) due to impracticality of daily noise limit management of activities, but retrospective compliance analysis advised

[10] Summer defined as April to September inclusive, winter as October to March inclusive

[11] For example, a daily footprint of 19% for 95 days would result in an average of 19x95/183 days (summer) =9.86%

site-level assessment detailing our understanding of the operations and their potential to impact the site (Section 5 & 6). Advice is only given where pressures[12] may impact the site and therefore, may require management, if the Conservation Objectives are to be met. Widespread pressures may also act to affect the overall status of harbour porpoise, but their effects are not restricted to specific sites. Such pressures are best dealt with through broader measures. Alongside and in addition to the identification of the network of harbour porpoise sites, an overarching conservation strategy (DETR, 2000) has been in place for harbour porpoise since 2000. In light of a recent conservation literature review (IAMMWG *et al.,* 2015), a UK Dolphin and Porpoise Conservation Strategy is being developed.

The advice outlined below should also be used to help identify the extent to which existing operations are, or can be made, consistent with the Conservation Objectives, and thereby focus the attention of Relevant and Competent Authorities and monitoring programmes to areas that may need management measures.

This Advice on Operations will be supplemented through further discussions with the Relevant and Competent Authorities and any advisory groups that may be formed for the site.

### 4.2 Background

In compiling this Advice on Operations, the SNCBs have considered the pressures that may be caused by human activities and may affect the integrity of the site when considered against the Conservation Objectives. The advice is generated through a broad grading of sensitivity and exposure of the harbour porpoise to pressures associated with activities to gain an understanding of how vulnerable the species is to each activity at a UK level. The activities and their associated pressures to which the harbour porpoise is deemed vulnerable at a UK level are then considered at a site level to inform the risks to achieving the Conservation Objectives along with any potential management that may be required to mitigate against such risks. Annex A details the assessments of the level of impact risk[13] from operations on harbour porpoise populations at a UK-wide scale. This informs on the activities likely to impact the site.

This document is guidance only and activities and their management within or affecting the site will be considered in the context of Habitats Regulations Assessment (HRA) and where applicable through other environmental assessment processes, such as Environmental Impact Assessment (EIA).

## 5 Operation assessments at UK scale

The assessments have been carried out using all available evidence as of February 2019. If further information is made available in future which would improve our understanding of harbour porpoise vulnerability in UK waters, the assessments may be updated. This advice is provided without prejudice for use by the Relevant and Competent Authorities. The level of any impact will depend on the location, timing and intensity of the relevant operation. This advice is provided to assist and focus the Relevant and Competent Authorities in their consideration of the management of these operations.

The harbour porpoise is a wide-ranging species and occurs throughout the UK Continental Shelf area (JNCC, 2013). It does occur in deeper waters but in very low densities, and perhaps only seasonally. As a predominantly continental shelf species, it is exposed to a wide range of pressures that are both ubiquitous (e.g. pollution) and patchy (e.g. bycatch) in nature, and the list of anthropogenic activities leading to these pressures is long. Based on current

[12] See Annex B for definition of key terms
[13] Risk includes consideration of severity of implications of impact

available information, the operations that pose the most notable risk of impact to UK harbour porpoise are shown in Table 1.

The current levels of impact of the various pressures are based on the Article 17 assessments[14] and the full list of assessed activities and key references can be found in Annex A. Updates to the assessments will occur as more evidence becomes available.

Definitions of pressures are explained in Annex B.

Activities which currently pose a low risk of impact to harbour porpoise at the UK level (Annex A) have not been considered in this advice. The exposure to the pressures associated with these activities is currently very limited. Non-anthropogenic impacts are also not considered, such as attack and predation from other marine mammal species that have the potential to impact harbour porpoise populations.

.

**Table 1:** Key activities (operations) and the relative level of risk of impactson harbour porpoise throughout UK waters. Those pressures ranked 'high' are known to have the greatest impact relative to other pressures on the population of UK harbour porpoises. Activities which currently pose a low risk are not shown.

| **Operations** | **Pressures** | **Impacts** | **Current relative level of risk of impact** |
|---|---|---|---|
| Commercial fisheries with bycatch of harbour porpoise (predominantly static nets) | **Removal of non-target species** | • Mortality through entanglement/bycatch | High |
| Discharge/run-off from land-fill, terrestrial and offshore industries | **Contaminants** | • Effects on water and prey quality<br>• Bioaccumulation through contaminated prey ingestion<br>• Health issues (e.g. on reproduction) | High |
| Shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity | **Anthropogenic underwater sound** | • Mortality<br>• Internal injury<br>• Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising)<br>• Habitat change/loss | Medium |
| Shipping, recreational boating, tidal energy installations | **Death or injury by collision** | • Mortality<br>• Injury | Medium/Low |
| Commercial fisheries (reduction in prey resources) | **Removal of target species** | • Reduction in food availability<br>• Increased competition from other species<br>• Displacement from natural range | Medium |

[14] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf . Updated Article 17 reports for 2013-2018 will be available in 2019.

# 6 Site specific considerations: North Anglesey Marine/ Gogledd Môn Forol SAC

## 6.1 Sensitivity of harbour porpoise to existing activities within or impacting on the site

The North Anglesey Marine / Gogledd Môn Forol site covers an area of 3,249km$^2$, reaching north-west from the Isle of Anglesey into the Irish Sea. It sits at the northern extent of St. George's Channel, extending approximately half way across to the Republic of Ireland, skirting the national waters of the Isle of Man. A summary of the site can be found in the Selection Assessment Document on the Site Information Centre [15].

All available information on activities within the site has been used to assess the threats and pressures within the site. However, precise information on some activities within the boundary is not currently available due to lack of targeted data collection to date. Assessing exposure carries certain assumptions about the spatial extent, frequency and intensity of the pressures associated with marine activities.

Table 2 is an overview of activities (operations) occurring within or in proximity to the North Anglesey Marine / Gogledd Môn Forol site to which the harbour porpoise has a current level of impact risk of High or Medium at UK level and therefore may require further consideration concerning options for management. The impact of a pressure at the site level can differ to that at UK level dependent on the amount of activity within or adjacent to the site. GIS layers of spatial activity data as well as review of literature, were used to identify the impact risk within the site (where a pressure is concentrated within a site) and whether it differs from the UK level risk. These assessments include all available information as of February 2019.

In 2012, Defra announced a revised approach to the management of fishing activities within European Marine Sites (EMS) in England[16]. The revised approach is designed to ensure consistency in the management of fishing activities with Article 6 of the Habitats Directive. For SACs or parts of SACs outside of 12 nm, management measures will be introduced by appropriate regulators to ensure adequate protection.

The Welsh Government is assessing new fisheries legislation and permitted activities under Article 6 of the Habitats and Birds Directives. The Welsh Government, in partnership with Natural Resources Wales, are undertaking a structured evaluation of the impacts from fishing activities (from licensed and registered commercial fishing vessels) on the features of Marine Protected Areas (MPA) in Welsh waters is. This is referred to as the Assessing Welsh Fishing Activities (AWFA) Project[17]. The Welsh Government is responsible for decisions relating to whether additional management measures are required to avoid impacts to features of MPAs in Welsh waters. The evidence base provided by the AWFA Project will inform fisheries management decisions and support the aims of The Well-being of Future Generations (Wales) Act 2015, The Environment (Wales) Act 2016 and the Habitats Directive by contributing to the sustainable management of the marine environment.

JNCC and the country SNCBs are working with the Regulators and Industry to ensure that a pragmatic approach to mitigation and management of pressures that may affect the integrity of the site is adopted. Any future guidance documents will be made available on the Site Information Centre on the JNCC website[18].

[15] SAC Selection Assessment Document: http://jncc.defra.gov.uk/page-7244

[16] https://www.gov.uk/government/publications/revised-approach-to-the-management-of-commercial-fisheries-in-european-marine-sites-overarching-policy-and-delivery

[17] https://naturalresources.wales/about-us/our-projects/marine-projects/assessing-welsh-fishing-activities/?lang=en

[18] http://jncc.defra.gov.uk/page-7244

**Table 2:** Operations (activities) occurring within/near to the North Anglesey Marine/Gogledd Môn Forol site which may affect the integrity of the site.

| Operations | Pressure | Comment on current level of activity | Management considerations |
|---|---|---|---|
| Fisheries (commercial and recreational) with harbour porpoise bycatch | Removal of non-target (bycatch) species | Bycatch of harbour porpoise in fishing gear is one of the most significant anthropogenic pressures impacting the population at a UK level. The relevant commercial fisheries with harbour porpoise bycatch are bottom set nets, such as gillnets and tangle nets.<br><br>UK registered vessels >12m: Evidence in Vessel Monitoring System (VMS) data of low levels of static gear vessels crossing over a small portion of the northwest corner of the site boundary[19].<br><br>Vessels <12m (the majority, ~92%, of Welsh small scale commercial fleet being <10m) include static nets: Effort is considered low and byatch is thought to be negligible.<br><br>Recreational netting also occurs at a very low level of effort along the coast with likely negligible (no known) bycatch.<br><br>EU registered vessels: Evidence in Vessel Monitoring System (VMS) data of low levels of static gears (>12m vessels) crossing over the northwest of the site boundary. | Where bycatch may pose a risk to achieving the site's conservation objectives, mitigation may be required.<br><br>Where management measures are required, the development of these would be led by fishery managers in discussion with fishing interests and informed by any detailed information about fishing activity that can be made available. Detailed measures, if required, will be developed by the relevant management authority (European Commission/MMO/Defra/Welsh Government)<br><br>Gillnetters of >12m working within the site operate within ICES area VIIa and are therefore not legally required to use pingers under EU Regulation 812/2004[20]. The risk of bycatch from this sector in the context of the Conservation Objectives of the site may need to be assessed.<br><br>Although bycatch is thought to be negligible within the site, the greatest risk is posed by the numerous small bottom-set gillnetting vessels (<12m), for which the use of pingers is not mandatory under Regulation 812/2004. Effort by this sector of the fleet in the site is currently considered low and risk of bycatch is likely negligible. The need for further management will need to be fully assessed based on local fisheries data. However, it is currently considered that requirement of further measures is unlikely given current impact. |
| Discharge/ run-off from land-fill, terrestrial/ offshore industries | Contaminants | Current exposure within/near the site is unknown but historical metal mining operation outfalls potentially exist within the site. Wylfa nuclear power station operation and decommissioning, and re-construction and operation of new proposed nuclear station | This pressure generally cannot be managed effectively at the site level. Most of the pollutants of relevance to marine mammals have been effectively phased out of use by action under the OSPAR Convention and, more recently, the EU (through Council Directives 67/548/EEC and 76769/EEC and the Stockholm convention, which restrict the marketing and use of PCBs; |

[19] The fisheries data are aggregated VMS data collected between 2006 and 2013.
[20] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:150:0012:0031:EN:PDF

| | | | |
|---|---|---|---|
| | | will have thermal discharge inputs. | plan for disposal of PCBs; and eliminate or restrict the production and use of persistent organic pollutants [POPs]). However, human activities are the most likely cause of the re-release of these chemically stable chemicals into the environment or for introduction of other contaminants of which the impacts are poorly known.<br><br>Any novel sources of potential contamination and/or activities likely to cause re-release of pollutants from stores associated with a new plan or project will be assessed under HRA both within and outside the site where there is the potential to impact upon site integrity.<br><br>Current sources of exposure have to be identified and further efforts to limit or eliminate discharges to the marine environment may still be needed. |
| Shipping | Anthropogenic underwater sound | The ferry port in Holyhead on Anglesey is the only significant harbour affecting the site. Shipping routes cross the site serving Liverpool Bay and Dublin. There is the traffic separation scheme to the west of the site. | Harbour porpoise use sound for foraging, navigation, communication and predator detection. Underwater noise therefore has the potential to interrupt or affect these behaviours as well as cause hearing damage, particularly at short distances. The peak frequency of echolocation pulses produced by harbour porpoise is 120–130 kHz, corresponding to their peak hearing sensitivity although hearing occurs throughout the range of ~1 and 180 kHz (Southall *et al.,* 2007).<br><br>The underwater sounds created by large ships are unlikely to cause physical trauma, but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance). However, additional management is unlikely to be required based on current levels of activity. Significant increases in vessel traffic, for example as may be associated with large-scale marine developments in the area,would be routinely assessed in HRA. |
| Oil and gas drilling | | Licensed areas for oil and gas extraction are not currently present in the site. | No management required, other than HRA of any plans/projects that may come forward. |
| Pile driving | | Proposed harbour/breakwater construction likely to utilise impact piling. Other marine developments, eg tidal stream and offshore wind, may utilise | A European Protected Species (EPS) licence may be needed for any construction activity which carries the risk of significant disturbance or deliberate injury to cetaceans. |

| | | | |
|---|---|---|---|
| | | impact piling during installation of turbine foundations.<br><br>The Crown Estate Potential New Leasing Round (2019) for offshore wind may propose leasing regions that overlap or are adjacent to the North Anglesey Marine SAC: Irish Sea (Region 17), Anglesey (Region 15) and North Wales (Region 16) | Developers are advised to follow the 'Statutory Nature Conservation Agency protocol for minimising the risk of injury to marine mammals from piling noise''[21].<br><br>A Habitats Regulations Assessment (HRA) is required for any development that might affect site integrity. If mitigation additional to the standard SNCB protocols (as above) is required as a result of environmental assessments (e.g. noise abatement techniques, Acoustic Deterrent Devices), planning and management of pile driving activities and mitigation will be needed within the site to ensure the Conservation Objectives are met.<br><br>Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs in consultation with Regulators, industry and NGOs. |
| Dredging and disposal | | Maintenance dredging occurs at ports. The Holyhead North disposal site (ISO43) is within/close to the site and planned dredging and disposal activities are likely for Wylfa power station. | Dredging and disposal can cause disturbance leading to changes in harbour porpoise behaviour as well as changes to their habitat and prey. There is also potential for resuspension of pollutants from the sediment. The risk from single plans/projects may be considered relatively low but is assessed through HRA. However, there is currently considerable uncertainty regarding effects on habitat and prey.<br><br>New dredge and disposal projects (or licence renewals) are subject to HRA. Cumulative impacts will be considered within the HRA. |
| Aggregate extraction | | Limited aggregate resource within the site. | Aggregate extraction can cause disturbance leading to changes to harbour porpoise behaviour as well as to their habitat and prey. However, the risk is considered relatively low for single plans/projects and additional management is unlikely to be required.<br><br>New aggregate extraction projects (or licence renewals) are subject to HRA. Cumulative impacts will be considered within the HRA. |

21 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/50006/jncc-pprotocol.pdf

| | | | |
|---|---|---|---|
| Geophysical surveys (including seismic) | | Commercial seismic activity is currently of a low level in the site, although large-scale surveys have covered areas within the site boundary in the past. Some acoustic surveys are carried out in relation to marina works. Commercial and research based acoustic seabed surveys using multibeam and/or sidescan sonar occur in parts of the site. | Some geophysical surveys that may affect the integrity of the site may require consent and be subject to HRA.<br><br>Each case needs to be assessed individually, and the *JNCC Guidelines for minimising the risk of injury to marine mammals from geophysical surveys* (updated August 2017[22]) are available online. Within the guidance, seismic survey is defined as *'Any geophysical survey that uses airguns to generate sound which is sent into the seabed and the reflected energy is recorded and processed to produce images of the geological strata below; described as 2D, 3D and 4D and includes any similar techniques that use airguns.'*<br><br>It is currently not known whether sub-bottom profilers cause disturbance to harbour porpoise. Further research is needed to understand the sound propagation and effect ranges from these types of equipment.<br><br>Cumulative impacts of geophysical surveys will need to be considered<br><br>Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs in consultation with Regulators, industry and NGOs. |
| Recreational boating activity | | Royal Yachting Association (RYA) cruising routes present around the coast of Anglesey. | Adherence to wildlife codes of conduct is already advocated:<br><br>WiSe scheme; SeaWatch code of conduct; ZSL code of conduct; The RYA good practice guide - The Green Wildlife Guide for Boaters; Wild Seas Wales; Anglesey and Conwy Marine codes.<br><br>UK SNCBs are looking at the option of developing an overarching wildlife watching code of conduct to sit alongside the Scottish code. |
| Acoustic deterrent/mitigation devices | | Negligible or not currently present. | Management/assessment would be required for use of devices in the site since they introduce noise to the environment and are designed to disturb marine mammals. |
| Pinger devices | | Some UK and EU registered >12m vessels may be using | See 'Fisheries (commercial and recreational) with harbour porpoise bycatch'. |

[22] http://jncc.defra.gov.uk/pdf/jncc_guidelines_seismicsurvey_apr2017.pdf.

| | | | |
|---|---|---|---|
| | | gillnets in the site. Use of pinger devices is unknown. | The use of pingers is required for the >12m sector. However, because vessels <12m are the greatest component of the UK gillnetting fleet, most bycatch occurs in this sector. Effort by <12m of the fleet in the site is currently considered low and, therefore, risk of bycatch is likely to be negligeable. The need for further management will need to be fully assessed based on local fisheries data but it is currently considered unlikely that further measures will be required.<br><br>If further measures were deemed necessary, one option for management could be to extend the pinger requirement to vessels deploying static nets within site boundaries. However, the impact of potential disturbance as a result of pinger use in the site may need to be assessed and the potential for other mitigation options such as alternative gear types or gear modifications considered. |
| Military activity | | Although no active MOD areas are located within the site, MOD can operate anywhere in UK waters. | Activities take place under Range Standing Orders, command guidance and environmental risk management tools, which include measures to reduce the risk of killing, injury and disturbance of marine mammals (for example live firing trials are subject to confirmation that marine mammals are not present in the vicinity of targets). No further management is considered necessary as the MOD, which are a Competent Authority, incorporates the SACs into their assessments via their MOD Environmental Protection Guidelines (Maritime) and Marine Environment and Sustainability Assessment Tool (MESAT)[23]. |
| Unexploded ordnance (UXOs) | | Unknown whether they exist in the site. However, unexploded ordnance from WWII can be found in many areas of UK seas.<br><br>Projects that could inadvertently explode UXOs must undertake a survey to search for possibly ordnance ahead of the project commencing. Any ordnance found must be exploded on | Although the removal (detonation) of unexploded ordnance (UXOs) is short term, the noise is significant and can cause injury or death to harbour porpoise. A HRA may be required. A European Protected Species licence may also be required.<br><br>Mitigation is usually required to reduce risk of injury and killing. As a minimum, the JNCC guidelines for minimising the risk of disturbance and injury to marine mammals whilst using explosives are applied. A combination of Marine |

[23] http://www.royalnavy.mod.uk/-/media/royal-navy-responsive/documents/useful-resources/environmental-protection/environmental-protection-guidelines-maritime-v21.pdf?la=en-gb

| | | | |
|---|---|---|---|
| | | site, or removed for health and safety reasons. | Mammal Observers (MMO)s, Acoustic Deterrent Devices (ADD) and occasionally scare charges are used to ensure harbour porpoise and other marine mammals are a sufficient distance from the explosion to prevent death or injury. Discussions are ongoing between industry, regulators and SNCBs on the most appropriate suite of mitigation measures for UXO clearance (including the possible use of bubble curtains). This will depend on the size of UXOs likely to be encountered and the practicality of deployment of the mitigation measure, amongst other factors. |
| Shipping | Death or injury by collision | The ferry port in Holyhead on Anglesey is the only significant harbour affecting the site. Shipping routes cross the site serving Liverpool Bay and Dublin. | Post mortem investigations of stranded harbour porpoise (Deaville and Jepson, 2011; Deaville 2011:2017) have revealed some deaths caused by trauma (potentially linked with vessel strikes). However, this is not currently considered a significant risk and no additional management is likely to be required. |
| Recreational boating activity | | Sailing and racing routes focussed around the coastal areas, with cruising routes throughout the site. | See 'Shipping' (with death or injury by collision) above.<br><br>Boats conducting recreational activity should adhere to wildlife codes of conduct to avoid risk of collision (see 'recreational boating activity' with regards to underwater noise). |
| Wet renewable energy installations | | A variety of wet renewable development projects have been and are proposed within the site, including in the West Anglesey Demonstration zone for tidal energy. | New tidal range, tidal stream and wave projects would be subject to HRA. Additionally, an EPS licence might be suitable if there is a residual risk of significant disturbance or injury. Any consented, but not yet built, tidal stream and tidal range developments likely to impact the SAC will likely undergo a review of consent.<br><br>Animal detection systems, e.g. active and passive acoustics, are used to monitor animal presence and behaviour around devices for consented projects. These systems might be used to establish any probable collisions and invoke adaptive management decisions. In addition, the use of ADDs is a possible mitigation tool to exclude animals from the vicinity of devices<br><br>Potential future mitigation related to death or injury by collision will be based on new and emerging research and evidence. |

| | | | |
|---|---|---|---|
| Commercial fisheries (and recreational set nets) | Removal of target (prey) species | UK and EU Fisheries targeting prey species such as whiting, herring, mackerel, sandeel and sprat are present in the Celtic and Irish Seas. However, pelagic fishing effort is low within the site.<br><br>The majority of the Welsh fleet are vessels <10m length i.e. small scale. Most fisheries within the site are demersal and target shellfish, but there are some vessels that use static nets but fishing effort is considered to be low. | Currently, most commercial species are managed at scales relevant for stock management via the Common Fisheries Policy (CFP), not at the site level. Some species, however, are caught and sold commercially but do not have a Total Allowable Catch (TAC) for the Irish Sea area e.g sandeel, gurnard or stocks are not managed under the CFP eg flounder, black bream.<br><br>Harbour porpoise diet within UK waters includes a wide variety of fish and they will generally focus on the most abundant local species (De Pierrepont *et al* 2005; Camphuysen *et al* 2006). The predominant prey type in the UK appears to be whiting, gobies and sandeel, although shoaling fish such as mackerel and herring are also taken. Harbour porpoise diets overlap extensively with diets of other piscivorous marine predators (notably seals) and many of the main prey species are also taken by commercial fisheries, although porpoise tend to take smaller fish than those targeted by fisheries (Santos and Pierce 2003).<br><br>The overlap between commercial fisheries and harbour porpoise prey is unknown within the site. Further research is required to establish whether any management would be required. |

## 6.2 Limitations of the evidence

It is important to note that the information used to catalogue activities/operations occurring within the site is not complete. The available data are drawn from existing monitoring programmes (e.g. the UK's Bycatch Monitoring Scheme for Protected Species and other European datasets linked to VMS monitoring of fishing vessels) but these have limitations, including availability and accessibility of data at the time of preparing this advice. Caveats with how the data have been collected also need to be understood to correctly interpret the information. This has resulted in the use of expert judgement where sufficient evidence is lacking but risk is implied. Below are some points to consider alongside the above table to ensure the information is not taken out of context:

- **Data availability**
    - Globally, the marine environment, particularly in offshore areas, is generally far behind the evidence levels for the terrestrial environment, mainly due to scale and difficulty/cost of data acquisition.
    - There can be sensitivities surrounding data that have been gathered by industry, and some data are not available for use for advice and management purposes. Often these data become available eventually, but not in time to inform management decisions.

- **Fishing: Limitations of fishing Vessel Monitoring System (VMS) data**
    - VMS positional data are transmitted at approximately 2 hour intervals. There is no information transmitted regarding precise vessel activity, therefore assumptions about activity, based on logbook returns and vessel speed profile, are often made.
    - Vessel positional data (VMS) cannot inform regulators regarding extent of static gear deployment or soak times.
    - Fishing vessels under 12m long, (and from 2009 until 2013, vessels under 15m long) are not required to use the VMS.. However, local information can be obtained from fisheries management authorities and will be used to develop more detailed guidance to assist with identification of any management measures where considered necessary.
    - In Wales, the Scallop fishing fleet (mostly <12m long) have vessel tracking devices (Succorfish). There is no evidence of harbour porpoise bycatch associated with this fleet.

- **Contaminants**
    - Although use of many of the relevant substances (e.g. PCBs) has been heavily regulated for many years, including a ban on further production, re-suspension or reintroduction of pollutants may occur. It is difficult to identify sources of contamination when dealing with highly mobile species.

# 7 References


Article 17 Report, 2013. European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012 Conservation status assessment for Species: S1351 - Harbour porpoise (*Phocoena phocoena*). Available

Camphuysen, C.J., Scott, B.E.andWanless, S. 2006. Distribution and foraging interactions of seabirds and marine mammals in the North Sea: multispecies foraging assemblages and habitat-specific feeding strategies. Top Predators in Marine Ecosystems: Their Role in Monitoring and Managemen (eds Boyd, I, Wanless, S, and Camphuysen, C.J.), pp. 82–97. Cambridge University Press, Cambridge, UK.

Deaville, R. (2011:2017). Annual reports for the period 1st January to 31st December. UK Cetacean Strandings Investigation Programme (CSIP). http://ukstrandings.org/csip-reports/

Deaville, R. and Jepson, P D. (Eds). 2011. Final Report for the period 1st January 2005 – 31st December 2010. Cetacean Stranding Investigation Programme CSIP, Defra contracts CR0346 and CR0364. Available at: http://randd.defra.gov.uk/Document.aspx?Document=FinalCSIPReport2005-2010_finalversion061211released[1].pdf

De Pierrepont, J.F. Dubois, B., Desormonts, S., Santos, M.B.A. and Robin, J.P. 2005. Stomach contents of English Channel cetaceans stranded on the coast of Normandy. Journal of the Marine Biological Association of the United Kingdom. *85*:1539-1546.

DETR. 2000. A UK conservation strategy for the harbour porpoise (*Phocoena phocoena*). Department for the Environment Transport and the Regions; Ministry of Agriculture, Fisheries and Food; Scottish Executive Rural Affairs Department; Department of Agriculture and Rural Development (Northern Ireland); National Assembly for Wales Environment Division; Department of the Environment in Northern Ireland

EC, 2012. Commission Note on Setting Conservation Objectives for Natura 2000 Sites. http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/commission_note2.pdf

Heinänen, S. and Skov H. 2015, The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area, JNCC Report 544, ISSN 0963 8091.

IAMMWG, 2015. Management Units for cetaceans in UK waters (January 2015). JNCC Report No. 547, JNCC Peterborough. http://jncc.defra.gov.uk/pdf/Report_547_webv2.pdf

IAMMWG, Camphuysen, CJ & Siemensma, M.L. 2015. A Conservation Literature Review for the Harbour Porpoise (*Phocoena phocoena*). JNCC Peterborough. Report No. 566, Peterborough. 96pp

ICES, 2014. OSPAR request on implementation of MSFD for marine mammals. General Advice, May 2014. http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/Special%20Requests/OSPAR_Implementation_of_MSFD_for_marine_mammals.pdf

JNCC, 2013. Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012. Conservation status assessment for Species:S1351 - Harbour porpoise (Phocoena phocoena). http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

Rojano-Doñate, L., McDonald, B. I., Wisniewska, D. M., Johnson, M., Teilmann, J., Wahlberg, M., Højer-Kristensen, J and Madsen, P. T. High field metabolic rates of wild harbour porpoises. Journal of Experimental Biology 2018 221: jeb185827 doi: 10.1242/jeb.185827 Published 6 December 2018

Santos, M.B. and Pierce, G.J. 2003. The diet of harbour porpoise (*Phocoena phocoena*) in the northeast Atlantic. Oceanography and Marine Biology: an Annual Review, 41, 355-390.

Southall, B. Southall, A. E., Bowles, W., Ellison, T., Finneran, J.J., Gentry, R. L., Greene Jr. C. R., Kastak, D., Ketten, D.R., Miller, J. H., Nachtigall, P. E., Richardson, W. J., Thomas, J. A., Tyack,

P. L. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals, Volume 33, Number 4.

Wisniewska, D. M., Johnson, M., Teilmann, J., Rojano-Doñate, L., Shearer, J., Sveegaard, S., Miller, L. A., Siebert, U and Madsen, P. T. Ultra-High Foraging Rates of Harbor Porpoises Make Them Vulnerable to Anthropogenic Disturbance. Current Biology. May 26, 2016 DOI: https://doi.org/10.1016/j.cub.2016.03.069.

# 8 Annex A: Assessment of the level of impact risk from operations (activities) on UK harbour porpoise populations

The relative level of risk of impact to harbour porpoise from a range of pressures was assessed at UK level (Table A1) as part of the 3rd reporting round for Article 17[24].See Annex B for the definitions of pressures as used for the harbour porpoise assessments. For the assessment the relative importance of the pressure was assessed by considering the evidence available of an impact and the nature of that impact (direct/indirect) together with the area over which the pressure is acting in UK waters in relation to the species distribution. The relative levels are assigned according to the Artcile 17 guidance (Evans and Marvela, 2013) as:

| Code | Meaning | Comment |
|---|---|---|
| H | High importance/impact | Important direct or immediate influence and/or acting over large areas |
| M | Medium importance/impact | Medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally |
| L | Low importance/impact | Low direct or immediate influence, indirect influence and/or active over small part of the area/acting only regionally |

**Table A1** Full assessment of level of the impact risk from operations (activities) on harbour porpoise in UK waters based on considerations for Article 17 assessment for harbour porpoise conservation status[25].

| **Operations** | **Pressures** | **Impacts** | **Relative level of risk of impact** | **Evidence** | | **Key references** |
|---|---|---|---|---|---|---|
| | | | | **Spatial overlap (species & pressure)** | **Post-mortem examination** | |
| Commercial fisheries with bycatch (predominantly static nets) | Removal of non-target species | • Mortality through entanglement/ bycatch | High | ✓ | ✓ | Deaville and Jepson, 2011; Morizur *et al* 1999; Read *et al* 2006; Northridge and Kingston 2010; Northridge *et al* 2016; ICES 2015b |
| Discharge/run-off from land-fill, terrestrial and offshore industries | Contaminants | • Effects on water and prey quality<br>• Bioaccumulation through contaminated prey ingestion | High | | ✓ | Jepson *et al* 2005; Jepson *et al* 2016; Deaville & Jepson, 2011; ICES, 2015a; Van De Vijver *et al* 2003; Law *et al* 2012; Pierce *et al* 2008; Murphy *et al* 2015. |

[24] http://jncc.defra.gov.uk/page-6564

[25] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

| | | | | | | |
|---|---|---|---|---|---|---|
| | | • Health issues (e.g. on reproduction) | | | | |
| Noise from shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity | Anthropogenic underwater sound | • Mortality<br>• Internal injury<br>• Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising)<br>• Habitat change/loss | Medium | ✓ | | Deaville & Jepson, 2011; Stone & Tasker, 2006; Stone, 2015; Jepson *et al* 2005; Fernandez *et al* 2005; Würsig & Richardson, 2009; WGMME, 2012. |
| Shipping, recreational boating, renewable energy installations | Death or injury by collision | • Mortality<br>• Injury | Medium/ Low | ✓ | ✓ | Deaville & Jepson, 2011; Dolman *et al* 2006; ICES 2015a |
| Commercial fisheries, bycatch | Removal of target species | • Reduction in food availability<br>• Increased competition from other species<br>• Displacement from natural range<br>• Habitat change/loss | Medium | | ✓ | Simmonds and Isaac, 2007; OSPAR QSR 2010; MacLeod *et al* 2007a, b; Thompson *et al* 2007; Santos and Pierce, 2003; Pierce *et al* 2007; ICES 2015b |
| Agriculture, aquaculture, sewage | Nutrient enrichment | • Effects on water quality<br>• Increased risk of algal blooms may present health issues<br>• Habitat change/loss | Low | ✓ | ✓ | Craig *et al* 2013 |
| Agriculture, aquaculture, sewage | Organic enrichment | • Effects on water quality<br>• Increased risk of algal blooms may present health issues<br>• Habitat change/loss | Low | ✓ | | Craig *et al* 2013 |
| Waste disposal - navigational dredging (capital, maintenance) | Physical change (to another seabed type) | • Changes in availability of prey species<br>• Habitat change/loss | Low | | | |
| Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation) | Water flow (tidal current) changes - local | • Changes in location of prey species<br>• Displacement of harbour porpoise<br>• Habitat change/loss | Low | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Terrestrial and at-sea 'disposal' | Litter | • Mortality through entanglement<br>• Ingestion | Low | ✓ | ✓ | Deaville and Jepson, 2011 |
| Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation) | Barrier to species movement | • Habitat inaccessible<br>• Potential physiological effects<br>• Habitat change/loss | Low | ✓ | | WGMME., 2012; ICES 2015a |
| Sewage | Introduction of microbial pathogens | • Increased risk of disease | Low | | ✓ | Harvell *et al* 1999; Gulland and Hall, 2007; Van Bressem *et al* 2009 |

## Reference List for sources in Annex A


ABPMer. 2016. Assessing Welsh Fishing Activities - Phase 1, Principles and prioritisation report. ABPmer Report No R.2607. A report produced by ABPmer for Welsh Government, October 2016. Available at: https://cdn.naturalresources.wales/media/684380/awfa-ppdoc-final-oct16.pdf?mode=pad&rnd=131654976230000000

Craig, J.K., Crowder, L.B., Gray, C.D., McDaniel, C.J., Kenwood, T.A. and Hanifen, J.G. 2013. Ecological effects of hypoxia on fish, sea turtles, and marine mammals in the Northwestern Gulf of Mexico, in Coastal Hypoxia: Consequences for Living Resources and Ecosystems (eds Rabalais, N.N. and Turner, R.E.), American Geophysical Union, Washington, D. C.

Deaville, R. and Jepson, P D. (Eds). 2011. Final Report for the period 1st January 2005 – 31st December 2010. Cetacean Stranding Investigation Programme CSIP, Defra contracts CR0346 and CR0364. http://randd.defra.gov.uk/Document.aspx?Document=FinalCSIPReport2005-2010_finalversion061211released[1].pdf

Dolman, S., Williams-Grey, V., Asmutis-Silvia, R. and Isaac, S. 2006. Vessel collisions and cetaceans: what happens when they don"t miss the boat. WDCS Science Report.Chippenham. 25pp

Evans. D and Marvela, A. (2013). Assessment and reporting under Article 17 of the Habitats Directive: Explanatory notes and Guidelines. 123pp. https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

Fernandez, A., Edwards, J.F., Rodrigeau, F., Espinosa de los Monteros, P., Herraez, P., Castro, P., Jaber, J.R., Martin, V. and Arbelo, M. 2005. Gas and fat embolic syndrome involving mass stranding of beaked whales (Family Ziphiidae) exposed to anthropogenic sonar signals. Veterinary Pathology 42: 446.

Gulland, F.M.D. and Hall, A.J., 2007. Is marine mammal health deteriorating? Trends in the global reporting of marine mammal disease. Ecohealth, 4: 135-150

Harvell, C.D., Kim, K., Burholder, J.M., Colwell, R.R., Epstein, P.R., Grimes, D.J., Hofmann, E.E., Lipp, E.K., Osterhaus, A.D.M.E., Overstreet, R.M., Porter, J.W., Smith, G.W. and Vasta, G.R. 1999. Emerging marine diseases--climate links and anthropogenic factors. Science, 285: 1505-1510

ICES 2015a. Report of the Working Group on Marine Mammal Ecology (WGMME). ICES Advisory Committee, ICES CM 2015/ACOM:25. 9–12 February 2015 London, UK. http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2015/WGMME/wgmme_2015.pdf

ICES. 2015b. Report of the Working Group on Bycatch of Protected Species (WGBYC), 2-6 February 2015, ICES Headquarters, Copenhagen, Denmark. ICES CM 2015\ACOM:26. 82 pp.

Jepson, P.D. Deaville, R., Patterson, I.A.P., Pocknell, A.M., Ross, H.M., Baker, J.R., Howie, F.E., Reid, R.J., Colloff, A. and Cunningham, A.A. 2005. Acute and chronic gas bubble lesions in cetaceans stranded in the United Kingdom. Veterinary Pathology, 42: 291.

Jepson, P. D., Deaville, R., Barber, J.L.,Aguilar, A., Borrell, A., Murphy, S., Barry, J., Brownlow,, A., Barnett, J., Berrow, S., Cunningham, A.A., Davison, N.J., Doeschate, M.t., Esteban, R., Ferreira, M., Foote, A.D., Genov, T., Gimenez, J., Loveridge, J., Llavona, A., Martin, V.,

Maxwell, D.L., Papachimitzou, A., Penrose, R., Perkins, M.W., Smith, B., Stephanis, R.d., Tregenza, N., Verborgh, P., Fernandez, A. and Law, R.J. 2016. PCB pollution continues to impact populations of orcas and other dolphins in European waters. *Sci. Rep.* **6**, 18573; doi: 10.1038/srep18573

Law, R.J., Barry, J., Barber, J.L., Bersuder, P., Deaville, R., Reid, R.J., Brownlow, A., Penrose, R., Barnett, J., Loveridge, J., Smith, B. and Jepson, P.D. 2012. Contaminants in cetaceans from UK waters: Status as assessed within the Cetacean Strandings Investigation Programme from 1990 to 2008. Marine Pollution Bulletin 64: 1485–1494

MacLeod, C.D., Santos, M.B., Reid, R.J., Scott, B.E. and Pierce, G.J. 2007a. Linking sandeel consumption and the likelihood of starvation in harbour porpoises in the Scottish North Sea: could climate change mean more starving porpoises? Biology Letters, 3: 185-188

MacLeod, C.D., Santos, M.B., and Pierce, G.J. 2007b. Starvation and sandeel consumption in harbour porpoises in the Scottish North Sea. Biology Letters, 3, 535-536.

Morizur, Y., Berrow, S.D., Tregenza, N.J.C., Couperus, A.S. and Pouvreau, S. 1999. Incidental catches of marine-mammals in pelagic trawl fisheries of the northeast Atlantic. Fisheries Research. 41: 297–307.

Murphy S, Barber JL, Learmonth JA, Read FL, Deaville R, Perkins MW, *et al* 2015. Reproductive Failure in UK Harbour Porpoises *Phocoena phocoena*: Legacy of Pollutant Exposure? PLoS ONE 10(7): e0131085. doi:10.1371/journal.pone.0131085

Northridge, S. and Kingston, A. 2010. Annual report on the implementation of Council Regulation (EC) No 812/2004 – 2009. Sea Mammal Research Unit, University St Andrews. Report prepared to the European Commission.

Northridge, S., Kingston, A. and Thomas, L. 2016. Annual report on the implementation of Council Regulation (EC) No 812/2004 – 2015. Sea Mammal Research Unit, University St Andrews. Report prepared to the European Commission

OSPAR QSR. 2010. Quality Status Report 2010 for the northeast Atlantic. [Available from http://www.ospar.org/]

Pierce, G.J., Santos, M.B. and Cervino, S., 2007. Assessing sources of variation underlying estimates of cetacean diet composition: a simulation study on analysis of harbour porpoise diet in Scottish (UK) waters. Journal of the Marine Biological Association of the United Kingdom, 87: 213-221.

Pierce, G.J., Santos, M.B., Murphy, S., Learmonth, J.A., Zuur, A.F., Rogan, E., Bustamante, P., Caurant, F., Lahaye, V., Ridox, V., Zegers, B.N., Mets, A., Addink, M., Smeenk, C., Jauniaux, T., Law, R.J., Dabin, W., Lopez, A., Alonso Farre, J.M., Gonzalez, A.F., Guerra, A., Garcia-Hartmann, M., Reid, R.J., Moffat, C.F., Luckyer, C. and Boon, J.P., 2008. Bioaccumulation of persistent organic pollutants in female common dolphins (*Delphius delphis*) and harbour porpoises (*Phocoena phocoena*) from western European seas: Geographical trends, causal factors and effects on reproduction and mortality. Environmental Pollution, 153: 401-415.

Read, A.J; Drinker, P., Northridge, S., 2006. Bycatch of marine mammals in U.S. and global fisheries. Conservation Biology, 20:163-169.

Santos, M.B. and Pierce, G.J. 2003. The diet of harbour porpoise (*Phocoena phocoena*) in the northeast Atlantic. Oceanography and Marine Biology: an Annual Review, 41: 355–390.

Simmonds, M.P., and Isaac, S.J. 2007. The impacts of climate change on marine mammals: early signs of significant problems. Oryx 41(1): 19-26

Stone, C.J. 2015. Marine mammal observations during seismic surveys from 1995-2010. JNCC Report No: 463a. JNCC, Peterborough, 64pp. Available at: http://jncc.defra.gov.uk/pdf/JNCC%20Report%20463a_Final.pdf

Stone, C.J. and Tasker, M.L. 2006. The effects of seismic airguns on cetaceans in UK waters. Journal of Cetacean Research and Management, 8: 255-263.

Thompson, P., Ingram, S., Lonergan, M., Northridge, S., Hall, A. and Wilson, B. 2007. Climate change causing starvation in harbour porpoises? Biology Letters 3, 533-534.

Van Bressem, M.F., Raga, J.A., Di Guardo, J., Jepson, P.D., Duignan, P., Siebert, U., Barrett, T., Santos, M.C.O., Moreno, I.B., Siciliano, S., Aguilar, A. and Van Waerebeek, K., 2009. Emerging infectious

diseases in cetaceans worldwide and the role of environmental stressors. Diseases of Aquatic Organisms. 86: 143-157

Van De Vijver, K.I., Hoff, P.T., Das, K., Van Dongen, W., Esmans, E.L., Jaunaiux, T., Bouquegneau, J., Blust, R. and De Coen, W. 2003. Perfluorated chemicals infiltrate ocean waters: link between exposure levels and stable isotope ratios in marine mammals. Environmental .Science andTechnology, 37: 5545-5550.

WGMME 2012. Assessment of the marine renewables industry in relation to marine mammals: synthesis of work undertaken by the ICES Working Group on Marine Mammal Ecology (WGMME). Available at http://www.researchgate.net/profile/Stefan_Braeger/publication/265728493_Assessment_of_the_marine_renewables_industry_in_relation_to_marine_mammals_synthesis_of_work_undertaken_by_the_ICES_Working_Group_on_Marine_Mammal_Ecology_%28WGMME%29/links/541a09080cf2218008bfa5ec.pdf

Würsig, B. and Richardson, W.J. 2009. Noise, effects of. Pp. 765–772. In: Perrin, W.F., Würsig, B., and J.G.M. Thewissen, Eds. The Encyclopedia of Marine Mammals, Ed. 2. Academic/Elsevier Press, San Diego, Ca. 1316 pp

# 9 Annex B: Definitions of Pressures as applied within harbour porpoise SAC Advice on Operations

| Pressures | Definition in the context of harbour porpoise advice |
|---|---|
| **Removal of non-target species** | The removal of species not targeted by the fishery; in this case the bycatch (and probable mortality) of harbour porpoise |
| **Contaminants** | Introduced material capable of contaminating harbour porpoise, prey or habitat important to harbour porpoise, with a negative impact directly or indirectly on porpoises |
| **Anthropogenic underwater sound** | Introduced noise with the potential to cause injury, stress, or distrubance of harbour porpoise |
| **Death or injury by collision** | Introduction of physical objects; mobile or immobile, that may collide with or result in potential collision of harbour porpoise resulting in injury or mortality |
| **Removal of target species** | Removal of harbour porpoise prey, resulting in increased competition amongst porpoise and other species, and/or displacement from their natural range |