



Belfast

Local Development Plan

Plan Strategy 2035

HRA Annex A: Conservation Objectives for Designated Sites
May 2023

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Belfast
City Council



Annex A

Conservation Objectives for Northern Ireland **Designated Sites**

Sites are listed in alphabetical order.

ANTRIM HILLS SPECIAL PROTECTION AREA (SPA)

UK9020301

CONSERVATION OBJECTIVES

Document Details

Title	Antrim Hills SPA Conservation Objectives
Prepared By	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
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Version	Date	Summary of Changes	Initials	Changes Marked
V1	31/03/2006	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 Garron Plateau and Breen Wood SACs.

The SPA also partially overlaps with Garron Plateau Ramsar site.

See also Boundary Rationale

1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives¹ 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. North section D135 265; South section D300 035

AREA: 27093.12 ha.

5 SUMMARY SITE DESCRIPTION

The Antrim Hills SPA is comprised of two units. The northern, larger, section extends between Carnanmore and Soarne’s Hill, including Ballypatrick Forest, Slieveanorra Forest/Breen and Glenariff Forest/Cleggan. It mainly includes land above the 220m contour. The southern section encompasses a roughly triangular area bounded by Capanagh, Ballyboley and Douglas Top. Both sections are mosaics of commercial forestry, upland heath, blanket bog and largely unimproved grassland.

5.1 BOUNDARY RATIONALE

The boundary determination process for the Antrim Hills SPA has taken into account the distribution of Hen Harrier and Merlin nesting attempts and site-fidelity over the past 15 years, foraging distribution, habitat availability and current land-use.

All Hen Harrier nesting areas in the Antrim Hills used since 1997 are incorporated within the SPA. In order to provide adequate foraging areas, the proposed boundary is based on a foraging radius of 2.5km around all confirmed and probable nest sites recorded in 1997, 1998 and 2004. The Hen Harrier-based boundary of the Antrim Hills SPA is also considered to provide adequate nesting and foraging habitat for Merlins.

While the model used to define the boundary has generally resulted in the SPA comprising mainly unenclosed moorland and forest, it has been necessary to include some (mainly unimproved) pastureland. Inclusion of all such lands is supported by field data on nesting and foraging areas. The boundary line is based, as far as is possible, on physical features that should allow straightforward demarcation on the ground.

It is important to note that the SPA area does not include all lands used by foraging Hen Harrier (or possibly Merlin) during the breeding season. Information simply doesn't exist to allow all foraging areas to be identified and foraging ranges of individual birds are known to exceed 10km (based on studies outside Northern Ireland). It is known that some degraded habitats (e.g. degraded heath and semi-improved acid grasslands) do hold higher densities of prey species (e.g. Meadow Pipit – based on studies in England). Such habitats will not necessarily have been included in the SPA, notably were they are beyond the foraging radii figure used in the boundary selection model described above.

6. SPA SELECTION FEATURES

Feature Type (i.e. habitat or species)	Feature	Designation Population	Population at time of designation (ASSI)	Population at time of designation (SPA)
Species	Hen Harrier breeding population ^a	25 pairs ¹	n/a	25 pairs
Species	Merlin breeding population ^a	8 pairs ²	n/a	8 pairs
Habitat ³	Habitat extent			
Habitat ⁴	Habitat quality ³			

Table 1. List of SPA selection features.

¹ Designation population given as 2004 survey total.

² Designation population based on NI Raptor Study Group data 2000 - 2005

³ Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature.

⁴ Habitat quality will be assessed in the context of component SACs/ASSIs. Data from other survey programmes will inform NIEA on quality of other relevant habitats.

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'
See conservation objectives for Breen Wood ASSI/SAC, Cleggan Valley ASSI, Garron Plateau ASSI/SAC, Glenariff ASSI and Tievebulliagh ASSI for ASSI feature details		

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features.

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 ANTRIM HILLS SPA CONDITON ASSESSMENT 2014

Species	1998	2004	2010	CSM	5 yr mean	% CSM	Status
Hen Harrier	17	25	17	17	17	100.0	Favourable

Species	1988-1991	2000-2005	2008	2010	CSM	5 yr mean	% CSM	Status
Merlin	6-7	8	8	7	6	7.5	125.00	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
Hen Harrier breeding population	As above
Hen Harrier breeding population	Fledging success sufficient to maintain or enhance population
Merlin breeding population	As above
Merlin breeding population	Fledging success sufficient to maintain or enhance population

Table 3. List of SPA Selection Feature Component Objectives

9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

Feature	Component Objective
See conservation objectives for Breen Wood ASSI/SAC, Cleggan Valley ASSI, Garron Plateau ASSI/SAC, Glenariff ASSI and Tievebulliagh ASSI for ASSI feature details	

Table 4. List of Additional ASSI Selection Feature Objectives

10. MANAGEMENT CONSIDERATIONS

See also Views About Management for relevant ASSIs

Owner/Occupier's – As of March 2006 there were a total of XXX landowners within the site boundary. Landowners include the Department of Agriculture and Rural Development (DARD) Forest Service, Department for Regional Development Water Service, Department of the Environment for Northern Ireland, the National Trust and a number of private individuals. Grazing rights generally lie with the land as do Turbary rights which account for approximately XX% of the total area of the site. Sporting rights have not been established within the site boundary. Environment and Heritage Service own small sections of the site which are managed as the Slievanorra and Breen Wood National Nature Reserves (NNR).

Forest Service activities – Forest Service are a major landowner within the site. Their activities are a significant factor in relation to the Hen Harrier and Merlin population. The main issues are summarized in Table 3. At the time of designation, the Hen Harrier population in the SPA (and in Northern Ireland) is increasing. This, together with the fact that Hen Harrier and Merlin are mobile species typically changing nest locations in response to local conditions, indicates that these species show a degree of flexibility. It will be impossible to retain existing conditions at nest sites within afforested lands due to commercial tree rotations. The broad objective will be to ensure a balanced mix of woodland stages with the longer term objective of using appropriate wider habitat management actions that promote nesting within the open moorland.

Forest Service activities will be assessed against SPA objectives through consultation on the relevant 5-year forestry plans and an annual review of selected work programmes against the most recent information available on nest locations. The latter action will be undertaken in conjunction with RSPB.

More recent survey data suggests that the population at site and Northern Ireland levels has stabilized with anecdotal evidence the both populations are now showing signs of decline. This appears to be mainly due to further loss of semi-natural habitat suitable for nesting, notably extensive stands of tall heather.

Grouse management – Hen Harrier populations are often seen as a threat to Red Grouse management. At present such management is very localized in Northern Ireland and undertaken at a small scale. Future expansion of shoots may bring conflicts with the objectives for the SPA. Such conflict can be minimized through appropriate liaison and, if necessary, provision of food dumps to reduce levels of predation of grouse by Hen Harrier.

Windfarms – all upland areas are currently of interest to the windfarm industry. While this activity falls within the planning system, the pressure on the uplands is sufficient to merit specific comment. There is no presumption within the UK against such developments in SPAs supporting raptor or other bird populations.

Such developments represent a potential threat through loss of foraging habitat, disturbance to nest and roosting sites, risk of collision and providing access to previously remote areas.

Careful consideration is required at the planning stage with windfarm and turbine location having regard to Hen Harrier distribution. Research and monitoring needs have been set out under guidance to planning team NIEA.

There is no unequivocal evidence that raptors can or cannot co-exist with windfarm developments. Pre-development assessments need to recognize variability between sites (studies are not necessarily transferable) together with the long term changes in breeding population populations (assessment may be undertaken at a low point) and historical changes in nest distribution within sites.

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

Site/feature management issues

Issue	Threat/comments	Local considerations	Action
Habitat extent and quality – natural and semi-natural habitat	Reduction of habitat area or quality through inappropriate use or absence of site management including reclamation for agricultural purposes.	Parts of site are SACs and ASSIs so management will seek to achieve appropriate vegetation community structure. Evidence suggests Hen Harrier and Merlin favour managed forest within the site for nesting. Habitat management objective should be to encourage nesting in natural and semi-natural habitats	Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management if necessary.
Forestry areas – habitat	In general an expansion of forest represents a loss of foraging habitat. Objective should be to prevent loss of foraging habitat through expansion of forestry. Mixed age stands of	Existing guidance should prevent any planting on peatland. Marginal semi-improved grasslands may come under threat from afforestation Balance of forestry management actions should be	Liaise with Forest Service and private forestry sector.

Issue	Threat/comments	Local considerations	Action
	forest are however of value for nest selection and in providing some foraging. Existing rotation policy appears to offer good balance between areas supporting felled, young and old plantation.	assessed against the site as a whole.	
Forestry areas – nest sites - forest management	Forestry activities should be compatible with needs of breeding birds.	The importance of forested areas for nesting birds cannot be underestimated. Existing forest practise should ensure management does not interfere with birds through the critical breeding period. To be informed by nest location data.	Liaise with Forest Service, private forestry sector, RSPB and other groups/individuals with information on nest sites.
Forestry areas – nest sites - disturbance	Disturbance to nesting birds through non-forestry activities on forestry property. Breeding birds, especially are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success.	Selection of routes e.g. for public access or motorcar trials must take the needs of breeding birds into account.	Liaise with Forest Service, private forestry sector, local authorities and other relevant parties.
Predation.	Mainly of concern on bird breeding sites.	Thought to be a significant factor in determining Hen Harrier breeding success.	Must be dealt with as part of wider countryside management considerations. Carry out appropriate site management.
Research activities.	Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites. These are however necessary for population monitoring and developing a better understanding of species ecology.	Assessed as part of regular programme of raptor monitoring.	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.

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

(see also Breen Wood ASSI, Cleggan Valley ASSI, Garron Plateau ASSI, Glenariff ASSI and Tievebulliagh ASSI conservation objectives)

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – to monitor major changes in landuse within the site and identify relevant processes of change e.g. changes in grazing regimes, peat cutting. This SIM should be carried out once per year. Note that Forest Service will routinely review all relevant forestry programmes with NIEA. State forestry activities need not be included in the SIM exercise.
2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (species, habitat, etc). This will detect if the features are in favourable condition or not. See Annex I for SPA Features.

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, Europe. 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 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. 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. Consider whether breeding populations could be affected by unfavourable factors outside the breeding season.
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.
6. Assess prey availability. Issues to consider are both within site 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 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. Due to a lack of data site trends are generally limited to terms such as 'consistent increase/decline', 'variable with overall increase/decline', 'no discernable trend'. Other trends are also 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
Hen Harrier (breeding)	Increase	Increase	Increase	Increase (2004 Hen Harrier Survey)	
Merlin (breeding)	No discernable trend	No discernable trend (limited recent information)	Decrease (limited recent information)	Increase (1988-91 Breeding Atlas)	

ANNEX 1

Feature (SPA) – Breeding raptors

* = 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
* Hen Harrier breeding population	Breeding pairs	No significant decrease in breeding population against national trends.	Population surveyed at least once per reporting cycle.
# Hen Harrier fledging success	Fledgling success	On average >1 fledgling per pair successfully raised.	Appropriate level of fledgling survival to be determined.
* Merlin breeding population	Breeding pairs	No significant decrease in breeding population against national trends.	Population surveyed at least once per reporting cycle.
# Merlin fledging success	Fledgling success	On average >1 fledgling per pair successfully raised.	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 or potentially usable by notified species, within the SPA, subject to natural processes.	Monitor once every reporting cycle by aerial photography.
# Habitat quality	To be assessed as part of SAC/ASSI monitoring		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.

AUGHNADARRAGH LOUGH SAC

UK0030318

CONSERVATION OBJECTIVES

Document Details

Title	<i>Aughnadarragh Lough SAC Conservation Objectives</i>
Prepared By	<i>R. McKeown</i>
Approved By	<i>P. Corbett</i>
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Next Review Date	<i>Nov 2020</i>
Contact	cdp@doeni.gov.uk

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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).

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- 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.

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

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- 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
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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 <i>Euphydryas aurinia</i>	B	48 webs were counted in 1999 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 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 Aughnadarragh Lough SAC.

6.1 ASSI SELECTION FEATURES

Aughnadarragh Lough ASSI

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

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

Feature	Component Objective
Marsh Fritillary Butterfly <i>Euphydryas aurinia</i>	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 reseeded. 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.

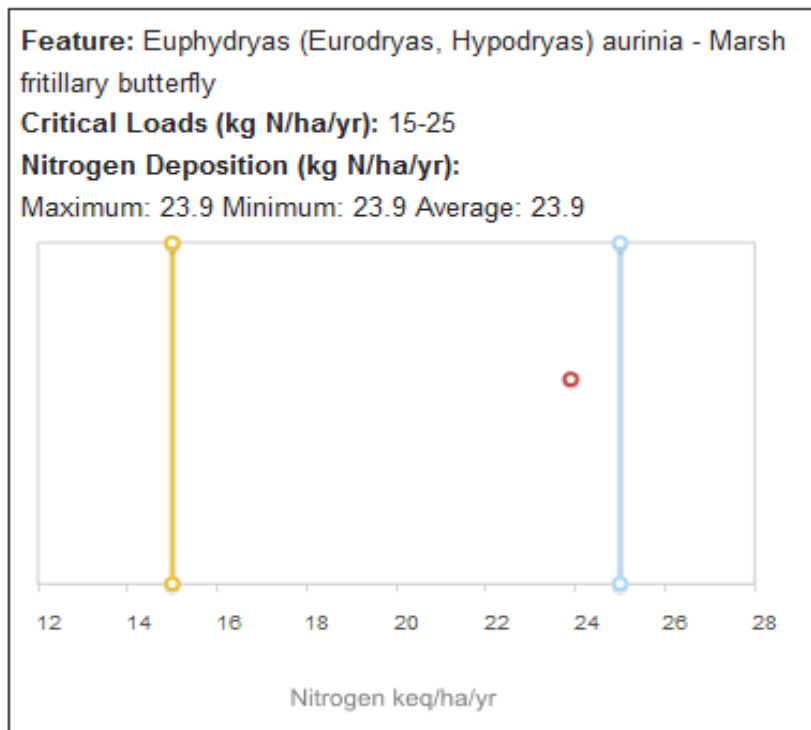
ACTION: To minimise the risk of nutrient enrichment and promote the adoption of nutrient management plans and good practice in slurry disposal, encourage landowners to leave “buffer” strips between the fen and adjoining land that has fertiliser applied.

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.



	Minimum CL
	Maximum CL
	Total Max Deposition

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.

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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 (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 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 <i>Succisa pratensis</i> is present and scrub (>1 metre tall) covers no more than 10% of area . 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 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 - <i>Molinia</i> -dominated grassland where the vegetation height is within the range of 10 - 20 cm, and where <i>Succisa pratensis</i> is present within a 1 m radius of any point Note: Figure for Wales is 4 hectares of good Marsh Fritillary breeding habitat.

* Habitat Mosaic	Extent of other semi-natural habitats	<p>Maintain the extent of other semi-natural habitats which contribute to Marsh Fritillary breeding success</p> <p>No loss in extent of other semi-natural habitats</p>	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
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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	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
Date Effective From	<i>01/04/2015</i>
Version Number	<i>V2</i>
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 Directives¹ 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 national 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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

The list below is not exhaustive, but deals with the most likely 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.

Generic site/feature issues

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. 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 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, wildfowling, 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. 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.

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	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
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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 Directives¹ 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)			
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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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely 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, wildfowling, 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 Fluctuatid	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)	Spargularia 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. 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 silt 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 * 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 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

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Approved By	<i>Mark Wright</i>
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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 Directives¹ 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 ADDITIONAL 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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely 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.

Generic site/feature issues

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 <i>et al.</i> 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.

EAST COAST MARINE - SPECIAL PROTECTION AREA (SPA)

UK9020320

CONSERVATION OBJECTIVES

Document Details

Title	East Coast Marine SPA Conservation Objectives
Prepared By	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
Date Effective From	
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Next Review Date	January 2020
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Revision History:

Version	Date	Summary of Changes	Initials	Changes Marked
V1	April 2015	Draft document	IE	CO for proposed SPA

Site relationship

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

The boundary adjoins the following existing Special Protection Areas –

Larne Lough SPA
Belfast Lough SPA
Outer Ards SPA
Copeland Islands SPA
Strangford Lough SPA

It also subsumes the existing Belfast Lough Open Water SPA

The boundary also adjoins the following existing Ramsar sites –

Larne Lough Ramsar
Belfast Lough Ramsar
Outer Ards Ramsar
Strangford Lough Ramsar

See also [Boundary Rationale](#)

1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives¹ 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

Council bodies - 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

Area: 96668.34 Ha

Geographic co-ordinates:

54.03.00 W
06.07.00 N

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

- Wintering populations of Red-throated Diver and Eider Duck
- Rafting Manx Shearwater originating from an adjoining colony
- Foraging Sandwich, Common and Arctic Tern originating from adjoining tern colonies

5 SUMMARY SITE DESCRIPTION

The 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 Copeland 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 are 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.

5.1 BOUNDARY RATIONALE

The SPA represents a series of merged marine areas defined by a number of studies into use made of the marine area along the East Coast by selected species of waterbird and seabird.

Targeted survey work has identified an important area for non-breeding Red-throated Diver in the Belfast Lough area.

In addition a marine extension to the Copeland Islands SPA has been defined to reflect usage of the marine area by rafting Manx Shearwater originating from the Copeland colony.

Finally, a number of marine areas have been identified as important for a range of foraging tern species originating from adjoining tern colonies designated as part of the following existing Special Protection Areas -

Larne Lough SPA
 Belfast Lough SPA
 Outer Ards SPA
 Copeland Islands SPA
 Strangford Lough SPA

All of the above marine areas overlap to a greater or lesser extent. The SPA boundary subsumes all of these. In addition the SPA boundary subsumes the existing Belfast Lough Open Water SPA.

The landward boundary for this marine area is the **MEAN LOW WATER MARK**.

In addition to the designation map which shows the extent of the East Coast (Northern Ireland) Marine Special Protection Area, maps are also included for information purposes showing the marine areas used by each of the important bird populations.

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	Great Crested Grebe wintering population ^a	1646 individuals (5 year average 1995-2000)	N/A	1677 individuals – wintering		
Species	Red-throated Diver	142 individuals 5 year mean (2006/07 – 2008/08)		142 individuals 5 year mean (2006/07 – 2008/08)		
Species	Sandwich Tern	1656 pairs Breeding 5 year mean (2010 - 2014)		1656 pairs Breeding 5 year mean (2010 - 2014)		
Species	Common Tern	908 pairs Breeding 5 year mean (2010 - 2014)		908 pairs Breeding 5 year mean (2010 - 2014)		
Species	Arctic Tern	1351 pairs Breeding 5 year mean (2010 - 2014)		1351 pairs Breeding 5 year mean (2010 - 2014)		
Species	Manx Shearwater	4800 pairs Breeding 2000–2002				
Species	Eider Duck	3126 individuals				

		Wintering 5 year mean (2010/11 – 2014/15)				
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 ASSI designations. As such there are no additional ASSI features but see section 9.1.

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. EAST COAST (NORTHERN IRELAND) MARINE SPA CONDITION ASSESSMENT 2014

Refer to the individual adjoining SPA Condition Assessments for further information – these are contained in the most recent conservation objectives for each of the sites.

Relevant sites are

- Larne Lough SPA
- Belfast Lough SPA
- Belfast Lough Open Water SPA
- Outer Ards SPA
- Copeland Islands SPA
- Strangford Lough SPA

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	As above
Red-throated Diver wintering population	As above
Sandwich Tern breeding season	As above
Common Tern breeding season	As above
Arctic Tern breeding season	As above
Manx Shearwater breeding season	As above
Eider Duck wintering population	As above
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 adjoining SPAs for selection feature objectives. These may be relevant to the present site. Relevant sites are -

Larne Lough SPA

Belfast Lough SPA

Outer Ards SPA

Copeland Islands SPA

Strangford Lough SPA

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 City Council, Antrim and Newtownabbey Borough Council, Mid and East Antrim Borough Council, Ards and North Down District Council, Newry, Mourne and Down District Council), Belfast Harbour Commissioners, Department of Agriculture and Rural Development Fisheries Division and shellfish operators, together with 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.

There are a large number of significant commercial operations adjoining the marine area which may impact upon the SPA. Many of these are regulated through planning, relevant discharge and marine licensing arrangements. There is no evidence at present that any of these activities are having an adverse impact on the site features.

An assessment of the site boundary against commercial fisheries activity suggests that activity within the site tends to be inshore at Islandmagee, around the Copeland Islands, along the Outer Ards and towards the southern section of the site. Given that these sites are already important and of sufficient quality to support the birds, it may be reasonable to assume that current fishing in many of these areas is largely compatible with the birds' interest. However in cases where a type and level of fishing activity might impact upon the birds, a review may be needed so that authorities can establish the extent to which the fishing activities do influence the birds' interests. A fuller assessment of the distribution of fishing activities and the relationship between commercial stocks and site feature prey requirements will be undertaken.

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

The list below is not exhaustive, but deals with the most likely factors that are either affecting the East Coast (Northern Ireland) Marine SPA, or could affect it in the future. Factors affecting the features within the adjoining ASSI are also considered.

Generic site/feature issues

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 sub-littoral communities through seeding, maintenance, harvesting,	Licensed aquaculture areas in Larne Lough and Belfast Lough especially.	Liaise with DARD Fisheries Division. Assess all license applications individually. Current extent of licences may significantly alter seabed

		dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors.		conditions. Consider the collective impact.
6	Boating- shipping activity – commercial	Disturbance and potential for impact from high-speed shipping.	Major port facility at Larne and shipping channel at Larne Lough and Belfast Lough. These are long-established activities. Significant commercial fisheries activity at Portavogie. Smaller commercial harbours at Carnlough, Glenarm, Ballylumford, Carrickfergus, Bangor, Donaghadee and Ballywalter.	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 clubs and/or facilities at Carnlough, Glenarm, Larne, Magheramourne Carrickfergus, Holywood, Cultra, Donaghadee, Ballywalter. 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 to birds, disturbance to seabed, remobilisation of contaminated sediment and spoil dumping zones.	Ongoing capital dredging programme maintains shipping channel. Established ongoing maintenance programme.	Liaise with port authority and licensing bodies 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. Current position unclear but there is little or no overlap between commercial stock and tern prey species. Recreational fishing not deemed to be a problem.	Liaise with DARD and fishing authority as required. Liaise with angling clubs as required.
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 and marine licensing applications. 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 and marine licensing 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 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.
	Marine	Potential for disturbance and direct	No site related proposals at time	Assess planning and

	renewable energy developments	impact to terns in flight and actively feeding (diving)	of writing. Potential for impact from schemes elsewhere	marine licensing applications. To be addressed through HRA process.
24	Recreational activities.	Disturbance is the main consideration	Open water has been heavily used for recreational activities over long timescale. Cumulative disturbance impacts (e.g. boating, wildfowlers etc) may be a significant factor for wintering bird populations	Liaise with local authorities and other managing parties.
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
	Sand dredging - commercial	Not actively pursued in the NI marine environment but pressures to seek alternative sources to terrestrial/freshwater sites may make this potentially viable.	Potential to impact seabed habitat of importance to seabird prey species.	Liaise with commercial operators, planning and other regulatory authorities.
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 together with widespread coastal engineering works and ongoing developments. Sediment responses may be expected. Changes in water quality have led to changes e.g. an expansion of mussel beds in Belfast Lough, 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.

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.

Table to be completed

SPECIES	SITE TREND	NI TREND	ROI TREND	UK TREND	COMMENTS
Great Crested Grebe					
Red-throated Diver wintering population					
Sandwich Tern breeding season					
Common Tern breeding season					
Arctic Tern breeding season					
Manx Shearwater breeding season					
Eider Duck wintering population					

ANNEX I

Feature (SPA) – Wintering 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
*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.
*Eider 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.
*Red-throated Diver wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends. WeBS methodologies have been shown to seriously underestimate Diver numbers. Species specific methodology to be employed. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.

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 breeding population against national trends	Ideally 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 breeding population	Apparently occupied nests	No significant decrease in breeding population against national trends	Ideally 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 breeding population	Apparently occupied nests	No significant decrease in breeding population against national trends	Ideally 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.
* Manx Shearwater breeding population	Apparently occupied nests	No significant decrease in breeding population against national trends	Survey delivery likely to be tied to national seabird census programme. 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.

Note that breeding seabird populations will be assessed at the 'source colonies'. Separate validation surveys may be required to assess utilisation of the marine area for foraging (tern species) and rafting (Manx Shearwater) behaviours. Further assessments e.g. of prey availability, water quality, impacts on seabed may also be necessary if inexplicable declines in breeding populations are recorded.

Non-avian factors

Attribute	Measure	Targets	Comments
* Habitat extent	Area of marine habitats	Maintain the area of marine habitats used or potentially usable by notified species, within the SPA, subject to natural processes.	To be addressed as part of wider marine monitoring programmes especially MSFD actions

EASTERN MOURNES SAC

UK0016615

CONSERVATION OBJECTIVES

Document Details

Title	<i>Eastern Mournes SAC Conservation Objectives</i>
Prepared By	<i>R. McKeown</i>
Approved By	<i>P. Corbett</i>
Date Effective From	<i>11/10/2017</i>
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Next Review Date	Nov 2020
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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 Directives¹ 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 Mourne 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 Mourne host three distinct granite types with associated mineralogies.

The Eastern Mourne 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 <i>Erica tetralix</i>	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 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 Eastern Mourne SAC.

6.1 ASSI SELECTION FEATURES

Eastern Mourne 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	<p>Tertiary Igneous series - Five sub-sites within the Eastern Mourne SAC</p> <ul style="list-style-type: none"> • Eagle Rock – Inland outcrops and streams • Bloody River – Coastal and river cliffs • Diamond Rocks - Inland outcrops and streams • Lindsay’s Leap - Inland outcrops and streams • 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 <i>Erica tetralix</i> .	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. (<i>Diphasiastrum alpinum</i> , <i>Salix herbace</i> , <i>Cryptogramma crista</i> , <i>Phegopteris connectilis</i> , <i>Carex bigelowii</i> , <i>Saxifraga stellaris</i>)
Notable assemblage of alpine fungi	To be finalised.
Notable invertebrate assemblage	Ensure that the populations of notable invertebrates are maintained within the Eastern Mourne 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

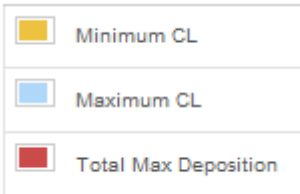
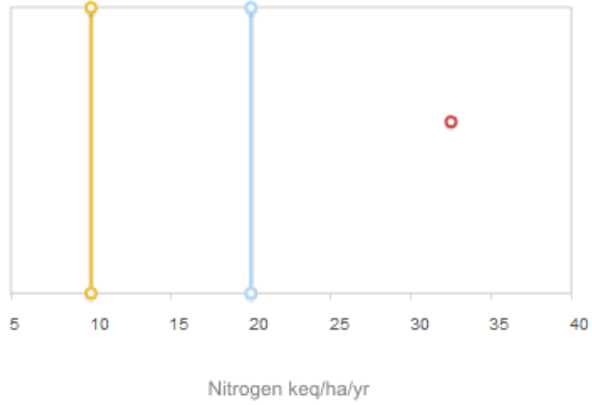
An increased interest in hill walking within the Northern Ireland population together with increased tourist activity in the Newcastle area, is beginning to put real pressure on the footpaths and surrounding vegetation within the Eastern Mournes. Ideally, a sustainable level of recreational activity 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.

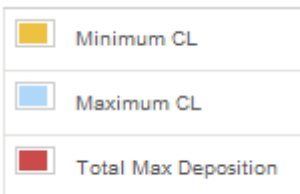
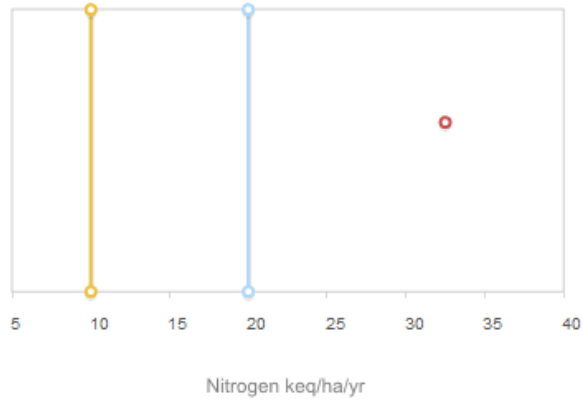
Nitrogen Deposition

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.

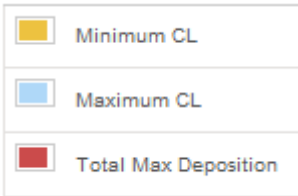
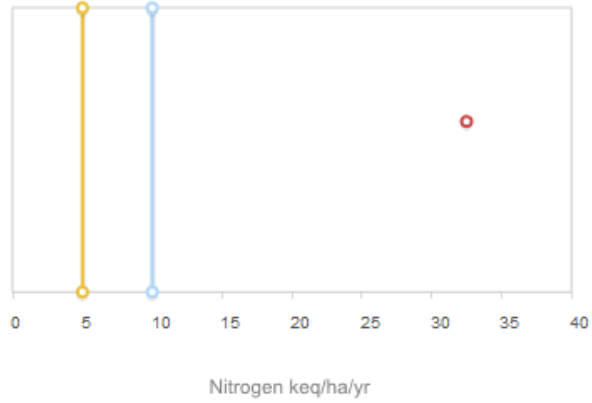
Feature: European dry heaths
Critical Load Class: Dry heaths
Critical Loads (kg N/ha/yr): 10-20
Nitrogen Deposition (kg N/ha/yr):
 Maximum: 32.5 Minimum: 16.2 Average: 24.4



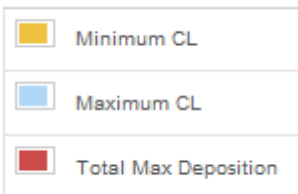
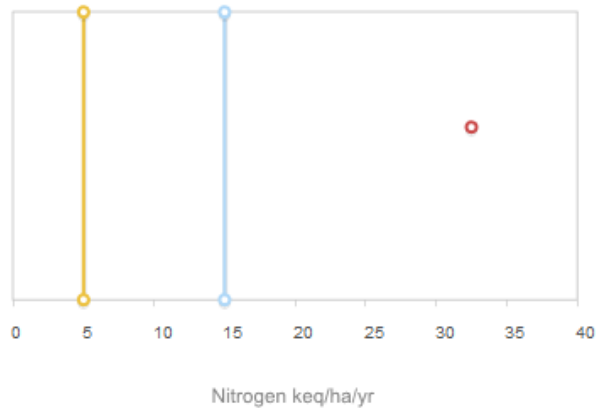
Feature: Northern Atlantic wet heaths with Erica tetralix
Critical Load Class: Northern wet heath: Erica tetralix dominated wet heath
Critical Loads (kg N/ha/yr): 10-20
Nitrogen Deposition (kg N/ha/yr):
 Maximum: 32.5 Minimum: 16.2 Average: 24.4



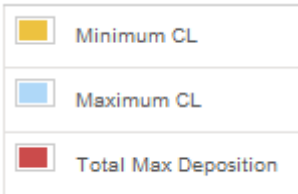
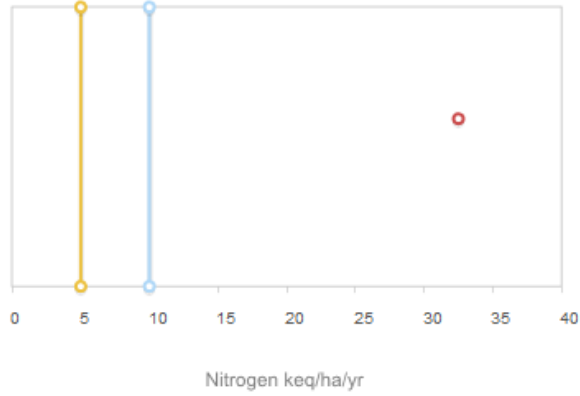
Feature: Blanket bogs (* if active bog)
Critical Load Class: Raised and blanket bogs
Critical Loads (kg N/ha/yr): 5-10
Nitrogen Deposition (kg N/ha/yr):
Maximum: 32.5 Minimum: 16.2 Average: 24.4



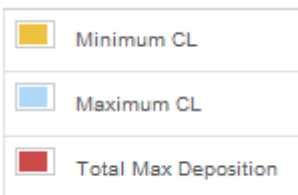
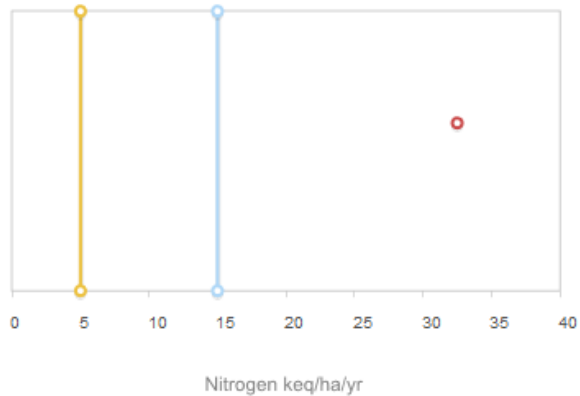
Feature: Alpine and Boreal heaths
Critical Load Class: Arctic, alpine and subalpine scrub habitats
Critical Loads (kg N/ha/yr): 5-15
Nitrogen Deposition (kg N/ha/yr):
Maximum: 32.5 Minimum: 16.2 Average: 24.4

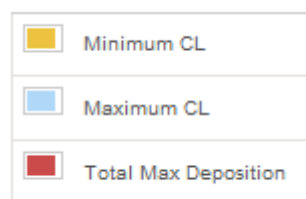
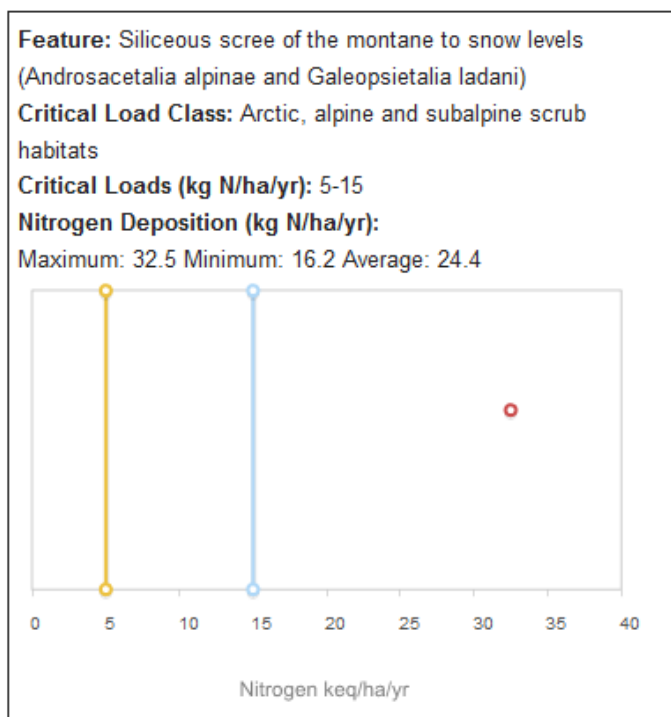


Feature: Siliceous alpine and boreal grasslands
Critical Load Class: Alpine and subalpine grasslands
Critical Loads (kg N/ha/yr): 5-10
Nitrogen Deposition (kg N/ha/yr):
Maximum: 32.5 Minimum: 16.2 Average: 24.4



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

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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 - <i>Calluna vulgaris-Erica cinerea</i> , H12 - <i>Calluna vulgaris-Vaccinium myrtillus</i> and H8 <i>Calluna vulgaris-Ulex gallii</i> heath. The extent and distribution of each community to be maintained.	Visual estimate in 2x2 m plots <u>and</u> 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 <u>and</u> 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. 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 <i>Polytrichum</i> spp., <i>Campylopus</i> spp. crust forming lichens or algal mats can occur as a consequence of constant burning and/or grazing. 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 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 <i>Calluna vulgaris</i> , <i>E. cinerea</i> , <i>Vaccinium myrtillus</i> , <i>Erica tetralix</i> , <i>Ulex gallii</i> , <i>Empetrum nigrum</i> and <i>Myrica gale</i> .
* Cover of <i>Ulex gallii</i> (% cover)	<i>Ulex gallii</i> 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. <i>Nardus stricta</i> , <i>Deschampsia flexuosa</i> , <i>Juncus squarrosus</i> or other graminoids should not dominate over other species.
* Frequency and % cover of bryophytes and bushy lichens (esp <i>Cladonia</i> spp.) (DAFOR and % cover)	Bryophytes (excluding <i>Polytrichum</i> spp. and <i>Campylopus</i> spp. on bare ground) and/or <i>Cladonia</i> species should be at least frequent. At least frequent is equivalent to greater than 41% occurrence in recorded plots. 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. No more than occasional is equivalent to less than 40% occurrence in recoded plots. Mean cover should be less than 5%.	Visual estimate within a 10 m radius of plots <u>and</u> 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 <i>Betula pubescens</i> , <i>Prunus spinosa</i> , <i>Rubus</i> spp. Invasive exotic species such as <i>Rhododendron ponticum</i> should be removed immediately. Exclude <i>Ulex europaeus</i> (see below)
* Cover of Gorse	Gorse (<i>Ulex europaeus</i>) cover	Visual estimate in 2x2	Although a natural component of heath communities,

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

<p>* Management - Grazing (% cover)</p>	<p>Signs of moderate or heavy grazing should occupy less than 5% of the dry heath vegetation.</p> <p>The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs and invasion by <i>Juncus squarrosus</i> etc. indicate moderate and heavy grazing where any one of the above is recorded as more than occasional.</p>	<p>Visual estimate in 2x2 m plots.</p>	
<p>* Management - Burning (% cover)</p>	<p>Signs of recent burning should occupy less than 5% of the dry heath vegetation.</p> <p>Recent burning is represented by areas burnt within the last two years.</p>	<p>Visual estimate in 2x2 m plots <u>and</u> across feature using a combination of aerial photographs, SIM and Condition Assessment structured walk.</p>	
<p>Frequency and cover of erosion features associated with human impacts. (DAFOR and % cover)</p>	<p>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</p>	<p>Visual estimate in 2x2 m plots.</p>	<p>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.</p>

	instances.		
Herb diversity	Herbs (excluding negative indicators) at least frequent. 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. The wet heath community is M15 – <i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath.	Visual estimate in 2x2 m plots <u>and</u> 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 <u>and</u> 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. 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 <i>Polytrichum</i> spp., <i>Campylopus</i> spp. crust forming lichens or algal mats can occur as a consequence of excessive burning and/or grazing. 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 <i>Calluna vulgaris</i> , <i>Erica tetralix</i> , <i>Empetrum nigrum</i> and <i>Myrica gale</i> .
* 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. <i>Molionia caerulea</i> , <i>Trichophorum cespitosum</i> , <i>Deschampsia flexuosa</i> , <i>Juncus squarrosus</i> or other graminoids should not dominate over other species. Localised <i>Schoenus nigricans</i> flushes should not be included in this habitat assessment.
* Bryophyte cover and frequency of <i>Sphagnum</i> mosses (%)	Mean bryophyte cover (excluding <i>Polytrichum</i> spp. and <i>Campylopus</i> 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%. <i>Sphagnum</i> moss species should be at least frequent throughout the moss layer. At least frequent is equivalent to greater than 41% occurrence in recorded plots.		<i>Sphagnum</i> 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. Mean cover should be less than 2%. No more than rare is equivalent to less than 20% occurrence in recorded plots.	Visual estimate within a 10 m radius of plots <u>and</u> 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 <i>Rhododendron ponticum</i> 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: <i>Cirsium arvense</i> , <i>C. vulgare</i> , <i>Senecio jacobaea</i> , <i>Urtica dioica</i> , <i>Plantago major</i> , <i>Phleum pratense</i> , <i>Trifolium repens</i> , <i>Holcus lanatus</i> and <i>Lolium perenne</i> .	Visual estimate in 2x2 m plot.	

	<p>No more than rare is equivalent to less than 20% occurrence in recorded plots.</p> <p>Combined mean cover of agricultural grasses and weeds less than 1%.</p>		
* Management - Grazing (% cover)	<p>Signs of moderate or heavy grazing should occupy less than 5% of the wet heath vegetation.</p> <p>The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs and invasion by <i>Juncus squarrosus</i> etc. indicate moderate and heavy grazing where any one of the above is recorded as more than occasional.</p>	Visual estimate in 2x2 m plots.	
* Management - Burning (% cover)	<p>Signs of recent burning should occupy less than 5% of the wet heath vegetation.</p> <p>Recent burning is represented by areas burnt within the last two years.</p>	Visual estimate in 2x2 m plots <u>and</u> 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. 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 – <i>Scirpus cespitosus Eriophorum vaginatum</i> blanket mire, M18 – <i>Sphagnum papillosum</i> raised and blanket mire and M19 <i>Calluna vulgaris - Eriophorum vaginatum</i> blanket mire.	Visual estimate in 2x2 m plots <u>and</u> across the blanket bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	The blanket bog communities include M17 – <i>Scirpus cespitosus Eriophorum vaginatum</i> blanket mire, M18 – <i>Sphagnum papillosum</i> raised and blanket mire and M19 <i>Calluna vulgaris - Eriophorum vaginatum</i> 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 <i>Sphagnum</i> species should be recorded with <i>S. cuspidatum</i> or <i>S. auriculatum</i> in the pools and <i>S. papillosum</i> and <i>S. capillifolium</i> 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 <i>Polytrichum</i> spp., <i>Campylopus</i> spp. crust forming lichens or algal mats can occur as a consequence of peat cutting or excessive burning and/or grazing. 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.
* <i>Sphagnum</i> cover/ abundance (% cover and frequency) Active Peat Formation (DAFOR)	<i>Sphagnum</i> moss species should have a minimum cover of 25% over at least 66% of the intact blanket bog surface. Thick, hummock forming species of sphagnum should be at least occasional.	Visual estimate in 2x2 m plots.	A constant <i>Sphagnum</i> moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. <i>Sphagnum</i> moss is therefore used to measure the hydrological integrity of the blanket bog surface.

	Species present should include a mixture of both thin species: - <i>S. capillifolium</i> and <i>S. tenellum</i> and the thick hummock forming species: - <i>S. papillosum</i> and <i>S. magellanicum</i> 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 <i>Narthecium ossifragum</i> or <i>Sphagnum</i> spp. are abundant and forming lawns.	Visual estimate in 2x2 m plots.	Ericoid (dwarf-shrub species) include <i>Calluna vulgaris</i> , <i>Erica tetralix</i> , <i>E. cinerea</i> , <i>Myrica gale</i> , <i>Vaccinium myrtillis</i> and <i>Empetrum nigrum</i> .
* 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 <i>Calluna vulgaris</i> 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.		<i>Rhododendron ponticum</i> 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 <i>Molinia caerulea</i> forming even swards over waterlogged areas with <i>Sphagnum</i> moss cover greater than 25%.	Visual estimate in 2x2 m plots.	Include true grasses, sedges, and rushes in this assessment. <i>Eriophorum vaginatum</i> , <i>Trichophorum cespitosum</i> , <i>Deschampsia flexuosa</i> , <i>Juncus squarrosus</i> or other graminoids (except <i>Molinia</i> 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 <i>Calluna vulgaris</i> growth forms indicate moderate and heavy grazing where any one of the above is recorded as more than occasional.

<p><i>Molinia caerulea</i> Cover (%)</p>	<p>Where <i>Molinia caerulea</i> cover is greater than 50%, it should form an even (not tussocky) sward in waterlogged conditions with <i>Sphagnum</i> moss cover greater than 25%.</p>	<p>Visual estimate in 2x2 m plots.</p>	<p><i>Molinia caerulea</i> 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.</p>
<p>Presence of rare or scarce species specific to the site.</p>	<p><i>Sphagnum imbricatum</i> and <i>Sphagnum fuscum</i>, 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.</p>	<p>Visual estimate in 2x2 m plots.</p>	

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 – <i>Calluna vulgaris-Racomitrium lanuginosum</i> heath and wind-pruned H10b – <i>Calluna vulgaris-Erica tetralix</i> heath (<i>Racomitrium</i> sub-community).	Visual estimate in 2x2 m plots <u>and</u> 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. 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 <i>Polytrichum</i> spp., <i>Campylopus</i> 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/ <i>Racomitrium</i>	The collective cover of dwarf-shrubs, <i>Racomitrium</i>	Visual estimate in 2x2 m plots.	Characteristic species include a dominance of dwarf-shrubs with mosses, mainly <i>Racomitrium lanuginosum</i> ,

<i>lanuginosum</i> and robust lichens. (%)	<i>lanuginosum</i> and robust lichens should compose at least 90% of total vegetation cover.		and robust lichens. The low-growing dwarf-shrub mat is dominated by <i>Calluna vulgaris</i> with <i>Erica tetralix</i> , <i>E. cinerea</i> , <i>Vaccinium myrtillus</i> , <i>Empetrum nigrum</i> , <i>V. vitis-idea</i> , etc.
<i>Racomitrium lanuginosum</i> (DAFOR)	<i>Racomitrium lanuginosum</i> to be constant and forming patches below, or in more open swards beneath the dwarf-shrubs.	Visual estimate in 2x2 m plots.	<i>Racomitrium lanuginosum</i> should form a major part of the ground cover for the vegetation to be in favourable condition.
Fine-leaved grass/ <i>Galium saxatile</i> / <i>Potentilla erecta</i> Cover (%)	The collective cover of fine-leaved grasses, <i>Galium saxatile</i> and <i>Potentilla erecta</i> should not exceed 10%.	Visual estimate in 2x2 m plots.	Grasses to include <i>Deschampsia flexuosa</i> and <i>Festuca ovina/vivipara</i> .
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 <i>Juncus squarrosus</i> 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 <u>and</u> 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.

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.	structured walk. Visual estimate in 2x2 m plots <u>and</u> 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.
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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 - <i>Carex bigelowii-Racomitrium lanuginosum</i> moss heath.	Visual estimate in 2x2 m plots <u>and</u> 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.
* <i>Racomitrium lanuginosum</i> cover (%)	<i>Racomitrium lanuginosum</i> to be present with 100%	Visual estimate in 2x2 m plots.	<i>Racomitrium lanuginosum</i> 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 <i>Racomitrium lanuginosum</i> with <i>Carex bigelowii</i> , <i>C. pilulifera</i> robust lichens and dwarf- shrubs. The dwarf-shrubs which are prostrate include <i>Salix herbacea</i> , <i>Vaccinium myrtillis</i> , <i>V. vitis-idea</i> , <i>Calluna vulgaris</i> etc.
* Fine-leaved grass/ <i>Galium saxatile</i> / <i>Potentilla erecta</i> cover (%)	The collective cover of fine-leaved grasses, <i>Galium saxatile</i> and <i>Potentilla erecta</i> should not exceed 10%.	Visual estimate in 2x2 m plots.	Grasses to include <i>Deschampsia flexuosa</i> , <i>Nardus stricta</i> and <i>Festuca ovina/vivipara</i> .
* 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.
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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 - (<i>Cryptogramma crispera</i> - <i>Deschampsia flexuosa</i> community).	Visual estimate in 2x2 m plots <u>and</u> 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 - (<i>Cryptogramma crispera</i> - <i>Deschampsia flexuosa</i> community).	Visual estimate in 2x2 m plots <u>and</u> 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 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, <i>Cirsium arvense</i> , <i>Cirsium vulgare</i> , <i>Pteridium aquilinum</i> , large docks (excluding <i>Rumex acetosa</i>), <i>Rubus fruticosus</i> , <i>Senecio jacobaea</i> , <i>Urtica dioica</i>	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 <i>ground</i> 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

LARNE LOUGH - SPECIAL PROTECTION AREA (SPA)

UK9020221

CONSERVATION OBJECTIVES

Document Details

Title	Larne Lough SPA Conservation Objectives
Prepared By	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
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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 Directives¹ 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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely 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.

Generic site/feature issues

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, wildfowling, 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 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. 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 <i>et al.</i> 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 <i>et al.</i> 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 <i>et al.</i> 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
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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.

LOUGH NEAGH AND LOUGH BEG- SPECIAL PROTECTION AREA (SPA)

UK9020091

CONSERVATION OBJECTIVES

Document Details

Title	<i>Lough Neagh and Lough Beg SPA Conservation Objectives</i>
Prepared By	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
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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 Farris 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 Directives¹ 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 <u>Swan</u> 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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely 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.

Site/feature management issues

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. 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 Wildfowling 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 <i>et al.</i> 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 Calculate new five year running mean. 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 <i>et al.</i> 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

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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 Directives¹ 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 (<i>Glaucopuccinellietalia maritimae</i>)	C	8.5 ha
Habitat	Dunes with <i>Salix repens</i> ssp. <i>Argentea</i> (<i>Salicion arenariae</i>)	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 <i>Ammophila arenaria</i> (white dunes)	C	4.5 ha
Species	Marsh Fritillary <i>Euphydryas aurinia</i>	B	
Species	Harbour (Common) Seal <i>Phoca vitulina</i>	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 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 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 (<i>Glauco-Puccinellietalia maritimae</i>)		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 <i>Salix repens</i> ssp. <i>Argentea</i> (<i>Salicion arenariae</i>)	C	Maintain and expand the extent of existing Fixed dunes with <i>Salix repens</i> . 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 <i>Salix repens</i>
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 <i>Ammophila arenaria</i> (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 <i>Euphydryas aurinia</i>	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 <i>Succisa pratensis</i>
Harbour (Common) Seal <i>Phoca vitulina</i>	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 <i>Euphydryas aurinia</i>	See SAC Selection Feature Objective Requirements table.
Harbour (Common) Seal <i>Phoca vitulina</i>	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. <i>Carlina vulgaris</i> , <i>Echium vulgare</i> , <i>Juncus subnodulosus</i> , <i>Teesdalia nudicaulis</i> , <i>Erigeron acer</i> , <i>Filigo minima</i> and the bryophytes <i>Rhodobryum roseum</i> and <i>Racomitrium canescens</i> .
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 any 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.

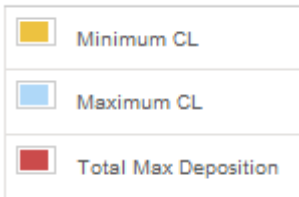
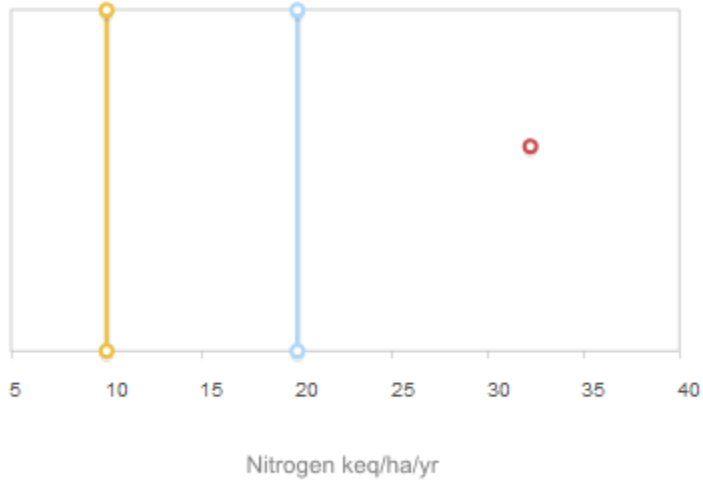
Feature: Atlantic decalcified fixed dunes (Calluno-Ulicetea)

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



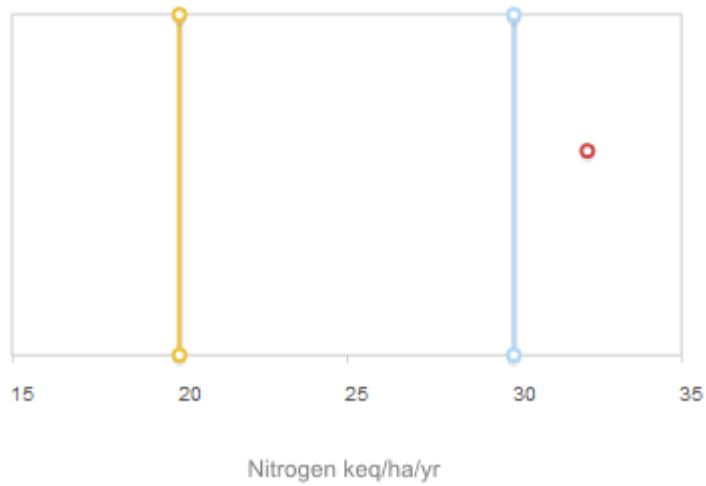
Feature: Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

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



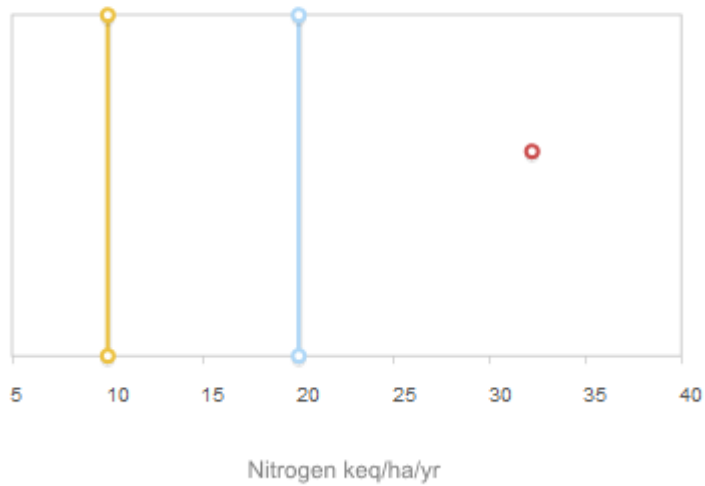
Feature: Dunes with *Salix repens* ssp *argentea* (*Salicion arenariae*)

Critical Load Class: Moist to wet dune slacks

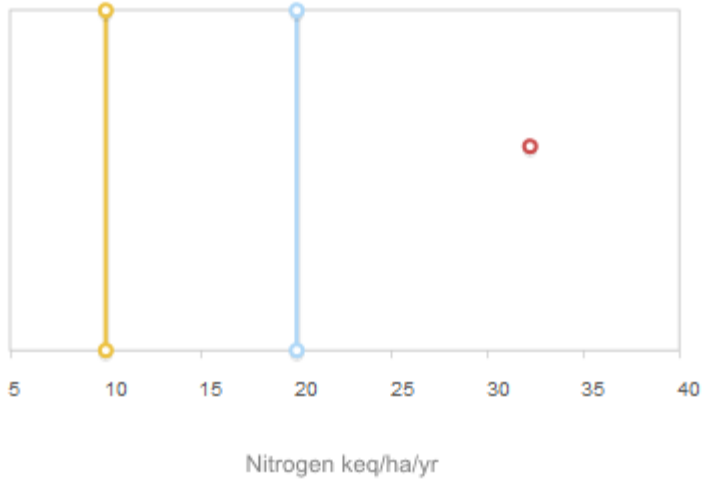
Critical Loads (kg N/ha/yr): 10-20

Nitrogen Deposition (kg N/ha/yr):

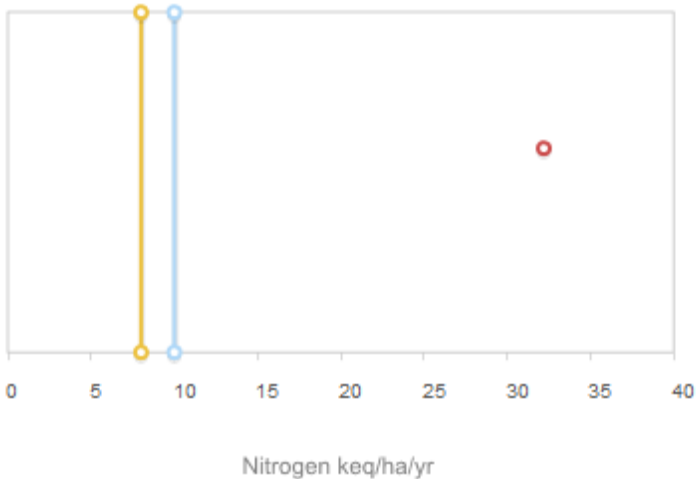
Maximum: 32.2 Minimum: 14.3 Average: 12.6

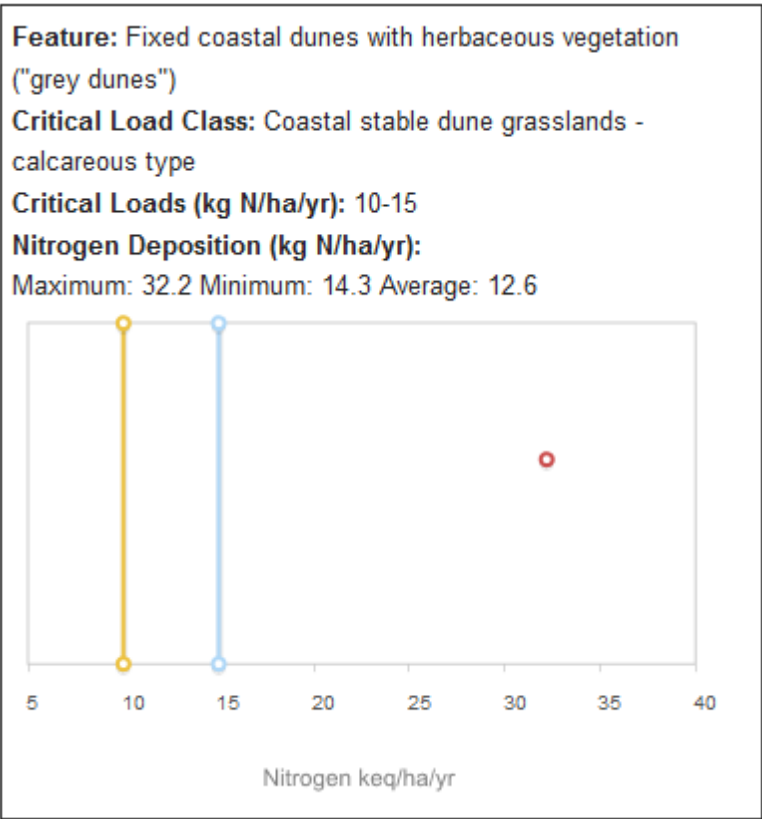


Feature: Embryonic shifting dunes
Critical Load Class: Shifting coastal dunes
Critical Loads (kg N/ha/yr): 10-20
Nitrogen Deposition (kg N/ha/yr):
 Maximum: 32.2 Minimum: 14.3 Average: 12.6



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





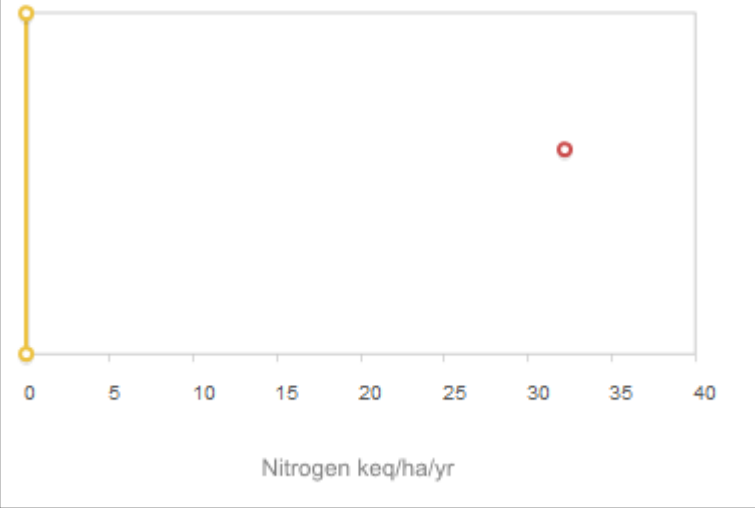
Feature: Mudflats and sandflats not covered by seawater at low tide

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



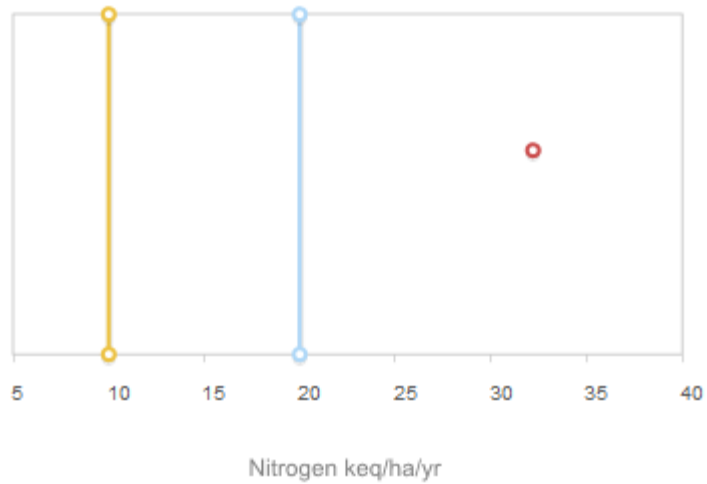
Feature: Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")

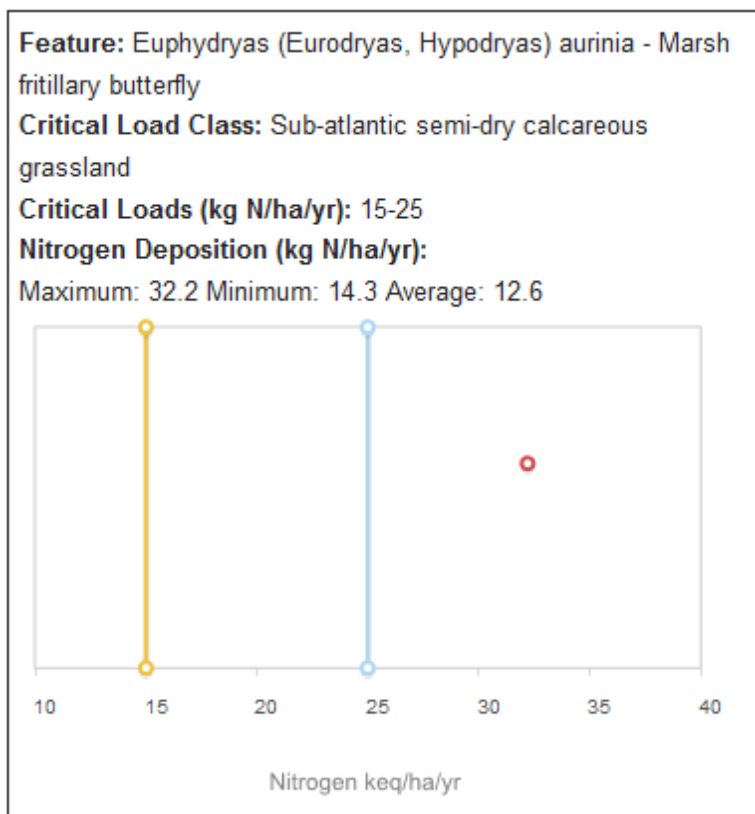
Critical Load Class: Shifting coastal dunes

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.

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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 <i>Calluna vulgaris</i> – <i>Carex arenaria</i> heath (only H11a <i>Erica cinerea</i> subcommunity and H11c species-poor subcommunity present in NI) and H10 <i>Calluna vulgaris</i> – <i>Erica cinerea</i> heath.
Extent and distribution of dune heath vegetation communities	Maintain extent and distribution of dune heath communities/sub-communities: Both variants of H11a: H11a(i) – grassy on slopes H11a(ii) – lichen rich in hollows And non-coastal dry heath: 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%. Both <i>Calluna vulgaris</i> and <i>Erica cinerea</i> 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 <i>Ammophila</i>) (%)	Graminoid cover (excluding <i>Ammophila</i>) should be less than 40%.	Visual estimate in 2x2m plots	

<p>* Frequency of community character species</p>	<p>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: <i>Erica cinerea, Dicranum scoparium, Lotus corniculatus, Luzula campestris</i></p> <p>Frequency of the following species on slopes: List A <i>Calluna vulgaris, Pleurozium schreberi, Teucrium scorodonia</i></p> <p>Frequency of the following species in hollows: List B <i>Cladonia spp, Hypochaeris radicata</i></p>	<p>Visual estimate in 2x2m plots</p>	
<p>* Frequency of negative indicators</p>	<p>Any one of the following more than frequent throughout the sward: <i>Cirsium arvense, Cirsium vulgare, Lolium perenne, Senecio jacobaea, Urtica dioica, Arrhenatherum elatius</i></p>	<p>Visual estimate in 2x2m plots</p>	

<i>Pteridium</i> 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. 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. 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. 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. 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 - e.g. some of the samples to contain open SM8 communities with <i>Salicornia</i> ; S21 communities with <i>Scirpus maritimus</i> ; and S4d communities with <i>Phragmites</i>	Visual estimate in 2x2 m plots	<i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are included within other Annex 1 habitat types. 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.

	<p>sward: <i>Suaeda maritima</i>, <i>Salicornia</i> agg., <i>Puccinellia maritima</i>, <i>Aster tripolium</i>, <i>Limonium humile</i>, <i>Glaux maritima</i>, <i>Cochlearia officinalis</i>, <i>Plantago maritima</i>, <i>Triglochin maritima</i> <i>Armeria maritima</i></p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p> <p>At least frequent is equivalent to greater than 41% occurrence in recorded plot.</p>		<p>Note: <i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features.</p>
* Sward Height (SM10)	<p>Maintain short sward in areas of species-rich vegetation. Maintain mean sward height at less than 12 cm.</p>	<p>Visual estimate in 2 x 2 m plots</p>	<p>Measure during summer (July/August/early September)</p>
* Maintain frequency of positive indicators for low-level marsh (SM13a, b, c and d)	<p>At least 5 of the indicator species listed below at least occasional, of which 3 are at least frequent throughout the sward: <i>Suaeda maritima</i>, <i>Salicornia</i></p>	<p>Visual estimate in 2 x 2 m plots</p>	<p>Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.</p> <p>Note: <i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are</p>

	<p>agg., <i>Puccinellia maritima</i>, <i>Aster tripolium</i>, <i>Limonium humile</i>, <i>Glaux maritima</i>, <i>Cochlearia officinalis</i>, <i>Plantago maritima</i>, <i>Triglochin maritima</i> <i>Armeria maritima</i>.</p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots. At least frequent is equivalent to greater than 41% occurrence in recorded plot.</p>		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)	<p>At least 6 of the indicator species listed below at least occasional, of which 4 are at least frequent throughout the sward:</p> <p><i>Puccinellia maritima</i>, <i>Aster tripolium</i>, <i>Limonium humile</i>, <i>Glaux maritima</i>, <i>Cochlearia officinalis</i>, <i>Plantago maritima</i>, <i>Triglochin maritima</i> <i>Armeria maritima</i>, <i>Festuca rubra</i>,</p>	Visual estimate in 2 x 2 m plots	<p>Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.</p> <p>Note: <i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features.</p>

	<p><i>Juncus gerardii</i>, <i>Agrostis stolonifera</i>, <i>Trifolium repens</i>, <i>Leontodon autumnalis</i>, <i>Carex flacca</i></p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p> <p>At least frequent is equivalent to greater than 41%</p>		
* 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)	<p>At least 6 of the indicator species listed below at least occasional, of which 4 are at least frequent throughout the sward:</p> <p><i>Juncus maritimus</i>, <i>Agrostis stolonifera</i>, <i>Festuca rubra</i>, <i>Glaux maritima</i>, <i>Juncus gerardii</i>, <i>Triglochin maritima</i>, <i>Plantago maritima</i>, <i>Armeria maritima</i>, <i>Aster tripolium</i>, <i>Elymus repens</i>, <i>Atriplex</i></p>	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.

	<p><i>prostrata, Potentilla anserina, Phragmites australis, Blysmus rufus, Eleocharis uniglumis</i></p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p> <p>At least frequent is equivalent to greater than 41% occurrence in recorded plot.</p>		
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 <i>Spartina</i> encroachment into the saltmarsh communities (% Cover)	<p><i>Spartina</i> be should be recorded as absent or rare across the saltmarsh communities.</p> <p>Mean cover should be less than 2 %.</p> <p>No more than rare is equivalent to less than 20% occurrence in recoded plots</p>	Visual estimate within a 10x10 m radius of monitoring plots <u>and</u> across the feature using a combination of aerial photographs and Condition Assessment structured walk.	<i>Spartina</i> 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.

<p>* Frequency and % cover of negative indicators excluding <i>Spartina</i> (DAFOR and % cover)</p>	<p>Negative indicators no more than occasional across the saltmarsh communities</p> <p>Mean cover should be less than 2 %.</p> <p>No more than occasional is equivalent to less than 40% occurrence in recoded 2x2m plots.</p>	<p>Visual estimate in 2x2 m plots</p>	
<p>* Frequency and % cover of scrub/tree encroachment into transitional communities (DAFOR and % cover)</p>	<p>Scrub encroachment no more than occasional in transitional communities.</p> <p>Mean cover should be less than 5 %.</p> <p>No more than occasional is equivalent to less than 40% occurrence in recoded 10x10m plots.</p>	<p>Visual estimate within a 10x10 m radius of monitoring plots <u>and</u> across the feature using a combination of aerial photographs and Condition Assessment structured walk.</p>	
<p>* Cover of litter/thatch accumulation (% cover)</p>	<p>Less than 25% mean cover.</p> <p>Lower thresholds may be appropriate for short SM 10 communities.</p>	<p>Visual estimate in 2x2m plots.</p>	<p>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%</p>

			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 <u>and</u> 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 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 <u>and</u> 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 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 <u>and</u> 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 <u>and</u> 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 <i>Salix</i> 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 <i>Salix</i> dune slack community includes SD16 <i>Salix repens</i> – <i>Holcus lanatus</i> dune-slack community (with <i>Salix repens</i> 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 <i>Salix repens</i>	Average height of <i>Salix repens</i> should be 5–30cm. <i>Salix repens</i> should be at least	Visual estimate in 2x2 m plots.	Low bushy <i>Salix</i> 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: <i>Salix repens</i> , <i>Festuca rubra</i> , <i>Carex flacca</i> , <i>Carex arenaria</i> , <i>Ononis repens</i> , <i>Lotus corniculatus</i> , <i>Pilosella officinarum</i>	Visual estimate in 2x2m plots	At least frequent is equivalent to greater than 41% occurrence in recorded plots. 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: <i>Cirsium arvense</i> , <i>Cirsium vulgare</i> , <i>Cirsium palustre</i> , <i>Lolium perenne</i> , <i>Senecio jacobaea</i> , <i>Urtica dioica</i> , <i>Pteridium aquilinum</i> , <i>Arrhenatherum elatius</i> , <i>Rubus fruticosus</i> .	Visual estimate in 2x2m plots	

<p>*Frequency and % cover of scrub/tree encroachment (excluding <i>Salix repens</i>) (DAFOR and % cover)</p>	<p>Scrub/tree encroachment (excluding <i>Salix repens</i>) should be no more than occasional.</p> <p>Mean cover should be less than 5%.</p>	<p>Visual estimate within a 10x10 m radius of plots.</p>	<p>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.</p>
<p>* Presence of rare or scarce species specific to the site.</p>	<p>Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk.</p> <p>If these species are not recorded on any one visit, it does not automatically make the site unfavourable.</p>	<p>Name the species at least present along the length of the Condition Assessment structured walk.</p>	

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 <i>Elytrigia juncea</i> , and/or <i>Leymus arenarius</i> , with other species such as <i>Honkenya peploides</i> , <i>Cakile maritima</i> 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. At least occasional is equivalent to greater than 21% occurrence in recorded plots.

<p>* Presence of rare or scarce species specific to the site.</p>	<p>Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment structured walk.</p>	<p>Name the species at least present along the length of the Condition Assessment structured walk.</p>	<p>If these species are not recorded on any one visit, it does not automatically make the site unfavourable.</p>
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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. The fixed dune communities include SD7 <i>Ammophila arenaria</i> – <i>Festuca rubra</i> , SD8 <i>Festuca rubra</i> – <i>Galium verum</i> , SD10 <i>Carex arenaria</i> , SD19 <i>Phleum arenarium</i> – <i>Arenaria serpyllifolia</i> , U4 <i>Agrostis capillaris</i> – <i>Galium saxatile</i> 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, noticeable 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: <i>Polygala sp,</i> <i>Centaureum erythraea,</i> <i>Primula vulgaris,</i> <i>Euphrasia sp,</i> <i>Thymus polytrichus,</i> <i>Galium verum,</i> <i>Ranunculus bulbosus,</i> <i>Linum catharticum,</i> <i>Koeleria macrantha,</i> <i>Lotus corniculatus,</i> <i>Peltigera/Cladonia,</i> <i>Scilla verna,</i> <i>Viola tricolor,</i> <i>Pilosella officinarum,</i>	Visual estimate in 2x2m plots	

	<p><i>Veronica officinalis</i>, <i>Succisa pratensis</i>, <i>Orchid sp</i>, <i>Anthyllis vulneraria</i>, <i>Erodium spp.</i>, <i>Campanula rotundifolia</i>, <i>Erophila verna</i>, <i>Hyacinthoides non-scripta</i>, <i>Ononis repens</i>, <i>Phleum arenarium</i>, <i>Polypodium spp.</i>, small <i>Carex</i></p> <p>At least frequent is equivalent to greater than 41% occurrence in recorded plots.</p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p>		
* Frequency of negative indicators	<p>Any one of the following more than frequent throughout the sward: <i>Cirsium arvense</i>, <i>Cirsium vulgare</i>, <i>Lolium perenne</i>, <i>Senecio jacobaea</i>, <i>Urtica dioica</i>, <i>Pteridium aquilinum</i>, <i>Arrhenatherum elatius</i></p>	Visual estimate in 2x2m plots	
* Frequency and %	Scrub/tree encroachment	Visual estimate within a	If scrub/tree species are more than occasional

<p>cover of scrub/tree encroachment. (DAFOR and % cover)</p>	<p>should be no more than occasional. Mean cover should be less than 5%.</p>	<p>10x10 m radius of plots.</p>	<p>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.</p>
<p>* Presence of rare or scarce species specific to the site.</p>	<p>Locally distinctive species recorded for the site should be 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.</p>	<p>Name the species at least present along the length of the Condition Assessment structured walk.</p>	

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	*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.
Intertidal Fine Sand and Mud Communities	*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.

<p><i>Zostera</i> Spp Beds</p> <p>(<i>Z.noltii</i>, <i>Z. angustifolia</i>, <i>Z. marina</i>)</p>	<p>Distribution of <i>Zostera</i> beds.</p>	<p>Distribution of <i>Zostera</i> beds, measured during autumn once during the reporting cycle.</p>	<p>Distribution should not deviate significantly from the established baseline, subject to natural change.</p>	<p>The distribution of the beds is of key importance to their conservation condition.</p> <p>It is important that any consideration of <i>Zostera</i> within the context of these conservation objectives fits with the UK Biodiversity Action Plan for Seagrass Beds.</p> <p>A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data.</p>
	<p>Extent</p>	<p>Area (ha) of <i>Zostera</i> spp. Beds</p>	<p>Extent should not deviate significantly from the established baseline, subject to natural change.</p>	<p>A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data.</p>
	<p>Taxonomic composition</p>	<p>Presence of selected taxa</p>	<p>Taxonomic species should not deviate significantly from the established baseline, subject to natural change.</p>	<p>A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data.</p>
	<p>Density</p>	<p>Measuring <i>Zostera</i> shoot density</p>	<p>Target: Average shoot density should not deviate significantly from the long term average.</p>	<p>An early indicator of seagrass under stress is a reduction in the number of plants and loss of plants on the lower shore.</p> <p>This will probably concentrate only on <i>Z. angustifolia</i> which, being a larger plant, is found at lower densities than <i>Z. noltii</i>.</p>

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.	<p>Northern Ireland Sublittoral Survey (NISS) carried out the baseline survey during 1980s. This was enhanced by the Inis Hydro project which mapped 182km² of the SAC. 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).</p> <p>Changes in extent and distribution may indicate long term changes in the physical conditions at the site.</p>

<p>*Species composition of selected biotopes at monitoring sites</p>	<p>Species composition of the selected biotopes measured once during the reporting cycle.</p>	<p>Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change.</p>	<p>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.</p>
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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. The white dune community includes SD6 <i>Ammophila arenaria</i> .
* 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	

<p>* Frequency of community character species</p>	<p><i>Ammophila arenaria</i> at least frequent and one of the following at least present throughout the sward: <i>Euphorbia</i> spp., <i>Eryngium maritima</i>, <i>Leymus arenarius</i>, <i>Calystegia soldanella</i>, <i>Festuca rubra</i>, <i>Sonchus</i> spp</p> <p>At least frequent is equivalent to greater than 41% occurrence in recorded plots.</p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p>	<p>Visual estimate in 2x2m plots</p>	
<p>* Frequency of non-native species</p>	<p>There should be no non-native species recorded within the white dunes.</p>	<p>Visual estimate in 2x2m plots</p>	
<p>*Frequency and % cover of Sea buckthorn encroachment. (DAFOR and % cover)</p>	<p>Sea buckthorn encroachment should be absent.</p> <p>Mean cover should be 0%.</p>	<p>Visual estimate within a 10x10 m radius of plots.</p>	<p>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.</p>
<p>* Presence of rare or scarce species</p>	<p>Locally distinctive species recorded for the site should be</p>	<p>Name the species at least present</p>	

<p>specific to the site.</p>	<p>at least present along the length of the Condition Assessment structured walk</p> <p>If these species are not recorded on any one visit, it does not automatically make the site unfavourable.</p>	<p>along the length of the Condition Assessment structured walk.</p>	
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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. (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. Murlough is the most important area for this species with Ballykinler having little <i>Succisa</i> 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 <i>Succisa pratensis</i> is present. Vegetation height and extent of <i>Succisa</i> 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. 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.	<p>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.</p> <p>The population within this area could be influenced by factors including population trends within the wider Irish Sea, food availability and disturbance.</p> <p>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.</p>

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.



**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).

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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 level¹. 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 Channel SAC, the relevant² and competent³ 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.

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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 (MUs⁴) 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.

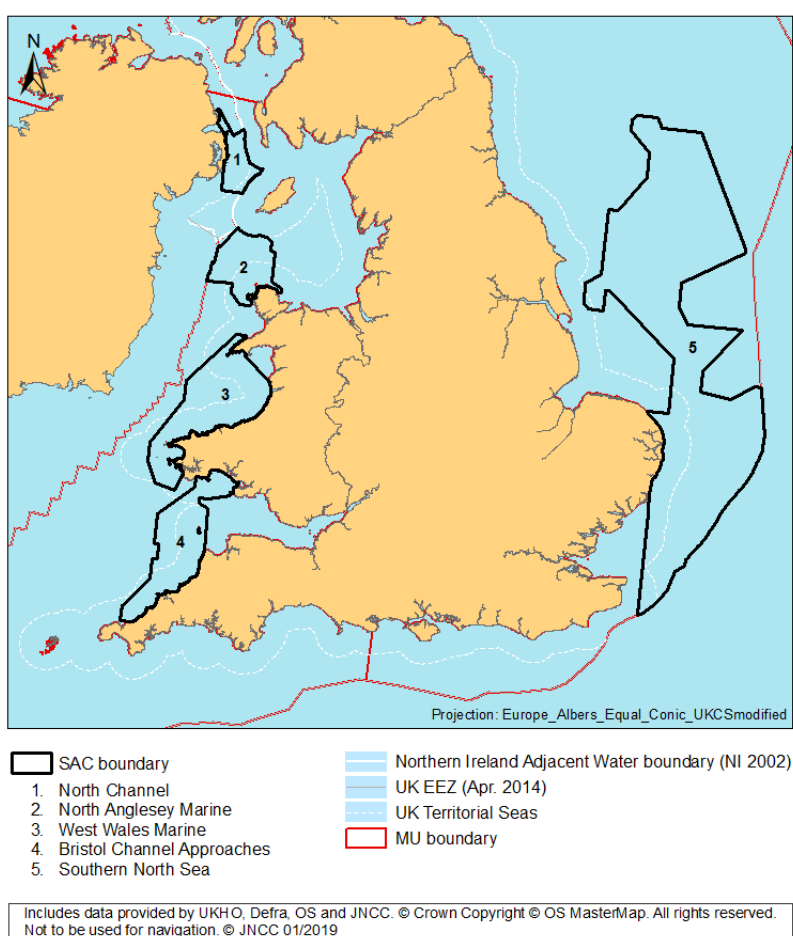


Figure 1: Special Areas of Conservation for the harbour porpoise, *Phocoena phocoena* identified in Northern Ireland, England, Wales and offshore waters. The Management Unit (MU) boundary (red line) refers to the UK portion of the North Sea and Celtic and Irish Seas MUs.

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 2017⁶ (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.

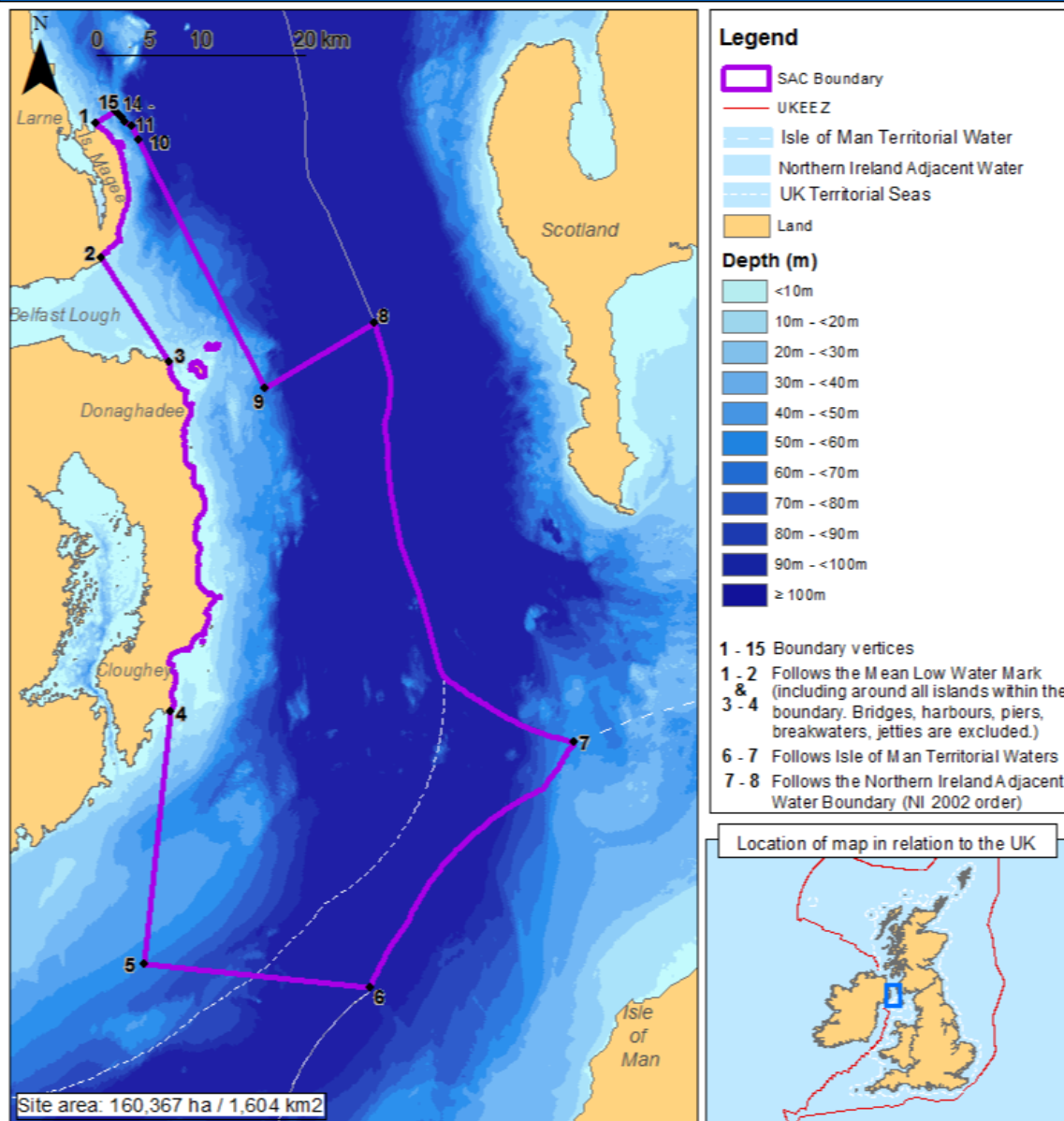
3.3 The North Channel SAC Conservation Objectives

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).

North Channel



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 noise⁷. 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 area⁸ of the site in any given day⁹, 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 $19 \times 95 / 183$ 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 pressures¹² 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 risk¹³ 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 assessments¹⁴ 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	<ul style="list-style-type: none"> • Mortality through entanglement/bycatch 	High
Discharge/run-off from land-fill, terrestrial and offshore industries	Contaminants	<ul style="list-style-type: none"> • Effects on water and prey quality • Bioaccumulation through contaminated prey ingestion • 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	<ul style="list-style-type: none"> • Mortality • Internal injury • 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	<ul style="list-style-type: none"> • Mortality • Injury 	Medium/Low
Commercial fisheries (reduction in prey resources)	Removal of target species	<ul style="list-style-type: none"> • Reduction in food availability • Increased competition from other species • 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 1,604km². A summary of the site can be found in the Selection Assessment Document on the Site Information Centre¹⁵.

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 website¹⁶.

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	<p>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.</p> <p>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 site¹⁷.</p> <p>UK registered vessels <12m: current exposure is unknown within the site boundary.</p> <p>EU registered >12m vessels: VMS data show potential for low levels of dispersed static netting vessel activity in Northern Ireland waters.</p>	<p>Where bycatch may pose a risk to achieving the site's conservation objectives, mitigation may need to be considered.</p> <p>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).</p> <p>The site sits within ICES area VIIa and as such, gillnetters > 12m are not legally obliged to use pingers under EU Regulation 812/2004.</p> <p>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.</p> <p>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.</p>
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.

			<p>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.</p> <p>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.</p> <p>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.</p>
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.	<p>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 <i>et al</i> 2007).</p> <p>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.</p>
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

		<p>are currently no plans in place for development of that zone.</p> <p>Although there is currently no pile driving within the site there are planned developments at Belfast Harbour that will engage this activity.</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs and Regulators in consultation with industry.</p>
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.	<p>Some geophysical surveys that may affect the integrity of the site may require consent and be subject to HRA.</p> <p>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 2017¹⁹) 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.’</p> <p>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.</p> <p>Cumulative impacts of geophysical surveys will need to be considered.</p> <p>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.</p>
Recreational boating activity		Royal Yachting Association (RYA) cruising routes throughout the site, particularly along coast.	<p>Adherence to relevant existing wildlife codes of conduct is already advocated.</p> <p>UK SNCBs are looking at the option of developing an overarching wildlife watching code of conduct to sit alongside the Scottish code.</p>
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'. 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. 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. 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. 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). 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). 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. 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 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).	<p>Fisheries Policy and not at the site level.</p> <p>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 <i>et al</i>/2005; Camphuysen <i>et al</i>/ 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).</p> <p>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.</p>
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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.

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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 17²¹. 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 status²².

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	<ul style="list-style-type: none"> Mortality through entanglement/bycatch 	High	✓	✓	Deaville and Jepson, 2011; Morizur <i>et al</i> 1999; Read <i>et al</i> 2006; Northridge and Kingston, 2010; Northridge <i>et al</i> 2016; ICES 2015b
Discharge/run-off from land-fill, terrestrial and offshore industries	Contaminants	<ul style="list-style-type: none"> Effects on water and prey quality Bioaccumulation through 	High		✓	Jepson <i>et al</i> 2005; Jepson <i>et al</i> 2016; Deaville & Jepson, 2011; ICES, 2015a; Van De Vijver <i>et al</i> 2003; Law <i>et al</i> 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

		<ul style="list-style-type: none"> contaminated prey ingestion Health issues (e.g. on reproduction) 				Pierce <i>et al</i> 2008; Murphy <i>et al</i> 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	<ul style="list-style-type: none"> Mortality Internal injury Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising) Habitat change/loss 	Medium	✓		Deville & Jepson, 2011; Stone & Tasker, 2006; Stone, 2015; Jepson <i>et al</i> 2005; Fernandez <i>et al</i> 2005; Würsig & Richardson, 2009; WGMME, 2012.
Shipping, recreational boating, renewable energy installations	Death or injury by collision	<ul style="list-style-type: none"> Mortality Injury 	Medium/Low	✓	✓	Deville & Jepson, 2011; Dolman <i>et al</i> 2006; ICES 2015a
Commercial fisheries, bycatch	Removal of target species	<ul style="list-style-type: none"> Reduction in food availability Increased competition from other species Displacement from natural range Habitat change/loss 	Medium		✓	Simmonds and Isaac, 2007; OSPAR QSR 2010; MacLeod <i>et al</i> 2007a, b; Thompson <i>et al</i> 2007; Santos and Pierce, 2003; Pierce <i>et al</i> 2007; ICES 2015b
Agriculture, aquaculture, sewage	Nutrient enrichment	<ul style="list-style-type: none"> Effects on water quality Increased risk of algal blooms may present health issues Habitat change/loss 	Low	✓	✓	Craig <i>et al</i> 2013
Agriculture, aquaculture, sewage	Organic enrichment	<ul style="list-style-type: none"> Effects on water quality Increased risk of algal blooms may present health issues Habitat change/loss 	Low	✓		Craig <i>et al</i> 2013
Waste disposal - navigational dredging (capital, maintenance)	Physical change (to another seabed type)	<ul style="list-style-type: none"> Changes in availability of prey species Habitat change/loss 	Low			

Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation)	Water flow (tidal current) changes - local	<ul style="list-style-type: none"> • Changes in location of prey species • Displacement of harbour porpoise • Habitat change/loss 	Low			
Terrestrial and at-sea 'disposal'	Litter	<ul style="list-style-type: none"> • Mortality through entanglement • Ingestion 	Low	✓	✓	Deaville and Jepson, 2011
Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation)	Barrier to species movement	<ul style="list-style-type: none"> • Habitat inaccessible • Potential physiological effects • Habitat change/loss 	Low	✓		WGMME., 2012; ICES 2015a
Sewage	Introduction of microbial pathogens	<ul style="list-style-type: none"> • Increased risk of disease 	Low		✓	Harvell <i>et al</i> 1999; Gulland and Hall, 2007; Van Bresseem <i>et al</i> 2009

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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

OUTER ARDS - SPECIAL PROTECTION AREA (SPA)

UK9020271

CONSERVATION OBJECTIVES

Document Details

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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 Directives¹ 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.

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 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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely 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.

Generic site/feature issues

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 sedimentologically 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. 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 <i>et al.</i> 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

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V1	June 2013	Internal working document	PC
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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 Directives¹ 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: 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 <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion, Alnion incanae, Salicion alvae</i>)	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 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 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. <i>Alisma lanceolatum</i> (3), <i>Butomus umbellatus</i> (1), <i>Chenopodium polyspermum</i> (5), <i>Leucojum aestivum</i> (3), <i>Polygonum mite</i> (3), <i>Prunus padus</i> (2), <i>Cicuta virosa</i> (2), <i>Cardamine amara</i> (5), <i>Rorippa sylvestris</i> (1), <i>Lemna polyrhiza</i> (2), <i>Carex elongata</i> (5), <i>C. strigosa</i> (2) and <i>Scirpus sylvatica</i> (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 <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion alvae</i>)	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 likely 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 any 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 *Bambusoideae*, 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 sylvatica*. 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

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

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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 26ha.	Visual estimate in 10x10m plots <u>and</u> 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 <u>and</u> 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. 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. The ground flora may appear sparse, particularly where periodic flooding leaves areas of bare mud etc. Its composition may be variable. 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.	

	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. 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. In addition, non-native invasive species in any one layer is un-desirable. 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.	

	<p><i>Galium aparine, Urtica dioica, Heracleum spp, Epilobium spp. Rumex obtusifolius</i></p> <p>No more than occasional is equivalent to less than 40% occurrence in recorded plots.</p>		
* 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 <u>and</u> 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:- <i>Filipendula ulmaria</i> , <i>Galium palustris</i> , <i>Caltha palustris</i> , <i>Cardamine pratensis</i> , <i>Lysimachia. nummularia</i> , <i>Ranunculus repens</i> , <i>Mentha aquatica</i> , <i>Angelica sylvestris</i> , <i>Potentilla palustris</i> , <i>Lythrum salicaria</i> ,	Visual estimate in 10x10m plots.	

	<p><i>Myosotis scorpioides,</i> <i>Oenanthe crocata,</i> <i>Lycopus europaeus,</i> <i>Angelica sylvestris,</i> <i>Scutellata,</i> <i>Solanum dulcamara,</i> <i>Valeriana officinalis</i> <i>Iris pseudacorus,</i> <i>Equisetum fluviatile,</i> <i>Phragmites australis,</i> <i>Carex rostrata,</i> <i>C. paniculata,</i> <i>C. remota,</i> <i>C. vesicaria.</i></p>		
Indicators of Local Distinctiveness			
Presence of rare or scarce species specific to the site.	<p>Maintain current levels of standard variation within reasonable limits for rare and notable species.</p> <p>If these species are not recorded on any one visit, it does not automatically make the site unfavourable.</p>	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

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1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives¹ 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>).

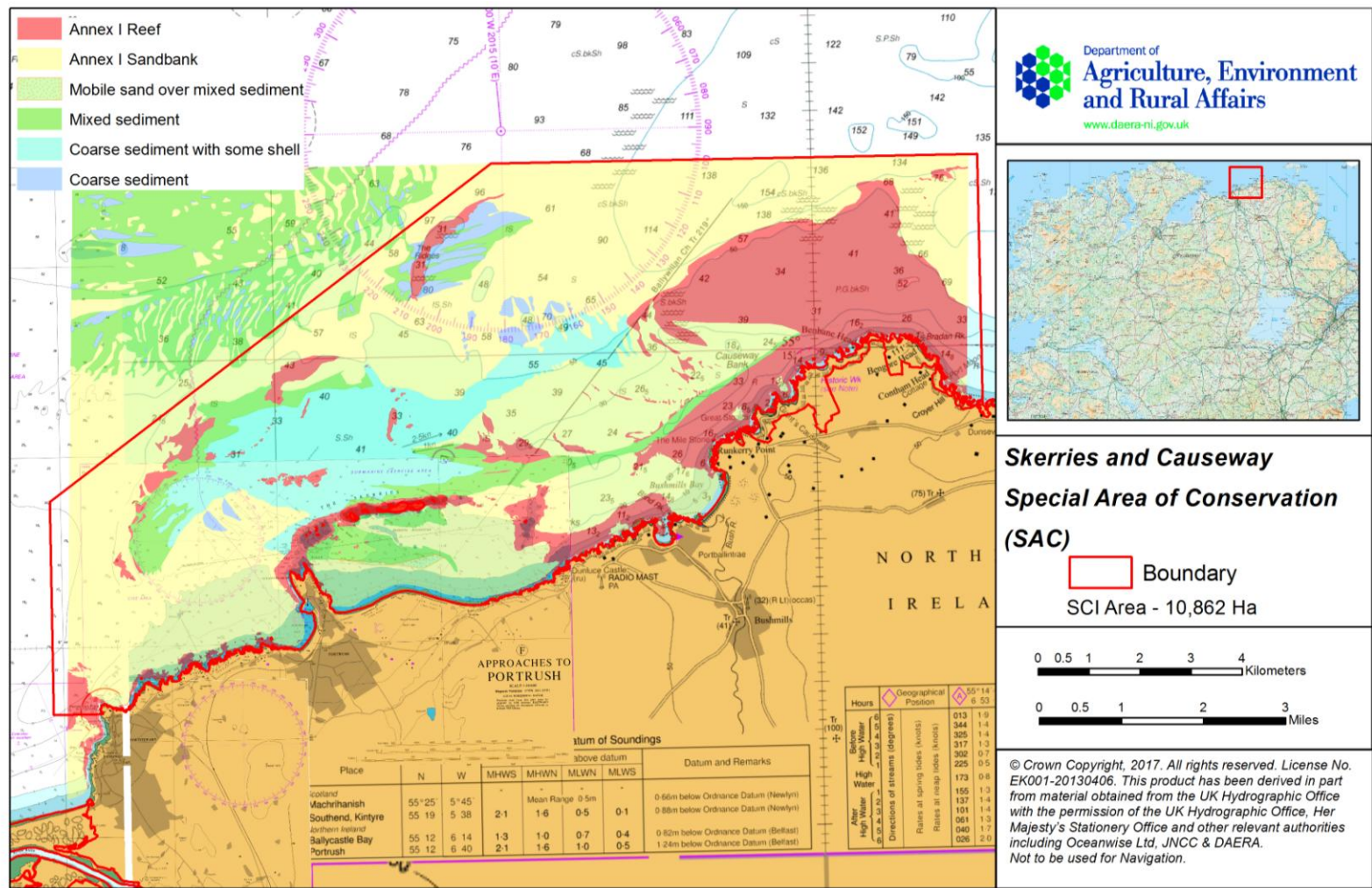
5.1 BOUNDARY RATIONALE

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 <i>Phocoena phocoena</i>	C	
Species	Common Seal <i>Phoca vitulina</i>	D	
Species	Grey Seal <i>Halichoerus grypus</i>	D	
Species	Bottlenose Dolphin <i>Tursiops truncatus</i>	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 (<i>Phocoena phocoena</i>)	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.

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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 (<i>Zostera marina</i>)	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	*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.
	Subtidal Fine Sand and Mud Communities	* 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	* 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.
	Subtidal Rocky Reef Communities	* 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. A recent report (Nykanen <i>et al.</i> , 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).

STRANGFORD LOUGH SAC
UK0016618

CONSERVATION OBJECTIVES

Document Details

Title	<i>Strangford Lough SAC Conservation Objectives</i>
Prepared By	<i>R. McKeown</i>
Approved By	<i>P. Corbett</i>
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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 Directives¹ 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 km²) marine inlet on the east coast of County Down, of which about 50 km² 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 km² 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 (<i>Glauco-Puccinellietalia maritimae</i>)	C	75.0 ha
Habitat	Perennial vegetation of stony banks	C	30.0 ha
Habitat	<i>Salicornia</i> and other annuals colonising mud and sand	C	
Species	Harbour (Common) Seal <i>Phoca vitulina</i>	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 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 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 <i>Phoca vitulina</i>		
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 (<i>Glauco-Puccinellietalia maritimae</i>)	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
<i>Salicornia</i> and other annuals colonising mud and sand	C	To restore the <i>Salicornia</i> 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 <i>Salicornia</i> and other annuals colonising mud and sand, to operate appropriately
		Maintain and enhance, as appropriate, the species diversity within this habitat.
Harbour (Common) Seal <i>Phoca vitulina</i>	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
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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 <i>Phoca vitulina</i>	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 any 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 outfalls, 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.

Nutrication 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 material 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.

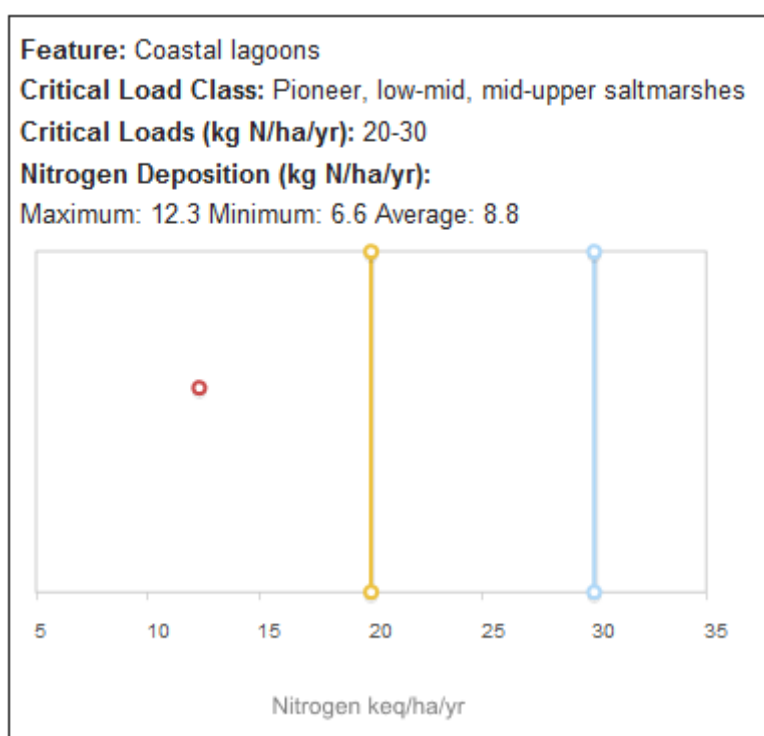
Nitrogen Deposition

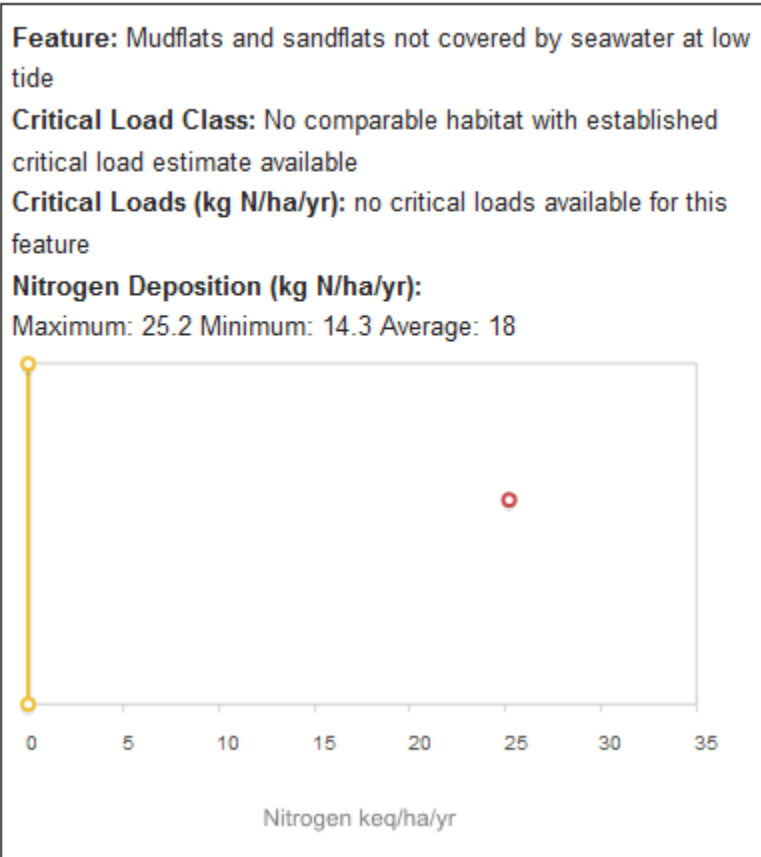
Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the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





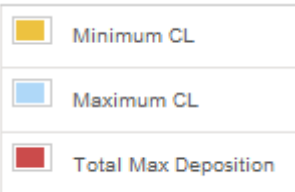
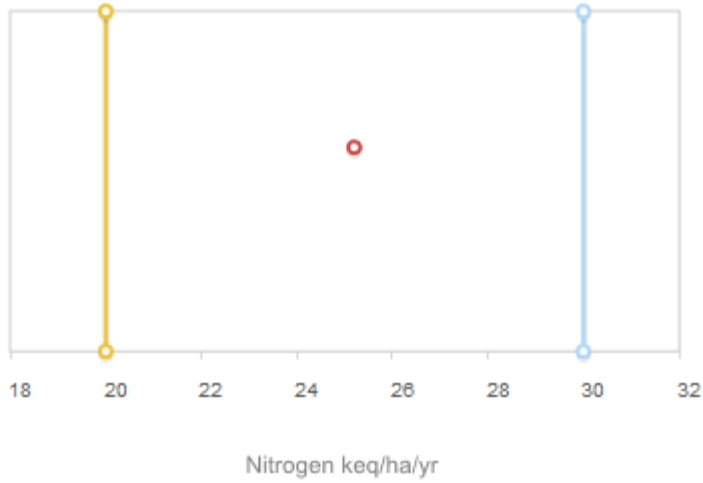
Feature: Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Critical Load Class: Pioneer, low-mid, mid-upper saltmarshes

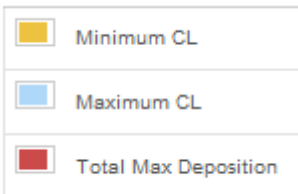
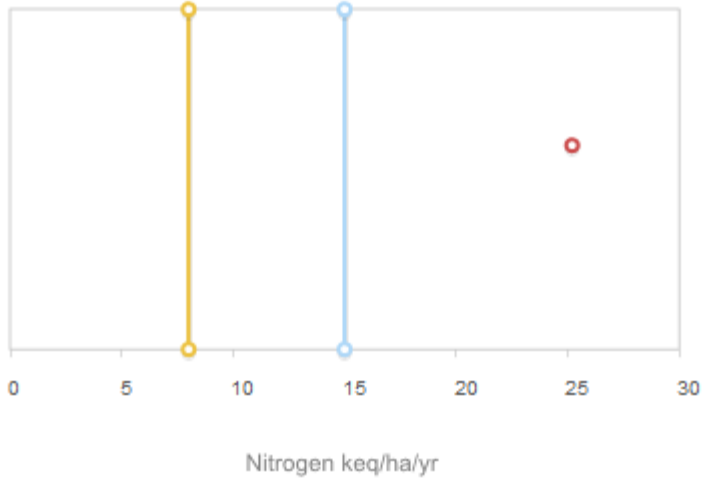
Critical Loads (kg N/ha/yr): 20-30

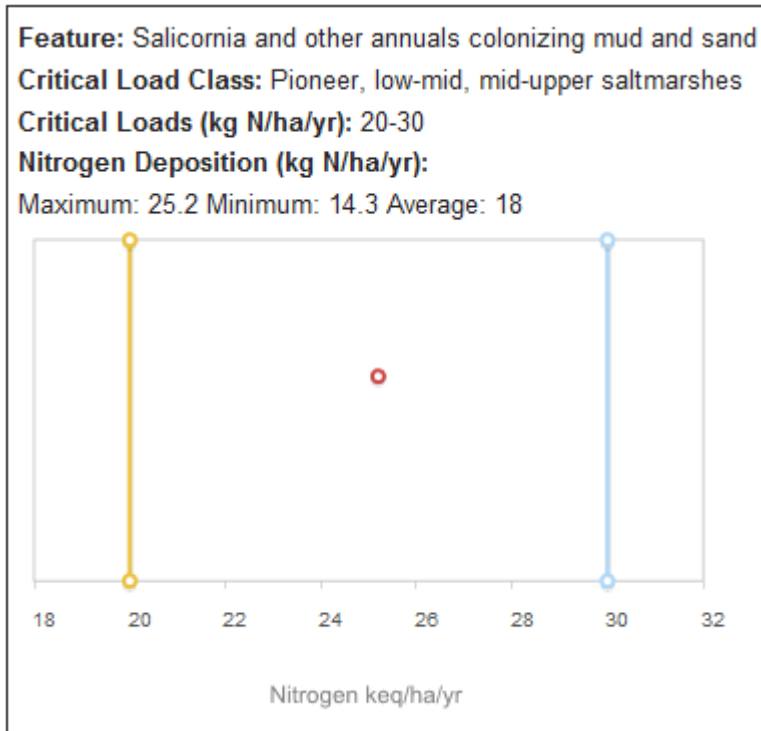
Nitrogen Deposition (kg N/ha/yr):

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

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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	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.
Subtidal Fine Sand and Mud Communities				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 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 both spyball and diving surveys will be utilised to determine the achievement of the conservation objectives through 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. Aerial photos can be used to monitor natural movement of channels and any encroachment from unregulated planning.
Intertidal Sand and Gravel Communities 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.

<p><i>Zostera</i> Spp Beds</p> <p>(<i>Z noltii</i>, <i>Z. angustifolia</i> <i>Z. marina</i>)</p>	Distribution of <i>Zostera</i> beds.	Distribution of <i>Zostera</i> beds, measured during autumn once during the reporting cycle.	Distribution should not deviate significantly from the established baseline, subject to natural change.	<p>The distribution of the beds is of key importance to their conservation condition.</p> <p>It is important that any consideration of <i>Zostera</i> within the context of these conservation objectives fits with the UK Biodiversity Action Plan for Seagrass Beds.</p> <p>A considerable amount of data has recently been collated regarding this attribute. A target value and consequently limits, will be derived from this data.</p> <p>The Department is currently gathering data on the distribution, extent and quality of subtidal <i>Zostera marina</i> beds (at present these are located at Ballyhenry and Strangford Harbour, but others may be found through subtidal survey).</p>
	Extent.	Area (ha) of <i>Zostera</i> 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 (<i>Z noltii</i> , <i>Z. angustifolia</i> <i>Z. marina</i>)	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 <i>Zostera</i> 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. This will probably concentrate only on <i>Z. angustifolia</i> which, being a larger plant, is found at lower densities than <i>Z. noltii</i> .

Feature 4 (SAC) - Reefs (Status B)

SUB-FEATURE	ATTRIBUTE	MEASURE	TARGETS	COMMENTS
Subtidal Rock and Boulder Communities Subtidal Rocky Reef Communities 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	<p>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.</p> <p>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.</p>
	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
<p><i>Modiolus modiolus</i> Beds</p>	<p>Distribution of <i>Modiolus</i> beds.</p>	<p>Distribution of <i>Modiolus modiolus</i> biotope SCR.ModCVar and biotopes with <i>Modiolus /Ophiothrix</i> measured once during the reporting cycle.</p>	<p><i>Modiolus</i> beds (SCR.ModCVar) and other biotopes should be present in those areas of the Lough where they historically occurred.</p>	<p>The <i>Modiolus beds</i> 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.</p>
	<p>Extent and percentage cover of <i>Modiolus</i> beds.</p>	<p>Extent and percentage cover occupied by <i>Modiolus</i> beds i.e biotope SCR.Mod.Cvar and biotopes with <i>Modiolus/Ophiothrix</i> measured once during the reporting cycle.</p>	<p>This target will reflect the potential for natural recovery of <i>Modiolus modiolus</i> beds in areas where it has been impacted.</p> <p>Lower limit: No decrease in extent or percentage cover from established baseline, subject to natural change.</p>	<p>It will be important to ensure that the beds do not become further reduced or fragmented even if the distribution does not change significantly.</p> <p>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.</p>

	Species index of <i>Modiolus</i> beds.	The diversity (number of species and their abundance) of the mussel beds is a key measure of its health.	Species index of the <i>Modiolus modiolus</i> beds should not deviate from the established baseline, subject to natural change.	<i>Modiolus</i> 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.
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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 <i>Honckenya peploides</i> – <i>Cakile maritima</i> SD2 community and the SD3 <i>Matricaria maritima</i> - <i>Galium aparine</i> 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 <i>Beta</i> and <i>Atriplex</i> spp. and show affinities to MC 6 <i>Atriplex hastata</i> - <i>Beta vulgaris</i> ssp <i>maritima</i> 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. 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. 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. 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 - e.g. some of the samples to contain open SM8 communities with <i>Salicornia</i> ; S21 communities with <i>Scirpus maritimus</i> ; and S4d communities with <i>Phragmites</i>	Visual estimate in 2x2 m plots	<i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are included within other Annex 1 habitat types. 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: <i>Suaeda maritima</i> , <i>Salicornia</i> agg., <i>Puccinellia maritima</i> , <i>Aster tripolium</i> , <i>Limonium humile</i> , <i>Glaux maritima</i> , <i>Cochlearia officinalis</i> , <i>Plantago maritima</i> , <i>Triglochin maritima</i> <i>Armeria maritima</i> . 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. Note: <i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features.

	<p>21% occurrence in recorded plots.</p> <p>At least frequent is equivalent to greater than 41% occurrence in recorded plot.</p>		
* Sward Height (SM10)	<p>Maintain short sward in areas of species-rich vegetation.</p> <p>Maintain mean sward height at less than 12 cm.</p>	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)	<p>At least 5 of the indicator species listed below at least occasional, of which 3 are at least frequent throughout the sward: <i>Suaeda maritima</i>, <i>Salicornia</i> agg., <i>Puccinellia maritima</i>, <i>Aster tripolium</i>, <i>Limonium humile</i>, <i>Glaux maritima</i>, <i>Cochlearia officinalis</i>, <i>Plantago maritima</i>, <i>Triglochin maritima</i>, <i>Armeria maritima</i>.</p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p> <p>At least frequent is equivalent to greater than</p>	Visual estimate in 2 x 2 m plots	<p>Ensure species-poor/rank communities/sub-communities do not increase at the expense of other sub-communities.</p> <p>Note: <i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) are included within other Annex 1 habitat types/ ASSI selection features..</p>

	41% occurrence in recorded plot.		
* 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: <i>Puccinellia maritima</i> , <i>Aster tripolium</i> , <i>Limonium humile</i> , <i>Glaux maritima</i> , <i>Cochlearia officinalis</i> , <i>Plantago maritima</i> , <i>Triglochin maritima</i> , <i>Armeria maritima</i> , <i>Festuca rubra</i> , <i>Juncus gerardii</i> , <i>Agrostis stolonifera</i> , <i>Trifolium repens</i> , <i>Leontodon autumnalis</i> , <i>Carex flacca</i> At least occasional is equivalent to greater than 21% occurrence in recorded plots. 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. Note: <i>Zostera</i> and <i>Ruppia</i> beds (SM1 and SM2) and stands of <i>Salicornia</i> and <i>Suaeda</i> (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. 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: <i>Juncus maritimus</i> , <i>Agrostis stolonifera</i> , <i>Festuca rubra</i> , <i>Glaux maritima</i> , <i>Juncus gerardii</i> , <i>Triglochin maritima</i> , <i>Plantago maritima</i> , <i>Armeria maritima</i> , <i>Aster tripolium</i> , <i>Elymus repens</i> , <i>Atriplex prostrata</i> , <i>Potentilla anserina</i> , <i>Phragmites australis</i> , <i>Blysmus rufus</i> , <i>Eleocharis uniglumis</i> At least occasional is equivalent to greater than 21% occurrence in recorded plots. 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 <i>Spartina</i> encroachment into the saltmarsh communities (% Cover)	<p><i>Spartina</i> be should be recorded as absent or rare across the saltmarsh communities.</p> <p>Mean cover should be less than 2 %.</p> <p>No more than rare is equivalent to less than 20% occurrence in recorded plots</p>	Visual estimate within a 10x10 m radius of monitoring plots <u>and</u> across the feature using a combination of aerial photographs and Condition Assessment structured walk.	<i>Spartina</i> 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 <i>Spartina</i> (DAFOR and % cover)	<p>Negative indicators no more than occasional across the saltmarsh communities</p> <p>Mean cover should be less than 2 %.</p> <p>No more than occasional is equivalent to less than 40% occurrence in recoded 2x2m plots.</p>	Visual estimate in 2x2 m plots	
* Frequency and % cover of scrub/tree encroachment into transitional communities (DAFOR and % cover)	<p>Scrub encroachment no more than occasional in transitional communities.</p> <p>Mean cover should be less than 5 %.</p>	Visual estimate within a 10x10 m radius of monitoring plots <u>and</u> 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. 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 <u>and</u> 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 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 <u>and</u> 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 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 <u>and</u> 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 <u>and</u> 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 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	<p>Subject to natural processes, maintain the overall extent of the vegetation at 1.92 ha.</p> <p>Gransha Point - 1.02 ha Mid Island (at least partially on shingle) – 0.9 ha</p>	<p>Visual estimate in 2 x 2m plots and across the extent of the community using SIM and aerial photos.</p> <p>Measured once per reporting cycle.</p>	<p>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.</p>
* Physical structure: functionality and sediment supply	<p>No increase in either the linear extent or the area constrained by introduced structures or landforms.</p>	<p>Visual inspection of aerial photographs, SIM and Condition Assessment structured walk.</p>	<p>Potentially relevant to Gransha Point.</p>
Sward Height	<p>Sward height should be between 5-15 cm over at least 75% of the sample plots within grassland habitats</p>	<p>Visual estimate in 2x2m plots.</p>	<p>Grassland makes up the bulk of the community at Gransha Point; requires sufficient (but not excessive) grazing to maintain it.</p>
Litter	<p>Average litter cover (i.e. dense thatch-like material in a more or less continuous layer) should be less than 10 %.</p> <p>May be distributed either in patches or in one larger</p>	<p>Visual estimate in 2x2m plots.</p>	<p>Excessive build-up of litter indicates inadequate grazing levels.</p>

	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 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. shingle banks (SD2, SD3), saltmarsh (SM9, SM10, SM13, SM14, SM16 and SM28), grasslands (SD8, MC8, MC9, MG1, MG11 and MG12) and scrub (W23,W24). 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. Note: 1. Gransha Point was mapped as SD8 (NI Coastal Survey), but perhaps should more accurately be described as MC8/9 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.	

	<p><i>Agrostis</i> spp., <i>Aira</i> spp., <i>Armeria maritima</i>, <i>Carex panicea</i>, <i>Centaurea nigra</i>, <i>Cladonia</i> spp., <i>Danthonia decumbens</i>, <i>Festuca rubra</i>, <i>Galium saxatile</i>, <i>Galium verum</i>, <i>Hypochaeris radicata</i>, <i>Jasione montana</i>, <i>Koeleria macrantha</i>, <i>Lotus corniculatus</i>, <i>Molinia caerulea</i>, <i>Plantago lanceolata</i>, <i>Polypodium</i> agg., <i>Potentilla erecta</i>, <i>Rumex acetosella</i>, <i>Scilla verna</i>, <i>Sedum</i> spp., <i>Succisa pratensis</i>, <i>Thymus praecox</i></p>		
Agricultural weed species :	<p>No more than one negative species should more than frequent; or singly or together contribute more than 5% cover: - <i>Cirsium arvense</i>, <i>Cirsium vulgare</i>, <i>Senecio jacobaea</i>, <i>Urtica dioica</i>, <i>Arrhenatherum elatius</i></p>	Visual estimate in 2x2m plots.	
Bracken	<p>Less than 5% <i>Pteridium aquilinum</i> over the area as whole</p>	Visual estimate in 2x2m plots <u>and</u> across the extent of the feature using Condition Assessment structured walk.	
Indicators of Improvement	<p>Mean cover values from the sample plots for eutrophic broad-leaved grasses (i.e.</p>	Visual estimate in 2x2m plots.	

	<i>Lolium perenne</i> , <i>Holcus lanatus</i> , <i>Dactylis glomerata</i> .) should be less than 10% cover		
Trees/shrubs	Trees and/or shrubs no more than occasional on W-Walk, with seedlings rare or absent Less than 10 % tree or shrub cover (over the area as a whole)	Visual estimate in 2x2m plots <u>and</u> 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.	<p>Visual estimate in 2 x 2 m plots and across the extent of the community using SIM.</p> <p>Aerial photographs can be useful if taken at the appropriate scale and time of year.</p> <p>Measured once per reporting cycle, preferably during the summer months of July or August</p>	<p>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.</p>
* Mobility/Coastal Processes	No increase in either the linear extent or the area constrained by introduced structures or landforms.	<p>Visual inspection of aerial photographs, SIM and Condition assessment structured walk. Check for any new physical structures that</p>	<p>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.</p>

		<p>may impact on this community.</p> <p>Aerial photographs are particularly valuable for this, if available.</p>	
* Vegetation composition	<p>Maintain extent and species composition of low-level marsh communities <i>Salicornia</i> and <i>Suaeda</i> (SM8 and SM9) –</p> <p>At least 1 of the species below recorded as frequent and at least a further 2 as occasional or rare:</p> <p><i>Salicornia</i> agg., <i>Suaeda maritima</i>, <i>Zostera</i> spp., <i>Ruppia</i> spp., <i>Puccinellia maritima</i>, <i>Aster tripolium</i>, <i>Spergularia media</i>, <i>Limonium humile</i>, <i>Cochlearia officinalis</i></p> <p>At least occasional is equivalent to greater than 21% occurrence in recorded plots.</p> <p>At least frequent is equivalent to greater than 41% occurrence in recorded plot.</p>	Visual estimate in 2x2m plots.	

* Frequency and/or % cover of <i>Spartina</i> encroachment into the <i>Salicornia</i> communities	<p><i>Spartina</i> be should be recorded as absent or rare in <i>Salicornia</i> communities.</p> <p>Mean cover should be less than 2 %.</p> <p>No more than rare is equivalent to less than 20% occurrence in recoded plots</p>	Visual estimate within a 10x10 m radius of monitoring plots <u>and</u> across the feature using a combination of aerial photographs and Condition Assessment structured walk.	<i>Spartina</i> 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. <i>Salicornia</i> 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 <u>and</u> 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 <u>and</u> 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 Harbour Seals counted during the autumn moult period.	Maintain a population of at least 210 Harbour Seals.	<p>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.</p> <p>The population within this area could be influenced by factors including population trends within the wider Irish Sea, food availability and disturbance.</p> <p>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.</p>
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
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Approved By	<i>Mark Wright</i>
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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 Directives¹ 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 km²) marine inlet on the east coast of County Down, of which about 50 km² 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'
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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, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely 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.

Generic site/feature issues

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 sedimentologically 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, wildfowling, 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 Wildfowling 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.
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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 <i>et al.</i> 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 <i>et al.</i> 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 <i>et al.</i> 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.
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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

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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 Directives¹ 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).

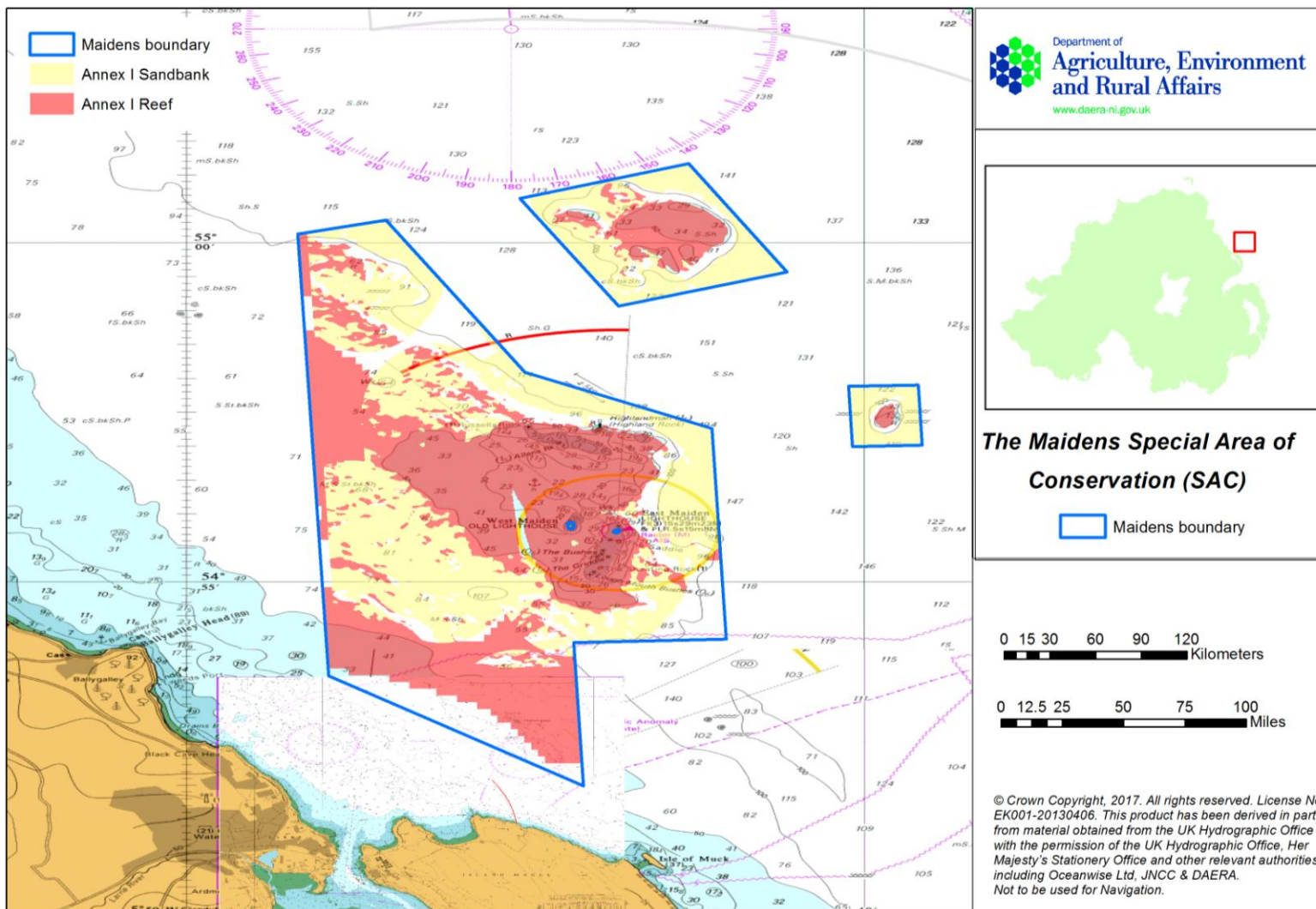


Figure 1 The Maidens SAC with Annex I habitats Reef and Sandbanks which are slightly covered by seawater all of the time

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 <i>Halichoerus grypus</i>	C	50 individuals
Species	Common Seal <i>Phoca vitulina</i>	D	
Species	Harbour Porpoise <i>Phocoena phocoena</i>	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 (<i>Phoca vitulina</i>)	20 ² individuals
Species	Grey Seal (<i>Halichoerus grypus</i>)	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 <i>Halichoerus grypus</i>	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 <i>Halichoerus grypus</i>	See SAC Selection Feature Objective Requirements table
Common Seal <i>Phoca vitulina</i>	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. Lipophilic 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.

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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	* 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.
	Subtidal Rocky Reef Communities				
	Intertidal Rock and Boulder Communities	* 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.	<p>utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites.</p> <p>The species composition of some biotopes may provide further information on changes/trends in these communities.</p>
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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	*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
	Subtidal Fine Sand and Mud Communities	*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.	



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