Local Development Plan 2030

PLAN STRATEGY

Habitats Regulations Assessment
Report: July 2025







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Summary Statement

Habitats Regulations Assessment

Regulation 43 of the Habitats Regulations requires an appropriate assessment to be undertaken of plans and projects which are likely to have a significant effect on a European site in Northern Ireland, either alone or in combination with other plans or projects. This is known as Habitats Regulations Assessment (HRA) and provides for assessment of the implications of a land use plan for European sites in view of their conservation objectives. For the purpose of this report 'European sites' collectively may include existing or proposed SPA, existing or candidate SAC, Sites of Community Importance, and listed or proposed Ramsar Sites.

This HRA report is prepared in support of Antrim and Newtownabbey Borough Council's Plan Strategy. It records the assessment of the Plan Strategy as modified and its potential impacts on European sites.

Overview of the Plan Strategy Habitats Regulations Assessment

A draft HRA was first undertaken in 2019 in support of the draft Plan Strategy. This is the final HRA which assessed the Plan Strategy as directed to be modified in the direction from the Department for Infrastructure (DfI). It takes account of the views of the Planning Appeals Commission expressed in the independent examination report. It takes account of up-to-date information. Following both statutory and public consultation and upon consideration of comments received, this final HRA has been published alongside the adopted Plan Strategy.

Overview of the Plan Strategy

The Plan Strategy provides a plan-led policy framework for making day-to-day decisions to help Antrim and Newtownabbey Borough Council (the Council) deliver sustainable development for employment, homes and infrastructure in a high-quality environment across the Council area. It sets out how the area will change and grow until 2030. The nature of the Plan Strategy is that it has the potential to have a significant effect on some European sites, therefore the Council is undertaking a HRA in its role as a competent authority to ensure the legal requirements of the Habitats Regulations are fully met.

European site Overview

A total of 24 European sites were identified that could potentially be affected by the Plan Strategy. These include large sites such as Belfast Lough SPA and Ramsar site to smaller sites including Rea's Wood and Farr's Bay SAC which is located in the Borough. Sites beyond the Council area with an ecological connection were also included, for example those which are connected by marine mammals relevant to appropriate hydrological screening distances. All sites within 15km of the plan area were also considered. Appendix 4, Maps 1 to 4 illustrate European sites in relation to the Borough.

Screening of the Plan

All 14 Sections of the Plan Strategy were reviewed in Section 4 for potential effects on European site. Following the screening of the Plan Strategy it concluded that, in the absence of mitigation, there is potential for likely significant effects to arise from 44 plan policies. In addition, nine plans or projects were identified for consideration of in combination effects. These were all screened in for appropriate assessment.

Appropriate Assessment

Those policies and plans or projects screened in were assessed in Section 5. It was found that measures were incorporated which can be considered to be mitigation to avoid the Plan Strategy having adverse effects on the integrity of European sites.

Conclusions of the HRA

On the basis of the analysis set out below, the Council can conclude the Plan Strategy (with the modifications set out in the direction made by the Department for Infrastructure) will not adversely affect the integrity of any European site, either alone or in combination with other plans and projects.

List of Abbreviations

ANBC	Antrim and Newtownabbey Borough Council
APIS	Air Pollution Information System
CEMP	Construction Environmental Management Plan
CJEU	Court of Justice of the European Union
CMS	Construction Method Statement
DAERA	The Department of Agriculture, Environment and Rural Affairs
DEFRA	Department for Environment, Food and Rural Affairs
DfI	Department for Infrastructure
DPS	Draft Plan Strategy
EC	European Commission
FCS	Favourable Conservation Status
HRA	Habitats Regulations Assessment
JNCC	Joint Nature Conservation Committee
LDP	Local Development Plan
LPP	Local Policies Plan
NA	Not Applicable
NIEA	Northern Ireland Environment Agency
POP	Preferred Options Paper
PS	Plan Strategy
pSPA	Proposed Special Protection Area
SAC	Special Area of Conservation
SES	Shared Environmental Service
SPA	Special Protection Area
SPPS	Strategic Planning Policy Statement
SuDS	Sustainable Drainage Systems

1 Introduction

Local Development Plan 2030

The Plan Strategy for Antrim and Newtownabbey Borough Council Local Development Plan (LDP) sets out how the area will change and grow over the period up to 2030. It provides:

- A clear vision as to what Antrim and Newtownabbey Borough Council Borough should look like by 2030:

> *"In 2030 Antrim and Newtownabbey Borough will have a reputation as an excellent, attractive and diverse place in which to live and work. It will be a place that all citizens can take pride in and that is appealing to new residents, investors and visitors alike, with improved job opportunities, housing availability and connectivity that meets the needs of our community. Development will be sustainable and of high quality and will address the ongoing challenges of climate change. Our built and natural environment will continue to be of high quality and well looked after and will support prosperity and economic development and provide for a wide range of recreational and leisure activities.*
>
> *In summary Antrim and Newtownabbey Borough will be:*
> *• A Place of Economic Opportunity;*
> *• A Vibrant and Liveable Place;*
> *• A Place with a Sustainable Future."*

- A series of Strategic Objectives;
- A series of Strategic Policies; and
- A series of Detailed Management Policies.

The Plan Strategy is the first of two development plan documents which will comprise the LDP. The Plan Strategy provides a plan-led policy framework for making day-to-day decisions to help Antrim and Newtownabbey Borough Council (herein referred to as 'the Council' or 'Council area') deliver sustainable development including future housing, employment, retail and infrastructure provision across the Borough.

The Plan Strategy is the first document in a two-stage process, the second being the Local Policies Plan (LPP). Together these will constitute the Council's new Local Development Plan (LDP). The purpose of the LDP is to inform the general public, statutory authorities, developers and other interested parties of the policy framework and land use proposals that will guide development decisions within the Borough.

The Plan Strategy follows the publication of the Preferred Options Paper (POP) published in 2017. In preparing it the Council has taken account of the representations received on the POP, further input from key consultees, stakeholders and, in particular, the elected Councillors through Member Workshops and Planning Committee meetings.

The LDP will provide a plan framework to support the economic, social and environmental needs of the Borough in line with regional strategies and policies, providing for the delivery of sustainable development. It is intended to provide a 'plan-led' framework for rational and consistent decision-making by the public, private and community sectors and those affected by development proposals; in

particular, it will be the primary document against which the Council will assess and decide on planning applications.

Structure of the Plan Strategy

The Plan Strategy is presented as a single volume comprising 14 sections. The first two sections introduce the plan and present the legal and policy context, profile of the Borough and key issues. The Plan Vision and Strategic Objectives are presented in Section 3, followed by Section 4 Sustainable Development which sets out the Growth Strategy and Spatial Framework.

The further nine Strategic Policies (SPs), accompanied by Detailed Management (DM) Policies, follow in Sections 5 - 13. These DM Policies are grouped in three themes under which policy groups are presented. The layout of policies is as follows:

A Place of Economic Opportunity

- Section 5: Employment
- Section 6: Transportation and Infrastructure

A Vibrant and Liveable Place

- Section 7: Homes
- Section 8: Community Infrastructure
- Section 9: Placemaking and Good Design
- Section 10: Historic Environment

A Place with a Sustainable Future

- Section 11: Natural Heritage
- Section 12: Natural Resources
- Section 13: Environmental Resilience and Protection

For each section an introduction provides the context and sets out how it relates to the LDP Strategic Objectives and Community Plan Outcomes. It then presents our strategic policy and explains why that approach has been taken. The DM Policies are introduced, each policy presented in a text box and, where necessary, an amplification provides further detail on how the policy will be applied.

Section 14 sets out how the plan will be monitored and reviewed.

Overview of Antrim and Newtownabbey Borough Council area

The Borough has an estimated population of 141,697 people and covers 728 km^2. The Council does not sit in isolation and adjoins the boundaries of five neighbouring Councils both by land and water - Armagh, Banbridge and Craigavon Borough, Belfast City, Lisburn and Castlereagh City, Mid and East Antrim Borough, and Mid Ulster District Councils.

Existing Plans and Local Policies Plan

Extant development plans will continue to have effect until the next stage i.e. LPP is adopted. This is set out in the transitional arrangements in The Planning (Local Development Plan) Regulations (Northern Ireland) 2015[1]. The legacy development plans that apply to the Borough are:

- Antrim Area Plan 1984-2001 and its alterations (AAP);
- Belfast Urban Area Plan 2001 (BUAP);
- Carrickfergus Area Plan 2001 (CAP);

[1] http://www.legislation.gov.uk/nisr/2015/62/schedule/made

- Draft Newtownabbey Area Plan 2005 (dNAP); and
- Draft Belfast Metropolitan Area Plan 2015 (dBMAP).

Once both the Plan Strategy and Local Policies Plan are adopted, they will become the Council's 'Local Development Plan' and will replace the existing area plans.

The LPP will set out the Council's local policies with site specific proposals for the development and use of land within the Council area and contain designations and zonings to deliver the vision and plan objectives. Another HRA will be prepared to assess the potential impacts of the LPP on European sites. The Planning (Local Development Plan) Regulations (Northern Ireland) 2015 state that the legacy Development Plans will cease to have effect upon adoption of the new LDP at LPP stage.

Requirement for HRA

The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), commonly referred to as the Habitats Regulations, implemented the requirements of the Habitats[2] and Birds Directives[3]. Regulation 43 of the Habitats Regulations requires an appropriate assessment to be undertaken of plans and projects which are likely to have a significant effect on European sites in Northern Ireland, either alone or in combination with other plans or projects. This is known as Habitats Regulations Assessment (HRA) and provides for assessment of the implications of a land use plan for European sites in view of their conservation objectives where relevant. Regulation 64B applies the assessment provisions to land use plans as defined in the Planning Act (Northern Ireland) 2011. For this report European sites include existing or proposed SPA, existing or candidate SAC, Sites of Community Importance, and listed or proposed Ramsar Sites as relevant. This HRA Report is prepared in support of the Plan Strategy, it records the assessment of the Plan Strategy and its potential impacts on European sites.

Approach to HRA

The overall approach for this HRA has been developed in accordance with the Habitats Regulations. The HRA follows the guidance set out in the Habitats Regulations Assessment Handbook[4] (the HRA Handbook) and is also informed by the reference material in Appendix 1. Current subscribers to the Handbook include the Department of Agriculture, Environment and Rural Affairs (DAERA) which represents the Statutory Nature Conservation Body for Northern Ireland. The approach is detailed in Appendix 2 of this report where case law relevant to HRA for plans is also referred to.

Step 1: Deciding whether a plan should be subject to HRA

The European Commission (EC) Guidance (referenced in Appendix 1) does not specify the scope of a plan which should be subject to the Directive and related transposing legislation, but it does state that the key consideration is whether it is likely to have a significant effect. The HRA Handbook F.3. recommends reviewing proposals against a number of questions. These may lead to plans being exempted, eliminated or excluded from the need for HRA. The Plan Strategy does not directly relate to the management of any European site therefore it cannot be exempted

[2] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

[3] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version)

[4] Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook,* May 2025 edition UK: DTA Publications Ltd.

from the requirement of the Habitats Regulations. The Plan Strategy is part of the LDP and clearly represents a strategic and local development plan. The requirement for planning permission to be determined in light of the relevant land use plan, necessarily means that LDPs have considerable influence on development decisions and that, as such, they must be subject to HRA in their own right. The outcome of this step is that the Plan Strategy requires HRA as a strategic and local development plan.

The nature of the Plan Strategy is that it has the potential to have a significant effect on the selection features of some European sites therefore we are undertaking a HRA in our role as a competent authority. Shared Environmental Service (SES) provides support to Antrim and Newtownabbey Borough Council and all other Councils in NI on HRAs for plans and projects. SES has therefore, in conjunction with the Council, prepared this HRA for the Plan Strategy to ensure the legal requirements of the Habitats Regulations are fully met.

In preparing this HRA opportunities to strengthen the Plan Strategy were identified and have already been incorporated in the policies and supporting text. Examples include adding text in to highlight the potential for impacts on European sites.

This version of the HRA is being published following the Independent Examination and the receipt by the Council of a direction from the Department for Infrastructure under the Planning Act (Northern Ireland) 2011. This assesses the Plan Strategy as directed to be modified in the Direction from the Department for Infrastructure. It takes account of the views of the Planning Appeals Commission expressed in their Independent Examination advisory report. It takes account of up to date information.

Context for HRA

Appendix 2 explains that the requirement for planning permission to be determined in light of the relevant land use plan, necessarily means that LDPs have considerable influence on development decisions and that, as such, must be subject to HRA in their own right. Many policies represent a continuation of a previous policy; however, each was considered on its own merits in the assessment. Many of the proposals affect multiple locations or locations which have not been defined at Plan Strategy.

Other Regulations

An assumption is made that existing regulations and legislation that are independent of planning are implemented and enforced by the relevant authority. Relevant examples are the Water (Northern Ireland) Order 1999, Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006, Pollution Prevention and Control (Industrial Emissions) Regulations (NI) 2013 and the Drainage (Northern Ireland) Order 1973, all as amended.

Consideration of Mitigation

A ruling of the Court of Justice of the European Union (CJEU) in 2018 known as '*People over Wind*' clarified how mitigation should be assessed through HRAs as detailed in Appendix 2. In light of this, measures envisaged to avoid or prevent what might otherwise have been adverse effects on the integrity of European sites are not taken into account in Stage 1 and instead will be assessed at Stage 2 appropriate assessment. Stage 1 Assessment does consider essential features and characteristics of the plan and takes account of regional and strategic context and other regulatory controls that will apply to development under the plan.

HRA at other Stages of Plan Making and Development Management

The LPP will be subject to HRA, at which stage revised, or new zonings and local policies will be assessed. The need for HRA will also be considered for individual projects at the development management stage and assessment carried out where required.

Climate Change

It is acknowledged that increased levels of development that will arise from the plan have the potential to add to anthropogenic drivers of climate change. However, the causes of climate change are global and much of the action required must take place at national and international levels as well as at the local level. The conservation objectives for SPAs do not refer to climate change. Those for SACs address climate change as follows: '*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 action recommended is '*When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.*' Therefore, while climate change is acknowledged, specific measures have not been addressed in the conservation objectives.

2 Identification of European Sites Potentially Affected

'Long-list' of European sites

Step 2a: 'Long-list' of European sites that should be considered in the HRA

European sites that are connected with the Council area were firstly identified. These include sites within or immediately adjacent to the Council area; those within 15 km of the Council Boundary; those that are connected by infrastructure; and those with an ecological connection such as a hydrological link. The sites within 15km of the Borough were included to consider potential impacts of aerial emissions. Ecological connections include pathways through rivers or marine waters, additionally, areas of land and sea occurring outwith a site, but of ecological importance to qualifying features, that is – *functionally linked lands* - were also identified based on current knowledge. Infrastructural connectivity is related to the potential linkage of sites to the Council area by infrastructure services such as water abstraction or wastewater discharges which are discussed further in Section 3. The outcome is a 'long-list' of 29 sites that are in or potentially connected to the Council area. Appendix 4, Maps 1 to 4 illustrate these sites in relation to the Council area.

Table 1: Long-List of European Sites Connected with Council Area

European Site Name	Connection with Plan Area			
	Within or Adjacent to Plan Area	Within 15 km of Plan Borough boundary (ZoI)	By Infrastructure	Ecological
Antrim Hills SPA	•		•	•
Ballynahone Bog Ramsar		•		
Ballynahone Bog SAC		•		
Belfast Lough Open Water SPA	•		•	•
Belfast Lough Ramsar	•		•	•
Belfast Lough SPA	•		•	•
Curran Bog SAC		•		
Copeland Islands SPA				•
Dead Island Bog SAC		•		
East Coast (NI) Marine pSPA	•		•	•
Garron Plateau Ramsar		•		•
Garron Plateau SAC		•		
Larne Lough SPA		•		•
Larne Lough Ramsar		•		•
Lough Neagh and Lough Beg Ramsar	•		•	•
Lough Neagh and Lough Beg SPA	•		•	•
Montiaghs Moss SAC		•		

Murlough SAC				•
North Channel SAC		•		•
Outer Ards Ramsar		•		•
Outer Ards SPA		•		•
Peatlands Park SAC		•		
Rea's Wood and Farr's Bay SAC	•		•	
Skerries and Causeway SAC				•
Strangford Lough Ramsar				•
Strangford Lough SAC				•
Strangford Lough SPA				•
The Maidens SAC				•
Wolf Island Bog SAC		•		

'Short-list' of European sites

Step 2b: 'Short-list' of sites that should be considered in the HRA

As the 'long-list' of sites remain precautionary, detailed screening was undertaken to determine those sites likely to be significantly affected due to the implementation of the Plan Strategy. This step is recorded in Appendix 3, Table A.3.1. No further sites were identified through the scan in A.3.1. and 4 sites were eliminated from further assessment as the Plan could not undermine the sites conservation objective (see Table A.3.2). This results in a short-list of 24 sites to be further assessed identified in Table 2.

In summary, the screening approach, having regard to the source-pathway-receptor model, considered the realistic risk of effects manifesting rather than any hypothetical risks.

Given the broad definition of direct effects used in the HRA Handbook, there is the potential for a direct effect on all sites which have been screened in for further assessment. Table 2 identified the nature of the environment and the potential mechanisms through which impacts could affect the 24 European sites listed. The potential effects are as follows and are discussed in Section 3:

- Direct Impacts
- Aquatic Environment
- Marine Environment
- Coastal Processes
- Mobile Species
- Recreational Pressure
- Growth – Water Supply
- Growth – Wastewater
- Aerial Emissions (all)
- Disturbance (other)
- Introduced Species

Table 2: Short-list of European Sites and Potential Impacts

	Direct Impacts	Aquatic Environment	Marine Environment	Coastal Processes	Mobile Species	Recreational Pressure	Growth – Water Supply	Growth – Wastewater	Aerial Emissions (all)	Disturbance (other)	Introduced Species
Antrim Hills SPA	•				•	•	•		•	•	•
Ballynahone Bog Ramsar	•								•		
Ballynahone Bog SAC	•								•		
Belfast Lough Open Water SPA	•		•	•	•	•		•	•	•	•
Belfast Lough Ramsar	•		•	•	•	•		•	•	•	•
Belfast Lough SPA	•		•	•	•	•		•	•	•	•
Curran Bog SAC	•								•		
Dead Island Bog SAC	•								•		
East Coast (NI) Marine pSPA	•		•	•	•	•		•	•	•	•
Garron Plateau Ramsar	•				•				•		
Garron Plateau SAC	•								•		
Larne Lough SPA	•		•		•				•	•	
Larne Lough Ramsar	•		•		•				•	•	
Lough Neagh and Lough Beg Ramsar	•	•			•	•	•	•	•	•	•
Lough Neagh and Lough Beg SPA	•	•			•	•	•	•	•	•	•
Montiaghs Moss SAC	•								•		
North Channel SAC	•		•		•					•	
Outer Ards Ramsar	•		•	•	•	•		•	•	•	
Outer Ards SPA	•		•	•	•	•		•	•	•	
Peatlands Park SAC	•								•		
Rea's Wood and Farr's Bay SAC	•					•	•	•	•		•
Skerries and Causeway SAC	•				•					•	
The Maidens SAC	•				•					•	
Wolf Island Bog SAC	•								•		

Step 3: Gathering information about the European site

Information for each site identified at Step 2b was compiled on selection features, conservation objectives, conservation status, potential threats to site integrity from planning related development and location relative to the plan area and any plan designations. This is presented in Appendix 3 with the conservation objectives for the short list of sites provided as separate Annex A. Conservation objectives are not published for Ramsar sites therefore the conservation objectives for the associated SAC & SPA were referred to.

Step 4: Discretionary discussions on the method and scope of the appraisal

The Statutory Nature Conservation Body for sites in Northern Ireland is represented by the Department of Agriculture, Environment and Rural Affairs (DAERA) who have published the Conservation Objectives for SACs and SPAs. DAERA was invited to comment on the HRA during the Plan Strategy consultation period and its representations have informed this assessment.

3 Potential Impacts of Development

The scanning and site selection Table A.3.1, Appendix 3, has identified the potential mechanisms through which the Plan might exert an influence over European sites. These are summarised in Section 2, Table 2 which identifies the sites that could be affected by each impact. This section discusses the potential for each of these effects to arise from the Plan Strategy and informs Sections 4 and 5.

Direct Effects

All Sites within the geographic area covered by or intended to be relevant to the plan are potentially vulnerable to direct impacts. These can lead to degradation or loss of habitat or direct effects on species.

Direct effects on European sites will be considered in screening the Plan Strategy in Section 4 and will also be considered at LPP when reviewing or allocating zoned land.

Effects upon the aquatic and marine environment

This covers direct impacts upon the aquatic or marine environment from contamination of surface water/groundwater or changes in flow regime or hydrology/hydrogeological pathways for effects. Such effects are generally limited to proposals in close proximity to a European site. Indirect impacts from water supply or disposal of wastewater are considered separately below. A number of freshwater, wetland and marine sites are within, adjacent to or hydrologically linked to the plan area.

Water pollution causes deterioration of (or failure to improve) water quality, due to direct runoff of pollutants including fuel, chemicals and sediments from development during construction or operation. Development on brownfield sites may lead to risk of release of contaminants which needs to be assessed and, where necessary, remediation carried out.

Many of the main land uses in the LDP are already zoned and are committed, including Housing and Economic Development land. The settlement boundaries (of those settlements being retained in the LDP), land use zonings and key site requirements contained in the existing area plans will be retained until the adoption of the LPP. It is the Council's intention to review the existing settlement boundaries and land use zonings as part of the preparation of the Local Policies Plan.

The Council will strategically allocate and manage housing to provide for 'at least' 9,750 new homes within the 2015-2030 period. Housing growth will be focused at Metropolitan Newtownabbey, Antrim and Ballyclare, with a proportion of new development directed to the towns and villages to support rural housing needs, local services and facilities and the rural economy. A proportion of new development is also allocated in the countryside to sustain rural communities. There may be pathways from development of housing land during construction and operation for pollutant release to European sites via hydrological pathways.

The Council will seek to facilitate the growth of 'up to' 9,000 new jobs by 2030 and will operate a presumption in favour of employment-related development, provided it meets the requirements of Policy SP 2 and other relevant policies and provisions of the LDP. The Council has identified existing strategically located industrial/ employment sites (generally of 10 hectares or greater in size) as Strategic Employment Locations (SEL). The Council also considers two new SELs are required, one in Antrim and, one in Ballyclare to meet the long-term industrial and business

needs of these places. The precise boundaries, scale, extent and location of all employment opportunity areas will be confirmed and brought forward at the LPP Stage. There may be pathways from development of economic land during construction and operation for pollutant release to European sites via hydrological pathways.

Effects upon the aquatic and marine environment will be considered in screening the Plan Strategy in Section 4 and will also be considered at LPP when reviewing or allocating zoned land.

Effects upon the coast

This includes direct impacts upon coastal processes. Such effects are generally limited to proposals in close proximity to a European site. Those marine sites that are immediately adjacent to our coast could theoretically be vulnerable. This potential risk is addressed through a specific Policy DM 41 Coastal Protection.

Effects upon the coast will be considered in screening the Plan Strategy in Section 4 and will also be considered at LPP when reviewing or allocating zoned land.

Effects on mobile species

Most animal species range beyond the European site for which they are selection features. Land which is outside the boundary of a designated site but provides functional support for those selection features is referred to as supporting habitat. Potential development can affect such supporting habitat or the selection features utilising it.

Mobile species in sites directly connected to Belfast Lough include wintering great crested grebe, redshank, red-throated diver, golden plover and light bellied brent goose. Breeding species are sandwich tern, common tern, arctic tern, Manx shearwater, roseate tern and eider duck. Habitat outside the SPA/Ramsar site boundary may provide high tide roosts and additional supporting habitat. Wildfowl tend to roost on 'open water, while waders' tend to use islands or isolated headlands.

Hen harrier and merlin from Antrim Hills SPA range beyond the European site. Development that leads to loss of substantial areas of foraging/breeding habitat could theoretically have an adverse impact however the plan does not promote and will not lead to extensive development and habitat loss.

The listed bird features of the Belfast Lough SPA/Ramsar site include waders that seek refuge at high tide in supporting habitat outside the SPA boundary. This can include fields or playing fields which provide a degree of security from predators due to their openness. Policy DM 23 is a presumption against loss of open space other than in exceptional circumstances.

There are two European sites identified within the hydrological screening distance for protection of harbour porpoise, Skerries and Causeway SAC (this site is just beyond the100km screening distance from the Council 'coastal boundary' measured via marine waters however screened on precautionary basis and known presence in Belfast Lough) and North Channel SAC. Harbour porpoise are found all around the coast of Ireland including Belfast Harbour and Strangford Lough. They can occur close to shore and in tidal rivers and the Ulster Wildlife Trust lists Belfast Harbour as a location to view the species. DAERA advises that plans or projects within 100km of a site designated for grey seals and harbour porpoise or 50km for harbour seals should be assessed for impacts on the species (SES measure screening distance via marine

waters). Grey seals and porpoise may range along the coastline from the sites for which they are designated and are potentially subject to direct disturbance. There are no sites designated for harbour seals within 50km of the plan area. Harbour seal as a qualifying feature for Strangford Lough SAC and Murlough SAC are beyond the 50km screening distance (via marine waters) and are screened out from further assessment.

The NI Marine Map Viewer identifies seal haul out locations within Belfast Lough. Information on known grey seal haul out sites will therefore be reviewed to inform HRA at LPP.

Effects on mobile species will be considered in screening the Plan Strategy in Section 4. Functionally linked land or pathways that may be used by mobile species will also be a consideration at LPP when reviewing or allocating any zoned land.

Effects of recreational pressure

This impact mechanism is directly related to general increases in housing development and associated increases in recreational pressure from new residents moving into an area. It may also arise where there are specific proposals to focus recreational development. Recreation has the potential to have a significant effect if it is intensified to a degree that it causes erosion, habitat damage or persistent disturbance, or if the water sports season is extended to when wintering birds are present. Increased water-based recreation, wave action or other processes could affect the shoreline.

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. Physical disturbance or mortality from recreational activity and vessel strikes could also be an issue in coastal areas where high densities of porpoises have potential to coincide with high densities of boat traffic, particularly during the summer season.

There is existing foot and cycle access along the coast of the Metropolitan Newtownabbey area, however, the percentage growth of the residential population in this settlement and surrounding settlements are not likely to lead to a significant increase in recreation along existing coastal paths.

Effects of recreational pressure on European sites will be considered in screening the Plan Strategy in Section 4 and will be a consideration at LPP when reviewing or allocating zoned land.

Effects of development growth

This impact mechanism is directly related to general increases in housing and economic development and associated increases in demand for water and treatment of wastewater from new residents or businesses moving into an area or expansion of existing businesses. The LDP Plan Strategy is to provide enough land to accommodate and facilitate the provision of 'at least' 9,750 houses over the period 2015 to 2030 and to facilitate the growth of 'up to' 9,000 new jobs by 2030 within the Borough in support of business and industry.

Water Supply

There is evidence that water supply will be sufficient for the life of the plan therefore there is not predicted to be a need to expand water supply sources to support proposed development. DAERA Drinking Water Inspectorate (DWI) regulate the use

of non-mains water supplies (i.e. private water supplies typically in the form of a borehole, well or spring) used for human consumption. An abstraction licence is not required in this circumstance. If the non-mains water supply serves two or more domestic properties, is used in a commercial manner or provided to the public, it is subject to registration and monitoring by DWI, regardless of the volume used. Any development which intends to use a non-mains supply, and its intended usage would abstract over 10m3/day then it will require further consultation with the NIEA Abstractions and Licencing Team as an abstraction and impoundment licence may be required. Rea's Wood and Farr's Bay SAC depend on inundation therefore may be affected by any development which alters their hydrology.

It is the responsibility of NI Water to ensure that a safe supply of drinking water for the population is maintained. The Borough receives its potable water from the following Water Treatment Works (WTW): Dunore Point WTW; Killylane WTW; Dungonnell WTW; and Dorisland WTW with the majority being supplied from Lough Neagh. There is therefore an infrastructure connection with Lough Neagh and Lough Beg SPA and Ramsar site. Killylane and Dungonnell are both within the Antrim Hills SPA therefore there is also an infrastructural connection to this site. NI Water is satisfied with the sufficiency of the water supply to the Council area over the plan period therefore development under the plan is not expected to necessitate development of any new public water supplies.

NI Water Resource & Supply Resilience Plan (WR&SR Plan) was published in April 2025. This Plan shows how the company will manage and develop water resources to make sure there is enough water to meet future supply needs. The WR&SR Plan acknowledges the need to take account of adopted and emerging Local Development Plans to ensure it complies with the Borough's aims, objectives and long-term vision in terms of growth, constraints, and opportunities.

In light of the sufficiency of the water supply to the Council area over the plan period, effects that might undermine the conservation objectives can be excluded.

Wastewater Treatment

Wastewater Treatment Works discharge to a number of designated areas. This is reflected in those sites for which there are hydrological connections. All planning applications that indicate mains sewage treatment are referred to NI Water to confirm whether capacity exists.

NI Water issued a Wastewater Capacity Sheet to the Council in June 2024, this information remains current at this time. NI Water will issue an updated sheet on a yearly basis to reflect any changes to WwTW capacities within the Council area.

The NI Water Wastewater Capacity Sheet (June 2024) identified that the following Settlement Wastewater Treatment Works are at capacity in the Plan Area:

- Cranfield (Antrim)
- Moneyglass

In addition, it advised that wastewater network capacity issues are emerging in the following settlements:

- Aldergrove
- Antrim
- Ballyclare
- Ballydugennan
- Ballyeaston
- Ballynure
- Ballyrobert
- Burnside (Cogry/ Kilbride)
- Craigarogan
- Creavery
- Creggan / Cranfield
- Crumlin

- Doagh
- Dunadry
- Groggan
- Hillhead
- Killead
- Metropolitan Newtownabbey
- Milltown
- Moneyglass
- Muckamore
- Parkgate
- Randalstown
- Roughfort
- Straid
- Templepatrick
- Toome

Where a potential development cannot connect to the mains sewerage network, or where NI Water has indicated that consented capacity at the receiving works is limited or restricted, or there are network constraints, then a project will not be able to proceed unless it satisfies Policy DM 15 which advises that *'The Council will only support development proposals relying on non-mains sewerage, where it can be demonstrated that this will not create or add to a pollution problem…The Council will require development proposals to be supported by sufficient information on the means of sewerage to allow a proper assessment of such proposals to be made.'* This means that, should there be credible evidence of a real risk to any European site, then sufficient information will be available to assess whether the development could have a likely significant effect and whether that can be mitigated by a suitable wastewater treatment solution.

The Water Utility Regulation Group of DAERA regulates discharges to the water environment and is a competent authority under the Habitats Regulations.

In light of the NI Water capacity constraints in the Council area, it is considered that the demand for wastewater treatment arising as a result of the level of growth enabled by the Plan Strategy could result in such pressures that could undermine conservation objectives of any European site. Potential impacts of wastewater will also be a consideration at LPP when reviewing or allocating any zoned land.

Aerial Emissions (All types of Development)

Certain aerial emissions can cause harm to habitats and species either through direct toxic effects or nutrient enrichment. DAERAs '*Revised Operational Protocol for assessing ammonia and air pollution impacts on the natural environment*' provides guidance on the assessment of such harmful emissions.

The protocol establishes screening distances for many emission sources but also refers users to the Air Pollution Information System (APIS) where the maximum screening distance applied is 15km. Accordingly, all European sites within 15km of the Council boundary were considered. Developments with potentially harmful emissions will be subject to a project level HRA and assessed in accordance with the Operational Protocol.

Effects of aerial emissions on European site will be considered in screening the Plan Strategy in Section 4 and will also be a consideration at LPP when reviewing or allocating any zoned land.

Disturbance (Other)

Noise, light or activity during construction and operation can have adverse impacts on sensitive species and mammals and birds in particular. Salmon passage can also be affected by vibration from piling or lighting. Such disturbance from construction or additional built development can occur within or adjacent to European sites or functionally linked land. It may create barrier effects to species; result in changes in species breeding, roosting, commuting and foraging behaviour; or increase predation. Construction can be planned to avoid causing disturbance at critical times and development can be designed or located to avoid disturbance to sensitive species during operation.

Potential effects of disturbance on European sites will be considered in screening the Plan Strategy in Section 4 and will also be a consideration at LPP when reviewing or allocating any zoned land.

Introduced Species

New development has the potential to introduce invasive or non-native species or cause their spread to other sites. The introduction of invasive species, non-native, competitive or predatory species can adversely affect habitats and species. Watercourses are prone to the spread of invasive species such as giant hogweed and Himalayan balsam which are easily transferred by water if released as a result of development. Invasive species may also be transported to new sites by machinery. Development that extends navigable waters or which introduces new boating may also increase the potential for spread of invasive species or waterborne diseases of protected species to waters where they are not currently present.

Potential effects of introduced species on European sites will be considered in screening the Plan Strategy in Section 4 and will also be a consideration at LPP when reviewing or allocating any zoned land.

4 Screening Plan Strategy for Likely Significant Effects

Overview of screening

Step 5: Screening the proposed plan for likely significant effects

The approach to screening the Plan Strategy is detailed in Appendix 2 with the full screening assessment against HRA criteria presented in Appendix 5. All Sections of the Plan Strategy from Section 1 to Section 14 were reviewed. The outcome of the screening undertaken is summarised below under the relevant Section and has been informed by the findings of Section 3 above.

1 Introduction

This section introduces the Plan Strategy and sets out the purpose of the Local Development Plan (LDP). It is administrative text and does not direct development therefore is not subject to further assessment. Further assessment is not required.

2 Setting the Context

Section 2 sets the scene and examines the regional and local context for the Plan Strategy, provides a profile of the Borough and considers drivers for change. It is administrative text and does not direct development therefore is not subject to further assessment. Further assessment is not required.

3 Plan Vision and Strategic Objective

The Vision is an overall aspiration for the Plan Area. Delivery of the Vision is through a series of Strategic Objectives which form a link between the Plan Vision and the Strategic and Development Management Policies. The Plan Vision does not direct development therefore is not subject to further assessment.

The Strategic Objectives (SO 1 to SO 14) all represent general statements of objectives, which state a direction without details of how they will be delivered. Some Strategic Objectives are possible or likely drivers of potential effects including those related to 'Economic Opportunities' to deliver jobs and enable development of tourism and 'Sustainable Development' to deliver new homes and secure new infrastructure provisions. For all Strategic Objectives the implications can be and are more appropriately assessed under related policies later in the document. The assessment is therefore undertaken through the consideration of related Strategic Policies and Development Management Policies. Further assessment is not required.

4 Sustainable Development

Strategic Policy 1: Sustainable Development

While the overriding principle is that development should be sustainable there is a presumption in favour of development, the Council's Spatial Growth Strategy is included within this Policy. There are settlements, such as Antrim, Toome, and Metropolitan Newtownabbey immediately adjacent to or with a pathway to European sites. The decommissioning of development or restoration could also have potential significant effects. This policy is screened in for further assessment.

5 Employment

Strategic Policy 2: Employment

Includes Employment lands, agricultural development, Strategic Employment Locations, Local Employment Sites and Sustainable Tourism. The latter highlights some locations at 5.22 including Shane's Castle and Lough Neagh both of which include parts of Lough Neagh and Lough Beg SPA and Ramsar site. The policy has potential to generate pathways for effects and may have a likely significant effect on European sites. This policy is screened in for further assessment.

Detailed Management Policies (DM 1 to DM 9)

Policy DM 3 relates specifically to incompatibility of other development with neighbouring economic development uses. The policy test is therefore solely about protecting existing economic uses - no wider remit. Further assessment is not required.

All other policies in this Section support development proposals for industry, business and tourism. These policies have potential to generate pathways for effects and may have a likely significant effect on European sites. DM 4 enables agricultural development which could include development that increases ammonia emissions that may have an adverse effect on European sites. The policy includes a caveat in relation to ammonia production that might be construed to be mitigation as it addresses an impact known to affect European sites. Policies DM 1, DM 2, DM 4, DM 5, DM 6, DM 7, DM 8 and DM 9 have been screened in for further assessment.

6 Transportation and Infrastructure

Strategic Policy 3: Transport and Infrastructure

The Council will operate a presumption in favour of new transport schemes and other infrastructure related development. The PS recommends the need for road improvements on the A26 and A57 however these would be delivered through DfI Roads. Local road schemes could have potential impacts if there are pathways to European sites. Supportive of proposals necessary to maintain, improve or expand existing operational facilities at Belfast European Airport to meet anticipated growth needs and associated car parking which could potentially have a hydrological link to Lough Neagh. The policy has potential to generate pathways for effects and may have a likely significant effect on European sites. This policy is screened in for further assessment.

Detailed Management Policies (DM 10 to DM 16)

Policies DM 10, DM 11, DM 12 and DM 13 seek to support proposals for transportation which improve travel times, alleviate congestion and improve safety as well as providing more sustainable modes of transport including buses, walking and cycling. DM 14, DM 15 and DM 16 all enable infrastructure development and have potential to generate pathways of effects on European sites. These policies have been screened in for further assessment.

7 Homes

Strategic Policy 4: Homes

This policy will lead to growth in homes of 'at least' 9,750 over the period 2015 to 2030. This can put pressure on water supply and waste treatment capacity. This policy is screened in for further assessment.

Detailed Management Policies (DM 17 to DM 22)

DM 17, DM 18, DM 19, DM 20, DM 21 and DM 22 all enable development and depending on the location have potential to generate pathways for effects on European sites. These policies have been screened in for further assessment.

8 Community Infrastructure

Strategic Policy 5: Community Infrastructure

This policy relates to community infrastructure from health and education through to recreation and open space. The Council through this policy will *'operate a presumption against the loss of existing community infrastructure, including open space of public value, to competing uses. Proposals for new community facilities and services will be supported, and the Council will seek to ensure these are located in places that will promote accessibility and increased usage by the communities they are intended to serve. Such development will be assessed in accordance with Policies DM 23 and DM 24'*. Delivery of this policy is therefore undertaken under the DM policies. Further assessment is not required.

Detailed Management Policies (DM 23 to DM 24)

Policy DM 23 seeks to protect open space with exception being '... *where it is demonstrated the loss of the open space will have no significant detrimental impact on the amenity, character or biodiversity of an area*'. Policy DM 24 retains, where possible, existing and new community facilities which will be focussed largely in settlements.

Both DM 23 and DM 24 enable development and depending on the location have potential to generate pathways for effects on European sites. These policies have been screened in for further assessment.

9 Placemaking and Good Design

Strategic Policy 6: Placemaking and Good Design

The policy is general and not development enabling, includes SP 6.3 *'This will be achieved by: (c) Ensuring new development respects*, protects and where possible enhances our historic environment and natural heritage assets'. Delivery of this policy is more appropriately undertaken under the DM policies. Further assessment is not required.

Detailed Management Policies (DM 25 to DM 29)

Policies DM 25, DM 26, DM 27 and DM 28 primarily relate to the visual impact, design and integration of development and can have no likely significant effect on European sites. Further assessment is not required.

Policy DM 29 lists general criteria for testing the acceptability of the proposal however does enable development. Potential impacts could include light and noise disturbance which may have a significant effect on mobile species. This policy has been screened in for further assessment.

10 Historic Environment

Strategic Policy 7: Historic Environment

The policy is general and not development enabling. Delivery of this policy is more appropriately undertaken under the DM policies. Further assessment is not required.

Detailed Management Policies (DM 30 to DM 36)

Policy DM 30 constrains development to avoid damage to or provide mitigation for archaeological assets while DM 33 is more related to design rather than where or what development takes place. Further assessment is not required.

11 Natural Heritage

Strategic Policy 8: Natural Heritage

This policy implements Strategic Objective 11 to *'Promote biodiversity and conserve the natural assets of our countryside, coast and loughs'*. Delivery will be through *'Applying Policies DM 37 to DM 42 and other relevant policies of the Local Development Plan (LDP) to protect our Borough's natural heritage assets from the adverse impact of development, including consideration of potential cumulative effects'*. The assessment is therefore undertaken through the consideration of related DM Policies. Further assessment is not required.

Detailed Management Policies (DM 37 to DM 42)

DM 38, DM 39 and 42 are protective policy for national and local sites and habitats, species or features of natural heritage importance or seeks to protect trees and promote planting and are unlikely to lead to impacts on European sites or selection features. These policies are screened out from further assessment.

DM 38 and DM 39 largely constrain development, however exceptional circumstances do not totally exclude it therefore impacts cannot be ruled out. DM 37 applies to all development under the LDP and reinforces the requirements of the Habitats Regulations. This policy is intended to avoid or reduce harmful effects on European sites and will be considered further through appropriate assessment. These policies are all screened in for further assessment.

Policies DM 31, DM 32, DM 34, DM 35 and DM 36 all enable development and have potential to generate pathways of effects on European sites. These policies have been screened in for further assessment.

12 Natural Resources

Strategic Policy 9: Natural Resources

This policy provides framework for protection and use of mineral reserves and for renewable energy. SP 9.2 (c) includes a caveat in relation to European site that might be construed to be mitigation as it addresses mineral development known to potentially affect European sites. The policy is screened in for further assessment.

Detailed Management Policies (DM 43 to DM 45)

Policy DM 43 enables minerals development therefore potential for impacts and although DM 44 constrains development exceptions apply therefore there is potential for impacts from both these policies depending on location, scale and nature of development. Policy DM 45 allows for renewable energy development therefore may have an impact depending on scale, nature and location. DM 45.5 includes a caveat under wind energy development in relation to European sites that might be construed to be mitigation.

Policies DM 43, DM 44 and DM 45 all enable development and have potential to generate pathways of effects on European sites. These policies have been screened in for further assessment.

13 Environmental Resilience and Protection

Strategic Policy 10: Environmental Resilience and protection

This policy relates to environmental resilience in relation to climate change, flood risk, environmental protection and waste management. Overall seeks to be protective of the environment. Delivery is considered under the DM policies.

Detailed Management Policies (DM 46 to DM 54)

Policies DM 47, DM 48, DM 50, DM 51 and DM 54 do not promote development or seek to avoid conflicting land use; they are not development enabling. These policies are screened out from further assessment.

Policy DM 46 is largely protective through constraining development including storage of hazardous substances, however, allows for some forms of development in floodplains including mineral extraction and recreational facilities. Policies DM 49, DM 52 and DM 53 all allow for some form of development therefore potential for impacts depending on location, scale and nature of development. These policies have been screened in for further assessment.

14 Monitoring of our Plan

This Section contains administrative text setting out monitoring arrangements and future proofing the plan. The proposed indicators to be measured and reported on in the Annual Monitoring Report are listed and an indicative monitoring framework is presented. Further assessment is not required.

The Indicative Monitoring Framework for monitoring SP8: Natural Heritage to protect the natural environment includes:

- *Changes to designation of natural heritage assets.*
- *Condition of natural heritage assets within the Borough.*
- *The number of development proposals permitted impacting on natural heritage assets contrary to advice received from DAERA Natural Environment Division.*

Other indicators that can inform development pressures include the amount of capacity available in WWTWs; number of new homes completed; development proposals permitted for renewable energy and minerals extraction. Condition of European site is monitored by DAERA, typically on a six-year cycle, therefore updates on the condition assessment of site selection features should be taken into account at each five year plan review. Further assessment is not required.

Appendices

They represent evidence used to inform the Plan Strategy or guidance listing general criteria for testing the acceptability of a proposal. Further assessment is not required.

Outcome of screening

All policies which have been screened out at this stage are assigned to a screening category which allows them to be recognised as unlikely to have a significant effect, either alone or in combination.

Those policies screened in as identified in Table 3 are all included on the basis of their effects 'alone' in the absence of mitigation and are brought forward to appropriate assessment.

Table 3 Policies screened in as having a likely significant effect and requiring further assessment

Section 4 Sustainable Development
Strategic Policy 1: Sustainable Development
Section 5 Employment

Strategic Policy 2: Employment
Policy DM 1: Economic Development – Zoned Sites and Settlements
Policy DM 2: Economic Development – Countryside
Policy DM 4: Agricultural and Forestry Development
Policy DM 5: Farm Diversification
Policy DM 6: Development within Centres
Policy DM 7: Development outside Centres
Policy DM 8: Development at The Junction, Antrim
Policy DM 9: Tourism Development
Section 6 Transport and Infrastructure
Strategic Policy 3: Transport and Infrastructure
Policy DM 10: Access and Parking
Policy DM 11: Access to Protected Routes
Policy DM 12: Active Travel (Walking and Cycling)
Policy DM 13: Belfast International Airport - Operations
Policy DM 14: Public Utilities and Infrastructure
Policy DM 15: Development Relying on Non-Mains Sewerage
Policy DM 16: Telecommunication Facilities and Digital Services
Section 7 Homes
Strategic Policy 4: Homes
Policy DM 17: Homes in Settlements
Policy DM 18 (inc. 18A to 18G): Residential Development in the Countryside
Policy DM 19: Residential Caravans and Mobile Homes
Policy DM 20: Traveller Accommodation
Policy DM 21: Specialist Residential Accommodation
Policy DM 22: Residential Extensions and Alterations
Section 8 Community Infrastructure
Policy DM 23: Protection of Open Space
Policy DM 24: Community Facilities
Section 9 Placemaking and Good Design
Policy DM 29: Advertisements
Section 10 Historic Environment
Policy DM 31: Historic Parks, Gardens and Demesnes
Policy DM 32: Listed Buildings
Policy DM 34: Areas of Townscape Character
Policy DM 35: Enabling Development
Policy DM 36: Vernacular and Locally Important Buildings
Section 11 Natural Heritage
Policy DM 37: Designated Sites of Nature Conservation Importance
Policy DM 40: Landscape Protection
Policy DM 41: Coastal Protection
Section 12 Natural Resources
Strategic Policy 9: Natural Resources
Policy DM 43: Minerals Development

Policy DM 44: Mineral Reserve Policy Areas
Policy DM 45: Renewable Energy Development
Section 13 Environmental Resilience and Protection
Policy DM 46: The Control of Development in Flood Plains
Policy DM 49: Artificial Modification of Watercourses
Policy DM 52: Contaminated Land
Policy DM 53: Waste Management and Disposal Facilities

Consideration of in combination assessment with other plans and projects

In-combination effects are not considered at this stage as screening has concluded that the Plan Strategy 'alone' has the potential to generate likely significant effects.

Identified plans and projects likely to give rise to developments causing effects that could combine or interact with those of the Plan Strategy will be considered as part of the appropriate assessment in Section 5.

5 Appropriate Assessment

Step 6: The Appropriate Assessment

Following the screening of plan proposals, as summarised in Table 3, it has been found that there is potential for likely significant effects to arise from 44 Strategic and Detailed Management Policies as identified in Table 3. Combination effects are also assessed.

Protective Measures in the Plan Strategy

The Council, in its assessment of each development proposal, will determine which policies and criteria apply to that proposal. The Plan Strategy makes it clear in the section 'How to use this Document - Positive Planning Note' that a number of policies apply as appropriate to all development:

> *'Developers should note that under the 'plan led' system introduced by the Planning (NI) Act 2011, the Local Development Plan is the primary consideration for decision making on all new development schemes. Proposals will therefore be required to accord with the provisions of the Plan unless, exceptionally, other material considerations indicate otherwise.*
>
> *The Strategic and Detailed Management Policies contained in this Plan Strategy set out the main policy considerations that the Council will take into account in its assessment of planning applications. As a consequence they must be read together as more than one policy is likely to apply to the particular development in question'.*

Section 11 includes Policy DM 37 which reiterates the legislative requirements of the Habitats Regulations in relation to European sites as follows:

> *'Policy DM 37: Designated Sites of Nature Conservation Importance*
>
> *International Designations*
>
> *DM 37.1 The Council will only support development that, either individually or in combination with existing and/or proposed plans or projects, is not likely to have a significant effect on an existing or proposed SPA, existing or candidate SAC, Sites of Community Importance, or a listed or proposed Ramsar Site.*
>
> *DM 37.2 In cases where development is likely to have a significant effect (either alone or in combination) or reasonable scientific doubt remains, the Council will undertake an appropriate assessment of the implications of the development for the site's conservation objectives. Proposals will only be approved where the appropriate assessment has ascertained that there will be no adverse effect on the integrity of the site and where necessary planning conditions will be imposed for appropriate mitigation measures. DM 37.3 A development that could adversely affect the integrity of an international site may only be approved in exceptional circumstances, as laid down in the relevant statutory provisions.'*

For development coming forward, the fact that all relevant parts of the Plan Strategy, including Policy DM 37, must also apply is sufficient. This ensures that site selection features are a consideration when a proposal is being developed at local

level and reduces the potential for tensions between DM 37 and other development management policies.

Mitigation measures

The consideration of measures intended to avoid or reduce the harmful effects of a plan on a European site has been progressed to Stage 2 appropriate assessment. The first step in this appropriate assessment is to assess or incorporate mitigation measures which might be relied upon to avoid any adverse effects to the integrity of the European sites potentially affected. For this plan it was found that case-specific policy caveats which have been incorporated will provide sufficient mitigation to ensure policies cannot undermine the conservation objectives of any European site.

This section therefore considers the policies identified in Table 3 above in light of potential mitigation measures which have been incorporated into the plan. With the approach in Appendix 2, Step 6 in mind the policies as grouped within their relevant section which were identified as having a likely significant effect were considered further below. All policies considered to have potential to generate pathways for effects have been screened in for further assessment and where relevant policy specific caveats which could be construed as mitigation are provided.

4 Sustainable Development

Strategic Policy 1: Sustainable Development

Strategic Policy 1: Sustainable Development is a presumption in favour of development although the overriding principle is that development should be sustainable.

SP 1.4 states *'The Council will also be guided by the precautionary principle that where there are significant risks of damage to the environment, its protection will be paramount, unless it has been adequately demonstrated that there are imperative reasons of overriding public interest'*.

SP 1.5 identifies that assessments may be required in support of applications including shadow Habitats Regulations Assessment.

SP 1.7 (g) *'Afford suitable protection to our Borough's natural and historic environment including the adjacent marine environment, in accommodating growth…'*

All relevant policies must be read together and in view of the policy caveats, constraints on development and Policy DM 37 this policy cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 4: Sustainable Development Policy.

5 Employment

Strategic Policy 2: Employment

This includes employment lands, agricultural development, Strategic Employment Locations, Local Employment Sites and Sustainable Tourism therefore there are potential effects from this Strategic Policy. Sustainable Tourism highlights some locations, including Shane's Castle and Lough Neagh, which include European sites. Paragraph *5.25 states, 'The Council acknowledges however that to support and enhance our Borough's tourism sector careful management is required to ensure*

that the key historic environment and natural heritage assets which it relies upon are not compromised by inappropriate or unsympathetic development.

Detailed Management Policies (DM 1, DM 2, DM 4, DM 5, DM 6, DM 7, DM 8 and DM 9)

Policies DM 1, DM 2, DM 4, DM 5, DM 6, DM 7, DM 8 and DM 9 which support delivery of this Strategic Policy all have potential for likely significant effects on European sites.

There is potential for disturbance to arise during construction or operation of new development and a risk of a conflict between promoting activity tourism and disturbance of site selection features. This is addressed by recognising the risk and caveating policy.

DM 2.1 specifies that proposal 'will not adversely affect the environment', DM 2.6 highlights that proposals will be *'subject to normal planning and environmental considerations'*.

DM 4 enables agricultural development which could include development that increases ammonia emissions that may have an adverse effect on a European site. There is potential for impacts on any site within 7.5 km of a project or landspreading locations for litter, slurry or manure from such locations and sites beyond the plan area in other NI Council areas and have been screened in on this basis.

Deposition of aerial pollutants can damage habitats and species through toxic effects and nutrient enrichment. Nitrogen deposition is identified as a threat for many European sites. Habitats such as peatlands, wetlands and woodlands containing lichens and bryophytes are particularly sensitive to the effects of ammonia. The majority of Northern Ireland's designated sites are exceeding their critical levels, the concentration at which environmental damage occurs, for ammonia. Livestock production and associated landspreading of manure, slurry or litter, is a significant source of nitrogen deposition, particularly in the form of ammonia. Increased or more intensive agricultural activities may further exacerbate this pressure.

Policy DM 4 specifies, *'Development proposals involving intensive farming, forestry or animal husbandry must demonstrate that they will not result in any significant adverse health or environmental effects, particularly in relation to ammonia production'*. This ensures that the need to consider adverse environmental effects of intensive farming or animal husbandry is clear.

DM 9 refers to Lough Neagh and the potential for activity tourism however includes a caveat that, *'Developers will be required to submit a supporting statement to accompany all proposals for tourism development that demonstrates how the proposal meets the following criteria: (a) The development is compatible with policies to safeguard and enhance the historic environment and natural heritage assets...'*

All relevant policies must be read together and in view of the policy caveats, constraints on development and Policy DM 37, these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 5: Employment Policies

6 Transportation and Infrastructure

Strategic Policy 3: Transport and Infrastructure

This Strategic Policy recommends the need for road improvements on the A26 and A57, however these would be delivered through Department for Infrastructure (DfI) Roads. Local road schemes in support of development could have potential impacts if there are pathways to European site. It is supportive of proposals necessary to maintain, improve or expand existing operational facilities at Belfast International Airport to meet anticipated growth needs and associated car parking which could potentially have a hydrological connection to Lough Neagh.

Detailed Management Policies (DM 10, DM 11, DM 12, DM 13, DM 14, DM 15 and DM 16)

Policies DM 10, DM 11, DM 12, DM 13, DM 14, DM 15 and DM 16 all have potential to generate pathways for effects.

It is recognised that there is WwTW capacity and pipe capacity constraints in some settlements within the Borough. Policy DM 15 has been included to address development which is relying on non-mains wastewater infrastructure and the applicant will be required to provide information to demonstrate to the Council's satisfaction that the proposed development will not add to or create a pollution problem. Policy DM 15 advises, '*The Council will only support development proposals relying on non-mains sewerage, where it can be demonstrated that this will not create or add to a pollution problem. The Council will require development proposals to be supported by sufficient information on the means of sewerage to allow a proper assessment of such proposals to be made. In those areas identified as having a pollution risk, development proposals relying on non-mains sewerage will only be permitted in exceptional circumstances.*'

DM 16 Includes several caveats such as proposals must '*...not result in ... harm to environmentally sensitive features or locations*'.

All relevant policies must be read together and in view of the policy caveats, constraints on development and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 6: Transport and Infrastructure Policies.

7 Homes

Strategic Policy 4: Homes

This Policy will seek to deliver at least 9,750 new homes across the Borough over the Plan period 2015-2030. It will lead to growth in the towns, villages and hamlets through 7.7% in the countryside, to 28.2% in Antrim and 40% in Metropolitan Newtownabbey. This can put pressure on water supply and waste treatment capacity.

Detailed Management Policies (DM 17, DM 18, DM 19, DM 20, DM 21 and DM 22)

Policies DM 17, DM 18, DM 19, DM 20, DM 21 and DM 22 all have potential to generate pathways for effects.

Although no specific protective policy caveats are included, considering all relevant policies must be read together, constraints on development and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 7: Homes Policies.

8 Community Infrastructure

Detailed Management Policies (DM 23 and DM 24)

Policies DM 23 and DM 24 both have potential to generate pathways for effects.

Although no specific protective policy caveats are included, considering all relevant policies must be read together, constraints on development and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 8: Community Infrastructure Policies.

9 Placemaking and Good Design

Detailed Management Policies (DM 29)

Policy DM 29 is generally listing criteria for the acceptability of the proposal, however, does enable development which could adversely impact mobile species, it therefore has potential to generate pathways for effects on European sites.

Although no specific protective policy caveats are included, considering all relevant policies must be read together, constraints on development and Policy DM 37 this policy cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 9 Placemaking and Good Design

10 Historic Environment

Detailed Management Policies (DM 31, DM 32, DM 34, DM 35 and DM 36)

DM 31, DM 32, DM 34, DM 35 and DM 36 have all been screened in as having potential for effects. Some of these policies could be considered as site safeguarding/preservation policies due to their nature and constraints, however they do enable development and therefore have potential to generate pathways for effects on European sites.

Although no specific protective policy caveats are included, considering all relevant policies must be read together, constraints on development and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 9: Historic Environment Policies.

11 Natural Heritage

Detailed Management Policies (DM 37, DM 40 and DM 41)

These policies implement Strategic Objective 11 'Promote biodiversity, and conserve the natural assets of our countryside, coast and loughs'. They are protective of the natural environment including European sites and allow for identifying Sites of Local Nature Conservation Importance and Local Landscape Policy Areas in the Local Polices Plan which may have a protective effect depending on location.

Policy DM 37 is intended to avoid or reduce harmful effects on European sites. DM 37 applies to all development under the LDP, it is considered the policy faithfully reflects the legislative requirements of the Habitats Directive and will ensure no adverse effect on any European site, implementation is detailed in the amplification at paragraphs 11.13-11.18.

DM 40 largely constrains development in land adjacent to Lough Neagh and Lough Beg and Belfast Lough as well as protecting the attributes of Local Landscape Policy Areas. It allows however for low intensity recreational use or tourism proposals; uses directly related to agriculture or forestry; proposals related to geothermal energy or the extraction of regionally important minerals within the Lough Neagh and Lough Beg Strategic Landscape Policy Area. These exceptions may enable development that could have likely significant effects. DM 40.6 (e) only allows: *'Proposals related to geothermal energy or the extraction of regionally important minerals which demonstrate a sustainable approach to development that will not impact adversely on the features or environmental assets of the Lough or their environs.'*

DM 41 constrains coastal development to exceptional circumstances however does not totally exclude it so in the absence of mitigation there is potential for effects. 11.41 highlights coastal European sites. 11.43 states that '*...potential impacts on the coastal dynamics of the area, including environmental/climate change and flood risk ... have been considered and addressed*'.

All relevant policies must be read together and in view of the policy caveats, constraints on development, and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 11: Natural Heritage.

12 Natural Resources

Strategic Policy 9: Natural Resources

Strategic Policy 9: Natural Resources provides a framework for protection and use of mineral reserves and for renewable energy. SP 9.2 includes '(b) ... a presumption against unconventional hydrocarbon extraction, until such times as there is sufficient and robust evidence regarding all the potential environmental impacts of such extraction; (c) … a presumption against minerals development that would affect the following environmentally sensitive sites / designations unless it can be demonstrated, that there is a regional need for the proposed mineral that outweighs the importance of the site: … Sites of Nature Conservation Importance (European, National and Local sites)'.

Detailed Management Policies (DM 43, DM 44 and DM 45)

Policies DM 43, DM 44 and DM 45 all have potential to generate pathways for effects.

Policy DM 43 enables minerals development therefore there are potential for impacts depending on the location, scale and nature of the development. The policy includes a caveat with states, '*The following matters have to be 'addressed to the satisfaction of the Council: (a) Disturbance and disruption from noise, blasting and vibration and potential pollution of land, air and water; (c) The impact on … natural heritage assets during and after development; (d) The impact on surface and ground water resources, drainage and fishery interests'*. This ensures that sites sensitive to the effects of minerals development are highlighted and that the need to consider adverse environmental effects is clear.

DM 44 constrains development that would prejudice future development of a potential mineral reserve; however use of that reserve is not allowed under this policy.

DM 45 allows for renewable energy development therefore may have an impact depending on scale, nature and location. DM 45 Highlights that development must be compatible with other policies and development must '…avoid or address any unacceptable adverse impacts including: (e) ecological impact (including impact on peatland hydrology); (g) impact on local natural resources, including air quality, water quality …'

Under DM 45.5 the Council provides a Spatial Framework for wind energy development where International and National Sites of Nature Conservation Importance are identified as 'Group 2: Areas of protection' in which '… proposals will generally only be appropriate in circumstances where any significant effects on the amenity and qualities of these areas can be substantially overcome by siting, design and other forms of mitigation.'

All relevant policies must be read together and in view of the policy caveats, constraints on development and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 12: Natural Resources Policies.

13 Environmental Resilience and Protection

Detailed Management Policies (DM46, DM 49, DM 52 and DM 53)

Policies DM46, DM 49, DM 52 and DM 53 relate to environmental resilience in relation to climate change, flood risk, environmental protection and waste management. Overall, the policies seek to be protective of the environment, however, are all development enabling and in the absence of mitigation could have adverse effects on European sites.

DM 46 is largely protective through constraining development, including storage of hazardous substances, however it allows for some forms of development in floodplains including mineral extraction and recreational facilities. Likewise, DM 49 is presumption against development which will be strictly controlled with exceptions which could have potential effects.

Policy DM 52 allows for development proposals on potentially contaminated land under specified circumstances, '*…where it can be demonstrated: (a) through a site investigation and risk assessment that the site is in a condition suitable for the proposed development and is not causing significant pollution of the environment; and (b) where necessary, effective remediation measures are agreed to ensure the site is made suitable for the new use and that appropriate disposal and/or treatment of any hazardous material takes place.*

DM 53.2 'It must be demonstrated that the proposal will bring an overall net social, environmental and economic benefit without having a likely significant adverse effect: …(b) in terms of air, water, noise or light pollution; (c) on the historic environment and natural heritage assets…'

DM 53: Waste Management and Disposal Facilities allows for new or extended waste management facilities however it is caveated, *'It must be demonstrated that the proposal will bring an overall net social, environmental and economic benefit without having a likely significant adverse effect: …(b) in terms of air, water, noise or light pollution; (c) on the historic environment and natural heritage assets…'*

All relevant policies must be read together and in view of the policy caveats, constraints on development and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.

No further policy amendments are required to Section 13: Environmental Resilience and Protection

Step 7: Amending the plan until there would be no adverse effects on site integrity

Integrity test taking account of mitigation measures

Having identified potential case specific policy constraints and caveats in respect of aspects of the Plan which were identified as having a likely significant effect, it is now necessary to apply the integrity test, taking account of these mitigation measures. Following incorporation of the mitigation measures identified above the re-screening of the elements of the Plan which are affected by the mitigation measures is set out in Table 4 below.

Table 4 Applying the integrity test following incorporation of mitigation measures

POLICY	RECOMMENDED MITIGATION MEASURES	INTEGRITY TEST CONCLUSION
Section 4 Sustainable Development		
Strategic Policy 1: Sustainable Development	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 this policy cannot undermine the conservation objectives of any European site.
Section 5 Employment		
Strategic Policy 2: Employment	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 1: Economic Development – Zoned Sites and Settlements		
Policy DM 2: Economic Development – Countryside		
Policy DM 4: Agricultural and Forestry Development		
Policy DM 5: Farm Diversification		
Policy DM 6: Development within Centres		
Policy DM 7: Development outside Centres		
Policy DM 8: Development at The Junction, Antrim		
Policy DM 9: Tourism Development		
Section 6 Transport and Infrastructure		

Strategic Policy 3: Transport and Infrastructure	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 10: Access and Parking		
Policy DM 11: Access to Protected Routes		
Policy DM 12 : Active Travel (Walking and Cycling)		
Policy DM 13: Belfast International Airport - Operations		
Policy DM 14: Public Utilities and Infrastructure		
Policy DM 15: Development Relying on Non-Mains Sewerage		
Policy DM 16: Telecommunication Facilities and Digital Services		
Section 7 Homes		
Strategic Policy 4: Homes	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 17: Homes in Settlements		
Policy DM 18 (inc. 18A to 18F): Residential Development in the Countryside		
Policy DM 19: Residential Caravans and Mobile Homes		
Policy DM 20: Traveller Accommodation		
Policy DM 21: Specialist Residential Accommodation		
Policy DM 22: Residential Extensions and Alterations		
Section 8 Community Infrastructure		
Policy DM 23: Protection of Open Space	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 24: Community Facilities		
Section 9 Placemaking and Good Design		
Policy DM 29: Advertisements	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 this policy cannot undermine the conservation

		objectives of any European site.
Section 10 Historic Environment		
Policy DM 31: Historic Parks, Gardens and Demesnes	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 32: Listed Buildings		
Policy DM 34: Areas of Townscape Character		
Policy DM 35: Enabling Development		
Policy DM 36: Vernacular and Locally Important Buildings		
Section 11 Natural Heritage		
Policy DM 37: Designated Sites of Nature Conservation Importance	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 40: Landscape Protection		
Policy DM 41: Coastal Protection		
Section 12 Natural Resources		
Strategic Policy 9: Natural Resources	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 43: Minerals Development		
Policy DM 44: Mineral Reserve Policy Areas		
Policy DM 45: Renewable Energy Development		
Section 13 Environmental Resilience and Protection		
Policy DM 46: The Control of Development in Flood Plains	No further policy amendments are required.	In view of constraints on development, policy caveats and Policy DM 37 these policies cannot undermine the conservation objectives of any European site.
Policy DM 49: Artificial Modification of Watercourses		
Policy DM 52: Contaminated Land		
Policy DM 53: Waste Management and Disposal Facilities		

Consideration of in combination effects

It was found that there are protective measures and overarching policies in the Plan Strategy that will ensure that development causing an adverse effect on site integrity cannot be approved. It will be important that HRAs for individual developments also consider in combination effects before planning permission is granted.

Policy DM 37 is explicit that, '*The Council will only support development that, either individually or in combination with existing and/or proposed plans or projects, is not likely to have a significant effect on an existing or proposed SPA, existing or candidate SAC, Sites of Community Importance, or a listed or proposed Ramsar Site*'. Policy DM 37 therefore ensures that any development approved under the plan will have to demonstrate compliance with the 'in combination' provisions of the Habitats Regulations. There is therefore no risk of a residual effect at this Plan Strategy HRA stage, which might act in combination with other plans and projects as identified in Table 5.

On the basis of the underlying reasoning supporting Principle 6 of Section C.8.1 of the HRA Handbook, reliance on Policy DM 37 provides the basis upon which effects which might act in combination with other plans and projects including those considered below can be ruled out.

Table 5 Plan or Project Identified for consideration of in combination effects

Plan or Project	Possible significant effects from plan or project	Is there a risk of in combination effects	Possible significant effects in combination
Regional			
Regional Development Strategy 2035	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	The RDS has been subject to Appropriate Assessment and mitigation measures recommended. It is not considered that there is potential for in-combination effects to arise, however in the absence of mitigation or appropriate consideration of potential adverse effects upon European site, adverse in-combination effects may occur and cannot be excluded.	No. The mitigation measures contained within individual plans prioritise the avoidance of effects where possible and provide measures to minimise effects. In combination effects from projects which arise from implementation of the RDS will not be significant, especially when viewed in light of the mitigation in the Plan Strategy against policy DM 37 which will require Appropriate Assessment.
Strategic Planning Policy Statement	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	The SPPS has been subject to SEA. No significant adverse environmental effects were identified and mitigation was not required, therefore it is not considered that there is potential for in-combination effects to arise.	No. No significant adverse effects were identified from the SPSS in the absence of mitigation measures. In combination effects from projects which arise from implementation of the SPPS will not be significant, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.
County			

Plan or Project	Possible significant effects from plan or project	Is there a risk of in combination effects	Possible significant effects in combination
Armagh Area Plan 2004 & Alteration No. 1: Armagh Countryside Proposals 2004. Craigavon Area Plan 2010 Craigavon Town Centre Boundaries and Retail Designation Plan 2010 Banbridge, Newry and Mourne Area Plan 2015 Dungannon and South Tyrone Area Plan 2010.	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	Armagh City, Banbridge and Craigavon Borough Council have yet to publish a draft Plan Strategy. When published, the Plan Strategy will have been subject to AA which incorporates robust mitigation measures into the plans to avoid effects. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. The mitigation measures which are implemented at project level through these existing plans prioritise the avoidance of effects and provide measures to minimise effects. In combination effects from projects which arise from the implementation of these existing plans and the Plan Strategy when published will not be significant and will require Appropriate Assessment.
Belfast City Council Local Development Plan – Plan Strategy 2035	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	This Neighbouring Council Plan has been subject to AA which incorporates robust mitigation measures into the plan itself to avoid effects. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. The mitigation measures contained within the projects prioritise the avoidance of effects and provide measures to minimise effects. In combination effects from projects which arise from the implementation of these plans will not be significant, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.
Lisburn & Castlereagh City Council Local Development Plan – Plan Strategy 2032.	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	This Neighbouring Council Plan has been subject to AA which incorporates robust mitigation measures into the plan itself to avoid effects. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. The mitigation measures contained within the projects prioritise the avoidance of effects and provide measures to minimise effects. In combination effects from projects which arise from the implementation of these plans will not be significant, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.

Plan or Project	Possible significant effects from plan or project	Is there a risk of in combination effects	Possible significant effects in combination
Mid and East Antrim Borough Council Local Development Plan - Plan Strategy 2030	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	This Neighbouring Council Plan has been subject to AA which incorporates robust mitigation measures into the plan itself to avoid effects. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. The mitigation measures contained within the projects prioritise the avoidance of effects and provide measures to minimise effects. In combination effects from projects which arise from the implementation of these plans will not be significant, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.
Mid Ulster District Council Local Development Plan-Draft Plan Strategy 2030	Potential in-combination effects may arise where there is a requirement to provide for new infrastructure or where new development occurs, such effects may include: • Disturbance to habitats/species; • Species mortality; • Alterations to water quality and/or water movement; • Release of contaminated material (soils, runoff); and • Introduction or spread of invasive species.	This Neighbouring Council 'draft' Plan has been subject to SA and AA which incorporates robust mitigation measures into the plan itself to avoid effects. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. The mitigation measures contained within the projects prioritise the avoidance of effects and provide measures to minimise effects. In combination effects from projects which arise from the implementation of these plans will not be significant, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.
Local			
Employment site: Redevelopment of the former Enkalon site, Antrim.	Potential in-combination effects may arise on European sites from proposals which may come forward on this large employment site. Such effects may include: Deterioration on habitat from airborne pollutants disturbance to habitats/species; Species mortality; Alterations to water quality and/or water movement; and Release of contaminated material (soils, runoff).	All project which come forward on this employment site will require a HRA to be undertaken. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. All projects on this employment site will be subject to HRA and should a robust AA conclude no adverse effects and that the decision-maker is subject to the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, then there can be no in combination effects with the Plan Strategy, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.

Plan or Project	Possible significant effects from plan or project	Is there a risk of in combination effects	Possible significant effects in combination
Employment site: Development within Global Point Business Park, Newtownabbey.	Potential in-combination effects may arise on European sites from proposals which may come forward on this large employment site. Such effects may include: Deterioration on habitat from airborne pollutants disturbance to habitats/species; Species mortality; Alterations to water quality and/or water movement; and Release of contaminated material (soils, runoff).	All project which come forward on this employment site will require a HRA to be undertaken. In the absence of mitigation or appropriate consideration of potential adverse effects upon European sites, adverse in-combination effects may occur and cannot be excluded.	No. All projects on this employment site will be subject to HRA and should a robust AA conclude no adverse effects and that the decision-maker is subject to the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, then there can be no in combination effects with the Plan Strategy, especially when viewed in light of the mitigation in the Plan Strategy against Policy DM 37 which will require Appropriate Assessment.

6 Conclusions

Outcome of HRA

Step 8: Preparing the HRA Record

The Plan Strategy has been subject to screening under the Habitats Regulations. All proposals and policies have been considered in respect of the potential for likely significant effects upon any European site, either alone or in combination with other plans and projects. For all Strategic Objectives the implications can be assessed under related policies. The assessment is therefore undertaken through the consideration of related Strategic Policies and Detailed Management Policies.

Following the Plan Strategy screening exercise, 44 policies were identified as having a likely significant effect in the absence of mitigation. Mitigation measures, in the form of case-specific policy caveats, were incorporated in respect of these policies and reviewed as part of an appropriate assessment. The rationale for these is set out in Section 5 and they are summarised in Table 4.

As individual projects come forward under the Plan Strategy, they will be subject to the rigorous assessment requirements to establish whether they, either alone or in-combination with other plans or projects, are likely to have significant effects on any European site. Such projects can only be permitted where the Council Planning Authority is certain as to the absence of adverse effects on any European site.

The Local Policies Plan (LPP) is the second stage of the LDP and will identify settlement limits, zonings and detailed boundaries of environmental designations and, where appropriate, introduce local policies or key site requirements for these zonings and designations. Another draft HRA will be prepared to assess the potential impacts of the draft LPP on European sites. The information about European sites in Appendix 3, which will be updated if required, will be important as a starting point for the HRA at LPP. Following independent examination of the draft LPP that HRA will be finalised and adopted by the Council and published alongside the adopted LPP.

In conclusion, the Plan Strategy, taking account of mitigation measures will not undermine the conservation objectives of any European site. Rather the policy caveats amplify the requirements for a robust HRA coming forward at project level to be assessed on site specific, case-by-case basis. In light of the mitigation, there is not likely to be an adverse effect on the site integrity of any European site arising from any aspect of the Plan Strategy.

Antrim and Newtownabbey Borough Council as the Competent Authority can conclude that the LDP Plan Strategy will not adversely affect the integrity of any European site under the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), either alone or in combination with other plans and projects.

Glossary

Adverse effect on site integrity	An effect on the qualifying features of which would undermine the achievement of the conservation objectives for that site and which would have a negative effect on the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitats, complex of habitats and / or the levels of populations of the species for which the site is or will be designated.
Competent Authority	For the purposes of the Habitats Regulations the expression 'competent authority' includes government departments, district councils and statutory undertakers, and any trustees, commissioners, board or other persons who, as a public body and not for their own profit, act under any statutory provision for the improvement of any place or the production or supply of any commodity or service.
Cumulative Impact	A number of developments in a locality or a continuous activity over time that together may have an increased impact on the environment.
De Minimis	Having no appreciable effect.
European sites	Collective term used within this report to include existing or proposed SPA, existing or candidate SAC, Sites of Community Importance, or a listed or proposed Ramsar Site (the latter is a wider international designation).
Global Status	The global status is an expert judgement of the overall value of the European site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C.
Habitats Regulations	The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) and The Conservation (Natural Habitats, etc.) (Amendment) (Northern Ireland (EU Exit) Regulations 2019.
In combination effect	Refers to effects that may be likely significant effects when considered in combination with effects from other plans or projects.
Likely significant effect	An effect that cannot be ruled out on the basis of objective information. Likely in this context means there is a risk or possibility that an effect will be significant. An effect is significant if it would undermine a European site's conservation objectives.
Mitigation measures	Measures to avoid, cancel or reduce the effects of a plan or project on a European site.
National Site Network (NSN)	Sites designated to protect special habitats or species of European importance, as listed in The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), to ensure 'the conservation of a wide range of rare, threatened or endemic animal and plant species.'
Natura 2000 (N2K)	The European network of special areas of conservation and special protection areas under the Wild Birds Directive, provided for by Article 3(1) of the Habitats Directive. Sites in Ireland are part of the Natura 2000 network.
Ramsar site	Site listed under the Convention on Wetlands of European Importance adopted at Ramsar, Iran in 1971. As a matter of policy these sites are treated in the same way as European sites.

Special Areas of Conservation (SACs)	Refers to sites already designated at the time of EU exit and new sites designated under the amended Regulations.
Special Protection Area (SPA)	Refers to sites already classified at the time of EU exit and new sites classified under the amended Regulations.
The Directives	Refers to Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version) as applied to the UK prior to EU Exit. These Directives are referred to as the Habitats Directive and the Birds Directive respectively and together are called 'The Directives' for the purposes of this report.

Appendix 1: References & Evidence Sources

In the absence of specific Northern Ireland guidance on carrying out Habitats Regulations Assessment for plans and programmes reference has been made to other sources of guidance and relevant documents including those listed below. Site specific references and sources of evidence are detailed in Appendix 3.

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

DAERA Conservation Objectives *(Online) Available at* https://www.daera-ni.gov.uk/landing-pages/protected-areas (Accessed May 2025)

DAERA (2019) Data Layers for designated and proposed European and Ramsar sites *Available at* https://www.daera-ni.gov.uk/articles/download-digital-datasets (Accessed May 2025)

DAERA (2020). Guidance explaining The Conservation (Natural Habitats, etc.) (Amendment) (Northern Ireland) (EU Exit) Regulations 2019. December 2020 (version 1).

Habitats Regulations Appraisal of Plans Guidance for Plan-Making Bodies in Scotland Version 3.0, (2015) Scottish Natural Heritage (Initially Prepared by David Tyldesley and Associates)

Joint Nature Conservation Committee (JNCC) (Dates vary) Information Sheet on Ramsar Wetlands (RIS). *(Online) Available at* http://jncc.defra.gov.uk/page-1393 (Accessed May 2025)

JNCC (Dates vary) Standard data forms generated from the Natura 2000 Database submitted to the European Commission. *(Online) Available at* http://jncc.defra.gov.uk/page-161 (Accessed May 2025)

NI Water (2025) Water Resource and Supply Resilience Plan Managing Northern Ireland's Water Resources - Northern Ireland Water (Accessed May 2025)

Spatial NI Data Layers for Local Government boundaries *(Online) Available at* https://www.spatialni.gov.uk/ (Accessed May 2025)

Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, May 2025 edition UK: DTA Publications Ltd

Appendix 2: The Approach to Habitats Regulations Assessment for Plans

Introduction

This appendix sets out the approach to carrying out Habitats Regulations Assessments for Local Development Plans (LDPs) in Northern Ireland in the context of the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended). It is informed by Tyldesley, D., and Chapman, C., (2013) the Habitats Regulations Assessment Handbook (HRA Handbook) which is regularly updated to reflect case law and has been amended in the light of EU Exit. The HRA Handbook is aimed at statutory bodies, local authorities, and other 'competent authorities'. It is a definitive source of detailed guidance that is regularly updated for good practice and monitored by a barrister specialising in environmental law and the Habitats Regulations in particular. In places reference is made to relevant sections of the HRA Handbook where more detail can be found and, at times, extracts of the HRA Handbook are quoted.

The context for HRA is set out firstly. This is followed by an overview of how HRA applies to plans and the consideration of mitigation. Finally, the stages and steps for the HRA process, as applied to Local Development Plans in Northern Ireland, are detailed. HRA is an iterative process carried out in parallel with plan preparation. The HRA will be modified in light of the independent examination and any amendments to the draft Plan Strategy. The record of the HRA will be completed and published with the adopted plan (Plan Strategy or Local Policies Plan).

The Habitats Regulations

The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), commonly referred to as the Habitats Regulations, implemented the requirements of the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version). These Directives are referred to as the Habitats Directive and the Birds Directive respectively and together are called the Directives for the purposes of this report.

The overall aim of the Directives is to maintain or restore the favourable conservation status of habitats and species of community interest. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are designated to afford protection to habitats and species listed in the Habitats and Birds Directives. These designations form a suite of sites that, in Europe, form a network of ecologically important sites called 'Natura 2000 Sites'. Since the UK's exit from the European Union SACs and SPAs in Northern Ireland no longer form part of the Natura 2000 network. They are still referred to as international sites however they are now collectively referred to as the National Site Network (NNS) (Department for Agriculture, Environment and Rural Affairs (DAERA), 2020).

The most recent amendment to the Habitats Regulations is the enactment of the Conservation (Natural Habitats, etc.) (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 following the UKs departure from the European Union. These Regulations simply amended the existing Habitats Regulations to make them operable a UK context at the end of the transition period in. The requirement to undertake Habitat Regulations Assessments (HRAs) for assessing the impact of plans on European sites remains the same.

For the purposes of the Habitats Regulations the expression 'competent authority' is construed in accordance with Regulation 5. Competent authorities include government departments, district councils and statutory undertakers, and any trustees, commissioners, board or other persons who, as a public body and not for their own profit, act under any statutory provision for the improvement of any place or the production or supply of any commodity or service. Councils as planning authorities are competent authorities. Regulation 43 (1) of the Habitats Regulations requires competent authorities to make an appropriate assessment of plans and projects which are likely to have a significant effect on in Northern Ireland, either alone or in combination with other plans or projects. For the purpose of this report 'European sites' collectively may include existing or proposed SPA, existing or candidate SAC, Sites of Community Importance, and listed or proposed Ramsar Sites.

Applying HRA to Local Development Plans

LDPs are prepared under the provisions of the Planning Act (Northern Ireland) 2011 (the Planning Act) and the Planning (Local Development Plan) Regulations (NI) 2015. The Planning Act requires the LDP to be produced in two stages – the first being the Plan Strategy, followed upon adoption, by the Local Policies Plan.

The approach to HRA for a plan differs to that for a project. In the case of projects, the precise location of development is known and more detailed information is generally available, or can be obtained about construction, operation and other stages of the development thus enabling full assessment.

By comparison, a Plan Strategy is a strategic level plan setting out a framework for development but generally lacking detail of where and when developers will bring forward development. This will not be known until after the plan has been published. Therefore, the approach to HRA for LDPs differs to that for projects. The plan does however steer how and where projects may be brought forward.

The assessment of strategic plans can present a challenge in terms of deciding what effects may come about as a result of the plan and which cannot occur due to other strategic and regulatory requirements with which the LDP and development management decisions must comply. The view could be taken that, given that a policy is included to meet the requirements of the Strategic Planning Policy Statement (SPPS), and that all planning applications must comply with the Habitats Regulations, then the Plan Strategy cannot result in an adverse effect on the integrity of any European site. However, this argument has been rejected by the Courts who have ruled[5] that the requirement for planning permission to be determined in light of the relevant land use plan, necessarily means that those plans have considerable influence on development decisions and that, as such, land use plans must be subject to HRA in their own right. As a result, to terminate the HRA on this basis would not only be contrary to case law but it would also miss the opportunity to draw attention to the extent of European site in, or connected to, the Council area and to inform land use planning in such a way as to minimise the regulatory burden of compliance with the Regulations at the later project HRA stage.

There are a number of pieces of case law that clarify how the Directives, and therefore the Habitats Regulations, should be interpreted as applying to plans. UK courts will take into account rulings from the European Court of Justice made up to

[5] Refer para 55 in EC v UK Case C-6/04 (2005)

the point of the UK's exit from the EU. The key points are summarised here, these are detailed in the Habitats Regulations Handbook and the relevant section of Handbook content is referenced accordingly (e.g. F.x.x or C.x etc.).

EC v UK[6] detailed in F.10.1.5.

A. Land use plans can potentially have significant effects on European sites, despite the subsequent need for planning permission at 'project' level stage.
B. Assessment of land use plans must therefore be secured under the provisions of the Habitats Directive.
C. The assessment of plans has to be tailored to the stage of plan making.
D. The assessment should be 'to the extent possible based on the basis of the precision of the plan'.

Feeney[7] (UK High Court) F.10.1. reinforced this.

- 'Each appropriate assessment must be commensurate to the relative precision of the plans at any particular stage and no more. There does have to be an appropriate assessment at the Core Strategy stage, but such an assessment cannot do more than the level of detail of the strategy at that stage permits.'

Boggis[8] Court of Appeal & EC v UK C.7.5.2.

The implications for HRA of plans are that the HRA should be proportionate to the level of detail. There should be "*credible evidence that there was a real, rather than a hypothetical, risk*"

- The plan has weight as planning applications must be determined in accordance with the development plan (unless material considerations indicate otherwise).
- HRA should concentrate on aspects of the plan that could, realistically, be likely to have a significant effect.
- A likely significant effect should not be assumed for:
    - policies and proposals that are no more than general policy statements or which express a general aspiration or intent;
    - policies which generate no more than theoretical risks, or vague or hypothetical effects; or
    - policies or proposals for which meaningful assessment can be made at this stage, where no particular significant effect on any particular European site can actually be identified.
- Reliance should not simply be placed on a general European site protection policy as this does not address potential tensions or conflicts in the plan between site protection and policies or proposals which could significantly affect European sites.
- Tensions in the plan must be resolved in favour of protecting the European site from harm.

[6] Case C-6/04: Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland judgment of the Court 20 October 2005.

[7] Sean Feeney v Oxford City Council and the Secretary of State CLG para 92 of the judgment dated 24 October 2011 Case No CO/3797/2011, Neutral Citation [2011] EWHC 2699 Admin

[8] Peter Charles Boggis and Easton Bavants Conservation v Natural England and Waveney District Council, High Court of Justice Court of Appeal case C1/2009/0041/QBACF Citation No [2009] EWCA Civ. 1061 20th October 2009

- Policies or proposals with a high potential for significant adverse effects on any European site should be removed or subject to mitigation measures.

Assessing and applying mitigation measures

CJEU Case C323/17 (People over Wind & Sweetman)[9] C.5, F7.1

On 12 April 2018, the Court of Justice of the European Union (CJEU) issued a judgment, *Case C323/17 (People over Wind & Sweetman),* which ruled that Article 6(3) of the Habitats Directive must be interpreted as meaning that mitigation measures, referred to in the judgment as measures which are intended to avoid or reduce effects, should be assessed within the framework of an appropriate assessment. It is therefore no longer permissible to take account of measures intended to avoid or reduce the harmful effects of a plan or project on at the Stage 1 test of likely significance.

In light of this Stage 1 Assessment does consider essential features and characteristics of the plan; it also takes account of regional and strategic context and other regulatory controls that will apply to development under the plan. However, measures envisaged to avoid or prevent what might otherwise have been adverse effects on the integrity of any European site are not taken into account in Stage 1 and instead are assessed at Stage 2 appropriate assessment.

The consideration of mitigation differs between projects and plans, although for both cases it is not appropriate to take account of mitigation measures which might be incorporated into the plan at the screening stage. The first step in appropriate assessment is therefore to seek to incorporate mitigation measures which might be relied upon to avoid any adverse effects to the integrity of the European site.

Feeney v Oxford City Council[10] F10.1.

Case law has established that it is acceptable in principle to include policies within a Local Plan which are conditional upon certain conditions being met.

Abbotskerswell v Teignbridge (2014)[11] F10.1.

In this case the High Court specifically endorsed an approach which potentially relies upon matters being finalised after the adoption of the plan. The competent authority must however be satisfied that the measures can be delivered in practice.

This is captured in the HRA Handbook F.10.1 (emphasis added):

'Because the integrity test incorporates the application of the precautionary principle as a matter of law, and because plan assessments are, by their nature, less precise than project assessments, it is important for the assessment process to eliminate the prospect of adverse effects on site integrity in so far as that is possible at the level of specificity inherent in the nature and purpose of the particular plan.'

F.10.1.2 of the Handbook refers to mitigation measures which might be relied upon to show that there would be no adverse effects on site integrity. Examples are provided as follows:

[9] Case C-323/17 Request for a preliminary ruling, *People Over Wind* and Peter Sweetman v Coillte Teoranta, 12th April 2018

[10] Sean Feeney v Oxford City Council and the Secretary of State CLG para 92 of the judgment dated 24 October 2011 Case No CO/3797/2011, Neutral Citation [2011] EWHC 2699 Admin

[11] Abbotskerswell Parish Council v Teignbridge District Council [2014] EWHC 4166 (Admin)

'mitigation measures that may be introduced during or after the 'appropriate assessment' stage may be:

a) *Case-specific policy restrictions;*
b) *Case-specific policy caveats;*
c) *Prescribing how adverse effects on site integrity will be avoided by mitigation measures in a lower level or more detailed plan, to be confirmed by a more detailed Habitats Regulations Assessment at that level;*
d) *Deleting aspects of the plan that will probably fail the tests of the Directive at project application stage;*
e) *Ensuring that there are no proposals that could adversely affect the integrity of a European site that if retained in the plan may lead to a case for the proposal to be permitted, using the incorporation in the plan as the imperative reason of overriding public interest in its favour, because the plan relies on it being, or assumes that it will be, implemented;*

To be an appropriate restriction or caveat (in (a) or (b) above), enabling the plan-making body to ascertain no adverse effect on the integrity of a European site, the restriction must be:

- *case-specific;*
- *explicit; and*
- *added to the policy and not merely added to the explanatory text or commentary, or not merely inserted into the implementation or monitoring chapters.'*

Co-ordination with other Habitats Regulations Assessments

The Habitats Regulations provides for co-ordination between competent authorities at Regulation 47. While Regulation 47 does not strictly apply to HRA for Local Development Plans it does establish the principle that a competent authority can place weight on a HRA carried out by another competent authority. This is subject to the proviso that the competent authority should be satisfied that the earlier HRA was robust and has not become outdated by further information or developments. No guidance has been issued by DAERA as allowed for under 47(3). The Department for Environment, Food and Rural Affairs (DEFRA) published guidance in 2012 to meet the equivalent regulation for England however that was withdrawn in March 2021 and the guidance is now incorporated in Habitats regulations assessments: protecting . Department for Environment, Food & Rural Affairs, Natural England, Welsh Government, and Natural Resources Wales. Published 24 February 2021.

The application and implications of the former DEFRA and updated guidance has been considered in detail within Part C.12 of the HRA Handbook. Therefore, it is accepted as good practice that consideration may be given to HRAs carried out by other competent authorities where they are applicable to development to be brought forward under the LDP.

HRA the Stages and Steps - Overview

HRA is normally described in four stages:

- Stage 1: Screening for likely significant effects;
- Stage 2: Appropriate Assessment and the Integrity Test;
- Stage 3: Alternative Solutions; and
- Stage 4: Imperative reasons of overriding public interest and compensatory measures.

The approach to HRA for LDPs in Northern Ireland is described through 11 Steps across Stages 1 and 2. These steps are not named as such in the HRA Handbook however the section which applies to each step is referenced and Figure A.1.1 illustrates each step in the HRA process.

Stage 1 involves firstly deciding whether a plan or project should be subject to HRA (Step 1). Steps 2, identifying European sites, and 3, gathering information about those sites, help to identify the European sites which the plan may affect and compiles information about those sites. Step 4 allows for discretionary discussion with the Statutory Nature Conservation Body and other stakeholders. The final step of Stage 1 is the preliminary screening of the plan to determine which elements of it are likely to have a significant effect on a European site and identify the sites that may be affected.

Stage 2 is referred to as 'appropriate assessment' and assesses the implications of the plan or project for European sites in view of the sites' conservation objectives. A plan can only proceed if it can be ascertained that it will not adversely affect the integrity of a European site, either alone or in combination with other projects or plans.

If Stage 2 Appropriate Assessment finds that there would be an adverse effect on site integrity then alternative solutions which are financially, legally and technically feasible need to be considered further in Stage 3. Alternative solutions are already considered in preparation of many plans, for example through the Preferred Options Paper for Local Development Plans and in carrying out Strategic Environmental Assessment which requires consideration of reasonable alternatives. Compliance with regional policies and strategies also means that environmental effects will have been taken into account. It is therefore rare for HRAs for LDPs to progress beyond Stage 2.

Stage 4 applies in the event that there is an imperative reason of public interest which overrides the risk and harm to sites, and priority features where appropriate. It provides for compensatory measures to protect the overall coherence of the National Site Network / Natura 2000 network to be identified, delivery, detailed and the government notified. As already noted, it is rare for HRAs for LDPs to progress beyond Stage 2. Stage 3 and 4 are not therefore detailed further in this approach.

Stage 1: Screening Plan for Likely Significant Effects

Step 1: Deciding whether a plan should be subject to Habitats Regulations Assessment

This involves considering the nature of the plan and its individual proposals to determine whether there is a requirement to carry out a Habitats Regulations Assessment (HRA) and is further detailed in HRA Handbook F.2. and F.3.

The following questions help determine whether the document being reviewed is a plan in the context of the Regulations.

- Is the whole of the plan directly connected with or necessary to the management of a European site for nature conservation purposes?
- Is the plan a strategic development plan, local development plan, supplementary guidance?
- Is the plan a general statement of policy showing only the general political will or intention of the plan making body, and no effect on any particular European site can reasonably be predicted?

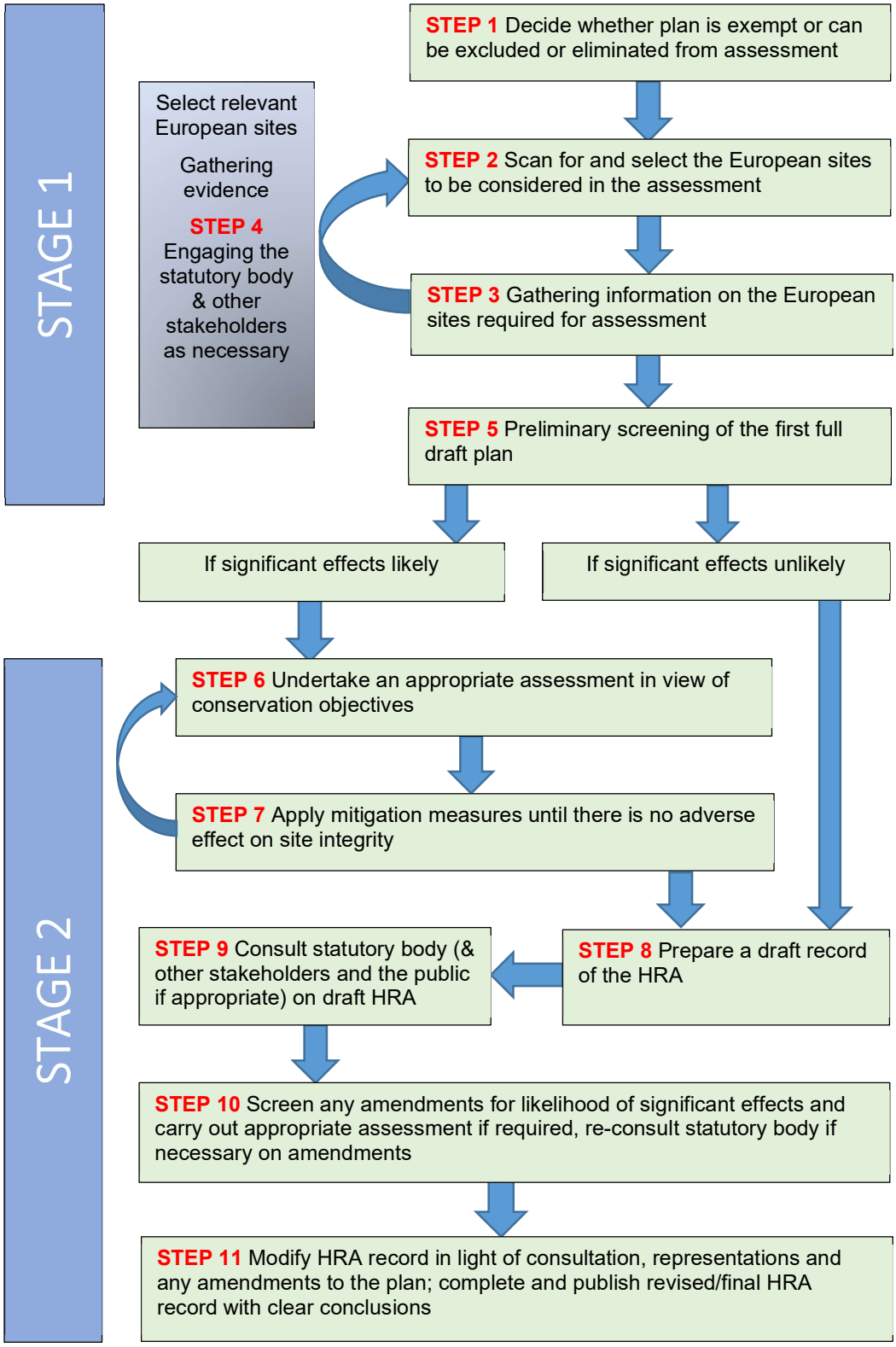
- Does the plan contain a programme, or policies, or proposals which could affect one or more particular European site?

Step 1 is recorded in Section 1 of this report. If it is found that the plan is not subject to HRA then the outcome is recorded and it is not necessary to progress beyond this step. In practice an LDP is a plan in the context of the Regulations and subject to HRA.

Step 2: Scanning and selecting European sites potentially affected

This step follows the scan-collate-consider-select procedure set out in the HRA Handbook Figure F.4.3 and is carried out in parallel with Step 3. Step 2a is the scanning stage; Step 3 collates information; Step 2b involves considering the information and selecting the relevant sites that may be affected.

Figure A.1.1 Steps in the Habitats Regulations Assessment Process



Step 2a: 'Long-list' of sites with potential connection to plan area

European sites that are within the plan area, within a zone of influence beyond the plan area or connected to the plan area though ecology or infrastructure are identified. This is detailed in the HRA Handbook F.4 and presented in Section 2. Information is collected about this 'long-list' of sites in Step 3 and presented in Appendix 3.

Step 2b: 'Short-list' of sites that should be considered in the HRA

Taking account of the information gathered in Step 3 and the 'long-list' of sites identified at Step 2a a further scan is carried out to determine the effects that could potentially affect a European site as a result of the plan. This is carried out using the Scanning and Site Selection List in Figure F.4.4. of the HRA Handbook. As this takes account of the site selection features, pathways to sites and conservation objectives this is likely to find that some of the sites on the long-list can be eliminated from further assessment as there is no conceivable effect or their conservation objective could not be undermined. This step could potentially identify some sites that were overlooked at Step 2a.

This step is recorded in Appendix 3, Table A.3.1. Any sites that are eliminated as a result of this step are listed in Table A.3.2. The outcome is summarised in Section 2, Table 2.

Step 3: Gathering information about the European site

This step is carried out in parallel with and informs Step 2. Information for each site on the long-list identified at Step 2a is compiled to include selection features, conservation objectives, conservation status, potential threats to site integrity from planning related development and location relative to the plan area and any plan designations. This is detailed in the HRA Handbook F.4 and presented in Appendix 3.

Step 4: Discretionary discussions on the method and scope of the appraisal

The Statutory Nature Conservation Body, represented by the Department of Agriculture, the Environment and Rural Affairs (DAERA), may be consulted informally to ensure that the information at Step 3 is up to date and reflects known issues for the European site. This provides the opportunity to invite comment on the scope of the HRA and potential in combination considerations.

Step 5: Screening the proposed plan for likely significant effects

This step is detailed in the HRA Handbook F.6 Part A and F.7 advises how the outcome should be recorded. The screening of the whole plan is presented in Appendix 5 and the outcome summarised in Section 4 of the HRA. The HRA Handbook also presents principles, with reference to case law and government guidance, which inform screening and the interpretation of terms used; some relevant extracts are:

> *'As a result of European case law in Waddenzee, irrespective of the normal English meaning of 'likely', in this statutory context a 'likely significant effect' is a possible significant effect; one whose occurrence cannot be excluded on the basis of objective information. In this context it is permissible to ask whether a plan or project 'may have a significant effect'…(principle 3)'*
>
> *'A significant effect is any effect that would undermine the conservation objectives for a European site… (principle 4)'*
>
> *'An effect which would not be significant can properly be described as; 'insignificant effect'; or a 'de Minimis effect; or a 'trivial effect'; or as having 'no appreciable effect'; but it is important to bear in mind that, in this context,*

all the terms are synonymous and are being used to describe effects which would not undermine the conservation objectives'….(principle 8)'

'Objective', in this context, means clear verifiable fact rather than subjective opinion. It will not normally be sufficient for an applicant merely to assert that the plan or project will not have an adverse effect on a site, nor will it be appropriate for a competent authority to rely on reassurances based on supposition or speculation. On the other hand, there should be credible evidence to show that there is a real rather than a hypothetical risk of effects that could undermine the site's conservation objectives. Any serious possibility of a risk that the conservation objectives might be undermined should trigger an 'appropriate assessment' (principle 11).'

Plan Strategies are set in the context of a vision and objectives which indicate the outcomes intended to be achieved through the plan. How these should be considered is set out in Sections F.6.2.2 and F.6.2.3 of the HRA Handbook as follows:

'…it is possible that the goals and objectives are the drivers for the possibility of a significant effect on a European site, but in most cases, it will be subsequent, more detailed policies or proposals that would have such implications, rather than the general goals or objectives. In most cases the general goals and objectives will be screened out, either because they will have no effect at all, or because they are general statements which are too vague to have a significant effect on a particular site. Even if they are the driver of the potential effect, it is likely that the plan will contain a more specific policy or proposal that would be the better target for assessment.'

The 'screening categories' in Part F of the HRA Handbook are used to provide a consistent and transparent approach to the screening process. The following categories are used to assess whether an overall plan and its individual proposals require HRA. They are explained in detail in the section of the HRA Handbook referenced.

A. General statement of policy / general aspiration (screened out). F.6.3.1
B. Policy listing general criteria for testing the acceptability / sustainability of proposals (screened out). F.6.3.2
C. Proposal referred to but not proposed by the plan (screened out). F.6.3.3
D. General plan-wide environmental protection / site safeguarding / threshold policies (screened out). F.6.3.4
E. Policies or proposals which steer change in such a way as to protect European sites from adverse effects (screened out). F.6.3.5
F. Policy that cannot lead to development or other change (screened out). F.6.3.6
G. Policy or proposal that could not have any conceivable effect on a site (screened out). F.6.3.7
H. Policy or proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects) (screened out). F.6.3.8
I. Policy or proposal which may have a likely significant effect on a site alone (screened in) F.6.3.9

J. Policy or proposal with an effect on a site but unlikely to be significant alone, so need to check for likely significant effects in combination F.6.3.10
K. Policy or proposal unlikely to have a significant effect either alone or in combination (screened out after the in combination test). F.6.3.11
L. Policy or proposal which might be likely to have a significant effect in combination (screened in after the in combination test). F.6.3.11
M. Bespoke area, site or case-specific policies or proposals intended to avoid or reduce harmful effects on a European site (screened in) F.6.3.12

In some cases more than one category may apply. Where it is the case that part of a policy is in one category e.g. B. 'policy listing general criteria', whereas another part is in another category e.g. H. 'cannot undermine the conservation objectives' then both categories are listed e.g. B/H. Where part of a policy is screened in then this part will be further assessed.

Consideration must be given to any cumulative effects of proposals during plan preparation as detailed in HRA Handbook F.6.3.11. These include potential cumulative effects within the plan and in combination effects with other relevant plans and projects. For those proposals falling under categories A to H there is no likely significant effect alone and cannot be any effect in combination. Those under category I are deemed to have a likely significant effect alone and will be progressed to appropriate assessment therefore in combination assessment is not required at Stage 1. Those policies or proposals falling under category J do need to be assessed further to determine whether they fall into K or L when considered in combination.

If there are likely significant effects, either alone or in combination, then the sites and features which may be affected and potential impacts are summarised in preparation for Stage 2.

Stage 2: Appropriate Assessment and the Integrity Test

Step 6: The appropriate assessment

The summary from Step 5 is the starting point for the appropriate assessment. Step 6 assesses whether any likely significant effect could lead to an adverse effect on site integrity for each site. This is set out in the HRA Handbook F.6. PART B and in F.9.

Where it is found that there could be an adverse effect for any site then measures are identified to remove any potential for adverse effects as described above. Measures considered at appropriate assessment must be subject to '*a full and precise analysis of the measures capable of avoiding or reducing any significant effects*'. These measures may include case-specific policy restrictions or caveats, adding mitigation in a further plan that will deliver the current plan, removing proposals that could have an adverse effect on site integrity, specific mitigation plans or a large scale mitigation strategy which includes measures to mitigate adverse effects of the current plan.

In considering in combination assessment at appropriate assessment principle 4 of C.8.1 in Section C.8 'The in combination assessment' of the HRA Handbook reads as follows:

> *'In deciding the required scope of an appropriate assessment one must always keep firmly in mind that the underlying purpose of Article 6(3) of the Habitats Directive is to ensure (subject to the operation of Article 6(4)) that a*

plan or project is authorised only to the extent that it will not, either alone or in combination with other plans or projects, adversely affect the integrity of the European site; the key purpose.

European Commission guidance and case law establishes that the underlying intention of the in-combination provision is to take account of cumulative effects. An appropriate assessment need not be extended further than is necessary to fulfil the key purpose.'

Principle 6 of Section C.8.1 of the HRA Handbook states that, following an appropriate assessment:

'…if on assessment alone it is ascertained that the subject plan or project will in fact have no effect at all on the European site, an adverse effect in combination is ruled out and no further assessment is required. The plan or project may be authorised.'

Step 7: Amending the plan until there would be no adverse effects on site integrity

Any mitigation identified in Step 6 is incorporated in the plan. This is further detailed in the HRA Handbook F.11 and presented in Section 5. In the case of a draft HRA, if the mitigation is not already included in the DPS, it should be incorporated before the Plan Strategy is finalised and adopted.

Step 8: Preparing the HRA Record

This is a report which records the HRA and supporting evidence and comprises this report with clear conclusions as set out in Section 6.

Step 9: Consultation

If the HRA is concluded at Stage 1 the HRA Report with a Statement of Finding of No Likely Significant Effects is published. Consultation is not required on this Stage 1 Test of Likely Significance in these circumstances however it is recommended that the record is published as a supporting document for the plan. If the draft plan is subject to consultation a draft Stage 1 HRA Report may be included in the consultation with a note that it will be updated to take account of any changes in the proposals or internation site before the plan is finalised.

If the HRA progresses to Stage 2 then the Statutory Nature Conservation Body (SNCB) must be invited to make representations. It is recommended that the SNCB is consulted on a draft Stage 2 HRA Report (also known as an appropriate assessment). NIEA is the SNCB for European site in Northern Ireland and National Parks and Wildlife Service is the SNCB for European sites in Ireland. Other stakeholders such as managers of European sites should be consulted where appropriate. Public consultation is not required on the draft Stage 2 HRA Report however it may be included as a supporting document for any public consultation on the draft Plan Strategy and comment on it invited. It should be stated that the HRA will be updated to take account of any changes in the proposals or European site before the plan is finalised.

Step 10: Proposed modifications

Modifications to a plan may come about as a result of consultation, independent examination or the outcome of the HRA and the approach to their consideration is set out in F.12 of the HRA Handbook. Representations by DAERA and other consultees are recorded with a note on if and how they have been addressed in the HRA. Further mitigation identified through Step 9, or as a result of a revised HRA in light of modifications to the plan, is incorporated in the plan. Steps 6 - 8 are updated to reflect any additional mitigation and adverse effects reviewed.

Step 11: Modifying and completing the appraisal record

If it is found that there are no adverse effects on site integrity then the HRA may be concluded and a Stage 2 HRA Appropriate Assessment Report published to include a Record of No Adverse Effect on the Integrity of any European site under the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).

Appendix 3: Site Information

This appendix provides an overview of the final European sites identified for further consideration. This details selection features, conservation objectives, conservation status, potential threats to site integrity from planning related development and location relative to the plan area and any plan designations. This has informed this HRA and will also provide baseline information for a further HRA to be carried out for the LPP. The conservation objectives to be considered at appropriate assessment for the short list of sites is provided as separate Annex A.

Short list of European sites

Antrim Hills SPA
Ballynahone Bog Ramsar
Ballynahone Bog SAC
Belfast Lough Open Water SPA
Belfast Lough Ramsar
Belfast Lough SPA
Curran Bog SAC
Dead Island Bog SAC
East Coast (NI) Marine pSPA
Garron Plateau Ramsar
Garron Plateau SAC
Larne Lough SPA
Larne Lough Ramsar
Lough Neagh and Lough Beg Ramsar
Lough Neagh and Lough Beg SPA
Montiaghs Moss SAC
North Channel SAC
Outer Ards Ramsar
Outer Ards SPA
Peatlands Park SAC
Rea's Wood and Farr's Bay SAC
Skerries and Causeway SAC
The Maidens SAC
Wolf Island Bog SAC

Introduction to Site Information

Conservation Objectives

The 2019 Regulations establish management objectives for the national site network. These are called the network objectives however the term European site Conservation Objectives is being retained and will retain its previous meaning.
The UK Government and devolved administrations (Wales, Northern Ireland and Scotland) will cooperate to manage, and where necessary, adapt the network to contribute towards meeting the network objectives. Any references in the Habitats Regulations to meeting the 'requirements of the Directives' includes achieving the network objectives. The network objectives are to:

- Maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive to a favourable conservation status (FCS); and
- Contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

The national site network sites have a role to play in achieving these overall objectives as 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. DAERA has commissioned management plans for many European sites.

To ensure that each national site network site contributes fully to reaching the overall target of FCS, it is important to set clear conservation objectives for each individual site. These define the desired state for each of the species and habitat types for which the site was designated. Conservation objectives are not published for Ramsar sites therefore the conservation objectives for the associated SAC & SPA were referred to.
Conservation Objectives have a role in:

- Conservation planning and management by guiding management to maintain habitats and species in, or restore them to, favourable condition;
- Assessing plans and projects in light of the site's conservation objectives; and
- Monitoring and reporting by providing the basis for assessing the condition of a feature, the factors that affect it and the actions required.

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 most recent condition assessment for site selection features was referred to where available in preparing this report.
Sites in Ireland remain part of the Natura 2000 network and are protected and managed by Ireland as an EU Member State in accordance with Article 6 of the Habitats Directive.

Sources of information Northern Ireland sites

The appropriate assessments draw on or refer to source documents as detailed below. Digital maps for all sites can be viewed on the DAERA Natural Environment

Map Viewer[12] or downloaded from its digital datasets web page[13]. Maps are also provided in Appendix 4 to illustrate the relationship between the plan area and European sites.

Special Areas of Conservation

An overview of each SAC can be found on the JNCC website at its section on UK Protected Sites[14]. Under 'General Site Character' there is a link to the standard data form for that SAC. Further detail is provided on this website about the Annex I habitats and Annex II species that are a primary reason for selection of the site. It also explains why the site is important and provides a link to information about that habitat in the UK context. Further information for each SAC can be found online through the DAERA Protected Areas page[15]. On each site page the link to guidance and literature allows the reasons for designation, conservation objectives and site map to be accessed.

Special Protection Areas

A link to the standard data form for each SPA can be found on the JNCC website at its section on UK protected sites. Further information for each site can be found through the DAERA Protected Areas page. On each site page the link to guidance and literature allows the SPA citation document and Conservation Objectives to be accessed.

Ramsar sites

A link to the Information Sheet on Ramsar Wetlands (RIS) for each Ramsar site can be found on the JNCC UK Protected Sites page. Further information for each site can be found through the DAERA Protected Areas page[16]. On the DAERA site page the link to guidance and literature allows the Ramsar site citation document and map to be accessed.

Condition Assessment

DAERA has compiled and made available a spreadsheet, 'Condition of Features in ASSIs and N2Ks'. This details the most recent condition assessment for features, usually with an explanation of the reason why a feature is in unfavourable condition. This spreadsheet was referred to in compiling site information. DAERA also provided unpublished condition assessment reports for some individual sites and some site selection features such as otter.

Sources of Information Ireland sites

The background information for appropriate assessment draws on or refers to source documents as detailed below. Digital maps for all sites can be downloaded from the NPWS website at their Designated Site Data web page[17].

Special Protection Areas Ireland

An overview of Ireland's SPA network can be found on the NPWS website at the page on Special Protection Areas[18]. On this page, there are links to SPA boundary

[12] DAERA 'Natural Environment Map Viewer' Available at: https://www.daera-ni.gov.uk/services/natural-environment-map-viewer (accessed May 2025).

[13] DAERA 'Download Digital Datasets' Available at https://www.daera-ni.gov.uk/articles/download-digital-datasets (accessed May 2025).

[14] http://jncc.defra.gov.uk/page-1458 (accessed May 2025).

[15] https://www.daera-ni.gov.uk/landing-pages/protected-areas (accessed May 2025)

[16] https://www.daera-ni.gov.uk/landing-pages/protected-areas (accessed May 2025)

[17] NPWS 'Designated site data' https://www.npws.ie/maps-and-data/designated-site-data (accessed May 2025)

[18] NPWS 'Special Protection Areas (SPA)' https://www.npws.ie/protected-sites/spa (accessed May 2025)

data and a statutory list of SPAs where further information on the SPA citation document, conservation interests and operations or activities requiring consent can be found. Links to individual web pages for each SPA, which include their Natura 2000 standard data form, are found on the NPWS website page on Conservation Objectives[19].

Condition Assessment Ireland

Condition Assessment information for designated sites is provided from the NPWS website at its Conservation Objectives page. A list of SACs and SPAs is provided with links to site conservation objectives, Natura 2000 data forms and site synopsis information. For some of these sites, Conservation Objectives Supporting Documents are also provided and include condition information.

Step 2b: 'Short-list' of sites that should be considered in the HRA

Taking account of the 'long-list' of sites identified in Section 2, the discussion of potential impacts of development in Section 3 and the site information in this Appendix, a further scan was carried out to determine the effects that could potentially affect European sites as a result of the plan. This was carried out using the Scanning and Site Selection List in Figure F.4.4. of the HRA Handbook as described in Appendix 2.

Table A.3.1 Scanning and site selection list for sites that could potentially be affected by the plan

Extract from The Habitats Regulations Assessment Handbook (adapted for this report), www.dtapublications.co.uk © DTA Publications Limited (May 2025) all rights reserved. This work is registered with the UK Copyright Service

Types of plan	Sites to scan for and check	Names of sites selected
1. All plans (terrestrial, coastal and marine)	Sites within or adjacent to the Council boundary relevant to the Plan area	Antrim Hills SPA Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA Rea's Wood and Farr's Bay SAC
2. Plans that could affect the aquatic environment	Sites upstream or downstream of the plan area in the case of river or estuary sites (All sites with theoretical relevant hydrological links to land within the plan area, irrespective of distance from the plan area. Exclude marine environment.	Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA

[19] https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives (accessed May 2025)

Types of plan	Sites to scan for and check	Names of sites selected
3. Plans that could affect the marine environment	Sites that could be affected by changes in water quality, currents or flows; or effects on the inter- tidal or sub-tidal areas or the seabed, or marine species. (Marine sites with hydrological pathway from the plan area where realistic that water quality could be impacted such that it affects selection features.)	Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Outer Ards Ramsar Site Outer Ards SPA North Channel SAC Skerries and Causeway SAC The Maidens SAC
4. Plans that could affect the coast	Sites in the same coastal 'cell', or part of the same coastal ecosystem, or where there are interrelationships with or between different physical coastal processes. (Only sites on coast in or adjacent to plan area.)	Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA
5. Plans that could affect mobile species	Sites whose qualifying features include mobile species which may be affected by the plan irrespective of the location of the plan's proposals or whether the species would be in or out of the site when they might be affected. (Includes sites with mobile species, or species dependent on mobile species, that could be found in the plan area and on which there a realistic chance of impact.)	Antrim Hills SPA Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Larne Lough Ramsar Larne Lough SPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA Murlough SAC North Channel SAC Outer Ards Ramsar Outer Ards SPA Skerries and Causeway SAC The Maidens SAC
6. Plans that could increase recreational pressure on European sites potentially vulnerable or sensitive to such pressure	Such European site in the plan area (Includes sites with mobile species, or species dependent on mobile species, that could be found in the plan area and on which there a realistic chance of impact.)	Antrim Hills SPA Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA North Channel SAC Outer Ards Ramsar Outer Ards SPA Rea's Wood and Farr's Bay SAC Skerries and Causeway SAC The Maidens SAC

Types of plan	Sites to scan for and check	Names of sites selected
7. Plans that would increase the amount of development	Sites in the plan area or beyond that are used for, or could be affected by, water abstraction irrespective of distance from the plan area. (Applies if there is insufficient water supply for the plan period is identified by NI Water.)	None - evidence has been provided that there is sufficient water supply for the plan period therefore there cannot be pressures from water abstraction.
	Sites used for, or could be affected by, discharge of effluent from waste water treatment works or other waste management streams serving the plan area, irrespective of distance from the plan area. (Sites in or downstream of the plan area which are connected to settlements within the plan area).	Antrim Hills SPA Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA North Channel SAC Outer Ards Ramsar Outer Ards SPA Rea's Wood and Farr's Bay SAC Skerries and Causeway SAC The Maidens SAC
	Sites that could be affected by the provision of new or extended transport or other infrastructure	None
	Sites that could be affected by increased deposition of air pollutants arising from the proposals, including emissions from significant increases in traffic (E.g. transport/power lines. Road proposals that are necessary to access new developments arising from the plan e.g. link road for new housing.)	None. No new road proposals.

Types of plan	Sites to scan for and check	Names of sites selected
8. Plans for linear developments or infrastructure	Sites within a specified distance from the centre line of the proposed route (or alternative routes), the distance may be varied for differing types of site / qualifying features and in the absence of established good practice standards, distance(s) to be agreed by the statutory nature conservation body (Unlikely to apply unless plan generates need for infrastructure. Would apply to e.g. a transport plan identifying new roads.)	None
9. Plans that introduce new activities or new uses into the marine, coastal or terrestrial environment	Sites considered to have qualifying features potentially vulnerable or sensitive to the effects of the new activities proposed by the plan (Would only apply if the plan actively promotes new activities. Would apply for example to an offshore renewables plan.)	None (No such 'new' uses introduced by the Plan Strategy)
10. Plans that could change the nature, area, extent, intensity, density, timing or scale of existing activities or uses	Sites considered to have qualifying features potentially vulnerable or sensitive to the effects of the changes to existing activities proposed by the plan Unlikely to apply (recreational uses covered at 6 above)	None (recreational uses covered at 6 above)

Types of plan	Sites to scan for and check	Names of sites selected
11. Plans that could change the quantity, quality, timing, treatment or mitigation of emissions or discharges to air, water or soil	Sites considered to have qualifying features potentially vulnerable or sensitive to the changes in emissions or discharges that could arise as a result of the plan (All sites in or within 15 km of plan area included to capture those that may be sensitive to aerial emissions)	Antrim Hills SPA Ballynahone Bog Ramsar Ballynahone Bog SAC Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA Curran Bog SAC Dead Island Bog SAC East Coast (NI) Marine pSPA Garron Plateau Ramsar Garron Plateau SAC Larne Lough Ramsar Larne Lough SPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA Montiaghs Moss SAC Outer Ards Ramsar Outer Ards SPA Peatlands Park SAC Rea's Wood and Farr's Bay SAC Wolf Island Bog SAC
12. Plans that could change the quantity, volume, timing, rate, or other characteristics of biological resources harvested, extracted or consumed	Sites whose qualifying features include the biological resources which the plan may affect, or whose qualifying features depend on the biological resources which the plan may affect, for example as prey species or supporting habitat or which may be disturbed by the harvesting, extraction or consumption	Not applicable to land use plans
13. Plans that could change the quantity, volume, timing, rate, or other characteristics of physical resources extracted or consumed	Sites whose qualifying features rely on the non-biological resources which the plan may affect, for example, as habitat or a physical environment on which habitat may develop or which may be disturbed by the extraction or consumption	None

Types of plan	Sites to scan for and check	Names of sites selected
14. Plans which could introduce or increase, or alter the timing, nature or location of disturbance to species	Sites whose qualifying features are considered to be potentially sensitive to disturbance, for example as a result of noise, activity or movement, or the presence of disturbing features that could be brought about by the plan (Those sites with bird, mammal or aquatic species that may be connected with the plan area and are vulnerable to disturbance)	Antrim Hills SPA Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA North Channel SAC Outer Ards Ramsar Outer Ards SPA Skerries and Causeway SAC
15. Plans which could introduce or increase or change the timing, nature or location of light or noise pollution	Sites whose qualifying features are considered to be potentially sensitive to the effects of changes in light or noise that could be brought about by the plan	Antrim Hills SPA Belfast Lough Open Water SPA Belfast Lough Ramsar Belfast Lough SPA East Coast (NI) Marine pSPA Lough Neagh and Lough Beg Ramsar Lough Neagh and Lough Beg SPA North Channel SAC Outer Ards Ramsar Outer Ards SPA Skerries and Causeway SAC
16. Plans which could introduce or increase a potential cause of mortality of species	Sites whose qualifying features are considered to be potentially sensitive to the source of new or increased mortality that could be brought about by the plan.	None (direct impacts are considered at 1 above). Would apply to e.g. a fisheries plan.

Sites considered but eliminated

As Step 2b takes account of the site selection features, pathways to sites and conservation objectives it found that 5 of the sites on the long-list can be eliminated from further assessment as there is no conceivable pathway for an effect and the site conservation objectives cannot be undermined.

Table A.3.2 Sites Eliminated from Further Assessment

Site	Elimination Reason
Murlough SAC	These European sites are beyond the 15km screening for impacts from aerial emissions, there cannot be any impact on terrestrial site selection features or intertidal habitat for these SACs. The separation distance from the Plan coastal boundary via marine waters is beyond 50km therefore there cannot be any impact on harbour seal as a qualifying marine mammal feature. It is not conceivable that the Plan Strategy could undermine the conservation objectives for these sites. These sites have been screened out from further assessment.
Strangford Lough SAC	
Copelands Island SPA	These European sites are beyond the 15km screening for impacts from aerial emissions. While it is conceivable that mobile avian species from these SPA/Ramsar populations could forage along the coastline of the plan area, the plan does not include any new designated land uses at this stage of the LDP that could impact on designated sites or functionally linked land therefore significant effects on the population levels of the species for which the sites are designated can reasonably be excluded. It is not conceivable that the Plan Strategy could undermine the conservation objectives for these sites. These sites have been screened out from further assessment.
Strangford Lough Ramsar	
Strangford Lough SPA	

Appendix 4: Maps

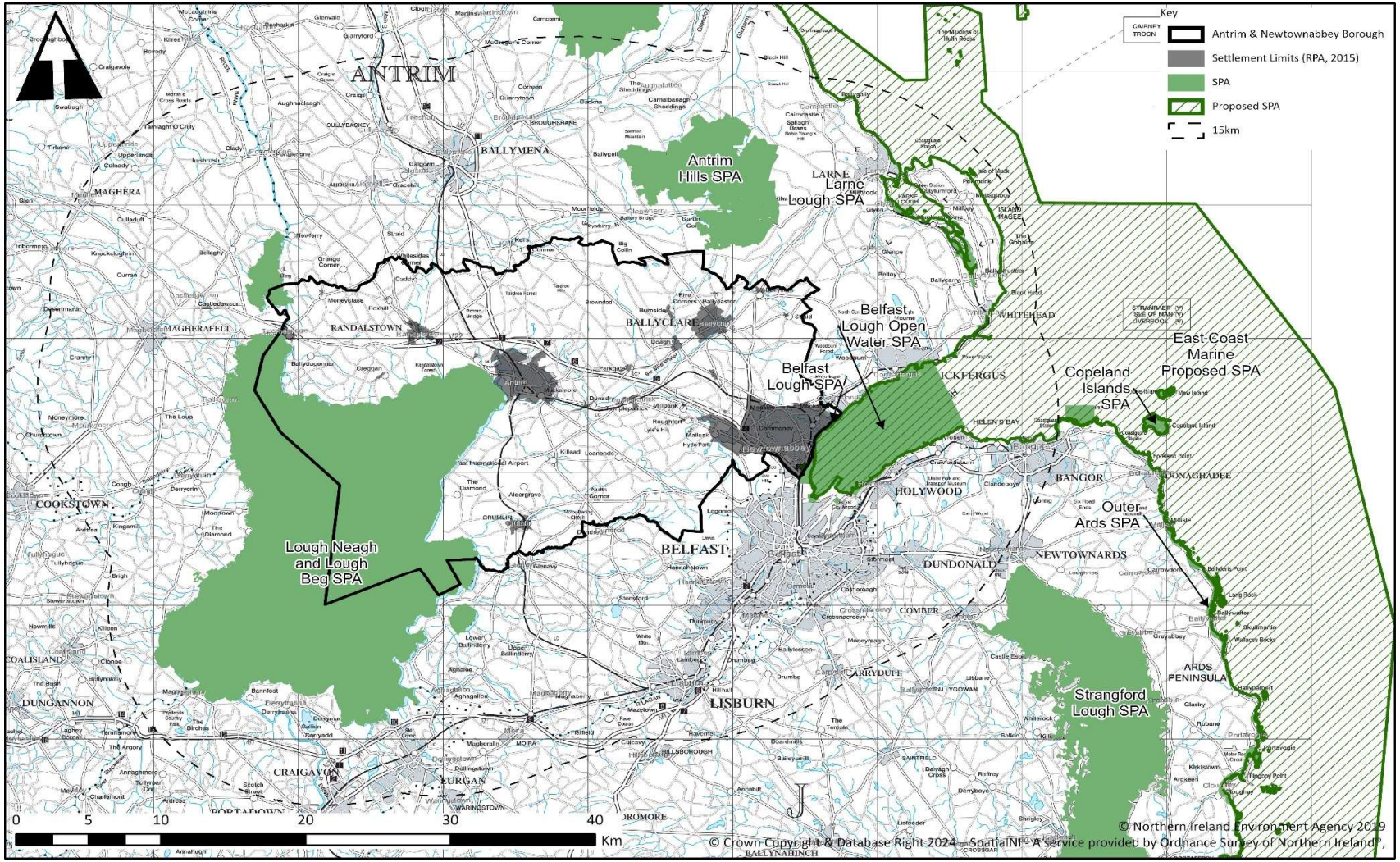
Map 1: SPAs in relation to Antrim and Newtownabbey Borough Council

Map 2: SACs in relation to Antrim and Newtownabbey Borough Council

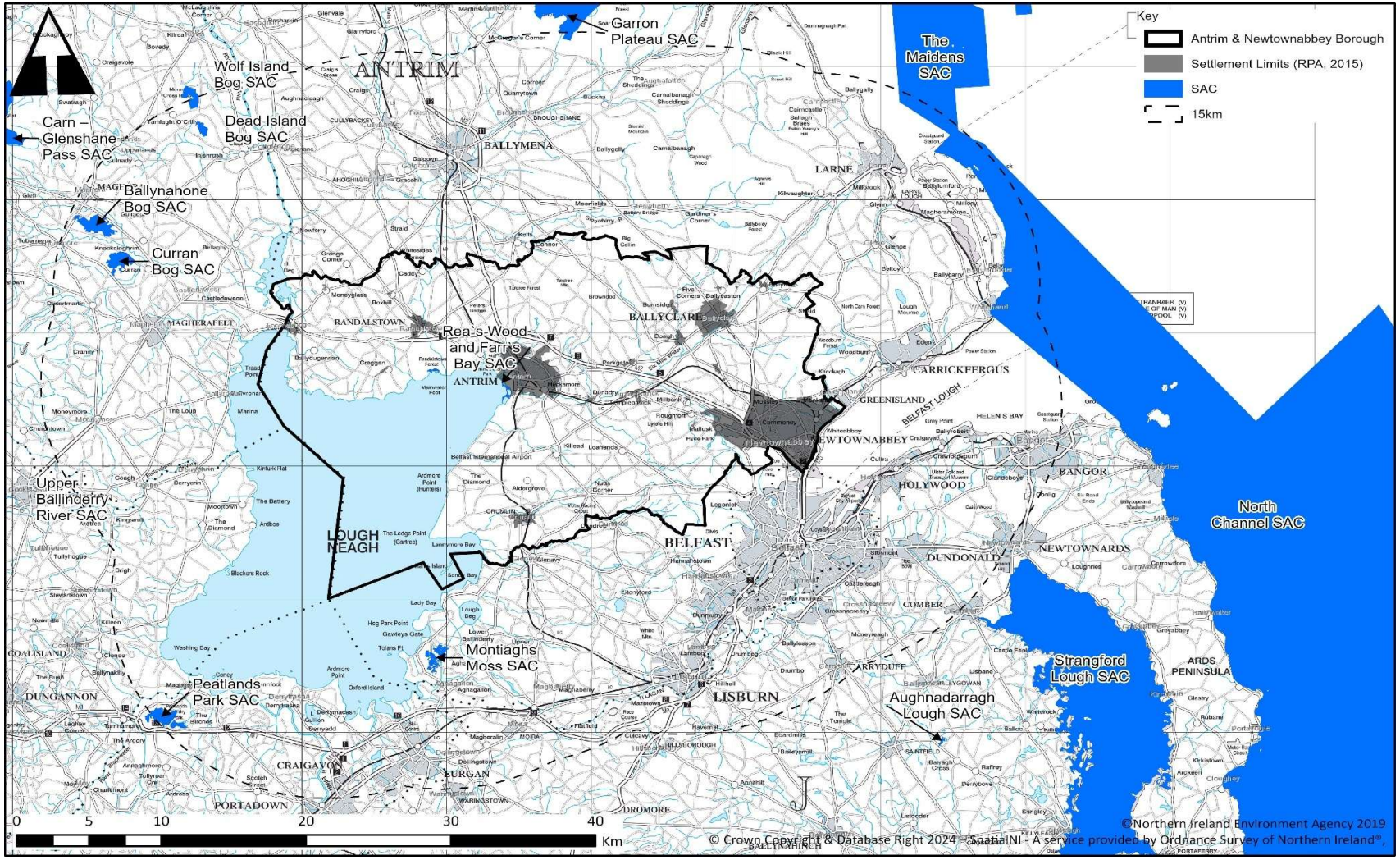
Map 3: Ramsar Sites in relation to Antrim and Newtownabbey Borough Council

Map 4: Marine SACs within the Antrim and Newtownabbey Borough Council area

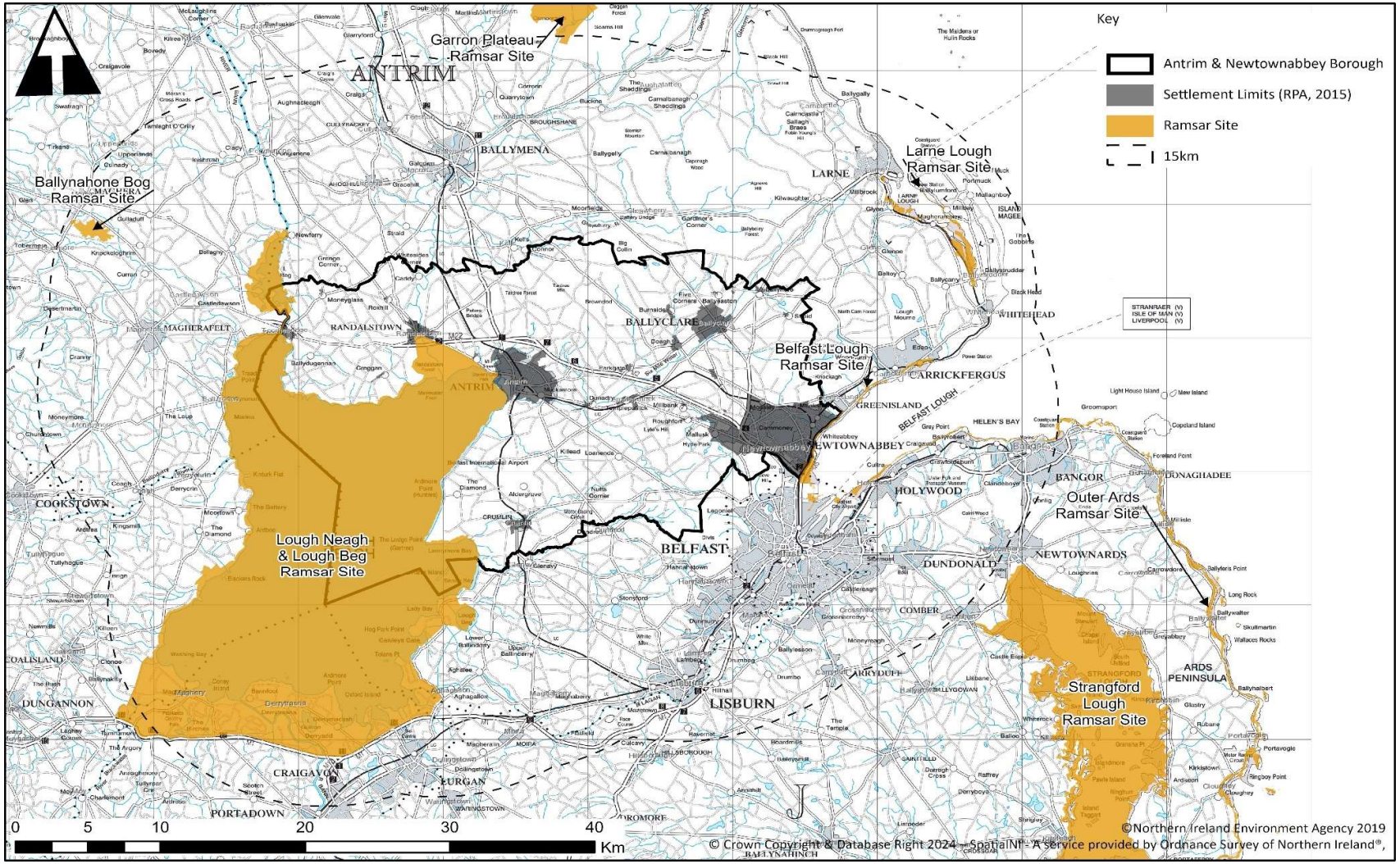
Map 1: SPAs in relation to Antrim and Newtownabbey Borough Council



Map 2: SACs in relation to Antrim and Newtownabbey Borough Council

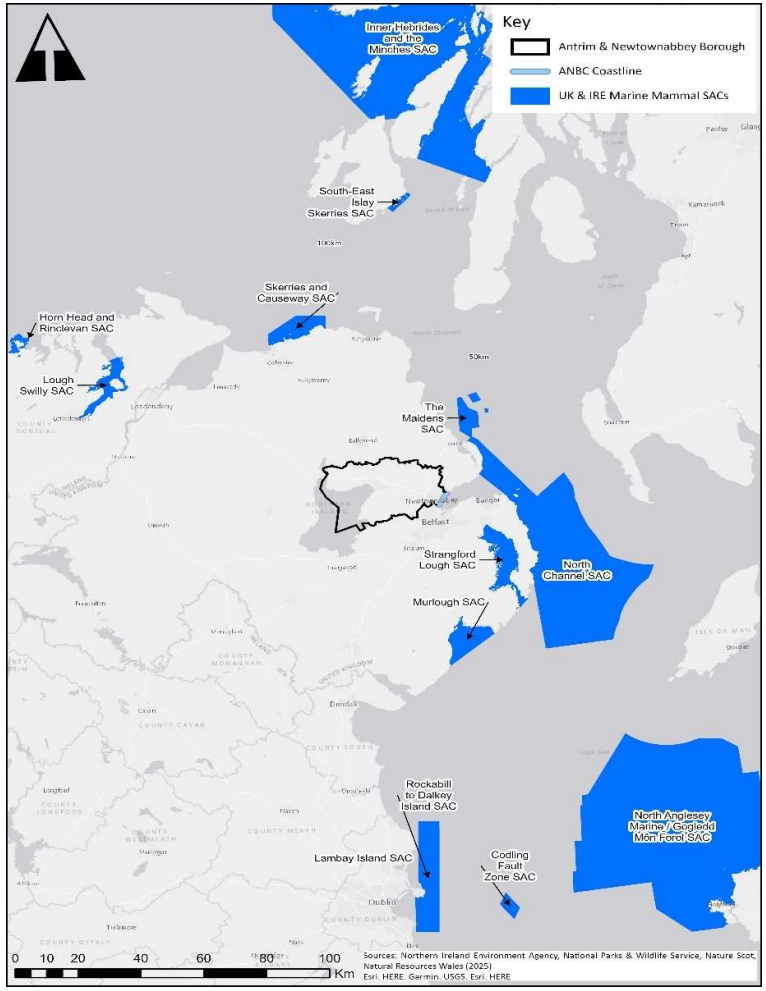


Map 3: Ramsar Sites in relation to Antrim and Newtownabbey Borough Council



Map 4: Marine SACs within the Antrim and Newtownabbey Borough Council area

DAERA screening distance for marine mammals was measured using GIS within the marine environment from the ANBC coastline.



Appendix 5: Review of Plan Strategy Proposals and Policies

The following categories are used to assess whether an overall plan and its individual proposals require HRA as described in Appendix 2. These are taken from Part F of the HRA Handbook where they are explained in detail in the sections referenced. In some cases more than one category may apply.

N. General statement of policy / general aspiration (screened out). F.6.3.1
O. Policy listing general criteria for testing the acceptability / sustainability of proposals (screened out). F.6.3.2
P. Proposal referred to but not proposed by the plan (screened out). F.6.3.3
Q. General plan-wide environmental protection / site safeguarding / threshold policies (screened out). F.6.3.4
R. Policies or proposals which steer change in such a way as to protect European sites from adverse effects (screened out). F.6.3.5
S. Policy that cannot lead to development or other change (screened out). F.6.3.6
T. Policy or proposal that could not have any conceivable effect on a site (screened out). F.6.3.7
U. Policy or proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects) (screened out). F.6.3.8
V. Policy or proposal which may have a likely significant effect on a site alone (screened in) F.6.3.9
W. Policy or proposal with an effect on a site but unlikely to be significant alone, so need to check for likely significant effects in combination F.6.3.10
X. Policy or proposal unlikely to have a significant effect either alone or in combination (screened out after the in combination test). F.6.3.11
Y. Policy or proposal which might be likely to have a significant effect in combination (screened in after the in combination test). F.6.3.11
Z. Bespoke area, site or case-specific policies or proposals intended to avoid or reduce harmful effects on (screened in) F.6.3.12

Antrim and Newtownabbey Borough Council - LDP Plan Strategy 2030 – Screening of Plan Strategy

Plan Proposal	Criteria	Screening	Screening Comment
1. Introduction			
Introduction	NA	Out	Administrative text - introduces plan and its preparation
2. Setting the Context			
Setting the Context	NA	Out	Administrative text - policy context
3. Plan Vision and Strategic Objectives			
Sustainable Development (Strategic Objectives)			
SO 1: Promote sustainable growth by managing development and securing new infrastructure provision in our settlements, countryside and coast to meet the needs of all our citizens.	A	Out	General Policy Statement
A Place of Economic Opportunity (Strategic Objective)			
SO 2: Establish Antrim and Newtownabbey as a premier business location where both existing and new, innovative, cultural and creative enterprise can prosper.	A	Out	General statement of objectives.
SO 3: Provide a range and quality of land and premises to facilitate business growth, promote economic diversification and protect our strategically important employment locations including the Regional Gateway at Belfast International Airport.	A	Out	General statement of objectives.

SO 4: Promote development and regeneration of our town centres and commercial areas.	A	Out	General statement of objectives.
SO 5: Support the development of sustainable tourism and enhanced tourism infrastructure.	A	Out	General statement of objectives.
SO 6: Improve accessibility, connectivity and ease of movement to, from and within our Borough and promote sustainable travel choices.	A	Out	General statement of objectives.
A Liveable and Vibrant Place (Strategic Objective)			
SO 7: Promote positive placemaking and ensure that high quality new development respects, enhances and integrates with our historic environment and natural heritage.	A	Out	General statement of objectives.
SO 8: Ensure a sufficient supply of land for new homes, provide a diverse choice of housing and strengthen community cohesion.	A	Out	General statement of objectives.
SO 9: Accommodate and promote well-designed and accessible community, education and health facilities.	A	Out	General statement of objectives.
SO 10: Promote the protection and accessibility of our open spaces.	A	Out	General statement of objectives.
A Place with a Sustainable Future (Strategic Objective)			
SO 11: Promote biodiversity and conserve the natural assets of our countryside, coast and loughs.	A	Out	General statement of objectives.

SO 12: Ensure the responsible use of land and natural resources and promote sustainable energy production to mitigate and adapt to climate change.	A	Out	General statement of objectives.
SO 13: Tackle flood risk by making space for water and promote sustainable drainage systems.	A	Out	General statement of objectives.
SO 14: Ensure the responsible management of waste and support measures to increase recycling.	A	Out	General statement of objectives.
4. Sustainable Development			
Strategic Policy 1: Sustainable Development	I	In	While the overriding principle is that development should be sustainable there is a presumption in favour of development, the Council's Spatial Growth Strategy is included within this Policy. There are settlements, such as Antrim, Toome, and Metropolitan Newtownabbey immediately adjacent to or with a pathway to European sites. The decomissioning of development or restoration could also have potential significant effects.
A Place of Economic Opportunity			
5. Employment			
Strategic Policy 2: Employment	I	In	Includes Employment lands, agricultural development, Strategic Employment Locations, Local Employment Sites and Sustainable Tourism. The latter highlights some locations at para. 5.22 including Shane's Castle and Lough Neagh both of which include parts of Lough Neagh and Lough Beg SPA and Ramsar site.

Policy DM 1: Economic Development – Zoned Sites and Settlements	I	In	The SELs all have potential for hydrological pathways to European sites.
Policy DM 2: Economic Development – Countryside	I	In	Includes farm diversification and potential large-scale development. Potential impact depending on location of development.
Policy DM 3: Economic Development – Incompatible Uses	A	Out	This seeks to avoid conflicting land use.
Policy DM 4: Agricultural and Forestry Development	I	In	This could lead to new development including livestock facilities which may increase emissions of ammonia.
Policy DM 5: Farm Diversification	I	In	Potential for effects for example from development generating waste water or leading to recreational disturbance.
Policy DM 6: Development within Centres	I	In	Development will be in existing urban areas however some are close to European sites and the potential for impacts from redevelopment cannot be ruled out.
Policy DM 7: Development outside Centres	I	In	Primarily focusses development in settlements however some are close to or have pathways to European sites. Includes some provision for economic development in the countryside. Potential impact depending on location of development.
Policy DM 8: Development at The Junction, Antrim	I	In	Largely relates to existing developed land however contaminated land could be redeveloped therefore potential impacts on European sites.

Policy DM 9: Tourism Development	I	In	Includes reference to Lough Neagh and potential for activity tourism. Potential impacts depending on location of development including impacts from recreation.
6. Transport and Infrastructure			
Strategic Policy 3: Transport and Infrastructure	I	In	The Council will operate a presumption in favour of new transport schemes and other infrastructure related development. Recommends need for road improvements on the A26 and A57 however these would be delivered through DfI Roads. Local road schemes could have potential impacts if there are pathways to European sites. Supportive of proposals necessary to maintain, improve or expand existing operational facilities at Belfast International Airport to meet anticipated growth needs and associated car parking which could potentially have a hydrological link to Lough Neagh.
Policy DM 10: Access and Parking	I	In	The potential for development with a pathway to cannot be excluded.
Policy DM 11: Access to Protected Routes	I	In	The potential for development with a pathway to cannot be excluded.
Policy DM 12: Active Travel (Walking and Cycling)	I	In	Promotes provision for active travel, could indirectly cause slight increase in use of routes alongside European sites.

Policy DM 13: Belfast European Airport - Operations	I	In	Supportive of proposals necessary to maintain, improve or expand existing operational facilities at Belfast International Airport to meet anticipated growth needs and also seeks to avoid conflicting uses around it. Potential impacts depending on the nature and scale of development and pathways for effects on Lough Neagh.
Policy DM 14: Public Utilities and Infrastructure	I	In	Potential impact depending on location of development.
Policy DM 15: Development Relying on Non-Mains Sewerage	I	In	Potential impact depending on location of development.
Policy DM 16: Telecommunication Facilities and Digital Services	I	In	Potential impact depending on location of development however generally small scale.
A Liveable and Vibrant Place			
7. Homes			
Strategic Policy 4: Homes	I	In	This will lead to growth in homes of 9750 over the period 2015 to 2030. This can put pressure on water supply and waste treatment capacity.
Policy DM 17: Homes in Settlements	I	In	This policy focusses the majority of development in settlements some of which have direct pathways to European sites.
Policy DM 18 (inc. 18A to 18G): Residential Development in the Countryside	I	In	Potential impact depending on location of development.
Policy DM 19: Residential Caravans and Mobile Homes	I	In	Potential impact depending on location of development.
Policy DM 20: Traveller Accommodation	I	In	Potential impact depending on location of development.

Policy DM 21: Specialist Residential Accommodation	I	In	Most likely to be in/adjacent to settlements. Potential impact depending on location of development.
Policy DM 22: Residential Extensions and Alterations	I	In	Potential impact depending on location of development.
8. Community infrastructure			
Strategic Policy 5 Community Infrastructure	A	Out	This relates to community infrastructure from health and education through to recreation and open space. Delivery is considered under the DM policies.
Policy DM 23: Protection of Open Space	I	In	Seeks to protect open space the only exception being '... where it is demonstrated the loss of the open space will have no significant detrimental impact on the amenity, character or biodiversity of an area' Potential impact depending on location of development.
Policy DM 24: Community Facilities	I	In	Potential impact depending on location of development.
9. Placemaking and Good Design			
Strategic Policy 6: Placemaking and Good Design	A	Out	Too general to assess, delivery is considered under the DM policies.
Policy DM 25: Urban Design	B	Out	This is primarily about how rather than where development takes place.
Policy DM 26: Shopfront Design	B	Out	This is about design rather than where or what development takes place.
Policy DM 27: Rural Design and Character	B	Out	This is about siting and integration rather than what development takes place.
Policy DM 28: Amenity Impact	B	Out	This constrains development to avoid conflicts in uses.

Policy DM 29: Advertisements	I	In	Potential impact depending on location and type of development, eg. method of illumination.
10. Historic Environment			
Strategic Policy 7 Historic Environment	A	Out	Too general to assess, delivery will be considered under the DM policies.
Policy DM 30: Archaeology	A	Out	This constrains development to avoid damage to or provide mitigation for archaeological assets.
Policy DM 31: Historic Parks, Gardens and Demesnes	I	In	Largely protective however allows some exceptions therefore impacts depend on these. Lough Neagh and Lough Beg Ramsar overlaps Shanes Castle.
Policy DM 32: Listed Buildings	I	In	Could enable development of industrial heritage, for example on the Sixmilewater River that is hydrologically connected to European sites.
Policy DM 33: Conservation Areas	B	Out	This is about design rather than where or what development takes place.
Policy DM 34: Areas of Townscape Character	I	In	Potential impact depending on location of development.
Policy DM 35: Enabling Development	I	In	Could enable development of heritage assets that are connected to European sites.
Policy DM 36: Vernacular and Locally Important Buildings	I	In	Likely to be low number of applications however potential impacts, depending on location of development, cannot be ruled out.
A Place with a Sustainable Future			
11. Natural Heritage			

Strategic Policy 8: Natural Heritage	A	Out	Implements Strategic Objective 11 'Promote biodiversity and conserve the natural assets of our countryside, coast and loughs.' Protective of the natural environment including European sites. Delivery will be considered under the DM policies. Allows for identifying Sites of Local Nature Conservation Importance and Local Landscape Policy Areas in the Local Polices Plan which may have a protective effect depending on location.
Policy DM 37: Designated Sites of Nature Conservation Importance	M	In	DM 37.1 - 37.3 only enables development that is not likely to have a significant effect or will have no adverse effect on site integrity of European sites, or, in exceptional circumstances meets the requirements of the Directives and Habitats Regulations. However, as this policy is explicitly to protect European sites, it must be screened in at this stage.
Policy DM 38: Protected Species	D	Out	This affords protection to European protected species some of which are site selection features for European sites and which may also be found on supporting habitat outside European sites.
Policy DM 39: Habitats, Species & Features of Natural Heritage Importance	D	Out	This affords protection to priority and other habitats and species some of which are site selection features for European designations and which may also be found on supporting habitat outside European designations. May also provide a buffering effect should the policy inhibit development adjacent to European sites.

Policy DM 40: Landscape Protection	I	In	Largely constrains development in land adjacent to Lough Neagh and Lough Beg and Belfast Lough and Local Landscape Policy Areas. Allows however for low intensity recreational use or tourism proposals; uses directly related to agriculture or forestry; proposals related to geothermal energy or the extraction of regionally important minerals within the Lough Neagh & Lough Beg Strategic Landscape Policy Area.
Policy DM 41: Coastal Protection	I	In	Constrains coastal development to exceptional circumstances however does not totally exclude it so impacts cannot be ruled out.
Policy DM 42: Trees and Development	D	Out	Seeks to protect trees and promote planting.
12. Natural Resources			
Strategic Policy 9 : Natural Resources	I	In	Provides framework for protection and use of mineral reserves and for renewable energy.
Policy DM 43: Minerals Development	I	In	Enables minerals development therefore potential for impacts depending on location, scale and nature of development.
Policy DM 44: Mineral Reserve Policy Areas	I	In	While this constrains development of a potential mineral reserve use exceptions apply therefore potential for impacts depending on location, scale and nature of development.

Policy DM 45: Renewable Energy Development	I	In	Allows for renewable energy development therefore may have an impact depending on scale, nature and location. However European and National Sites of Nature Conservation Importance are identified as 'Group 2: Areas of significant protection' in which '… proposals will only be appropriate in circumstances where any significant effects on the amenity and qualities of these areas can be substantially overcome by siting, design and other forms of mitigation.'
13. Environmental Resilience and Protection			
Strategic Policy 10: Environmental Resilience and Protection	A	Out	Relates to environmental resilience in relation to climate change, flood risk, environmental protection and waste management. Overall seeks to be protective of the environment. Delivery is considered under the DM policies.
Policy DM 46: The Control of Development in Flood Plains	I	In	Largely protective through constraining development including storage of hazardous substances, however, allows for some forms of development in floodplains including mineral extraction and recreational facilities.
Policy DM 47: Surface Water Drainage and Sustainable Drainage Systems	B	Out	Promotes use of sustainable drainage systems which can provide protection in terms of water quality.
Policy DM 48: Reservoir Flood Risk	B	Out	Constrains development in potential flood inundation areas and does not promote development.
Policy DM 49: Artificial Modification of Watercourses	I	In	This allows for a maximum length of culverting of up to 10m in limited circumstances therefore potential for impacts depending on location, scale and nature of development.

Policy DM 50: Pollution	A	Out	This requires developers to provide a detailed assessment report 'where there is potential to cause significant pollution in terms of noise, air, water and light emissions … The report must demonstrate that the development will not have a significant adverse impact on local amenity or the environment and detail how any pollution arising will be appropriately mitigated.' The policy is not development enabling.
Policy DM 51: Major Hazards	A	Out	This seeks to avoid conflicting land use.
Policy DM 52: Contaminated Land	I	In	Allows for development of contaminated land under specified circumstances.
Policy DM 53: Waste Management and Disposal Facilities	I	In	Allows for new or extended waste management facilities.
Policy DM 54: Protection of Existing Waste Management Facilities	B	Out	This seeks to avoid conflicting land use.
14. Monitoring of Our Plan			
Monitoring of Our Plan	A	Out	Administrative text detailing how the LDP will be monitored.
Appendices			
Appendix A	NA	Out	Evidence base papers.
Appendix B	NA	Out	Guidance

Annex A – Conservation Objectives

ANTRIM HILLS
SPECIAL PROTECTION AREA (SPA)

UK9020301

CONSERVATION OBJECTIVES

Document Details

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

Revision History:

Version	Date	Summary of Changes	Initials	Changes Marked
V1	31/03/2006	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 Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4 GENERAL INFORMATION

COUNTY: Antrim

G.R. 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[c]
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 requires 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, ACTIVITES 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.

Information Sheet on Ramsar Wetlands (RIS)

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

Note for compilers:

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

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

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

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

2. Date this sheet was completed/updated:
12.05.2005

3. Country:
UK (Northern Ireland)

4. Name of the Ramsar site:
Ballynahone Bog

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

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

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

6. Geographical coordinates (latitude/longitude)**:**
54 49 25 N 06 39 40 W

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

Nearest town/city: Maghera.

Ballynahone Bog is situated in County Londonderry in the centre of Northern Ireland about 3 km south of Maghera. It is situated on low-lying ground immediately north of the Moyola River about 14 km from its mouth at Lough Neagh.

Administrative region: Northern Ireland

8. Elevation (average and/or max. & min.) (metres)**:**
Min. 0
Max. 0
Mean 257

9. Area (hectares)**:** 243.24

10. Overview:

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

Ballynahone Bog is one of the largest lowland raised bogs in Northern Ireland. The raised bog which covers most of the site exhibits the full range of characteristic vegetation and structural features associated with this type of habitat such as bog pools and hummocks. The raised bog dome is surrounded by cut-over bog with poor fen and birch woodland. The bog vegetation is characterised by a high percentage cover of *Sphagnum* mosses, ericoid dwarf-shrubs such as cross-leaved heath *Erica tetralix* and heather *Calluna vulgaris*, and other associated species such as hare's-tail cottongrass *Eriophorum vaginatum*, common cottongrass *Eriophorum angustifolium*, deergrass *Trichophorum cespitosum* and sundew species *Drosera* spp.

11. Ramsar Criteria:

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

1

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

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

Ramsar criterion 1

The site is a large and relatively intact example of a lowland raised bog and one of the best examples of this habitat in the UK.

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

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

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

14. Physical features of the site:

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

Soil & geology	acidic, peat, nutrient-poor, basalt
Geomorphology and landscape	lowland
Nutrient status	no information
pH	acidic, strongly acidic
Salinity	fresh
Soil	mainly organic
Water permanence	usually permanent

Summary of main climatic features	Annual averages (Aldergrove, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html) Max. daily temperature: 12.5° C Min. daily temperature: 5.8° C Days of air frost: 39.1 Rainfall: 862.4 mm Hrs. of sunshine: 1313.7

General description of the Physical Features:

Ballynahone is one of the two largest intact active raised bogs in Northern Ireland with hummock and hollow pool complexes. Recently-constructed surface drains have been filled and the site is recovering.

15. Physical features of the catchment area:

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

Ballynahone is one of the two largest intact active raised bogs in Northern Ireland with hummock and hollow pool complexes. Recently-constructed surface drains have been filled and the site is recovering.

16. Hydrological values:

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

No special values known

17. Wetland types

Inland wetland

Code	Name	% Area
U	Peatlands (including peat bogs swamps, fens)	75
Xp	Forested peatland	25

18. General ecological features:

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

The classic domed profile of the deep peat exhibits a wide range of characteristic vegetation and structural features, with pool, hummock and lawn complexes. The bog vegetation is characterised by a high percentage cover of *Sphagnum* mosses, ericoid dwarf-shrubs and other associated species.

On the greater part of the bog plain the prominent species include heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, hare's-tail cottongrass *Eriophorum vaginatum*, common cottongrass *Eriophorum angustifolium*, and deergrass *Trichophorum cespitosum*. Additional species which are also well represented within the sward include bog asphodel *Narthecium ossifragum* and white beak-sedge *Rhynchospora alba*, with occasional patches of bog-myrtle *Myrica gale* also occurring. *Sphagnum* mosses generally form scattered hummocks throughout the area.

Flat, waterlogged 'lawns' alongside pools are characterised by the prominence of such species as cross-leaved heath *Erica tetralix*, bog asphodel *Narthecium ossifragum*, white beak-sedge *Rhynchospora alba* and common cottongrass *Eriophorum angustifolium*, over a *Sphagnum* moss carpet dominated by *S. papillosum* and *S. magellanicum*. The abundance of cranberry *Vaccinium oxycoccos* in these areas is also notable. Typically, the pools are dominated by *Sphagnum cuspidatum*, with bogbean *Menyanthes trifoliata* abundant in a number of them. Lesser bladderwort *Utricularia minor* and great

sundew *Drosera longifolia* are also frequent in some pools with the nationally rare *Sphagnum pulchrum* often occurring around the edges. Within the pool system, the main hummock-forming moss is *Sphagnum magellanicum* with *S. papillosum* and *S. subnitens* frequent. The liverwort *Pleurozia purpurea*, a species generally associated with more oceanic areas to the west, is also found occasionally.

The lagg surrounding the lowland raised bog has been extensively cut for turf, creating a mosaic of habitats which are dependent on peat depth and age of cutting. Vegetation communities vary from 'poor' fen, through purple moor-grass *Molinia caerulea* grassland and heath, to extensive areas of scrub and young woodland, mainly dominated by downy birch *Betula pubescens*.

The peatland species occurring on the site include a number of scarce species typical of lowland raised bogs such as the bog-rosemary *Andromeda polifolia* and invertebrates such as the large heath butterfly *Coenonympha tullia*.

19. Noteworthy flora:

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

Nationally important species occurring on the site.

Higher Plants.

Andromeda polifolia.

20. Noteworthy fauna:

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

Species Information

None reported

21. Social and cultural values:

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

No special values known

22. Land tenure/ownership:

Ownership category	On-site	Off-site
National/Crown Estate	+	
Private	+	+

23. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Rough or shifting grazing		+
Mineral exploration (excl. hydrocarbons)	+	

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

Explanation of reporting category:

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

NA = Not Applicable because no factors have been reported.

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

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

25. Conservation measures taken:

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

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Management agreement	+	
Site management statement/plan implemented	+	
Special Area of Conservation (SAC)	+	

26. Conservation measures proposed but not yet implemented:

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

No information available

27. Current scientific research and facilities:

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

The site was subject to detailed habitat and species surveys prior to its designation as an ASSI.
The integrity of the site is regularly monitored.
A basin profiling and hydrological survey was carried out in 1996.

28. Current conservation education:

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

None reported

29. Current recreation and tourism:

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

None reported

30. Jurisdiction:

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

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

31. Management authority:

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

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

32. Bibliographical references:

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

Site-relevant references

Corbett, P. McM & Seymour, GR (1997) The conservation of peatland in Northern Ireland. In: *Conserving peatlands*, ed. by L Parkyn, RE Stoneman & HAP Ingram. CAB International, Wallingford, for Scottish Wildlife Trust

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BALLYNAHONE BOG SAC
UK0016599

CONSERVATION OBJECTIVES

Document Details

Title	*Ballynahone Bog SAC Conservation Objectives*
Prepared By	*R. McKeown*
Approved By	*P. Corbett*
Date Effective From	*01/04/2015*
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Revision History:

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V1	June 2013	Internal working document	PC
V2	Nov 2014	Complete review	RMK

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

This document provides a statement of the Conservation Objectives for Ballynahone Bog SAC.

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 as 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: LONDONDERRY

GRID REFERENCE: IH 860980

AREA: 244 ha

5. SUMMARY SITE DESCRIPTION

Ballynahone Bog lies in the Moyola River valley 3 km south-east of Maghera and 3 km north-east of Tobermore in Magherafelt District. The peat has formed on either side of an Esker ridge, which would have impeded drainage, creating the waterlogged conditions that eventually lead to the formation of the raised bog. The active raised bog supports hummock, hollow and pool complexes, and notable peatland flora including Bog-rosemary *Andromeda polifolia* and the bog mosses *Sphagnum fuscum*, *S. austinii* and *S. pulchrum*. Some areas of the bog have been burnt in the past but these areas are now recovering.

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 of Ballynahone Bog has been demarcated to include all areas of intact lowland raised bog and associated semi-natural habitats. This includes, cutover bog, pockets of acid grassland and some fairly extensive areas of Birch

scrub and wood associated with the degraded peat bog surface. It should be noted that the intact surface of the bog extends to just over 100 ha and over half of the remaining SAC area consists of semi-natural habitats associated with the cutover bog.

The boundary around the entire site is defined as the edge of the semi-natural habitat associated with the raised bogs' hydrological unit, and is completely surrounded by improved agricultural land. The boundary consists of a complex network of ditches, banks old tracks, road verges, hedges and fences. The complex irregular boundary reflects the removal of improved fields and the addition of recovering bog areas to the site. Most of the boundaries are stock proof, but there are some notional boundaries around the edges of improved fields that have not yet been fenced and also around farm buildings and houses. In addition, Ballynahone Road forms part of the boundary along the southern edge of the bog and part of the eastern boundary follows the edge of Tobermore Road. There is no fencing along the road verges.

To the north-east of the site, two large blocks of species rich wet grassland have been included within the site, as both these areas are hydrologically connected to the raised bog.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ population
Habitat	**Active raised bog**	**B**	**131 ha**
Habitat	Degraded raised bog still capable of regeneration	D	111 ha
Habitat	Depressions on peat substrates of the *Rhynchosporion*	D	0.1 ha

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

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

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

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

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

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

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

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

6.1 ASSI SELECTION FEATURES

Ballynahone Bog ASSI

Feature Type	Feature	Size/ extent/ population
Habitat	Lowland Raised Bog	242 ha
Species	Invertebrate Assemblage	

Table 2. List of ASSI features.

7. CONSERVATION OBJECTIVES

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

To maintain (or restore where appropriate) the active raised bog 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
Active raised bog	B	Maintain the extent of intact lowland raised bog and actively regenerating raised bog vegetation.
		Maintain and enhance the quality of the lowland raised bog community types including the presence of notable species.
		Seek to expand the extent of actively regenerating raised bog vegetation into degraded (non-active) areas of cutover bog.
		Maintain the diversity and quality of other habitats associated with the active raised bog, e.g. acid grassland, fen and swamp, especially where these exhibit natural transition to the raised bog.
		Maintain the hydrology of the raised bog peat mass.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for lowland raised bog rehabilitation.

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

ASSI Feature	Component Objective
Lowland Raised Bog	Maintain the extent of intact lowland raised bog.
	Seek to expand the extent of actively regenerating raised bog.
	Maintain the hydrology of the raised bog peat mass.
Invertebrate Assemblage	To be finalised

10. MANAGEMENT CONSIDERATIONS

Ownership

A large proportion of Ballynahone Bog ASSI (98 ha) is owned by the Northern Ireland Environment Agency (NIEA), including the sporting rights. This was the area of bog originally owned by the Bulrush Peat Company. The department of Economic Development (Minerals and Petroleum Unit) has mineral rights. The remainder of the SAC is privately owned with over 40 individuals owning various sections of the bog.

Management Agreements

In 2000, NIEA (previously Environment & Heritage Service) drew up a Management Agreement with the Ulster Wildlife Trust (UWT) to manage this area as a National Nature Reserve (NNR). In addition, the Ballynahone Management Committee comprised of UWT, Friends of Ballynahone Bog and NIEA has been established and it will ultimately be responsible for the management of the NNR. Hence the management of much of the area at Ballynahone Bog should be sympathetic.

A number of management agreements are already in place with some landowners and further acquisition or NNR management agreements are likely. It is envisaged that the entire SAC will eventually be managed as a NNR. The main management issue on the site is the removal/blockage of active drains to maintain the bogs hydrology.

Adjoining Land Use

The main adjoining land-use outside the ASSI is forestry and improved agricultural land, with areas of rough pasture and old cutover bog along the northern and south-western edges of the bog.

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 Ballynahone Bog, or could affect it in the future. Although Active Raised Bog is the qualifying SAC feature, factors affecting ASSI features are also considered.

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

Peat Cutting

There has been extensive hand cutting for many years around the periphery of Ballynahone Bog. This has encroached significantly into the intact surface of the raised bog. Although many of the old hand cuttings now support actively regenerating bog vegetation, more recent mechanised peat cutting has taken place in some of them. In some instances, mechanised cutting has also encroached onto the remaining intact surface of the bog. Peat cutting at the time of designation was problematical, but has been addressed by a series of management agreements with landowners. All peat cutting now appears to have stopped.

ACTION: No peat cutting within the SAC.

Burning

Burning of the vegetation has taken place occasionally, with some areas of past burning identified. Excessive burning will tend to reduce the cover of *Sphagnum* mosses and ericaceous species, increasing the proportion of *Molinia caerulea* and *Trichophorum cespitosum*. In addition, structural diversity will be reduced. There is evidence of a burn, 5 ha in extent, on the intact dome to the north-west of the SAC. This burn is clearly apparent on the 1996 aerial photographs. No evidence of burning was reported in the 2011 Condition Assessment report.

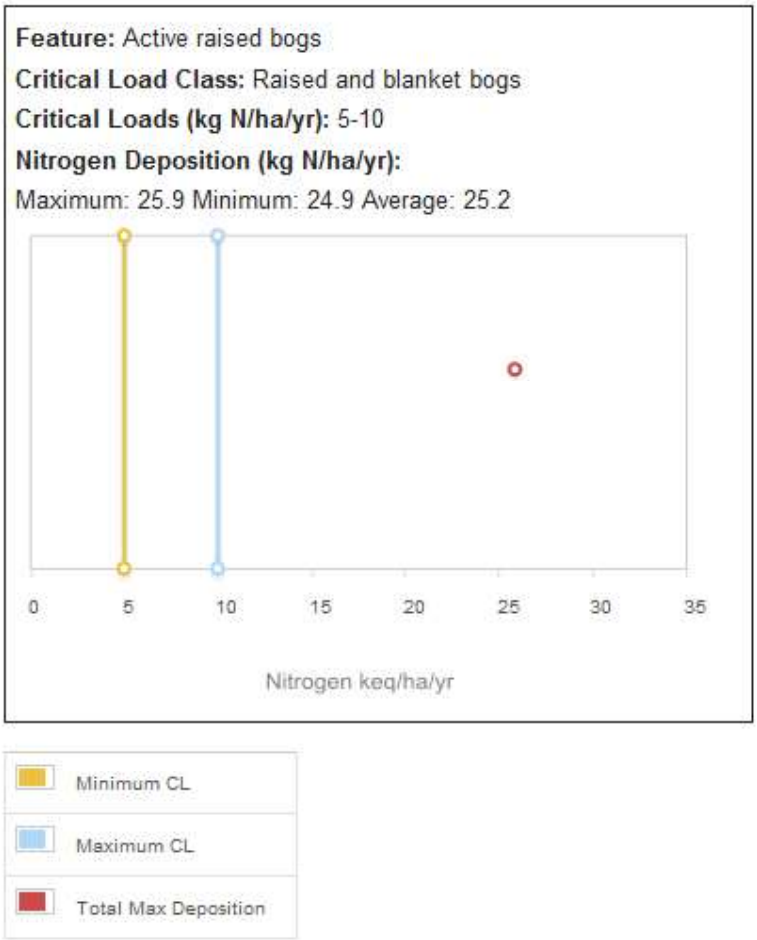
ACTION: No burning within the SAC.

Drainage

The southern section of the main uncut dome of Ballynahone bog, i.e. the section that originally belonged to the Bulrush Peat Company and now represents the NNR, was granted planning permission to extract peat in 1988. As a consequence a series of 50 north-south drains at 25 m intervals was cut into the peat in early 1991. All of these drains were subsequently blocked after the site was declared as an ASSI in 1994. In addition, there are a series of drains associated with the cuttings around the periphery. All of these drains show up on the aerial photograph and are clearly apparent on the ground. There has also been extensive drainage within the old cutover areas. Any drains that are currently carrying water away from the peat mass should be identified and

blocked. Note that drainage works outside of the site's boundaries could potentially impact upon the bog's hydrology.
ACTION: Block active drains where 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 Ballynahone Bog SAC.



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

Changes to surrounding land use

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

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

Scrub Encroachment

The intact surface of lowland raised bog at Ballynahone Bog is almost entirely surrounded by Birch-dominated scrub and wood which has colonised the old cutover bog where it is drier and there is some nutrient enrichment. Although this semi-natural habitat acts as a buffer between the intact bog surface and the improved agricultural land beyond, continued scrub encroachment into the actively regenerating cutover areas or intact bog is undesirable.

ACTION: Monitor further scrub encroachment (where it occurs) and take remedial action if required. Remove any invasive exotic species, such as Rhododendron as a matter of urgency.

Grazing

Lowland raised bogs are not suitable for grazing, as the surface is fragile and easily damaged by poaching.

ACTION: Fences around the periphery of the bog should be maintained to prevent grazing occurring on the site.

Fly-tipping

There are some instances of localised fly-tipping occurring along the Ballynahone and Tobermore Roads. Where the ramparts extend into the cutover areas from the edge of the road, the periphery of the cutover is particularly vulnerable to fly tipping.

ACTION: Remove all evidence of past fly-tipping. If localised fly-tipping does occur, it should be removed as soon as possible to help prevent any further incidences of dumping.

Shooting

Historically, there was a clay pigeon shooting range in the south-east corner of Ballynahone Bog. This practice was stopped in 1980. The accumulation of large quantities of lead shot over an area of 1.75 ha has resulted in lead contamination. As a consequence, the bog vegetation has become severely degraded with the death of *Sphagnum* mosses and ericoid species. This appears to have caused the peat mass to shrink and slump around the area most severely affected. In addition, unauthorised rough shooting for Snipe etc. takes place over the site.

ACTION: Clay pigeon shooting has now been stopped. There should be no clay pigeon shooting anywhere within the SAC boundary. Unauthorised rough shooting should also be stopped where possible.

Visitor Impact

In September 2000, 98.13 ha of Ballynahone Bog SAC was declared as a NNR and is being managed by Ulster Wildlife (UW). One of the long-term objectives of the UW is to facilitate public awareness of peatland issues and biodiversity issues through Ballynahone Bog. It is imperative that any visitor impact on the site is kept to a minimum and should not affect the active lowland raised bog in any way.

ACTION: Ensure that the impact of visitors for the purpose of education etc. is carefully controlled so that there is no impact on the active raised bog vegetation.

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 bog and associated habitats through desiccation).

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. Ensure that there has been no peat cutting, 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 the active raised bog. This will detect if the active raised bog is in favourable condition or not. See Annex 1 for SAC 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 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) - Active raised bog (Status B)

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

Attribute	Targets/Limits	Method of Assessment	Comments
* Area of intact surface (ha)	Maintain the extent of intact bog surface at 107.9ha.	Visual estimate in 2x2 plots and across the intact raised bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Any loss of the current intact area is unacceptable. The active raised bog communities include M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire community and M2, the *Sphagnum cuspidatum/recurvum* bog pool community dominated by *S. cuspidatum*.
* Area of actively regenerating cutover bog (ha)	Maintain the current extent of actively regenerating cutover bog. This area should be extended where possible.	Visual estimate in 2x2 plots and across the intact raised bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	There should be no loss in extent of actively regenerating bog to scrub encroachment or further peat cutting.

* Area of mosaic communities and associated habitats	Maintain associated mosaic communities and habitats.	Visual estimate across the ASSI 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.
Dwarf-shrub height	Average ericoid height should be 15–35cm.	Visual estimate in 2x2 m plots.	
* Bare Peat (%)	Peat cutting or drainage should not damage the intact surface of the active raised bog. Bare peat should occupy < 5% of the total area of the active raised bog.	Visual estimate in 2x2m plots	

* Pool/hummock system extent and diversity	The extent and diversity of the raised bog pool system must be at least maintained. Permanent pools containing any of the species listed below within a 10 m radius of the plot should be recorded. *S. cuspidatum* , *S. denticulatum S. magellanicum, Drosera, anglica, D. intermedia, Menyanthes trifoliata*.	Visual estimate within a 10m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk.	Pool systems do not always occur on lowland raised bog systems. However, where they do occur, they are a very important micro-topographical feature of bog surface and their extent and condition should be maintained.

* *Sphagnum* cover/abundance (% cover and frequency) Active Peat Formation (DAFOR)	Ombrotrophic *Sphagnum* moss species should have a minimum cover of 33% over at least 66% of the intact lowland raised bog surface. Thick, hummock forming species of sphagnum should be at least occasional. Species present should include a mixture of both thin species: - *S. capillifolium* and *S. tenellum* and the thick hummock forming species*: - S. papillosum* and *S. magellanicum* at least occasional over the surface.	Visual estimate in 2x2m plots. Visual estimate in 2x2m plots.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the intact bog surface.
* Ericaceous cover (%) and frequency of *Erica tetralix* (DAFOR).	Ericoid cover should be maintained between 40% and 60% of the intact bog surface. *Erica tetralix* should be at least present over a minimum 66% of the intact lowland raised bog surface.	Visual estimate in 2x2m plots	A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – i.e. the water table is too far below the surface of the bog.
* Graminoid cover (%)	Graminoid cover should be maintained between 10 and 40 %.	Visual estimate in 2x2m plots	

* Frequency and % cover of scrub/tree encroachment on any active peat surface (DAFOR and % cover)	Scrub/tree encroachment should be no more than rare on the intact raised bog surface or in the actively regenerating cutover areas. Mean cover should be less than 2%.	Visual estimate within a 10 m radius of plots and across the active peat surface using aerial photographs and Condition Assessment structured walk.	If scrub/tree species are more than rare on any active peat surface, scrub control should be carried out.
* *Rhynchospora alba* abundance (% cover)	*Rhynchospora alba* cover should be less than 10%.	Visual estimate in 2x2m plots	*Rhynchospora alba* only occurs as a natural component of the bog vegetation around pool systems. A high frequency of this species over the intact surface of the bog may be a consequence of excessive burning.
* *Myrica gale* abundance (% cover)	*Myrica gale* cover should be less than 10%.	Visual estimate in 2x2m plots	
* Management - Burning (% cover)	Signs of recent burning should occupy less than 5% of the intact raised bog surface and the actively regenerating cutover areas. Recent burning is represented by areas burnt within the last two years.	Visual estimate in 2x2 m plots and across the active bog surface using a combination of aerial photographs and Condition Assessment structured walk.	

* Management - Grazing (% cover)	Signs of grazing (poaching/dung) should be no more than rare on the intact raised bog surface and the actively regenerating cutover areas. The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs, invasion by *Juncus squarrosus* etc. and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing.	Visual estimate in 2x2 m plots.	
Indicators of Local Distinctiveness			
* Presence of rare or scarce species specific to the site. *Sphagnum austinii* *Sphagnum fuscum* *Sphagnum pulchrum* *Utricularia spp.* *Andromeda polifolia*	Locally distinctive species recorded for the site should be at least present along the length of the Condition Assessment If these species are not recorded on any one visit, it does not automatically make the site unfavourable. structured walk.	Visual estimate.	

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

BELFAST LOUGH OPEN WATER-SPECIAL PROTECTION AREA (SPA)

UK9020290

CONSERVATION OBJECTIVES

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

Document Details

Title	Belfast Lough Open Water SPA Conservation Objectives
Prepared By	*Ian Enlander*
Approved By	*Mark Wright*
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Contact	cdp@doeni.gov.uk

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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

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4 GENERAL INFORMATION

COUNTY: Antrim and Down

G.R. J407 838 AREA: 5592.99 ha

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

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

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

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

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

Conservation objectives will be revised as these issue progress

5 SUMMARY SITE DESCRIPTION

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

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

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

5.1 BOUNDARY RATIONALE

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

6 SPA SELECTION FEATURES

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

Table 1. List of SPA selection features.

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

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

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

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

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

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

6.1. ADDITIONAL ASSI SELECTION FEATURES

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

Marine populations of national importance

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

7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

To maintain each feature in favourable condition.

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

8. BELFAST LOUGH OPEN WATER SPA CONDITION ASSESSMENT 2014

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

9 SPA SELECTION FEATURE OBJECTIVES

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

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

SPA SELECTION FEATURE OBJECTIVES

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

Table 4. SPA Component objectives

9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

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

10. MANAGEMENT CONSIDERATIONS

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

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

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

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

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

The list below is not exhaustive, but deals with the most 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. onsider the collective impact.
7	Boating activity – recreational	Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site.	Sailing clubs at Carrickfergus, Whiteabbey, Holywood and Cultra. Additional slipways and quays.	Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the

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

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

An Agency within the Department of the Environment for Northern Ireland

ENVIRONMENT AND HERITAGE SERVICE

WETLAND OF INTERNATIONAL IMPORTANCE, RAMSAR CONVENTION

BELFAST LOUGH RAMSAR SITE

Area: 432.14 hectares

Geographic co-ordinates: 05° 54' 00" W
54° 38' 00" N

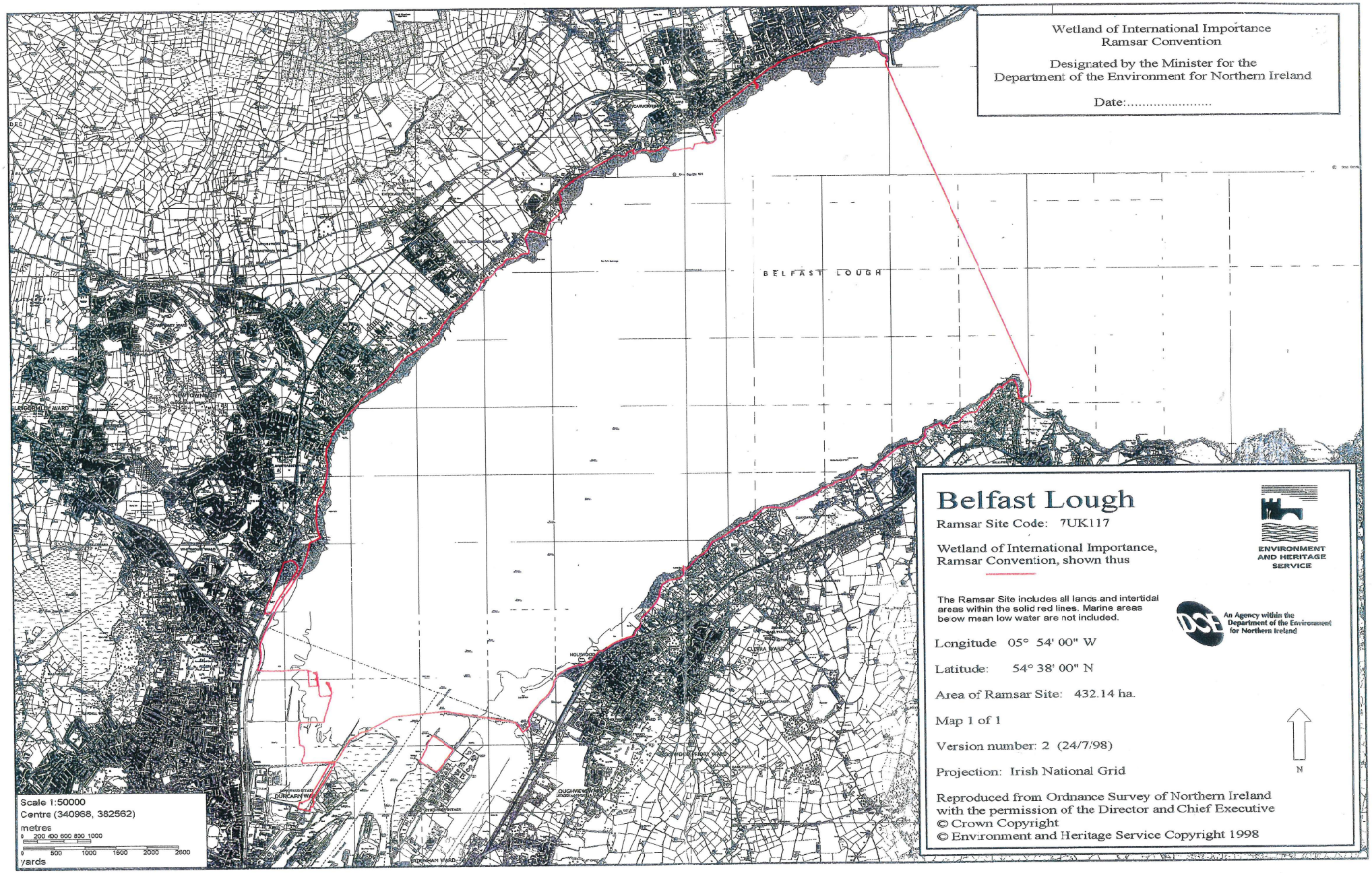
Belfast Lough is a large intertidal sea lough situated at the mouth of the River Lagan on the east coast of Northern Ireland. The inner part of the lough comprises a series of mudflats and lagoons. The outer lough is restricted to mainly rocky shores with some small sandy bays.

In the outer lough, the Ramsar boundary is entirely coincident with that of Outer Belfast Lough Area of Special Scientific Interest but within the immediate harbour area the boundary has been redrawn to take into account permitted port related development and landfill which has taken place since the Inner Belfast Lough Area of Special Scientific Interest was declared in 1987. Marine areas below mean low water are not included.

The Ramsar boundary is entirely coincident with that of the Belfast Lough Special Protection Area.

The site qualifies under Criterion 3c by regularly supporting internationally important numbers of Redshank *Tringa totanus* in winter. For the period 1991/92 to 1995/96, the five year peak mean for Redshank is 2466 (1.6% of the international population).

The site also regularly supports nationally important numbers of Great Crested Grebe *Podiceps cristatus* (the 5 year peak mean for the period 1991/92 - 1995/96 is 1384 birds, 46.1% of the Irish wintering population), Shelduck *Tadorna tadorna* 589 (8.4%), Scaup *Aythya marila* 146 (4.9%), Eider *Somateria mollissima* 541 (27.1%), Goldeneye *Bucephala clangula* 536 (4.9%), Red-breasted Merganser *Mergus serrator* 175 (8.7%), Oystercatcher *Haematopus ostralegus* 6584 (13.2%), Purple sandpiper *Calidris maritima* 14 (1.4%), Dunlin *Calidris alpina* 1440 (1.2%), Black-tailed Godwit *Limosa limosa* 433 (4.8%), Bar-tailed Godwit *Limosa lapponica* 232 (1.3%), Curlew *Numenius arquata* 1271 (1.5%) and Turnstone *Arenaria interpres* 614 (2.7%).



Wetland of International Importance
Ramsar Convention

Designated by the Minister for the
Department of the Environment for Northern Ireland

Date:.....

Belfast Lough

Ramsar Site Code: 7UK117

Wetland of International Importance, Ramsar Convention, shown thus

ENVIRONMENT AND HERITAGE SERVICE

The Ramsar Site includes all lancs and intertidal areas within the solid red lines. Marine areas below mean low water are not included.

An Agency within the Department of the Environment for Northern Ireland

Longitude 05° 54' 00" W

Latitude: 54° 38' 00" N

Area of Ramsar Site: 432.14 ha.

Map 1 of 1

Version number: 2 (24/7/98)

Projection: Irish National Grid

N

Scale 1:50000
Centre (340968, 382562)
metres
0 200 400 600 800 1000
yards
0 500 1000 1500 2000 2500

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BELFAST LOUGH - SPECIAL PROTECTION AREA (SPA)

UK9020101

CONSERVATION OBJECTIVES

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

Document Details

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

Revision History:

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

Site relationship

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

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

See also Boundary Rationale

1. INTRODUCTION

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4 GENERAL INFORMATION

COUNTY: Antrim and Down

G.R. J353 783 AREA: 432.14 ha.

Inner Belfast Lough ASSI

Outer Belfast Lough ASSI

5 SUMMARY SITE DESCRIPTION

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

5.1 BOUNDARY RATIONALE

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

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

6 SPA SELECTION FEATURES

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

Table 1. List of SPA selection features.

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

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

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

6.1. ADDITIONAL ASSI SELECTION FEATURES

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

Earth Science	Cultra Permian stratigraphy (Outer Belfast Lough ASSI)			

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

7 CONSERVATION OBJECTIVES

The Conservation Objective for this site is:

To maintain each feature in favourable condition.

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

8 BELFAST LOUGH SPA CONDITION ASSESSMENT 2014

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

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

9 SPA SELECTION FEATURE OBJECTIVES

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

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

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

Table 3. SPA Component objectives

9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

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

Table 4. ASSI Component objectives

10 MANAGEMENT CONSIDERATIONS

See also Views About Management for relevant ASSIs

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

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

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

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

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

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

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

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

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

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

Table 5. List of site/feature management issues

12. MONITORING

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

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

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

12.1 MONITORING SUMMARY

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

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

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

12.2. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

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

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

13. SELECTION FEATURE POPULATION TRENDS

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

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

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

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

References (to be completed)

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

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

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

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

ANNEX I

Feature (SPA) – Wintering waterfowl

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

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

Non-avian factors

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

ANNEX II

Feature (ASSI)

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

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

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

	(July/August) over 65% of the area	species-rich vegetation * 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	

CURRAN BOG SAC
UK0030322

CONSERVATION OBJECTIVES

Document Details

Title	*Curran Bog SAC Conservation Objectives*
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V1	June 2013	Internal working document	PC
V2	Nov 2014	Complete review	RMK

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status as 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: LONDONDERRY

G.R : IH 873955

AREA: 183.3 ha

5. SUMMARY SITE DESCRIPTION

Curran Bog occurs in the flood-plain of the Moyola River. Despite extensive turf-cutting around its edge, the remaining intact surface retains a high cover of *Sphagnum* bog-mosses (indicating active peat growth) and well-developed surface patterning (i.e. pool, hummock and hollow complexes).

The pool system is a particularly important feature, as these are generally very rare in Northern Ireland lowland raised bogs. The pools vary in shape and size, but are generally linear with a carpet of aquatic *Sphagnum* bog-mosses, particularly *S. cuspidatum*, with lesser amounts of *S. auriculatum* and scattered Bogbean *Menyanthes trifoliata*. Notable species include *Drosera longifolia*, *S. pulchrum*, *S. austinii* and *S. fuscum*.

The cutover area is extensive and has a range of secondary vegetation types, which support a variety of plant and animal communities. The old peat-cuttings around the edge of the intact surface are in differing stages of infilling and show habitat succession after cutting, with areas of scrub, open water pools, regenerating bog vegetation, acid fen and even base-rich swamp and fen.

Curran Bog is also important for invertebrates. There are large numbers of recently-created acid pools, which show few signs of enrichment and support an aquatic fauna typical of acid and base-poor waters. The recorded fauna includes seven species of dragonfly, eight aquatic Heteroptera and twenty-three species of water beetle.

5.1 BOUNDARY RATIONALE

The boundary of the area uses permanent man-made features, where present. The boundary has been drawn to include all areas of intact lowland raised bog and associated semi-natural habitats, including cutover bog and Birch scrub.

Note that there are some small discrepancies when the site boundary is compared with the recently available vector maps (i.e. the boundary of the ASSI as delineated on the designation map does not correlate accurately in all cases with the actual location of the boundary features used for the site boundary).

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ population
Habitat	Active raised bog	B	25.48 ha
Habitat	Degraded raised bog still capable of regeneration	C	126.86 ha

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

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

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

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

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

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

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.
Click here to go to the Natura 2000 Standard Data Form for Curran Bog SAC.

6.1 ASSI SELECTION FEATURES

Feature Type	Feature	Size/ extent/ population
Habitat	Lowland Raised Bog	181.35 ha

Table 2. List of ASSI features

7. CONSERVATION OBJECTIVES

The Conservation Objective for this site is:

To maintain (or restore where appropriate) the active raised bog 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/ASSI SELECTION FEATURE OBJECTIVE REQUIREMENTS

Feature	Global Status	Component Objective
Active raised bog	B	Maintain the extent of intact lowland raised bog and actively regenerating raised bog vegetation.
		Maintain and enhance the quality of the lowland raised bog community types including the presence of notable species.
		Seek to expand the extent of actively regenerating raised bog vegetation into degraded (non-active) areas of cutover bog.
		Maintain the diversity and quality of other habitats associated with the active raised bog, e.g. acid grassland, fen and swamp, especially where these exhibit natural transition to the raised bog.
		Maintain the hydrology of the raised bog peat mass.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for lowland raised bog rehabilitation.
Degraded Raised Bog still capable of Regeneration	C	No loss in extent of degraded raised bog to agricultural reclamation, scrub-encroachment, development, or further peat cutting.
		Expand the extent of actively regenerating cutover bog vegetation into areas of degraded (non-active) areas of cutover bog.
		Ensure that the hydrology of the cutover raised bog is favourable for active bog regeneration.
		Maintain and enhance the quality of actively regenerating cutover bog community types (*Sphagnum* moss, *Eriophorum* spp. and ericoid cover) including the presence of notable species.
		Maintain the diversity and quality of other habitats of conservation interest.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for lowland raised bog rehabilitation.

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

Feature	Component Objective
Lowland Raised Bog	Maintain the extent of intact lowland raised bog.
	Seek to expand the extent of actively regenerating raised bog.
	Maintain the hydrology of the raised bog peat mass.

10. MANAGEMENT CONSIDERATIONS

Ownership
Curran Bog has 43 owner/occupiers.

Adjoining Land Use
The land surrounding the site is intensively managed agricultural land in silage and grazing.

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

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Curran Bog, or could affect it in the future. Although Active Raised Bog is the qualifying SAC feature, factors affecting ASSI features are also considered.

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

Peat Cutting
The bog has been extensively hand cut, with less than 15% of the original surface remaining intact. Along the edge of the intact surface, the cut peat face can be 3m high in places, resulting in local desiccation to the adjacent intact surface. Although the old hand cuttings now support either actively regenerating bog vegetation, poor acid fen or birch/willow scrub, there has been localised hand and mechanised peat cutting carried out within the former in recent years, particularly to the southeast of the site. In places, mechanised cutting had encroached onto the intact surface. Peat cutting at the time of designation was seen as very problematical. It is not known whether there are any extant consents for turf cutting.
ACTION: No peat cutting within the SAC.

As with all damaged bogs, it is possible that the intact peat body is drying out due to excessive water loss from the cut peat faces. If condition assessment suggests *Sphagnum* cover is declining or the bog is drying, more detailed hydrological monitoring will be required.

In addition, as part of a wider surveillance/validation monitoring exercise for active raised bog SACs, NIEA should investigate marginal drying rates at a number of sites. If the area affected is found to be progressively increasing, the hydrological stability of the site may be seriously compromised – in which case it may be necessary to re-establish the hydrological stability by bunding or contour profiling.

Although there is no evidence of significant effects at this time, given the extent of marginal cutting around Curran Bog, it is recommended that the site is considered as a priority for this work.

ACTION: Consider including Curran Bog within a series of sites for hydrological monitoring.

Burning

Burning of the vegetation has taken place occasionally, although the evidence of the last serious burn in the 1980's is now becoming difficult to distinguish on the ground or by aerial photographs. Excessive burning tends to reduce the cover of *Sphagnum* mosses and ericaceous species, increasing the proportion of *Molinia caerulea* and *Trichophorum cespitosum*. In addition, structural diversity is reduced.

ACTION :- No burning within the SAC.

Drainage

There are no active drains on the intact surface. However, there are a number of very active drains associated with the cutover area, particularly in the southwest portion of the site. Any drains that are currently carrying water away from the peat mass should be identified and blocked. Note that drainage works outside of the site's boundaries could potentially impact upon the bog's hydrology.

ACTION: Block active drains where 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 Curran Bog SAC.

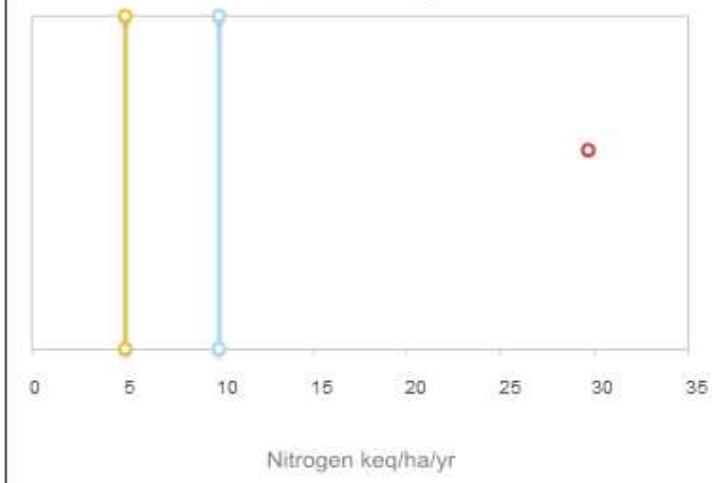
Feature: Active raised bogs

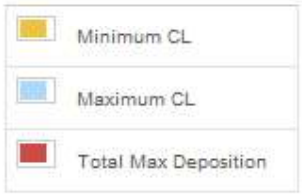
Critical Load Class: Raised and blanket bogs

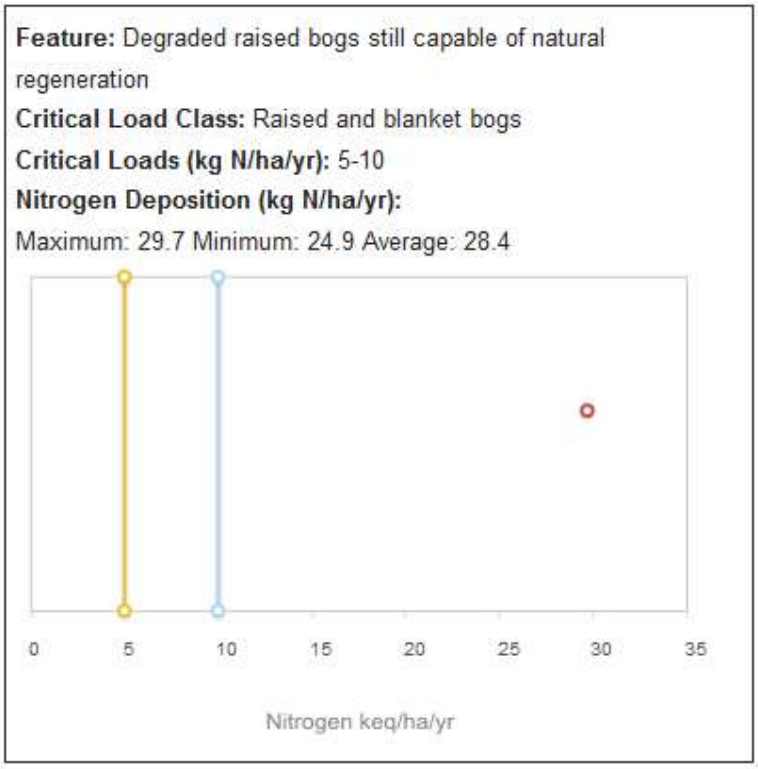
Critical Loads (kg N/ha/yr): 5-10

Nitrogen Deposition (kg N/ha/yr):

Maximum: 29.7 Minimum: 24.9 Average: 28.4









(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. 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.

Scrub Encroachment

Trees and scrub growth is locally extensive within the older cutover bog and is particularly extensive around the northeast margin. Any further scrub encroachment into the actively regenerating cutover areas, or onto the intact surface is undesirable.

ACTION: Monitor further scrub encroachment (where it occurs) and take remedial action if required. Remove any invasive exotic species, such as Rhododendron as a matter of urgency.

Grazing

Lowland raised bogs are not suitable for grazing as the surface is fragile and easily damaged by poaching. No information is available of any current grazing within the intact or cutover areas.

ACTION: Fences around the periphery of the bog should be maintained to prevent grazing occurring on the site.

Fly-tipping

There were a few localised incidents of fly-tipping in the cutover area of the bog, but generally the site does not have a major dumping problem.

ACTION: Remove all evidence of past fly-tipping. If localised dumping does reoccur, it should be removed as soon as possible to help prevent any further incidences of dumping.

Shooting

There are Pheasant breeding pens and feeders on the northern boundary of Curran Bog. In addition ponds have been dug out to the south west of the bog. It is therefore apparent that there is some degree of rough shooting being carried out across the bog.

ACTION: Monitor the use of lead shot in the area and liaise with the various gun clubs in the area, to encourage the use of lead free shot.

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 annually 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 bog and associated habitats through desiccation).

Condition Assessment - longer-term changes will be picked up by monitoring of the feature using this technique and is carried out every 6 years to pick up subtle changes in the condition of the feature.

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

12.1 MONITORING SUMMARY

- *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 peat cutting, dumping or burning carried out within the SAC boundary. This SIM should be carried out once a year.

- *Monitor the condition of the site (Condition Assessment)*
  Monitor the key attributes for the active raised bog. This will detect if the active raised bog is in favourable condition or not. See Annex 1 for SAC 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 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) - Active raised bog (Status B)

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

Attribute	Measure	Targets/Limits	Comments
* Extent	Area of intact surface (ha)	Maintain the current extent of the intact bog surface at 25.48 ha.	Any loss of the current intact area is unacceptable. Active raised bog communities generally include predominantly M18 *Sphagnum papillosum* raised and blanket mire with M1 *Sphagnum auriculatum*, M2 *Sphagnum cuspidatum/recurvum* and M3 *Eriophorum angustifolium* bog pool communities. Only M18 and M2 are likely to be present on the intact surface of Curran Bog. M1 and M3 are more likely to be in the cutover bog.
* Extent	Area of actively regenerating cutover bog (ha)	Maintain the current extent of actively regenerating cutover bog at 126.86 ha. This area should be extended where possible.	There should be no loss in extent of actively regenerating bog to scrub encroachment or further peat cutting.
* Extent	Area of mosaic communities and associated habitats	Maintain associated mosaic communities and habitats.	Repeat monitoring using condition assessment, SIM and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost.
Structure	Dwarf-shrub height	Average ericoid height should be 15-35 cm.	

* Structure	Bare peat (%)	Peat cutting or drainage should not damage the intact surface of the active raised bog. Bare peat should occupy < 5% of the total area of the active raised bog.	
* Structure	Pool/hummock system extent and complexity	The extent and complexity of the raised bog pool system must be at least maintained. Differentiation of *Sphagnum* species should be recorded with *S. cuspidatum* or *S. auriculatum* in the pools and *S. papillosum* and *S. capillifolium* forming the lawns and hummocks.	The extent of pool and hummock systems should be monitored using a combination of aerial photographs and SIM. Ballynahone Bog supports a small, but well-patterned pool system.
* Vegetation composition	*Sphagnum* cover/abundance (% and DAFOR)	Ombrotrophic *Sphagnum* moss species should have a minimum cover of 33% over at least 66% of the intact lowland raised bog surface. Species present should include a mixture of both thin species :- *S. capillifolium* and *S. tenellum* and the thick hummock forming species:- *S. papillosum* and *S. magellanicum* at least Occasional over the surface.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the intact bog surface.
Vegetation composition	Active peat formation	Thick, hummock forming species of sphagnum should be at least occasional.	
* Vegetation composition	Ericaceous cover (%) and frequency of *Erica tetralix* (DAFOR)	Ericoid cover should be maintained between 40% and 60% of the intact bog surface and should show no evidence of grazing or recent burning. *Erica tetralix* should be at least present over a minimum 66% of the intact lowland raised bog surface.	A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – i.e. the water table is too far below the surface of the bog.
* Vegetation composition	Graminoid cover (%)	Graminoid cover should be maintained between 10 and 40%.	

* Vegetation composition	Frequency and % cover of scrub/tree encroachment on any active peat surface (DAFOR and % cover)	Scrub/tree encroachment should be no more than Rare on the intact raised bog surface, or in the actively regenerating cutover areas. Mean cover should be less than 2%.	If scrub/tree species are more than rare on any active peat surface, scrub control should be carried out.
* Vegetation composition	*Rhynchospora alba* abundance (% cover)	*Rhynchospora alba* cover should be less than 10%	*Rhynchospora alba* only occurs as a natural component of the bog vegetation around pool systems. A high frequency of this species over the intact surface of the bog may be a consequence of excessive burning.
* Vegetation composition	*Myrica gale* abundance (% cover)	*Myrica gale* cover should be less than 10%.	
* Vegetation composition	Management – Burning (% cover)	Signs of recent burning should occupy less than 5% of the intact raised bog surface and the actively regenerating cutover areas.	
* Vegetation composition	Management – Grazing (% cover)	Signs of grazing (poaching/dung) should be no more than rare on the intact raised bog surface and the actively regenerating cutover areas.	The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs, invasion by *Juncus squarrosus* etc. and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing.
Vegetation composition	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 - *Sphagnum austinii*, *Sphagnum fuscum*, *Sphagnum pulchrum*, *Utricularia* spp., *Andromeda polifolia*.	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) – Degraded bog capable of natural regeneration (Status C)

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

Attribute	Measure	Targets/Limits	Comments
* Extent	Area of actively regenerating cutover bog (ha)	Maintain the current extent of actively regenerating cutover bog at 126.86 ha. This area should be extended where possible.	There should be no loss in extent of actively regenerating bog to scrub encroachment or further peat cutting.
* Extent	Area of intact surface (ha)	Maintain the current extent of the intact bog surface at 25.48 ha.	Any loss of the current intact area is unacceptable. Active raised bog communities generally include predominantly M18 *Sphagnum papillosum* raised and blanket mire with M1 *Sphagnum auriculatum*, M2 *Sphagnum cuspidatum/recurvum* and M3 *Eriophorum angustifolium* bog pool communities. Only M18 and M2 are likely to be present on the intact surface of Curran Bog. M1 and M3 are more likely to be in the cutover bog.
* Extent	Area of mosaic communities and associated habitats	Maintain associated mosaic communities and habitats.	Repeat monitoring using condition assessment, SIM and aerial photographs should indicate whether mosaics and associated habitats have changed or been lost.
Structure	Dwarf-shrub height	Average ericoid height should be 15-35 cm.	

* Structure	Bare peat (%)	Peat cutting or drainage should not damage the intact surface of the active raised bog. Bare peat should occupy < 5% of the total area of the active raised bog.	
* Structure	Pool/hummock system extent and complexity	The extent and complexity of the raised bog pool system must be at least maintained. Differentiation of *Sphagnum* species should be recorded with *S. cuspidatum* or *S. auriculatum* in the pools and *S. papillosum* and *S. capillifolium* forming the lawns and hummocks.	The extent of pool and hummock systems should be monitored using a combination of aerial photographs and SIM. Ballynahone Bog supports a small, but well-patterned pool system.
* Vegetation composition	*Sphagnum* cover/abundance (% and DAFOR)	Ombrotrophic *Sphagnum* moss species should have a minimum cover of 33% over at least 66% of the intact lowland raised bog surface. Species present should include a mixture of both thin species :- *S. capillifolium* and *S. tenellum* and the thick hummock forming species:- *S. papillosum* and *S. magellanicum* at least Occasional over the surface.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the intact bog surface.
Vegetation composition	Active peat formation	Thick, hummock forming species of sphagnum should be at least occasional.	
* Vegetation composition	Ericaceous cover (%) and frequency of *Erica tetralix* (DAFOR)	Ericoid cover should be maintained between 40% and 60% of the intact bog surface and should show no evidence of grazing or recent burning. *Erica tetralix* should be at least present over a minimum 66% of the intact lowland raised bog surface.	A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – i.e. the water table is too far below the surface of the bog.
* Vegetation composition	Graminoid cover (%)	Graminoid cover should be maintained between 10 and 40%.	

* Vegetation composition	Frequency and % cover of scrub/tree encroachment on any active peat surface (DAFOR and % cover)	Scrub/tree encroachment should be no more than Rare on the intact raised bog surface, or in the actively regenerating cutover areas. Mean cover should be less than 2%.	If scrub/tree species are more than rare on any active peat surface, scrub control should be carried out.
* Vegetation composition	*Rhynchospora alba* abundance (% cover)	*Rhynchospora alba* cover should be less than 10%	*Rhynchospora alba* only occurs as a natural component of the bog vegetation around pool systems. A high frequency of this species over the intact surface of the bog may be a consequence of excessive burning.
* Vegetation composition	*Myrica gale* abundance (% cover)	*Myrica gale* cover should be less than 10%.	
* Vegetation composition	Management – Burning (% cover)	Signs of recent burning should occupy less than 5% of the intact raised bog surface and the actively regenerating cutover areas.	
* Vegetation composition	Management – Grazing (% cover)	Signs of grazing (poaching/dung) should be no more than rare on the intact raised bog surface and the actively regenerating cutover areas.	The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs, invasion by *Juncus squarrosus* etc. and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing.
Vegetation composition	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 – *Drosera anglica, Vaccinium oxycoccus*	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

DEAD ISLAND BOG SAC
UK0030323

CONSERVATION OBJECTIVES

Document Details

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

Revision History:

Version	Date	Summary of Changes	Initials
V1	June 2013	Internal working document	PC
V2	Nov 2014	Complete review	RMK

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status as 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: LONDONDERRY

GRID REFERENCE: C932054

AREA: 54.5 ha

5. SUMMARY SITE DESCRIPTION

Dead Island Bog is a lowland raised bog lying in a shallow interdrumlin hollow within the Lower Bann valley.

Special features include a large, intact core of deep peat, which exhibits a wide range of characteristic vegetation and structural features. These include shallow pools and a well-developed hummock and lawn complex. Typically, the vegetation is characterised by ericoid dwarf shrubs and other associated species. The bog surface is permanently wet and supports a dense and diverse cover of *Sphagnum* bog-mosses.

Notable species include *Sphagnum imbricatum*, forming several small, hummocks scattered over the surface, and Great Sundew *Drosera longifolia* in several of the pools.

A triangular-shaped internal soak on the eastern flank of the bog provides an additional feature of interest. The soak is marked by a distinct change in the vegetation structure and composition. Cranberry *Vaccinium oxycoccus* is notable here, scattered over the surface of the *Sphagnum* mat.

Disturbance to the bog has been confined to machine cutting and occasional burning on both the intact core and cutover margins.

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 of the area use permanent man-made features around the periphery. The boundary includes all intact lowland raised bog and associated semi-natural habitats, including cutover bog and Birch scrub.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ population
Habitat	**Active raised bog**	**B**	**36.9 ha**
Habitat	Degraded raised bog still capable of regeneration	D	17.6 ha

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

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

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

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

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

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

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

Click here to go to the Natura 2000 Standard Data Form for Dead Island Bog SAC.

6.1 ASSI SELECTION FEATURES

Dead Island Bog ASSI

Feature Type	Feature	Size/ extent/ population
Habitat	Lowland Raised Bog	54.5 ha

Table 2. List of ASSI features.

7. CONSERVATION OBJECTIVES

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

To maintain (or restore where appropriate) the active raised bog 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/ASSI SELECTION FEATURE OBJECTIVE REQUIREMENTS

SAC Feature	Global Status	Component Objective
Active raised bog	B	Maintain the extent of intact lowland raised bog and actively regenerating raised bog vegetation.
		Maintain and enhance the quality of the lowland raised bog community types including the presence of notable species.
		Seek to expand the extent of actively regenerating raised bog vegetation into degraded (non-active) areas of cutover bog.
		Maintain the diversity and quality of other habitats associated with the active raised bog, e.g. acid grassland, fen and swamp, especially where these exhibit natural transition to the raised bog.
		Maintain the hydrology of the raised bog peat mass.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for lowland raised bog rehabilitation.

9. ADDITIONAL ASSI FEATURE OBJECTIVE REQUIREMENTS

ASSI Feature	Component Objective
Lowland Raised Bog	Maintain the extent of intact lowland raised bog.
	Seek to expand the extent of actively regenerating raised bog.
	Maintain the hydrology of the raised bog peat mass.

10. MANAGEMENT CONSIDERATIONS

Ownership
The site is owned by 43 owner/occupiers.

Adjoining Land Use
The land surrounding the site is intensively managed agricultural land in silage and grazing.

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

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Dead Island Bog, or could affect it in the future. Although Active Raised Bog is the qualifying SAC feature, factors affecting ASSI features are also considered.

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

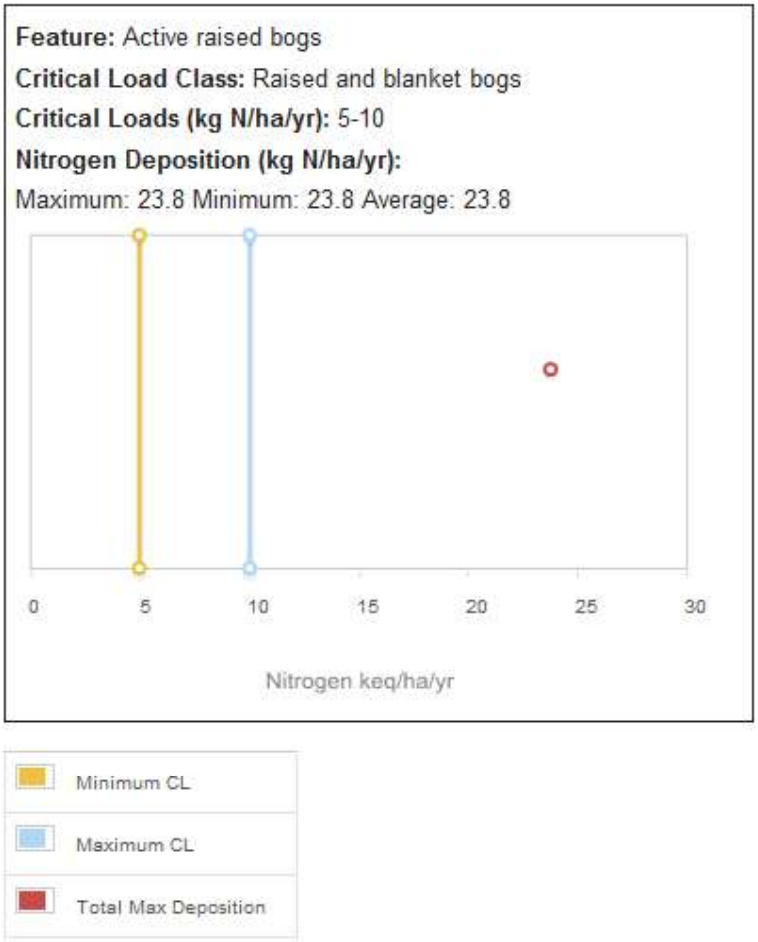
Peat Cutting
There has been extensive hand cutting for many years around the periphery. This has encroached significantly into the intact surface of the raised bog. Along the edge of the intact, the cut peat face can be 3m high in places, resulting in local desiccation to the adjacent intact surface. Although the old hand cuttings now support either actively regenerating bog vegetation or birch/willow scrub, there has been localised mechanised peat cutting carried out within the former in recent years particularly at the southern end of the site. In a number of instances mechanised cutting had encroached onto the remaining intact surface of the bog. Peat cutting at the time of designation was seen as very problematical.
ACTION: No peat cutting within the SAC.

Burning
Burning of the vegetation has taken place occasionally, the most recent and extensive burn is evident over most of the northern half. Excessive burning will tend to reduce the cover of *Sphagnum* mosses and ericaceous species, increasing the proportion of *Molinia caerulea* and *Trichophorum cespitosum*. In addition, structural diversity will be reduced.
ACTION: No burning within the SAC.

Drainage
The intact dome remains largely intact but does have a few active and occluded drains dissecting its surface as does the cutover, however these are not presently assessed to be a threat to the sites hygrological integratory. Any drains that are

currently carrying water away from the peat mass should be identified and blocked. Note that drainage works outside of the site's boundaries could potentially impact upon the bog's hydrology.
ACTION: Block active drains where 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 Dead Island Bog SAC.



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

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

Changes to surrounding land use

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

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

Scrub Encroachment

Tree and scrub growth is locally extensive within the cutover bog but set back from the periphery of the intact. Any further scrub encroachment into the actively regenerating cutover areas, or onto the intact surface is undesirable.

ACTION: Monitor further scrub encroachment (where it occurs) and take remedial action if required. Remove any invasive exotic species, such as Rhododendron as a matter of urgency.

Grazing

Lowland raised bogs are not suitable for grazing, as the surface is fragile and easily damaged by poaching.

ACTION: Fences around the periphery of the bog should be maintained to prevent grazing occurring on the site.

Fly-tipping

There was a few localised incident of fly-tipping in the cutover area of the bog, but generally there is no dumping problem associated with the site.

ACTION: Remove all evidence of past fly-tipping. If localised fly-tipping does occur, it should be removed as soon as possible to help prevent any further incidences of dumping.

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 bog and associated habitats through desiccation).

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

- *Monitor the integrity of the site (SIM or Compliance Monitoring)*
  Complete boundary survey. Ensure that there has been no peat cutting, dumping or burning carried out within the SAC boundary. This SIM should be carried out once a year.

- *Monitor the condition of the site (Condition Assessment)*
  Monitor the key attributes for the active raised bog. This will detect if the active raised bog is in favourable condition or not. See Annex 1 for SAC 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 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 1

Feature 1 SAC - Active raised bog

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

Attribute	Targets/Limits	Method of Assessment	Comments
* Area of intact surface (ha)	Maintain the extent of intact bog surface at 36.9ha.	Visual estimate in 2x2 plots and across the intact raised bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Any loss of the current intact area is unacceptable. The active raised bog communities include M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire community and M2, the *Sphagnum cuspidatum/recurvum* bog pool community dominated by *S. cuspidatum*.
* Area of actively regenerating cutover bog (ha)	Maintain the current extent of actively regenerating cutover bog. This area should be extended where possible.	Visual estimate in 2x2 plots and across the intact raised bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	There should be no loss in extent of actively regenerating bog to scrub encroachment or further peat cutting.
* Area of mosaic communities and associated habitats	Maintain associated mosaic communities and habitats.	Visual estimate across the ASSI 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.

Dwarf-shrub height	Average ericoid height should be 15–35cm.	Visual estimate in 2x2 m plots.	
* Bare Peat (%)	Peat cutting or drainage should not damage the intact surface of the active raised bog. Bare peat should occupy < 5% of the total area of the active raised bog.	Visual estimate in 2x2m plots	
* Pool/hummock system extent and diversity	The extent and diversity of the raised bog pool system must be at least maintained. Permanent pools containing any of the species listed below within a 10 m radius of the plot should be recorded. *S. cuspidatum* , S. *denticulatum* S. *magellanicum, Drosera, anglica, D. intermedia, Menyanthes trifoliata*.	Visual estimate within a 10m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk.	Pool systems do not always occur on lowland raised bog systems. However, where they do occur, they are a very important micro-topographical feature of bog surface and their extent and condition should be maintained.

* *Sphagnum* cover/abundance (% cover and frequency) Active Peat Formation (DAFOR)	Ombrotrophic *Sphagnum* moss species should have a minimum cover of 33% over at least 66% of the intact lowland raised bog surface. Thick, hummock forming species of sphagnum should be at least occasional. Species present should include a mixture of both thin species: - *S. capillifolium* and *S. tenellum* and the thick hummock forming species*: - S. papillosum* and *S. magellanicum* at least occasional over the surface.	Visual estimate in 2x2m plots. Visual estimate in 2x2m plots.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the intact bog surface.
* Ericaceous cover (%) and frequency of *Erica tetralix* (DAFOR).	Ericoid cover should be maintained between 40% and 60% of the intact bog surface. *Erica tetralix* should be at least present over a minimum 66% of the intact lowland raised bog surface.	Visual estimate in 2x2m plots	A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – i.e. the water table is too far below the surface of the bog.
* Graminoid cover (%)	Graminoid cover should be maintained between 10 and 40 %.	Visual estimate in 2x2m plots	

* Frequency and % cover of scrub/tree encroachment on any active peat surface (DAFOR and % cover)	Scrub/tree encroachment should be no more than rare on the intact raised bog surface or in the actively regenerating cutover areas. Mean cover should be less than 2%.	Visual estimate within a 10 m radius of plots and across the active peat surface using aerial photographs and Condition Assessment structured walk.	If scrub/tree species are more than rare on any active peat surface, scrub control should be carried out.
* *Rhynchospora alba* abundance (% cover)	*Rhynchospora alba* cover should be less than 10%.	Visual estimate in 2x2m plots	*Rhynchospora alba* only occurs as a natural component of the bog vegetation around pool systems. A high frequency of this species over the intact surface of the bog may be a consequence of excessive burning.
* *Myrica gale* abundance (% cover)	*Myrica gale* cover should be less than 10%.	Visual estimate in 2x2m plots	
* Management - Burning (% cover)	Signs of recent burning should occupy less than 5% of the intact raised bog surface and the actively regenerating cutover areas. Recent burning is represented by areas burnt within the last two years.	Visual estimate in 2x2 m plots and across the active bog surface using a combination of aerial photographs and Condition Assessment structured walk.	

* Management - Grazing (% cover)	Signs of grazing (poaching/dung) should be no more than rare on the intact raised bog surface and the actively regenerating cutover areas.	Visual estimate in 2x2 m plots.	The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs, invasion by *Juncus squarrosus* etc. and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing.
Indicators of Local Distinctiveness			
* Presence of rare or scarce species specific to the site. *Sphagnum austinii* *Sphagnum fuscum* *Sphagnum pulchrum* *Utricularia spp.* *Andromeda polifolia*	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.	Visual estimate.	

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EAST COAST MARINE - SPECIAL PROTECTION AREA (SPA)

UK9020320

CONSERVATION OBJECTIVES

Document Details

Title	East Coast Marine SPA Conservation Objectives
Prepared By	*Ian Enlander*
Approved By	*Mark Wright*
Date Effective From	
Version Number	*V1*
Next Review Date	January 2020
Contact	cdp@doeni.gov.uk

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

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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.

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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, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting 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.

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

No	Issue	Threat/comments	Local considerations	Action
2	Aquaculture	Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural 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 skies. 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

Information Sheet on Ramsar Wetlands (RIS)

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

Note for compilers:

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

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

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

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

2. Date this sheet was completed/updated:

Designated: 31 December 1998 / updated 12 May 2005

3. Country:

UK (Northern Ireland)

4. Name of the Ramsar site:

Garron Plateau

5. Map of site included:

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

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

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

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

55 00 10 N 06 03 40 W

7. General location:

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

Nearest town/city: Carnlough.

The site is situated in County Antrim in the north-east of Northern Ireland immediately north-west of Carnlough. It forms part of a large upland block extending to the coast between the valleys of Glencloy and Glenariff.

Administrative region: Antrim; Ballymena; Larne; Moyle

8. Elevation (average and/or max. & min.) (metres)**:**

Min. 0
Max. 0
Mean 0

9. Area (hectares)**:** 4650.07

10. Overview:

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

Garron Plateau is situated in Antrim in the north-east of Northern Ireland. The Garron Plateau is the largest area of intact blanket bog in Northern Ireland. The peatland complex is comprised of a series of raised and flushed peat bog units, and a number of oligotrophic/ mesotrophic water bodies, all within the enveloping blanket bog peat mantle. The peatland supports a number of rare and notable plant and animal species and diverse upland bird population.

11. Ramsar Criteria:

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

1, 2

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

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

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

Ramsar criterion 1

The site is a large and relatively intact example of a blanket bog and one of the best examples of this habitat in the UK. It also contains nationally important examples of transitional and alkaline fen and oligotrophic/mesotrophic lakes.

Ramsar criterion 2

Supports at least six species listed in the Irish Red Data Book-Vascular Plants and up to five species of birds (one of which breeds in nationally important numbers) which are listed in the Irish Red Data Book.

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

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

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

14. Physical features of the site:

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

Soil & geology	acidic, basic, neutral, peat, nutrient-poor, basalt
Geomorphology and landscape	upland, hilly
Nutrient status	mesotrophic, oligotrophic
pH	acidic, alkaline, strongly acidic
Salinity	fresh
Soil	mainly organic
Water permanence	usually permanent

Summary of main climatic features	Annual averages (Aldergrove, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html) Max. daily temperature: 12.5° C Min. daily temperature: 5.8° C Days of air frost: 39.1 Rainfall: 862.4 mm Hrs. of sunshine: 1313.7

General description of the Physical Features:

Garron is the most extensive area of intact upland blanket bogs in Northern Ireland. The peatland complex is composed of a series of raised and flushed peat bog units and a number of oligotrophic lakes. There are large areas of well-developed bog microtopography. Where the peats are thinner, localised flushing by mineral-enriched water results in the formation of alkaline fen vegetation.

15. Physical features of the catchment area:

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

Garron is the most extensive area of intact upland blanket bogs in Northern Ireland. The peatland complex is composed of a series of raised and flushed peat bog units and a number of oligotrophic lakes. There are large areas of well-developed bog microtopography. Where the peats are thinner, localised flushing by mineral-enriched water results in the formation of alkaline fen vegetation.

16. Hydrological values:

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

Water supply

17. Wetland types

Inland wetland

Code	Name	% Area
O	Freshwater lakes: permanent	1
U	Peatlands (including peat bogs swamps, fens)	70
Other	Other	29

18. General ecological features:

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

The blanket bog exhibits a number of notable features such as extensive areas with hummock and lawn, and well-developed pool complexes and areas of quaking bogs and saddle mires. There are also areas of eroding peat. Bog vegetation is characterised by *Sphagnum* mosses notably *Sphagnum imbricatum* and *Sphagnum fuscum*. Vegetation on deeper waterlogged peat is characterised by the prominence of cross-leaved heath *Erica tetralix*, bog asphodel *Narthecium ossifragum* and common cottongrass *Eriophorum angustifolium*. On the more freely-draining slopes heather *Calluna vulgaris*, crowberry *Empetrum nigrum*, and hare's-tail cotton-grass *Eriophorum vaginatum* are dominant.

The area has well-developed flushes. The base-rich flushes characterised by black bog-rush *Schoenus nigricans*, sedges *Carex* spp. and brown mosses such as *Drepanocladus* spp. and *Calliergon* spp. A number of rare vascular plants are associated with this habitat.

Several types of upland and base-poor lakes occur on the plateau. The most common lake types are characterised either by the association of yellow waterlily *Nuphar lutea* with white water-lily *Nymphaea alba* or by an association in which water lobelia *Lobelia dortmanna* is prominent. Loughnatrosk is a mid-altitude lake which contains the rare opposite-leaved pondweed *Groenlandia*

densa. The marginal lake vegetation around most of the lakes tends to be sparse, consisting of a scattered swamp and poor acid fen fringe.

19. Noteworthy flora:

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

Nationally important species occurring on the site.

Higher Plants.

Dactylorhiza traunsteineri, Hammarbya paludosa, Carex pauciflora, Carex magellanica, Groenlandia densa.

20. Noteworthy fauna:

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

Species currently occurring at levels of national importance:
Species regularly supported during the breeding season:

European golden plover , *Pluvialis apricaria apricaria*, Britain/Ireland/Denmark/Germany	12 pairs, representing an average of 3% of the all-Ireland population (Source period not collated)

Species Information

Assemblage.

The site supports a diverse assemblage of breeding birds, including:
Lagopus lagopus, Pluvalis apricaria, Calidris alpina, Falco columbarius and *Circus cyaneus*.

21. Social and cultural values:

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

Aesthetic
Livestock grazing
Non-consumptive recreation
Sport fishing
Tourism

22. Land tenure/ownership:

Ownership category	On-site	Off-site
Private	+	+
Public/communal	+	+

23. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation		+
Rough or shifting grazing	+	
Domestic water supply	+	

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

Explanation of reporting category:

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

NA = Not Applicable because no factors have been reported.

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

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

25. Conservation measures taken:

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

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
Management agreement	+	
Site management statement/plan implemented	+	
Area of Outstanding National Beauty (AONB)	+	
Special Area of Conservation (SAC)	+	

26. Conservation measures proposed but not yet implemented:

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

No information available

27. Current scientific research and facilities:

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

The site was subject to detailed habitat and species surveys prior to its designation as an ASSI.
The integrity of site is regularly monitored.
The status of the yellow marsh saxifrage *Saxifraga hirculus* was assessed in 1995.
Preliminary trails on monitoring blanket bog vegetation were held in 1996.

28. Current conservation education:

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

None reported

29. Current recreation and tourism:

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

The Ulster Way crosses the site.

30. Jurisdiction:

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

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

31. Management authority:

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

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

32. Bibliographical references:

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

Site-relevant references

Corbett, P. McM & Seymour, GR (1997) The conservation of peatland in Northern Ireland. In: *Conserving peatlands*, ed by L Parkyn, RE Stoneman & HAP Ingram. CAB International, Wallingford, for Scottish Wildlife Trust

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Environment and Heritage Service (n.d.) *Site survey notes for the Garron Plateau* . Unpublished, Environment and Heritage Service, Belfast

Frazer, JS, Cruickshank, MM & Tomlinson, RW (1988) *Northern Ireland Peatland Survey. Part 5 – Fermanagh and South Tyrone*. Unpublished report to Department of the Environment (Northern Ireland), Countryside and Wildlife Branch, Belfast

McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection

Partridge, K (1992) *Northern Ireland Breeding Wader Survey – Final report*. Unpublished report to Department of the Environment (Northern Ireland), Countryside and Wildlife Branch, Belfast

Steele, D, Knight, G & Mellon, C (1997) *Antrim Hills Breeding Bird Survey 1997*. Unpublished report. RSPB

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

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

Whilde, A (1993) *Threatened mammals, amphibians and fish in Ireland – Irish Red data book 2: Vertebrates*. HMSO, Belfast

Wolfe-Murphy, SA, Lawrie, EW, Smith, SJ & Gibson, CE (1993) *Northern Ireland Lakes Survey*. Unpublished report to Northern Ireland Department of Environment, Countryside and Wildlife, Belfast

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GARRON PLATEAU SAC
UK0016606

CONSERVATION OBJECTIVES

Document Details

Title	*Garron Plateau SAC Conservation Objectives*
Prepared By	*R. McKeown*
Approved By	*P. Corbett*
Date Effective From	*12.10.2017*
Version Number	*V2.1*
Next Review Date	Nov 2020
Contact	cdp@daera-ni.gov.uk

Revision History:

Version	Date	Summary of Changes	Initials
V1.0	June 2013	Internal working document	PC
V2.0	Nov 2014	Complete review	RMK
V2.0	01.04.2015	Effective date of Version 2	PC
V2.1	12.10.2017	Removed wording '*excluding recently burnt areas*' from bare peat target in all relevant Annex tables	PMC

Site relationships

To fully understand the conservation requirements of this site, it is necessary to also refer to the Conservation Objectives for Antrim Hills SPA.

The Garron Plateau SAC boundary partially overlaps with the Antrim Hills SPA boundary.

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4. SITE INFORMATION

COUNTY: ANTRIM

GRID REFERENCE: ID230187

AREA: 4650 ha

5. SUMMARY SITE DESCRIPTION

The Garron Plateau is a basaltic headland area undulating to a maximum height of 440 m but generally lying between 330 and 380 m with scarps to Glenariff Glen and the Antrim coast and a gentler descent inland. The Upper Basalts predominate with limited exposure of the Lower Basalts. Notable features include flow-banded porphyritic lava's at Trosk.

The blanket bog, which covers much of the plateau, is the largest intact bog in Northern Ireland. Peat depth is variable and consequently the peatland structure is highly diverse with hummock, lawn and pool complexes on the deepest peats grading into large expenses of blanketing peats on low gradients to heathland communities on the steepest and more exposed slopes. Several lakes, on site have characteristically nutrient poor waters with some conforming to EU 'Habitats Directive' Annex I types.

Elsewhere locally mineral enriched flushing provides the alkaline fens priority habitat, and in hollows on the wetter more level parts of the blanket bog, the influence of mineral rich water provides the transition mires and quaking bog systems that are also listed in Annex I. The bog is well known for rare plant species from various represented habitats, including the Annex II Marsh saxifrage *Saxifraga hirculus* from a linear flush.

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 was drawn to include all areas of intact peatland, which included all small areas of damaged peatland contained within the greater expanse of intact peatland. Acidic grassland and large areas of degraded peatland were generally excluded. However, about 35% of the site owned by Northern Ireland Water (formerly Water Service NI) in the south of the site, was at their request included within the boundary and encompassed areas not central to the site interest.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/extent/ population
Habitat	**Active blanket bog**	**B**	3274 ha
Habitat	**Alkaline fen (upland)**	**B**	estimated 5 ha
Species	**Marsh saxifrage *Saxifraga hirculus* L**	**B**	1 small colony
Habitat	**Oligotrophic to mesotrophic standing water with vegetation belonging to *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea***	**C**	at least 2 lakes*
Habitat	**Northern Atlantic wet heath**	**C**	372 ha
Habitat	**Natural dystrophic lakes and pools**	**C**	1>1ha lake, 4< 1 ha, numerous pools total est. 15.3 ha
Habitat	**Transition mires and quaking bogs**	**C**	Estimated 23 ha
Habitat	European dry heath	D	74.4 ha

*40.7 ha reported on the Natura 2000 form is probably an overestimate

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

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

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

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

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

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

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

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

6.1 ASSI SELECTION FEATURES

Garron Plateau ASSI

Feature Type	Feature	Size/ extent/ population
Habitat	Blanket Bog	3297 ha
Habitat	Fens	5 ha
Habitat	Oligotrophic Lakes	40.7 ha
Habitat	Wet Heath	372 ha
Habitat	Dystrophic Lakes	15.3 ha
Habitat	Dry Heath	74.4 ha
Habitat	Mesotrophic lakes	Several lakes
Species	Hen Harrier	
Species	Merlin	
Species	Marsh Saxifrage *Saxifraga hirculus* L	
Species	Invertebrate Assemblage	
Earth Science	Tertiary Igneous series – flow-banded porphyritic lava's at Trosk	

Table 2. List of ASSI features.

7. CONSERVATION OBJECTIVES

The *Conservation Objective* for this site is:

To maintain (or restore where appropriate) the

- Active Blanket Bog
- Alkaline fen (upland)
- Marsh saxifrage *Saxifraga hirculus* L
- Oligotrophic to mesotrophic standing water with vegetation belonging to *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*
- Northern Atlantic wet heath
- Natural dystrophic lakes and pools
- Transition mires and quaking bogs

to favourable condition.

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

8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

Feature	Global Status	Component Objectives
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 associated with the blanket bog, 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.
Alkaline Fen (upland)	**B**	Identify the main areas of upland alkaline fen, describe and delineate them with more precision.
		Maintain the extent of existing alkaline fen.
		Maintain the diversity and quality of different alkaline fen habitat.
		Maintain and enhance fen species diversity including the presence of notable or rare species, within each type.
		Maintain the diversity and quality of associated habitats.
		Absence of erosion features associated with human impacts, and no exacerbation of natural erosion features.
Marsh saxifrage *Saxifraga hirculus*	**B**	Expand the existing population of Marsh Saxifrage *Saxifraga hirculus*.
		Seek nature conservation management over suitable areas within the SAC where there is possibility of restoring Marsh Saxifrage. (There is crossover here with the BAP for this species).

Oligotrophic to mesotrophic standing water with vegetation belonging to *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*	**C**	Open water area and water level regime to remain stable.
		The lake water to remain poor in plant nutrients and not to fluctuate outside normal limits.
		Characteristic aquatic vegetation to remain present.
		Minimal negative impacts from artificial structures.
		Minimal negative impacts from recreation.
Northern Atlantic wet heath with *Erica tetralix*.	**C**	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.
Natural dystrophic lakes and pools	**C**	Maintain the open water area of ponds and lakes.
		Maintain the extent of pool complexes and the numbers of pools within.
		The lake water to remain poor in plant nutrients and not to fluctuate outside normal limits.
		Characteristic aquatic vegetation to remain present.
		Minimal negative impacts from artificial structures.
		Minimal negative impacts from recreation.

		Identify the main areas of transition mires and quaking bog and describe and delineate them with more precision.

Transition mires and quaking bogs	**C**	Identify the main areas of transition mires and quaking bog and describe and delineate them with more precision.
		Maintain the area of open transition mire vegetation.
		Maintain the integrity of the various plant communities that are typical in different situations where this feature occurs.
		Maintain the water table at or very close to the surface. Ground should be soft, bouncy & squelchy.
European dry heath.	**D**	Maintain the extent of existing European dry heath vegetation.
		Maintain and enhance the quality of the existing dry heathland.
		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 European dry heath.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be the potential for dry heath rehabilitation.

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

Feature	Component Objective
Blanket Bog	See SAC Selection Feature Objective Requirements Table
Fens	See SAC Selection Feature Objective Requirements Table
Oligotrophic Lakes	See SAC Selection Feature Objective Requirements Table
Wet Heath	See SAC Selection Feature Objective Requirements Table
Dystrophic Lakes	See SAC Selection Feature Objective Requirements Table
Dry Heath	See SAC Selection Feature Objective Requirements Table
Mesotrophic Lakes	See SAC Selection Feature Objective Requirements Table
Hen Harrier	To be finalised
Merlin	To be finalised
Marsh Saxifrage *Saxifraga hirculus L*	See SAC Selection Feature Objective Requirements Table
Invertebrate Assemblage	To be finalised
Tertiary Igneous series	Maintain extent and quality of exposure, together with access to the feature subject to natural processes

10. MANAGEMENT CONSIDERATIONS

Ownership

In total over 100 owners/occupiers have been identified in the area as owners, or having grazing, turbary or sporting rights over various portions of the site. This complex pattern of ownership and grazing rights together with the added complication of turbary and shooting rights makes a unified approach to site management more difficult. Even within the Northern Ireland Water ownership, management is not straightforward.

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

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Garron Plateau, or could affect it in the future. Although **Active blanket**

bog, Alkaline fen, Marsh Saxifrage, Oligotrophic to mesotrophic standing water with vegetation belonging to *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*, North Atlantic wet heath, Natural dystrophic lakes and pools and Transition mires and quaking bogs are the qualifying SAC features, factors affecting ASSI features are also considered

NOTE - Carrying out <u>any</u> of the Notifiable Operations listed in the ASSI schedule could affect the site.

Peat Cutting.

There has been extensive peat cutting around the periphery of the Garron Plateau SAC in the recent past. Peat cutting by any method is a particularly damaging activity, including extrusion cutting which far from sparing surface vegetation, has very profound effects upon its ecology and hydrology. Although peat extraction has almost ceased within the SAC, there are some localised areas where peat extraction by hand is continuing. There should be no peat cutting within the SAC.
ACTION: No peat cutting within the SAC.

Burning

Burning of the vegetation is evident in places right across the site, although whether this is an agricultural management practice or an incidental effect of turf cutting is often unknown. Excessive burning favours acid grasses, *Molinia caerulea* and *Trichophorum cespitosum* at the expense of dwarf shrubs and destroys mature communities of *Sphagnum* mosses and of lichens. Blanket bog and wet heath should not be burnt and dry heath should not be burnt more than once every 12-20 years, and not at all in areas where the gradient is > 25^{o} as this may result in erosion. If burning is practiced, it should only be carried out between late October and early March and preferably on days when the wind is light and the ground is frozen or damp. If it is too dry or too windy the fire will be too hot, if it is too wet, combustion will be poor and subsequent regeneration weak. Therefore burning of peatland should only be carried out under controlled conditions.
ACTION : No burning within the SAC

Drainage

Reclamation of peatland involves drainage, liming and fertilisation that will always damage a functioning peatland. Heathland is particularly vulnerable to reclamation; the obtrusive bright green rectangles of re-seeded grass are a common adjunct to heathland landscapes throughout the country. Many of the lakes on the plateau are very nutrient-poor and thus very vulnerable to nutrient accumulation. Without study of the movement of water through the peat, within the lake areas, it would be difficult to predict the lakes exact catchment, so fertilisation for reclamation could also lead to their eutrophication.
ACTION :- Ensure there is no further reclamation of the lowland or upland heaths or blanket bogs within the SAC. Where active drains do occur seek management agreements with landowners/managers to arrange for them to be blocked. A

concerted effort should also be made to block 'moor-grips' that are continuing to carry water from the blanket bog. Ensure that all existing dams are maintained. Note that drainage works outside of the site's boundaries could potentially impact upon the bog's hydrology.
ACTION: Block active drains where appropriate.

Grazing
Over wintered sheep exert the most pressure on a peatland as this is when vegetation growth is minimal and the forces of erosion, most effective. At the most damaging intensities this can lead to soil exposure by vegetation removal and trampling which in turn can instigate erosion. Sheep are selective grazers and a less dramatic form of damage, at lower grazing intensities, is the decline in dwarf shrubs. Summer grazing intensity should be set at an appropriate level.

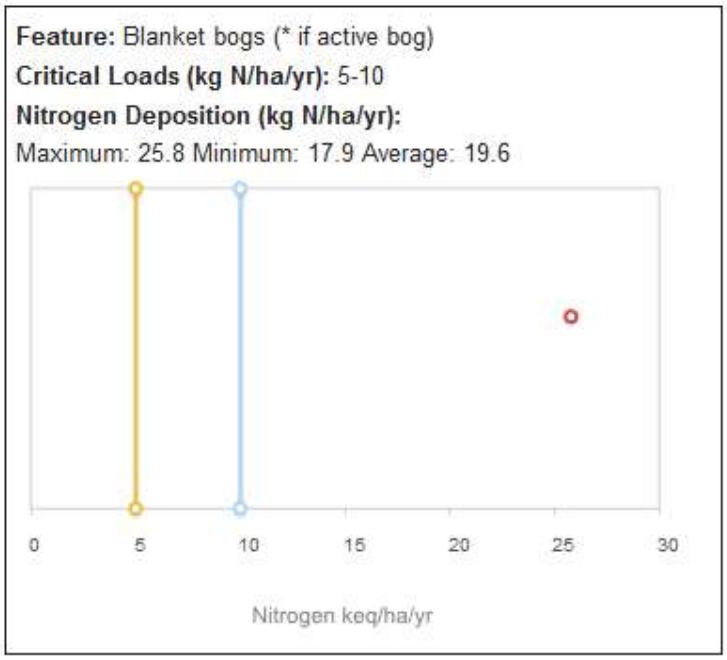
Ling heather (*Calluna vulgaris*) can tolerate the removal by grazing of 40% of the season's growth but heavier grazing begins to have more of an effect on the plant. Autumn grazing is potentially more damaging to heather and particular care should be taken to avoid autumn overgrazing. The commonage system tends to promote overstocking. Under-grazing, or the cessation of grazing, results in the prevalence of over-mature and degenerate Ling heather (*Calluna vulgaris*) (burning may then be a useful form of restorative management).
ACTION: Establish a sustainable stocking density within each management unit of the Garron Plateau SAC and ensure set grazing prescriptions are strictly adhered to. Continue careful monitoring of the blanket bog and heathland communities to establish if the set grazing prescriptions are allowing the peatland communities to recover towards favourable condition. Setting grazing levels are particularly important around the flush with the Marsh saxifrage, where it could be excluded by rank vegetation, or alternatively completely grazed out by sheep.

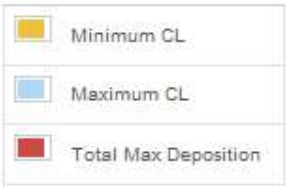
Supplementary stock feeding
Supplementary feeding causes localised overgrazing and poaching damage.
ACTION : Supplementary feeding should be avoided. If this not an option, it should be confined to less sensitive areas. Particularly avoid denuded sloping areas and pockets of deeper level peat which are vulnerable to counter wind and gully erosion.

Afforestation
Preparation for afforestation involves disturbing the surface by draining, ploughing, or mounding. Establishment of the trees involves fertilisation, pest control and often liming. A successfully established plantation will shade the peat surface and intercept airborne pollutants. Peatland subjected to forestry operations has little potential to recover after harvesting.
ACTION: There should be no further afforestation of peatland. Every effort should be made by Forest Service to ensure wind blown fertiliser and lime does not affect peatlands of conservation interest.

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 Garron Plateau SAC.





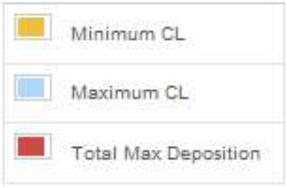
Feature: Alkaline fens

Critical Loads (kg N/ha/yr): 15-30

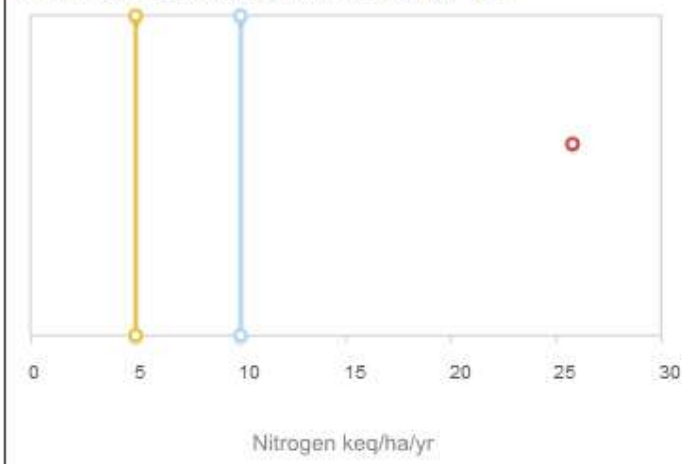
Nitrogen Deposition (kg N/ha/yr):

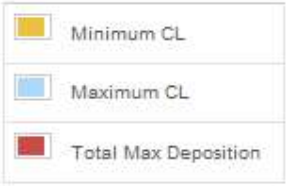
Maximum: 25.8 Minimum: 17.9 Average: 19.6





Feature: Saxifraga hirculus - Marsh saxifrage
Critical Loads (kg N/ha/yr): 5-10
Nitrogen Deposition (kg N/ha/yr):
Maximum: 25.8 Minimum: 17.9 Average: 19.6



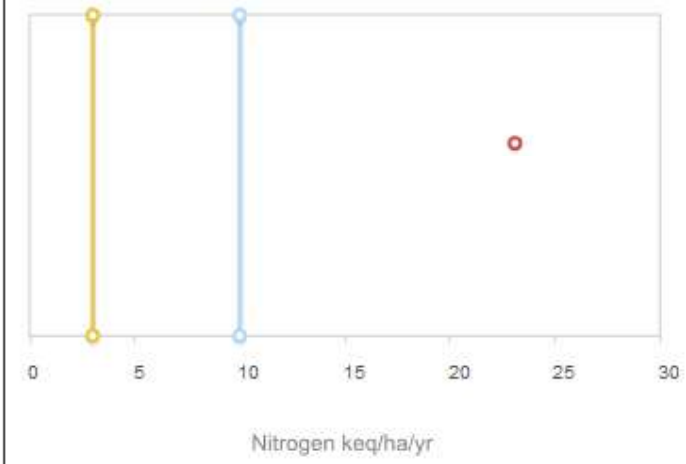


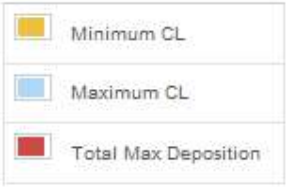
Feature: Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea

Critical Loads (kg N/ha/yr): 3-10

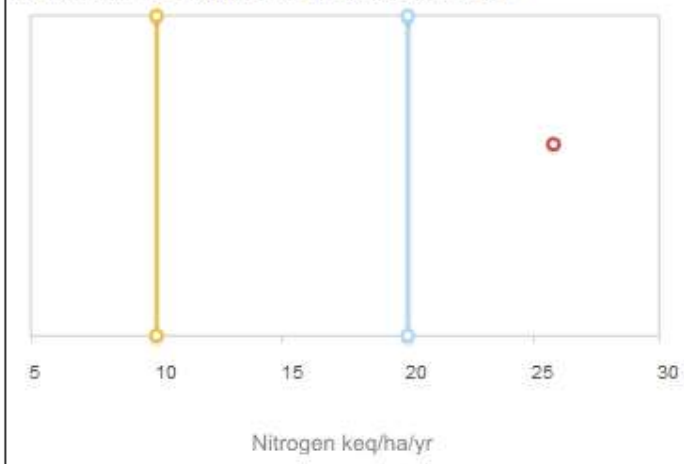
Nitrogen Deposition (kg N/ha/yr):

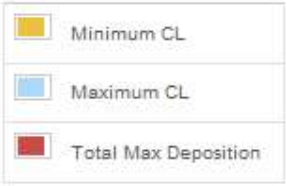
Maximum: 23.1 Minimum: 14 Average: 18.8



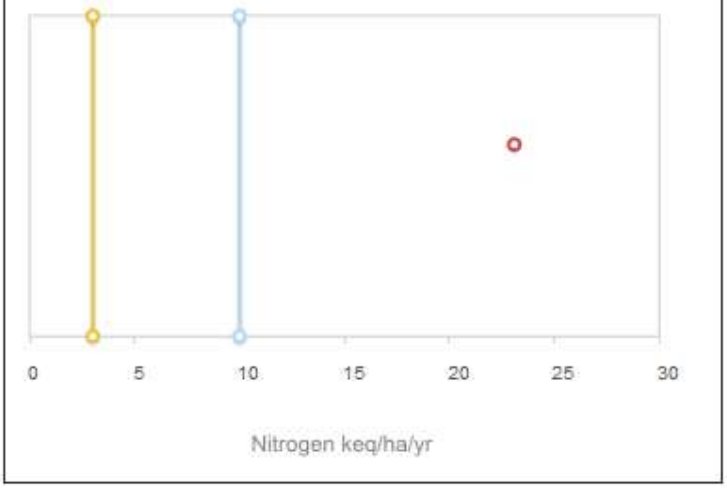


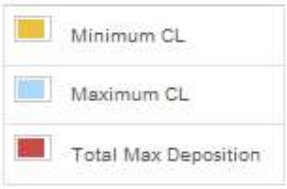
Feature: Northern Atlantic wet heaths with Erica tetralix
Critical Loads (kg N/ha/yr): 10-20
Nitrogen Deposition (kg N/ha/yr):
Maximum: 25.8 Minimum: 17.9 Average: 19.6



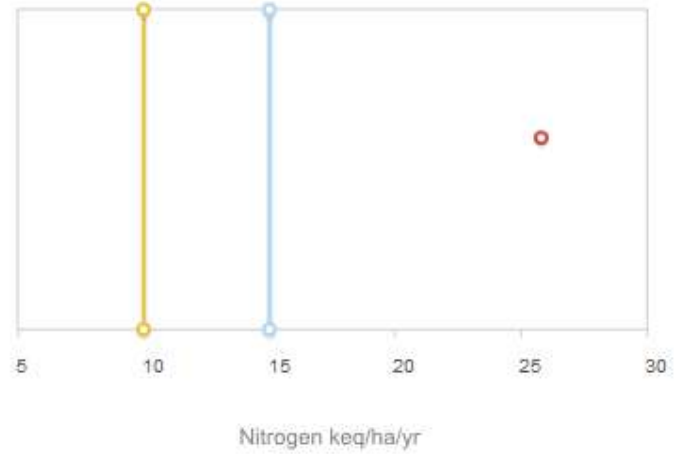


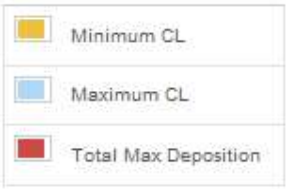
Feature: Natural dystrophic lakes and ponds
Critical Loads (kg N/ha/yr): 3-10
Nitrogen Deposition (kg N/ha/yr):
Maximum: 23.1 Minimum: 14 Average: 18.8

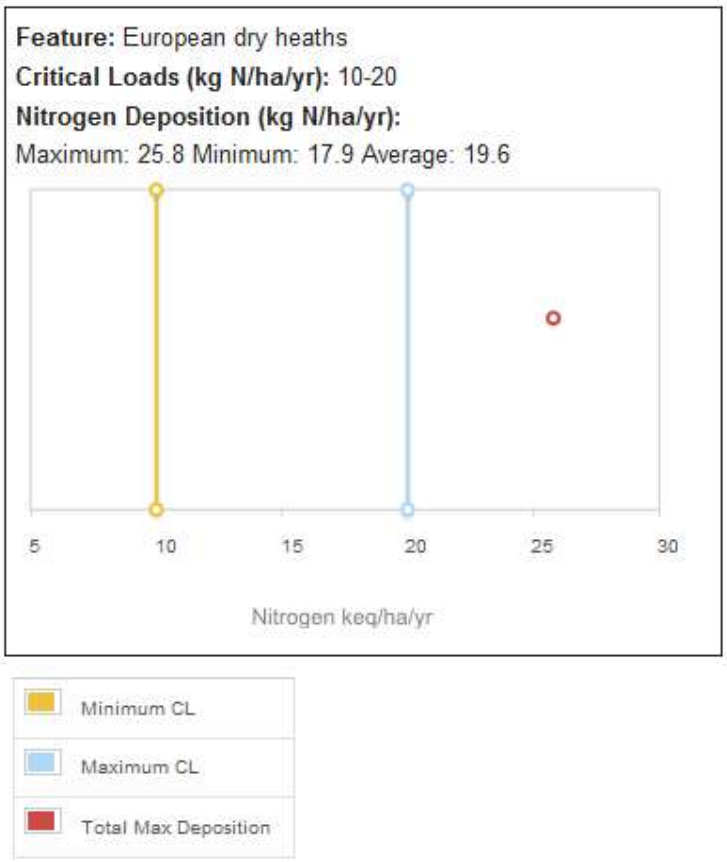




Feature: Transition mires and quaking bogs
Critical Loads (kg N/ha/yr): 10-15
Nitrogen Deposition (kg N/ha/yr):
Maximum: 25.8 Minimum: 17.9 Average: 19.6







(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.

Damaging recreational activities

Four-wheeled drive vehicles can cause localised vegetation loss, which may cause significant erosion, particularly on sloping areas. Increasing walking activity may have some detrimental affect on the heathland and blanket bog communities through path erosion. Ideally, a sustainable level of recreational activity should be established to ensure there is no adverse affect on the upland vegetation communities.

ACTION: Restricting the use of four-wheeled drive vehicles is of paramount importance. Also, ensure all steps are taken to minimise the impact of hill walking throughout the Garron Plateau SAC by promoting all recreational activities into areas that are not highly sensitive to disturbance.

Fly-tipping

Disposal of aluminium-based flocculent sludge (gibbsite) from Northern Ireland Water reservoir operations, although not containing plant nutrients in a significant quantity, can cause habitat loss or stress at the spread site. The sludge contaminants, such as labile aluminium, can accumulate in aquatic systems

which can threaten aquatic life especially at a low pH when the concentrations can reach toxic levels.
ACTION: The long term objective must be to halt this spreading of sludge onto the peatland communities adjacent to tracks within Northern Ireland Water land ownership. Negotiations with Northern Ireland Water should be initiated to decide on a suitable alternative method of sludge disposal.

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 bog and associated habitats through desiccation).

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 the fencing is still intact. Ensure there has been no moor gripping or other drainage activities, signs of excessive erosion,

evidence of inappropriate grazing or burning, or unauthorised peat cutting, 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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Feature 1 (SAC) – Active blanket bog (Status B)

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

Attributes	Targets	Method of Assessment	Comments
Extent			
* Area of blanket bog and upland raised mire (ha)	Maintain the extent of the intact bog surface (at 3274 ha where known).	Visual estimate in 2x2 m plots and across the blanket bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	The blanket bog communities include M17 – *Scirpus cespitosus Eriophorum vaginatum* blanket mire, M18 – *Sphagnum papillosum* raised and blanket mire and M19 *Calluna vulgaris* - *Eriophorum vaginatum* blanket mire.
* Area of mosaic communities and associated habitats	Maintain associated mosaic communities and habitats (wet heath, dry heath, upland fen, etc)	Visual estimate across the ASSI 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.
Structure			
* Pool/hummock system extent and complexity	The extent and complexity of pool and hummock systems at least maintained. Differentiation of *Sphagnum* species should be recorded with *S. cuspidatum* or *S. auriculatum* in the pools and *S. papillosum* and *S. capillifolium* forming the lawns and hummocks.	The extent of pool and hummock systems should be monitored using a combination of aerial photographs and SIM.	The extent of pool and hummock systems should be monitored using a combination of aerial photographs and Condition Assessment. Within Garron Plateau SAC, there are number of complex pool systems

Dwarf-shrub Height (cm)	Average ericoid height should be 15 –30 cm.	Visual estimate in 2x2 m plots.	On some areas of blanket bog, the dwarf-shrub height will largely reflect recent management patterns. However, on largely undisturbed sites with minimal or no grazing, dwarf shrubs should display no apparent growth forms with a fairly uniform height between 15 – 30cm.
* Bare Peat, or ground covered by algal mats (%)	Bare peat etc should occupy less than 2% of the intact blanket bog surface overall.	Visual estimate in 2x2 m plots.	Bare peat, or bare ground carpeted by *Polytrichum* spp., *Campylopus* spp. crust forming lichens or algal mats can occur as a consequence of peat cutting or excessive burning and/or grazing. 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.
Vegetation Composition – Positive Indicators			
**Sphagnum* Cover/Abundance (% cover and frequency)	*Sphagnum* moss species should have a minimum cover of 25% over at least 66% of the intact lowland raised bog surface.	Visual estimate in 2x2 m plots.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the blanket bog surface.

Active Peat Formation (DAFOR)	Thick, hummock forming species of sphagnum should be at least occasional.		
* Ericaceous Cover (%)	Ericoid cover Frequent over the surface of the intact blanket bog. Dwarf-shrub cover greater than 33%. Less than 33% is only acceptable in wetter areas where *Narthecium ossifragum* or *Sphagnum* spp. are abundant and forming lawns.	Visual estimate in 2x2 m plots.	Ericoid (dwarf-shrub species) include *Calluna vulgaris*, *Erica tetralix*, *E. cinerea*, *Myrica gale*, *Vaccinium myrtillis and Empetrum nigrum*.
* Ericoid diversity (DAFOR)	At least two species of dwarf-shrub should be Widespread and Frequent. Where three or more species are present, but only one Frequent and Widespread, the abundance of the less abundant species may be combined and treated as if they are a single species.	Visual estimate in 2x2 m plots.	A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – ie the water table is too low beneath the surface of the bog.
Vegetation Composition – Indicators of negative Change			
* Scrub/tree encroachment on any active peat surface (DAFOR)	Scrub/tree encroachment should be no more than Rare on the intact bog surface, or in the actively regenerating cutover areas.	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 *Rhododendron ponticum* should be removed immediately.
* Erosion Features associated with human impacts	No gully erosion or bare peat associated with more concentrated human impacts (eg drainage, peat extraction, ATV tracks or recreational activities). Man	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

(% and DAFOR)	induced/enhanced erosion should occupy less than 2% of the total area of blanket bog other than very localised instances.		of blanket bog, particularly marginal fretting on breaks of slope. However, where natural erosion is exacerbated by human activity, the bog will not be in favourable condition, except where such erosion is very limited in nature.
* Graminoid Cover (%)	Total cover of graminoids should not exceed 50%, unless dominated by *Molinia caerulea* forming even swards over waterlogged areas with *Sphagnum* moss cover greater than 25%.	Visual estimate in 2x2 m plots.	Include true grasses, sedges, and rushes in this assessment. *Eriophorum vaginatum*, *Trichophorum cespitosum*, *Deschampsia flexuosa*, *Juncus squarrosus* or other graminoids (except *Molinia* in some instances) should not dominate over other species.
* Management - Peat extraction	No evidence of unconsented active peat extraction.	Visual estimate in 2x2 m plots and across the blanket bog using a combination of aerial photographs, SIM and Condition Assessment structured walk..	In some instances areas of cut peat can re-vegetate with good blanket bog vegetation which meets the attributes for favourable condition.
* Management - Grazing (%)	Signs of moderate or heavy grazing by cattle or sheep should occupy less than 5% of the blanket bog vegetation within any grazing unit.	Visual estimate in 2x2 m plots.	The frequency of droppings, the extent of poaching and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing where any one of the above is recorded as more than occasional.
Indicators of Local Distinctiveness			
Molinia caerulea Cover (%)	Where *Molinia caerulea* cover is greater than 50%, it should form an even (not tussocky) sward in waterlogged conditions	Visual estimate in 2x2 m plots.	*Molinia caerulea* only occurs as a natural component of the bog vegetation in the extreme west of Northern Ireland where

	with *Sphagnum* moss cover greater than 25%.		the climate is generally warmer and wetter ie more oceanic.
Presence of rare or scarce species specific to the site.	*Sphagnum imbricatum* and *Sphagnum fuscum*, where they have been recorded, should remain at least present along the length of each of the w-walks.	Visual estimate in 2x2 m plots.	If these species are not recorded on any one visit, it does not automatically make the SAC unfavourable.

Feature 2 (SAC) – Alkaline fen (upland) (Status B)

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

Attribute	Targets	Method of Assessment	Comments
Extent			
* Area of Fen	Maintain the extent of fen (at 5 ha).	Visual estimate in 2x2m plots and across the extent of the fen should be monitored using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Variety within fens is determined by water supply mechanism, hydroseral succession and land management practices. Account should be taken of successional processes and management aims/priorities.
* Mire community diversity	Maintain presence of fen communities *M10* as established at base line survey.	Visual estimate in 2x2m plots.	Natural succession may lead to an increase in the area of certain communities and a decrease in others. The most likely changes are subtle shifts in species composition as a result of eutrophication or water-level changes. Repeat monitoring of plots using GPS should indicate whether fen communities have changed or been lost.
Presence of associated semi-natural habitats	Maintain existing associated semi-natural habitats (blanket bog, wet heath, dry heath etc.)	Visual estimate in 2x2m plots and across the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost. Note: Loss of associated habitats to fen communities may be desirable in some instances.

Vegetation structure			
Vegetation height (cm)	Mean vegetation height of short calcareous and alkaline fen should be 5 – 15 cm.	Visual estimate in 2x2 m plots.	Note some short calcareous and alkaline fen communities, such as M9, may be marginally taller than 15 cm, but these can be set with more precision after the baseline survey.
* Cover of litter/thatch accumulation (% cover)	Less than 25% mean cover. Lower thresholds may be appropriate for short calcareous and alkaline fen.	Visual estimate in 2x2m plots.	More than 25% litter cover indicates insufficient removal of biomass by grazing. In short fen communities such as M9, M10, a lower threshold for thatch should be set - perhaps 10% (to be determined).
* Extent of bare mud visible without disturbing the vegetation (% cover)	Less than 10% mean cover.	Visual estimate in 2x2m plots.	A high cover of exposed substrate will usually be undesirable and may indicate over-grazing and water scour. Patches of exposed substrate are likely to be more typical/desirable for short fen communities such as M10 which is often based on unconsolidated peat exposed beneath a water film.
Vegetation composition – Positive Indicators			
* Combined cover of key indicator species as listed below. (Short calcareous and alkaline fen only)	At least 75% of the vegetation cover should be made up of key indicator species.	Visual estimate in 2x2m plots.	This is only applicable to short calcareous and alkaline fen.
* Frequency of positive indicators for calcareous and alkaline fen (DAFOR	At least six indicator species at least occasional, of which three are at least frequent	Visual estimate in 2x2m plots.	The suite of key communities to be monitored is chosen on a site specific basis.

scale) *Anagallis tenella, Briza media, Carex dioica, C. flacca, C. hostiana, C. panicea, C. pulicaris, , C. viridula, Equisetum palustre, Juncus articulatus, Linum catharticum, Parnassia palustris, Pingiucula vulgaris, Selaginella selaginoides, Triglochin palustre, Euphrasia spp., Orchid spp., Pedicularis spp., Succisa pratensis.*	throughout the sward:		
Vegetation composition – Indicators of Negative Change			
* Frequency and % cover of scrub/tree encroachment on the fen communities (DAFOR and % cover).	Scrub/tree encroachment including *Betula*, *Salix*, *Rhododendron* etc. should be no more than occasional over the fen communities. Mean cover should be less than 10 %.	Visual estimate within a 10x10 m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk.	Scrub and woodland are integral components of many fen systems and may be particularly important for invertebrates. However, invasion by woody species, primarily Betula and Salix, and their development to maturity may indicate drying out, dereliction, disturbance and/or enrichment.

* Frequency and % cover of negative indicator species- eutrophication indicators: *Phalaris arundinacea, Glyceria maxima, Typha latifolia, Epilobium hirsutum, Urtica dioica.*	No one negative indicator species more than rare throughout the fen and/or singly or together comprising more than 5% cover.	Visual estimate in 2x2m plots.	
* Frequency and % cover of negative species – indicating lack of management/ successional changes: *Filipendula ulmaria, Phragmites australis.*	No one negative indicator species more than occasional throughout the fen and/or singly or together comprising more than 10 % cover.	Visual estimate in 2x2m plots.	
* % cover of *Juncus* spp in Group A and B Group A: jointed rushes (*Juncus acut/arti/subnod*) Group B: *J. conglomeratus, J. effusus and J. inflexus.*	All species combined less than 20% cover and less than 5% made up of species from Group B.	Visual estimate in 2x2m plots.	
* Cover of grasses (excludes *Phalaris* and *Phragmites*, but includes the rank grasses) *Arrhenatherum elatius, Deschampsia cespitosum, Brachypodium sylvaticum.*	All grass species combined less than 20% cover and less than 10% made up of rank grasses.	Visual estimate in 2x2m plots.	

Fen hydrology			
* Groundwater elevation	'Ground soft, bouncy and squelchy'.		In upland alkaline fens, the ground will be squelchy, but because the rock surface is generally just below the surface of the fen, it will not be soft and bouncy.

Feature 3 (SAC) – Marsh saxifrage *Saxifraga hirculus* L. (Status B)

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

Attributes	Measure	Target/Limit	Comments
Population	Vegetative count of rametes	>500 (individual shoots or rosettes)	130 rametes were recorded in 1999.
Population	Visual assessment of population fitness	Frequent flowers and capsules	In 1996 3 flowers were recorded. Flowering tends to be rare when swards are grazed. Although the plant reproduces vegetatively, flowering and the setting of fertile seed is essential to the long-term population viability.
Sward Structure: Height	Visual assessment	5-25cm	Heavy grazing can be tolerated for short periods, but lack of flowering and physical damage to vegetation by livestock may lead to population and/or genetic attrition.
Sward Structure: Open flushes	Visual assessment	Requires open calcareous flushes and rills.	
Hydrology		No modification to the natural hydrological pattern is acceptable.	
Shade	Visual assessment	Trees and shrubs should be absent	

Feature 4 (SAC) Oligotrophic to mesotrophic standing water with vegetation belonging to *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* (Status C)

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

Attributes	Measure	Target	Comment
Extent	Assessment against baseline map. Aerial photographs may be used.	No loss of extent of standing water	
Composition of macrophyte community	Characteristic species composition	No loss of characteristic species present at the site	This type of water body occurs in the majority of Member States and is abundant in the more mountainous areas of Europe. In the UK this freshwater habitat type is largely confined to the mountainous regions of the north and west and is characterised by two intergrading types: oligotrophic and mesotrophic waters. The vegetation community is characterised by amphibious short perennial vegetation, with shoreweed *Littorella uniflora* being considered a defining component. There are two distinct community types, one extremely oligotrophic with the presence of *Subularia aquatica* as the main associate, with *Littorella uniflora* and *Isoetes lacustris*. *Myriophyllum alterniflorum, Lobelia dortmanna* and *Sparganium angustifolium* occur as associates. The other community has a clinal range of species as the trophic state increases. These richer trophic states cannot support *Subularia*

			aquatica but the presence of some or all of *Nuphar lutea, Persicaria amphibia, Sparganium minimum, Potamogeton perfoliatus, P obtusifolius* is indicative of an increased trophic state. (N.B. *Subularia* may be naturally absent from some regional areas.) Two nationally scarce plants *Luronium natans* and *Pilularia globulifera* occur at the interface between oligotrophic and mesotrophic water types. **As this interest feature covers a wide range of trophic states it is essential to establish which community type represents the feature for the site in question.** The presence of high cover of *Sphagnum* species and/or *Juncus bulbosus* var. *fluitans* above 40% level for oligotrophic waters and *Myriophyllum* or *Elodea canadensis* above 40% level or presence of *Elodea nuttallii* for mesotrophic waters is indicative of a site in unfavourable condition.
	Non-native plants	Non-native species should be absent or present at low frequency. No introductions of non-native species	e.g. Presence of *Crassula helmsii* is indicative of a site moving out of favourable condition; dominance of *C. helmsii* is indicative of a site in unfavourable condition.
*Macrophyte community structure	Distribution Extent Structure	Characteristic zones of vegetation should be present Maintain at least the present maximum depth distribution of *Isoetes*	Characteristic zonation with increasing depth should be: *Littorella,* then overlapping zones of *Littorella* with *Lobelia,* then *Isoetes* ***L. uniflora*** **and** ***L. dortmanna*** **dominant in depths <1.5 m;** ***Isoetes*** **dominant > 1.5 m.** ***Isoetes*** **has been recorded in Waste Water at depths of 7 m. It is very sensitive to wave action, setting a shallow depth limit particularly in exposed sites.**

		Maintain at least the present community structure	
*Water quality	Water Chemistry	Maintain oligotrophic/mesotrophic conditions The pH/ANC, and nutrient levels (P and N) should be stable and appropriate for the interest feature	As a guide Stable nutrient levels: TP target/limit: Oligotrophic = 10 μg L^{-1} Stable nutrient levels: TP target/limit: Mesotrophic = 10 μg L^{-1} Stable pH values: pH – 5.5 to circumneutral Adequate dissolved O_2 (>5 μg L^{-1}) There is a wide clinal range of community types embraced in this feature. Water quality targets should be set for individual SACs and an acceptable range established. The acceptable range of chemical conditions (especially total P, other forms of phosphorus, pH/ANC, and where appropriate NO_3-N,) should be set for individual SACs from recent or historical water chemistry data Check for changes in catchment land-use in the catchment causing diffuse pollution and/or siltation and check point sources of pollution. Aerially applied agro-chemicals have a high potential to change plant communities, and move them out of favourable condition. Other methodologies involving trophic scoring can contribute to the assessment of favourable condition. There is a need to develop a UK-wide lake environment monitoring protocol, which includes biology, water chemistry, nutrients, aesthetic

			conditions and toxic substances.
Hydrology	Hydrological regime	No deterioration in hydrological regime compared to the baseline.	Natural flushing rate and seasonal pattern of fluctuation need to be considered. Maintain flushing rate of system. Modifications of inflows and outlets or changes in hydrology (e.g. from flood control regimes, abstraction and gravel removal) can lead to unnatural changes in lake levels. *L. uniflora* can tolerate extreme inter-annual fluctuations in water level and long periods of exposure. *L. dortmanna* is tolerant of short periods of exposure but intolerant of desiccation.
Lake substrate character	Shore line and substrate	Maintain the natural shoreline of the lake. Substrate should be natural and	Substrate is typically sand, gravel, stones and boulders with low organic content but sometimes locally high peat content. Sediment quality and quantity when enriched can cause excessive growths of *Juncus bulbosus* var. *fluitans* or growths of algae.

		characteristic of lake type.	
Sediment load	Sediment load	Minimal	Increases in siltation could result from increased lake productivity, changes in catchment land-use (particularly over-grazing), lake level fluctuations, climatic fluctuations or changes in sewage treatment.

Aspects of environmental disturbance to be noted as an accompaniment to assessing favourable condition

Objective	Specified assessment method (if appropriate)	Comment
Minimal negative impact from artificial structures		Artificial structures could include boat-mooring facilities, dams, fish reefs.
Minimal negative impact from recreation		Negative impacts from recreational activities can include enrichment caused by ground baiting, introduction of bottom feeding fish and other organisms not characteristic of the habitat, increased disturbance to SACs from water-sports.
Direct application of lime to the water column as an acidification amelioration strategy should not be carried out		Efforts should be directed towards reducing atmospheric emissions and implementing catchment management strategies, especially in relation to coniferous forestry.
No impacts from fish farming		
Catchment area changes affecting the lake, such as flood defences and infrastructure schemes should be considered.		

Feature 5 - Northern Atlantic wet heath (Status C)

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

Attributes	Targets	Method of Assessment	Comments
Extent			
* Area of wet heath	Maintain the extent of wet heath estimated 372 ha.	Visual estimate in 2x2 m plots and across the wet heath using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Any loss of wet heath, or fragmentation of this habitat is unacceptable. Note that it may be possible to extend wet heath communities, provided this is into degraded areas and does not encroach into other habitats of scientific interest.
* Heath community diversity	Maintain the presence of the wet heath community M15 as established at base line survey.	Visual estimate in 2x2 m plots.	Repeat monitoring of plots using GPS should indicate whether wet heath communities have changed or been lost.
* Area of mosaic communities and associated semi-natural habitats	Maintain associated mosaic communities and semi-natural habitats (dry heath, blanket bog, alkaline fen etc)	Visual estimate in 2x2 m plots and across the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost.
Vegetation Structure			
Dwarf-shrub height	Average ericoid height should be 15 – 35 cm with at least 25% of the wet heath in the late mature/degenerate	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

	growth phase (greater than 35 cm).		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 *Polytrichum* spp., *Campylopus* 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.
Vegetation Composition – Positive Indicators			
* Ericaceous cover (% cover)	Dwarf-shrub cover should be maintained between 50 – 75%	Visual estimate in 2x2 m plots.	Although dominated by dwarf shrubs, the sward should be composed of a variety of higher plants and bryophytes.
* Ericoid diversity	At least two species of dwarf-shrub at least present in 90% of plots.	Visual estimate in 2x2 m plots.	Ericoid (dwarf-shrub species) include *Calluna vulgaris*, *Erica tetralix*, *Empetrum nigrum* and *Myrica gale*.
* Cover of graminoids (% cover)	Total graminoid cover should be less than 50%.	Visual estimate in 2x2 m plots.	Include true grasses, sedges, and rushes in this assessment. *Molionia caerulea, Trichophorum cespitosum, Deschampsia flexuosa*, *Juncus squarrosus* or other graminoids should not dominate over other species. Localised *Schoenus nigricans* flushes should not be included in this habitat assessment.
* Bryophyte cover and frequency of *Sphagnum* mosses.	Mean bryophyte cover (excluding *Polytrichum* spp. and *Campylopus* spp. on bare	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-

(% cover and DAFOR)	ground) should be at least 25%. *Sphagnum* moss species should be at least Frequent throughout the moss layer.		shrubs as well as *Sphagnum* moss species.
Vegetation Composition – Indicators of Negative Change			
* 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%.	Visual estimate within a 10x10 m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk.	Scrub encroachment should be checked using a combination of aerial photographs and Condition Assessment. Invasive exotic species such as *Rhododendron ponticum* should be removed immediately.
* Frequency and cover of undesirable agricultural grasses and weeds (DAFOR and % cover)	None of the following should be more than rare: *Cirsium arvense, C. vulgare, Senecio jacobaea, Urtica dioica, Plantago major, Phleum pratense, Trifolium repens, Holcus lanatus* and *Lolium perenne*. Combined mean cover of agricultural grasses and weeds less than 1%.	Visual estimate in 2x2 m plot.	

* Management - Grazing (% cover)	Signs of moderate or heavy grazing should occupy less than 5% of the wet heath vegetation.	Visual estimate in 2x2 m plots.	The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs and invasion by *Juncus squarrosus* etc. indicate moderate and heavy grazing.
* Management - Burning (% cover)	Signs of recent burning should occupy less than 5% of the wet heath vegetation.	Visual estimate in 2x2 m plots and across the feature using a combination of aerial photographs, SIM and Condition Assessment structured walk.	
Frequency and cover of Erosion Features associated with human impacts (DAFOR and % cover)	No gully erosion, bare peat or rock associated with more concentrated human impacts (ATV tracks or recreational activities). Man induced/enhanced erosion should occupy less than 2% of the total area of wet heath other than very localised instances.	Visual estimate in 2x2 m plots.	The extent of man induced erosion should be monitored using a combination of aerial photographs and Condition Assessment. Erosion is a natural feature of high mountain slopes. However, where natural erosion is exacerbated by human activity, mainly hill walking, the heath will not be in favourable condition, except where such erosion is very limited in nature.
Indicators of Local distinctiveness			
None recorded for wet heath on the Garron Plateau to date.			

Feature 6 (SAC) – Natural dystrophic lakes and pools (Status C)

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

Attributes	Measure	Target	Comment
Extent	Assessment against baseline map. Aerial photographs may be used.	No loss of extent of standing water	This attribute is to assess changes caused by active management, such as infilling or channel diversion. Changes due to drying out or successional change are covered under other attributes.
***Composition of macrophyte community**	Characteristic species composition	i). No loss of characteristic species present at the site (see Box 5)	In the UK dystrophic lakes are widespread in the north west and scarce in the south. These systems most often occur on blanket bog and may include isolated seasonal pools, random collections of irregularly shaped waters and ordered linear or concentric arrays of pools and small lochs. Dystrophic pools may also be found on raised bogs situated mainly on plains and valley bottoms. The water usually has a high humic acid content and is usually stained brown through exposure to peat. Some dystrophic lakes are completely devoid of all macrophytes, while others may be completely dominated by bryophytes. This does not necessarily indicate unfavourable condition. With increasing diversity the–characteristic species are usually *Drepanocladus fluitans* and/or *Juncus bulbosus* as submerged macrophytes, with *Sphagnum* communities present around the edge or in the littoral zone. *Menyanthes trifoliata, Potamogeton polygonifolius* and *Nymphaea alba* may also be present and at richer sites, *Utricularia minor* and *Nuphar lutea.* **There may be valid reasons why a characteristic species is not**

Attributes	Measure	Target	Comment
			present at a site (such as biogeographic range or isolation from source populations) which need to be considered when applying targets to an individual site. As this interest feature covers a floristic range it is essential to establish which community type represents the feature for the site in question. If algal growth is excessive, check for inputs of point or diffuse sources of pollution. If mire communities surround the site, the mire vegetation will turn green in the presence of fertilisers. Increased growth of *Sphagnum* may indicate the occurrence of artificial acidification. Turbid water conditions can also give blue-green algae a competitive advantage in the phytoplankton, where artificial nutrient enrichment is taking place. *Juncus bulbosus* var. *fluitans* can naturally grow as the dominant plant i.e. > 40% cover in depths up to 1.75 m, and is not necessarily an indicator of a site in unfavourable condition.
	Negative indicator species	Non-native species should be absent or present at low frequency	Introduced species should be identified. A number of non-natives have such invasive potential that they should be assessed separately. Species of particular concern are: *Crassula helmsii*, *Hydrocotyle ranunculoides*, *Myriophyllum aquaticum* and *Azolla filiculoides*. If any of these species are present, a water body should be considered as being in unfavourable condition. This list is not exhaustive and should be updated as new threats become apparent. Colonisation since the previous field visit by *Elodea nuttallii* or *Elodea*

Attributes	Measure	Target	Comment
			canadensis at >5% frequency is indicative of unfavourable condition, as is dominance of naturalised non-native species, such as *E. canadensis*. Occurrence of such species, at >40% frequency in unproductive waters, is indicative of unfavourable condition. Excessive growths of filamentous algae on lake substrate or macrophytes are indicative of nutrient enrichment. Increased filamentous green algae may also indicate the occurrence of artificial acidification.
***Macrophyte community structure**	Distribution Extent Structure	Characteristic zones of vegetation should be present. Maximum depth distribution should be maintained. Maintain at least the present structure.	Zonation , depth distribution and structure will be site specific. Colonisation at depth may be limited by poor light penetration or unsuitable sediment type. Where present, well defined hydroseres should be maintained.
***Water quality**	Water Chemistry	Maintain dystrophic conditions The pH/ANC, and nutrient levels (P and N) should be stable and appropriate to the lake type	As a guide Stable nutrient levels: TP target/limit: Dystrophic = 10 $\mu g\ L^{-1}$ Stable pH values: pH < 5.0 Adequate dissolved O_2 (>5 $\mu g\ L^{-1}$) **Water should be acid and poor in available nutrients. It should be**

Attributes	Measure	Target	Comment
		Adequate dissolved oxygen levels for health of characteristic fauna. No excessive growth of cyanobacteria or green algae.	stained by dissolved humic material, and will usually be visibly brown. As there is a wide clinal range of community types embraced by this feature, the acceptable range of chemical conditions (especially total P, other P fractions, pH/ANC, and where appropriate NO_3-N,) should be set for individual SAC lakes, from recent or historical water chemistry data. Acceptable ranges of values for each variable should be established. See main text. Mean annual TP concentrations (based on at least quarterly measurements), or spring TP levels, should meet the targets appropriate for the lake type documented in the guidance, unless site-specific targets are available. If palaeolimnological techniques or hindcast modelling have been employed to reconstruct natural background TP concentrations for a particular lake these can be used to set targets, although it may be necessary to accept a small deviation from these background conditions. Alternatively, historical water chemistry data may exist for individual lakes. Where existing, site-specific TP concentrations are consistently lower than the standard appropriate for the habitat type, a lower target should be applied to prevent deterioration from current status. Phosphorus and nitrogen values can be very variable, P is often in excess and plant development is limited by unavailability of N in the peat. Check for changes in catchment land-use in catchment causing

Attributes	Measure	Target	Comment
			diffuse pollution and/or siltation and check point sources of pollution. Aerially applied agro-chemicals have a high potential to change plant communities, and move them out of favourable condition. Other methodologies involving trophic scoring can contribute to the assessment of favourable condition. **As a guide, pH < 5.00. Note that where water column pH is 4.5 or less, alkalinity will be 0.** Levels of dissolved oxygen should support the invertebrate and vertebrate taxa associated with this lake type. There should be no evidence of excessive blue-green or green algal blooms.
Hydrology	Hydrological regime	No deterioration in hydrological regime compared to the baseline.	**Natural flushing rate and seasonal pattern of fluctuation need to be considered.** **Maintain flushing rate of system.** Modifications of inflows and outlets (where present), the creation of outlets, or changes in hydrology from flood control regimes, abstraction, peat harvesting and gravel removal, can lead to unnatural changes in lake levels.
Lake substrate	Shore line and	Maintain the natural	Sediment quality and quantity when enriched can cause excessive

Attributes	Measure	Target	Comment
character	substrate	shoreline of the lake. Maintain natural and characteristic substrate for lake type.	growths of *Juncus bulbosus* var. *fluitans* or growths of algae.
Sediment	Sediment Load	Maintain natural sediment load	Increases in siltation could result from increased lake productivity, changes in catchment land-use (particularly over-grazing, peat harvesting), lake level fluctuations, climatic fluctuations or changes in sewage treatment.
Indicators of local distinctiveness	Maintain distinctive elements (e.g. rare plant or invertebrate species, habitat features) at current extent/levels and/or in current locations.		This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for notification) which are not covered adequately by the previous attributes, or by separate guidance (e.g. for notified species features). For species of local distinctiveness, which are documented on citations, or for which records are held for individual lakes, references such as LACON (Palmer, in prep.) should be consulted for current lists of species rare in the constituent countries of GB, and in EA and SEPA areas. For "notable" species (e.g. nationally scarce plants), it is not intended that a target is set for detailed species monitoring. It is intended that a rapid indication of presence/absence and /or approximate extent should be provided. Allowing for natural fluctuations in population size. The same approach applies to "notable" habitats.

Aspects of environmental disturbance to be noted as an accompaniment to assessing condition: Natural dystrophic lakes and ponds

Objective	Specified assessment method (if appropriate)	Comment
No introduction of non-native plants Minimal negative impact from artificial structures No peat cutting within the vicinity of the water body Direct application of lime to the water column as an acidification amelioration strategy should not be carried out		 Artificial structures could include dams. Catchment area changes affecting the lake, such as land drainage and infrastructure schemes, should be considered. Efforts should be directed towards reducing atmospheric emissions and implementing catchment management strategies, especially in relation to coniferous forestry

Box 5. Characteristic species of natural dystrophic lakes and ponds

Characteristic species	Associates
Utricularia spp.	*Sparganium angustifolium*
Sphagnum spp.	*Eleogiton fluitans*
Juncus bulbosus	*Drepanocladus spp.*
Nymphaea alba	
Menyanthes trifoliata	
Potamogeton polygonifolius	

Feature 7 (SAC) – Transition mires and quaking bogs (Status C)

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

Attributes	Measure	Target/Limit	Comments
* Extent	Number of locations for this feature, identified on the standard 'W' walks, and mire area (ha) at each location.	Maintain the 'W' walk occurrences and area of open transition mire vegetation.	Location and mire type to be noted at baseline
* Community diversity	M5, M9 and S27 communities and their variants, as established at base line survey.	Maintain presence of M5, M9 and S27 and variants, as established at base line survey.	
* Structure	* Frequency of tree/scrub spp.	No more than 5 % if in discrete stands; or no more than occasional throughout the sward	
*Vegetation composition	Combined cover of herbs and sedges and *Sphagnum* spp.	Maintain cover at least 75%	To be reviewed after baseline
	Frequency of Sphagnum spp. mosses (DAFOR scale) wherever noted	Retain at baseline DAFOR abundance	
	Frequency of either qualifying brown mosses or *Sphagnum* species (DAFOR scale)	At least Frequent	

*Vegetation composition	Frequency of positive indicators (DAFOR scale)	For any qualifying area, either: At least 2 of List 1 Frequent throughout the vegetation. **List 1 -** *Angelica sylvestris, Caltha palustris, Galium palustre, Mentha aquatica, Menyanthes trifoliata, Pinguicula vulgaris, Potentilla palustris, Succisa pratensis* **OR** At least 6 of List 2 Occasional or better. **List 2 -** *Calliergon* spp., *Caltha palustris*, *Carex rostrata*, *Epilobium palustre*, *Equisetum fluviatile*, *Galium palustre*, *Hydrocotyle vulgaris*, *Iris pseudacorus*, *Lychnis flos-cuculi*, *Mentha aquatica*, *Menyanthes trifoliata*, *Potentilla palustris* *Ranunculus flammula*	
	Frequency of negative indicators (DAFOR)	None of list 1 more than Frequent, combined cover list 1 species < 30% **List 1-** *Agrostis stolonifera*, *Anthoxanthum odoratum*, *Holcus lanatus*, *Juncus acutiflorus J. effusus*, *J. squarrosus* None of list 2 more than Rare, even locally. **List 2 -** *Trifolium* ssp., *Cirsium arvense, C. vulgare, Urtica dioica*, *Epilobium hirsutum*	
*Vegetation structure	Frequency of hoof prints and dung	No more than Occasional over any qualifying mire unit	
	Frequency of *Molinia caerulea* tussocks	No more than Rare in any qualifying mire unit	
	Bare ground visible without disturbing the vegetation	No more than 5% of any qualifying mire unit	
	Cover of litter in a more or less continuous layer	No more than 25 % of any qualifying mire unit	
*Hydrology	Level of water table	Maintain water table at or slightly above surface. Ground should be soft, bouncy & squelchy.	Possibly use a penetrometer

		No more than 10% decline using any more quantitative method.	Probably use Ellenberg F values along a given transect

An Agency within the Department of the Environment for Northern Ireland

ENVIRONMENT AND HERITAGE SERVICE

RAMSAR CONVENTION

LARNE LOUGH RAMSAR SITE

Area: 398 hectares

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

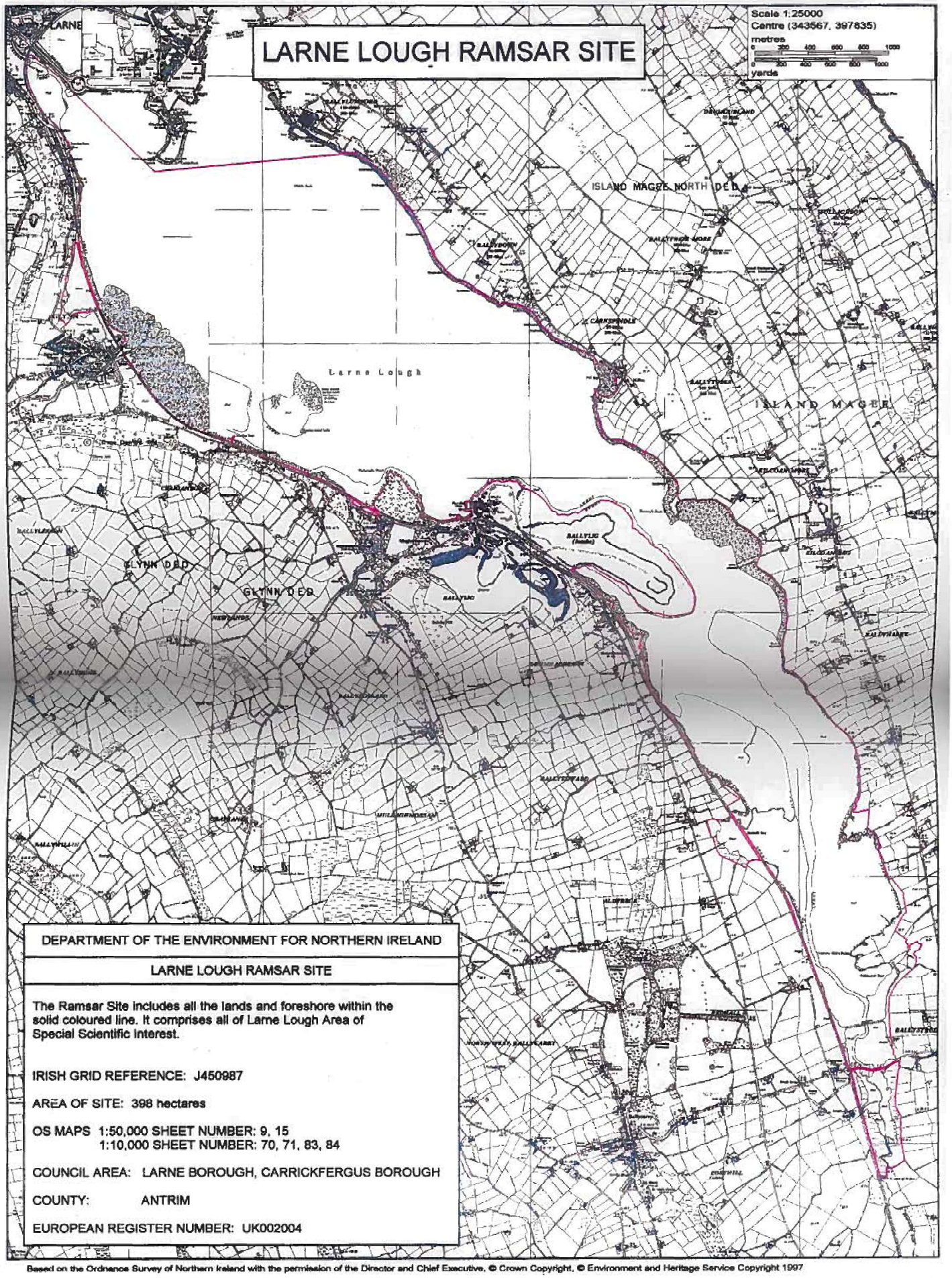
Larne Lough is situated on the Co. Antrim coast in the east of Northern Ireland.

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

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

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

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



DEPARTMENT OF THE ENVIRONMENT FOR NORTHERN IRELAND

LARNE LOUGH RAMSAR SITE

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

IRISH GRID REFERENCE: J450987

AREA OF SITE: 398 hectares

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

COUNCIL AREA: LARNE BOROUGH, CARRICKFERGUS BOROUGH

COUNTY: ANTRIM

EUROPEAN REGISTER NUMBER: UK002004

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LARNE LOUGH -
SPECIAL PROTECTION AREA (SPA)

UK9020221

CONSERVATION OBJECTIVES

Document Details

Title	Larne Lough SPA Conservation Objectives
Prepared By	*Ian Enlander*
Approved By	*Mark Wright*
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Contact	cdp@doeni.gov.uk

Revision History:

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

Site relationship

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

This SPA adjoins the proposed East Coast Marine SPA.

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

See also Boundary Rationale

1. INTRODUCTION

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4 GENERAL INFORMATION

COUNTY: Antrim

G.R. J450 987 AREA: 398 ha.

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

<u>CONSERVATION OBJECTIVES WILL BE REVISED AS THESE ISSUE PROGRESS</u>

5 SUMMARY SITE DESCRIPTION

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

5.1 BOUNDARY RATIONALE

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

6 SPA SELECTION FEATURES

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

Table 1. List of SPA selection features.

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

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

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

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

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

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

6.1 ADDITIONAL ASSI SELECTION FEATURES

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

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

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

7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

To maintain each feature in favourable condition.

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

8 LARNE LOUGH SPA CONDITION ASSESSMENT 2014

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

9 SPA SELECTION FEATURE OBJECTIVES

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

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

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

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

Table 3. SPA Component objectives

9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

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

Table 4. ASSI Component objectives

Tern nesting localities current and historical (TO BE FINALISED)

Swan Island
Blue Circle Island

Table 5. Tern nesting locations within the SPA

10. MANAGEMENT CONSIDERATIONS

See also Views About Management for relevant ASSI

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

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

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

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

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

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

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

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

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

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

		Apart from disturbance of birds themselves, breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success.	wintering bird populations impacting on both feeding (inter-tidal) and roosting birds 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 *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather.	>1 fledgling per pair successfully raised per year over five year period	Appropriate level of fledgling survival to be determined
*Roseate Tern breeding population	Apparently occupied nests	No significant decrease in Roseate Tern breeding population against national trends	Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Roseate Tern fledging success	Annual survey (as per Gilbert *et al*. 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather.	>1 fledgling per pair successfully raised per year over five year period	Appropriate level of fledgling survival to be determined
* Common Tern breeding population	Apparently occupied nests	No significant decrease in Common Tern breeding population against national trends	Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.

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

Non-avian factors

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

Feature (SPA) – Wintering waterfowl

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

Non-avian factors

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

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

ANNEX II

Feature (ASSI)

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

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

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

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

2. Date this sheet was completed/updated:

Designated: 05 January 1976

3. Country:

UK (Northern Ireland)

4. Name of the Ramsar site:

Lough Neagh and Lough Beg

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

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

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

54 34 11 N 06 24 34 W

9. General location:

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

Nearest town/city: Belfast

Lough Neagh is situated in the centre of Northern Ireland. It is the largest freshwater lake in the United Kingdom, covering an area of 383 square km, with a longest length of 30.5 km and narrowest width of 12.1 km across the middle.

Administrative region: Antrim; Armagh; Ballymena; Cookstown; Craigavon; Down; Dungannon; Lisburn; Londonderry; Magherafelt; Tyrone

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 50165.84

Min. 0
Max. 20
Mean 0

12. General overview of the site:

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

Lough Neagh is situated in the centre of Northern Ireland. It is the largest freshwater lake in the United Kingdom covering an area of 383 km2 with a longest length of 30.5 km and narrowest width of 12.1 km across the middle. The lake is very shallow for its size, with a mean depth of 8.9 metres. At its deepest point it extends down to 34 metres. The 125 km shoreline is mostly exposed with wave-beaten rocks and stones but there are also some sheltered, sandy bays with better-developed marginal vegetation including some reedbeds.

This site also contains a smaller lake, Lough Beg (1,125 ha) to the north, as well as a small satellite lake, Portmore Lough (286 ha) which is situated to the east of Lough Neagh. Lough Beg (meaning 'little lough') is essentially a widening of the Lower Bann River just downstream from where it leaves Lough Neagh. Lough Beg is very shallow, with a mean depth of 1-2 metres and a surface area of km2. About 200 hectares of the west shore is unimproved wet grassland that is largely inundated with floodwater each winter.

Rivers flowing into Lough Neagh drain about 43% of Northern Ireland, plus part of County Monaghan in the Republic of Ireland.

13. Ramsar Criteria:

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

1, 2, 3, 4, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

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

Ramsar criterion 1

A particularly good representative example of natural or near-natural wetlands, common to more than one biogeographic region. The site is the largest freshwater lake in the United Kingdom. Lough Neagh a relatively shallow body of water supporting beds of submerged aquatic vegetation fringed by associated species-rich damp grassland, reedbeds, islands, fens, marginal swampy woodland and pasture. Other interesting vegetation types include those associated with pockets of cut-over bog, basalt rock outcrops and boulders, and the mobile sandy shore.

Ramsar criterion 2

Supports an appreciable assemblage of rare, vulnerable or endangered species or sub-species of plant or animal or an appreciable number of individuals of any one of these species. The site supports over 40 rare or local vascular plants which have been recorded for the site since 1970; the most notable are eight-stamened waterwort *Elatine hydropiper*, marsh pea *Lathyrus palustris*, Irish lady's tresses *Spiranthes romanzoffiana*, alder buckthorn *Frangula alnus*, narrow small-reed *Calamagrostis stricta* and holy grass *Hierochloe odorata*. The Lough and its margin are also home to a large number of rare or local invertebrates, including two aquatic and two terrestrial molluscs, a freshwater shrimp *Mysis relicta*, eight beetles, five hoverflies, seven moths and two butterflies. Of the rare beetles recorded two, *Stenus palposus* and *Dyschirius obscurus*, have their only known Irish location around the Lough. The Lough also supports twelve species of dragonfly.

Ramsar criterion 3

This site is of special value for maintaining the genetic and ecological diversity of a region becuse of the quality and peculiarities of its flora and fauna. The site regularly supports substantial numbers of individuals from particular groups of waterfowl which are indicative of wetland values, productivity and diversity. In addition, this site is of special value for maintaining the genetic and ecological diversity of Northern Ireland because of the quality and peculiarities of its flora and fauna. A large number of plants and animal species are confined or almost confined to this area within Northern Ireland.

Ramsar criterion 4

This site is of special value as the habitat of plants or animals at a critical stage of their biological cycles. The site supports an important assemblage of breeding birds including the following species with which occur in nationally important numbers: great crested grebe *Podiceps cristatus*, gadwall *Anas strepera*, pochard *Aythya ferina*, tufted duck *Aythya fuligula*, snipe *Gallinago gallinago* and redshank *Tringa totanus*. Other important breeding wetland species include shelduck *Tadorna tadorna*, teal *Anas crecca*, shoveler *Anas clypeata*, lapwing *Vanellus vanellus* and curlew *Numenius.arquata*.

Ramsar criterion 7

The site supports a population of pollan *Coregonus autumnalis*, one of the few locations in Ireland and one of the two known locations in the UK (the other is Lower Lough Erne). It is one of the most important species in Ireland in terms of faunal biodiversity since it occurs nowhere else in Europe,

and the Irish populations are all well outside the typical range – the Arctic Ocean drainages of Siberia, Alaska and north-western Canada, where it is known as the Arctic cisco.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
86639 waterfowl (5 year peak mean 1998/99-2002/2003)

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

Qualifying Species/populations (as identified at designation):
Species with peak counts in spring/autumn:

Tundra swan , *Cygnus columbianus bewickii*, NW Europe	26 individuals, representing an average of 0.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Whooper swan , *Cygnus cygnus*, Iceland/UK/Ireland	1523 individuals, representing an average of 7.2% of the population (5 year peak mean 1998/9-2002/3)
Common pochard , *Aythya ferina*, NE & NW Europe	20279 individuals, representing an average of 5.7% of the population (5 year peak mean 1998/9-2002/3)
Tufted duck , *Aythya fuligula*, NW Europe	17807 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3)
Greater scaup , *Aythya marila marila*, W Europe	3377 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)
Common goldeneye , *Bucephala clangula clangula*, NW & C Europe	6645 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.
Species with peak counts in spring/autumn:

Great cormorant , *Phalacrocorax carbo carbo*, NW Europe	1628 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9-2002/3)
Mute swan , *Cygnus olor*, Britain	1874 individuals, representing an average of 4.9% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
See Sections 21/22 for details of noteworthy species
Details of bird species occuring at levels of National importance are given in Section 22

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

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

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

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

Soil & geology	sand, clay, peat, basalt
Geomorphology and landscape	lowland, floodplain
Nutrient status	highly eutrophic
pH	no information
Salinity	fresh
Soil	no information
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Aldergrove, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/aldergrove.html) Max. daily temperature: 12.5° C Min. daily temperature: 5.8° C Days of air frost: 39.1 Rainfall: 862.4 mm Hrs. of sunshine: 1313.7

General description of the Physical Features:

Lough Neagh is the largest freshwater lake in the UK, covering an area of 383 sq. km. The lough is very shallow for its size with a mean depth of 8.9 m (at deepest only 34 m). The 125 km shoreline is mostly exposed with wave-beaten rocks and stones but there are also some sheltered, sandy bays with better-developed marginal vegetation including some reedbeds. The smaller Lough Beg (covering 1,125 ha) to the north is essentially a widening of the Lower Bann River downstream of its exit from Lough Neagh, and is very shallow, with a mean depth of 1-2 m. About 200 ha of the west shore is unintensified wet grassland that is largely inundated with floodwater each winter.

17. Physical features of the catchment area:

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

Lough Neagh is situated in the centre of Northern Ireland. It is the largest freshwater lake in the British Isles and is very shallow for its size.

Six major rivers flow into the Lough while the Lower Bann River provides the exit, carrying water from the north end of the Lough at Toome to the sea on the north coast of Northern Ireland.

The rivers flowing into Lough Neagh drain about 43% of Northern Ireland, plus part of County Monaghan in the Republic of Ireland. There is no incursion of seawater into Lough Neagh.

Lough Beg and Portmore Lough are two smaller lakes associated with Lough Neagh. Lough Beg (1,125 ha) lies to the north of Lough Neagh at the start of the Lower Bann River and Portmore Lough (286 ha) flows into the south-east of Lough Neagh.

18. Hydrological values:

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

Flood water storage / desynchronisation of flood peaks

19. Wetland types:

Inland wetland

Code	Name	% Area
O	Freshwater lakes: permanent	77.6
Other	Other	16
U	Peatlands (including peat bogs swamps, fens)	4
W	Shrub-dominated wetlands	2.1
Xp	Forested peatland	0.3

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Most of the shoreline and shallow margin of the Lough is exposed to wave action and has a rocky or sandy character. The submerged and floating aquatic vegetation is confirmed to sheltered bays and inlets and includes very extensive stands of fennel-leaved pondweed *Potamogeton pectinatus* and slender-leaved pondweed *P. filiformis* intermixed with smaller quantities of additional species.

Swamp vegetation generally consists of a mosaic of small stands of common spike-rush *Eleocharis palustris*, reedmace *Typha latifolia*, branched bur-reed *Sparganium erectum*, flowering rush *Butomus umbellatus*, bulrush *Scirpus lacustris* and bottle sedge *Carex rostrata*. Locally, large stands of common reed *Phragmites australis* have developed.

The tall fen occurring along the water's edge mostly consists of a thin, generally species-poor band of reed canary-grass *Phalaris arundinacea*, hemlock water dropwort *Oenanthe crocata*, yellow loosestrife *Lysimachia vulgaris* and purple loosestrife *Lythrum salicaria*, but in places there are a number of more uncommon plant species.

Some of the Lough shore is fringed by a fragmented, swampy woodland of alder *Alnus glutinosa* and willow *Salix* spp. related to successive lowerings of water-levels. This woodland is among the best of its type in Northern Ireland. It is extensive and locally contains a diversity of plants including many notable species.

The remainder of the shore is mostly covered by a variety of grassland types ranging from improved and reseeded grassland to species-rich hay meadows, with the most characteristic type being wet marshy grassland with soft rush *Juncus effusus* and brown sedge *Carex disticha* as the most prominent species.

Ecosystem services

21. Noteworthy flora:

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

Nationally important species occurring on the site.

Higher Plants.

Elatine hydropiper, Spiranthes romanzoffiana, Calamagrostis stricta, Hierochloe odorata, Mentha pulegium, Lathyrus palustris, Frangula alnus, Carex elongata

22. Noteworthy fauna:

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

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Black-headed gull , *Larus ridibundus*, N & C Europe	3269 apparently occupied nests, representing an average of 6% of the all-Ireland population (Seabird 2000 Census)
Lesser black-backed gull , *Larus fuscus graellsii*, W Europe/Mediterranean/W Africa	451 apparently occupied nests, representing an average of 8.6% of the all-Ireland population (Seabird 2000 Census)
Common tern , *Sterna hirundo hirundo*, N & E Europe	93 apparently occupied nests, representing an average of 3% of the all-Ireland population (Seabird 2000 Census)

Species with peak counts in spring/autumn:

Great crested grebe , *Podiceps cristatus cristatus*, NW Europe	1227 individuals, representing an average of 35% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Gadwall , *Anas strepera strepera*, NW Europe	126 individuals, representing an average of 21% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Mallard , *Anas platyrhynchos platyrhynchos*, NW Europe	5136 individuals, representing an average of 10.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Red-breasted merganser , *Mergus serrator*, NW & C Europe	25 individuals, representing an average of 1.2% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Common coot , *Fulica atra atra*, NW Europe	5680 individuals, representing an average of 22.7% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Lesser black-backed gull , *Larus fuscus graellsii*,	1174 individuals, representing an average of 1.6% of the all-Ireland population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Little grebe , *Tachybaptus ruficollis ruficollis*, Europe to E Urals, NW Africa	355 individuals, representing an average of 7.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Common shelduck , *Tadorna tadorna*, NW Europe	138 individuals, representing an average of 1.9% of the all-Ireland population (5 year peak mean 1998/9-2002/3)

Eurasian wigeon , *Anas penelope*, NW Europe	3012 individuals, representing an average of 2.4% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Eurasian teal , *Anas crecca*, NW Europe	1878 individuals, representing an average of 2.8% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	8249 individuals, representing an average of 4.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Northern lapwing , *Vanellus vanellus*, Europe - breeding	10968 individuals, representing an average of 4.3% of the all-Ireland population (5 year peak mean 1998/9-2002/3)
Mew gull , *Larus canus canus*, Europe to N Africa	765 individuals, representing an average of 1.1% of the all-Ireland population (5 year peak mean 1998/9-2002/3)

Species Information

Assemblage.

During the breeding season the site supports a diverse assemblage of waterfowl, including: *Larus ridibundus, Podiceps cristatus, Anas strepera, Tringa totanus, Gallinago gallinago, Aythya fuligula, Aythya ferina, Anas clypeata, Larus fuscus* and *Larus canus*.

Pollan *Coregonus autumnalis*

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation
Scientific research
Sport fishing
Sport hunting
Tourism
Traditional cultural
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	
Local authority, municipality etc.	+	
Private	+	
Public/communal	+	

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Tourism	+	
Recreation	+	
Current scientific research	+	
Fishing: commercial	+	
Fishing: recreational/sport	+	
Rough or shifting grazing	+	
Hunting: recreational/sport	+	
Sewage treatment/disposal	+	
Flood control	+	
Mineral exploration (excl. hydrocarbons)	+	
Domestic water supply	+	
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

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

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?

Eutrophication	2	The Lough drains some 40% of Northern Ireland and has been subject to severe eutrophication as a result of increased nutrient inputs from agricultural run-off and general domestic sewage from catchment housing and other developments.	+		+
Pollution – agricultural fertilisers	2	The Lough drains some 40% of Northern Ireland and has been subject to severe eutrophication as a result of increased nutrient inputs from agricultural run-off and general domestic sewage from catchment housing and other developments.	+		+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Eutrophication - Phosphate-stripping at appropriate sewage treatment works had begun to address the issue of eutrophication, but the nutrient problem has now been demonstrated to be predominantly due to non-point, agricultural, sources. Water Catchment Management Plan will be developed in context of the Water Framework Directive.

Pollution – agricultural fertilisers - Phosphate-stripping at appropriate sewage treatment works had begun to address the issue of eutrophication, but the nutrient problem has now been demonstrated to be predominantly due to non-point, agricultural, sources. Water Catchment Management Plan will be developed in context of the Water Framework Directive.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

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

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Site management statement/plan implemented	+	
Special Area of Conservation (SAC)	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.
No information available

29. Current scientific research and facilities:

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

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

Miscellaneous.
The University of Ulster has a freshwater research laboratory on the shores of Lough Neagh.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

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

The Lough Neagh Discovery Centre is located on the southern shores of Lough Neagh and is run by Craigavon Borough Council. School groups and other incidental visitors are also catered for at the nearby Environment and Heritage Service Warden's office/information centre.

31. Current recreation and tourism:

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

Activities, Facilities provided and Seasonality.
There is regular use of parts of the site for informal recreation.

32. Jurisdiction:

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

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

33. Management authority:

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

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

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

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

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

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

Smart, M (1989) *Ramsar Advisory Missions: Report No. 10: Lough Neagh / Lough Beg, Northern Ireland, UK (1989)*. Ramsar Convention Bureau, Gland. www.ramsar.org/ram_rpt_10e.htm

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

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

Wood, RB & Smith, RV (eds.) (1993) *Lough Neagh: The ecology of a multipurpose water resource.* Kluwer, Dordrecht (Monographiae Biologicae, No. 69)

Wolfe-Murphy, SA, Lawrie, EW, Smith, SJ & Gibson, CE (1993) *Northern Ireland Lakes Survey*. Unpublished report to Northern Ireland Department of Environment, Countryside and Wildlife, Belfast

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LOUGH NEAGH AND LOUGH BEG-

SPECIAL PROTECTION AREA (SPA)

UK9020091

CONSERVATION OBJECTIVES

Document Details

Title	*Lough Neagh and Lough Beg SPA Conservation Objectives*
Prepared By	*Ian Enlander*
Approved By	*Mark Wright*
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Contact	cdp@doeni.gov.uk

Revision History:

Version	Date	Summary of Changes	Initials	Changes Marked
V1	01/04/1996	Internal working document	IE	
V1.1	August 2013	Review	IE	
V2.0	February 2015	Draft	IE	Complete review

Site relationship

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

This SPA partially overlaps with Reas Wood and Farrs Bay SAC

The SPA also overlaps with part of the Lough Neagh and Lough Beg Ramsar site.

See also Boundary Rationale

1. INTRODUCTION

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4 GENERAL INFORMATION

COUNTY: Antrim, Down, Armagh, Tyrone and Londonderry

G.R. J030 700 AREA: 41188 ha.

5 SUMMARY SITE DESCRIPTION

Lough Neagh is a large, shallow, eutrophic lake contained within Counties Antrim, Down, Londonderry and Tyrone. Lough Neagh is the largest freshwater lake in the UK and is one of the top ten sites in the UK for wintering waterfowl (based on annual mean numbers). The SPA also includes the smaller lakes, Lough Beg and Portmore Lough. The main habitats within the SPA are open water with beds of submerged aquatic vegetation, species-rich wet grassland, reedbed, islands, swamp, fen and carr woodland. The SPA supports internationally important numbers of wintering waterfowl and is internationally important for a number of wildfowl species including Whooper Swan, Bewick's Swan, Pochard, Tufted Duck, Scaup and Goldeneye. It is also internationally important for breeding Common Tern.

5.1 BOUNDARY RATIONALE

The boundary takes in the main waterbodies, including Portmore Lough and Lough Beg, together with all adjoining natural and semi-natural habitat of conservation significance. All islands within Lough Neagh are also included. Adjoining agriculturally improved areas utilised by swans have not been included but their importance must not be underestimated.

6 SPA SELECTION FEATURES

Feature Type (i.e. habitat or species)	Feature	Population[1]	Population at time of designation (ASSI)	Population at time of designation (SPA)	SPA Review population	Common Standards Monitoring baseline
Species	Common Tern breeding population [a]	137 individuals (Seabird 2000 data)		200 pairs	185	118
Species	Great Crested Grebe breeding population [a]	500 pairs (Data source unknown)		New feature	500	
Species	Great Crested Grebe passage population [b]	2440 (1995 max count)		New feature	2440	438
Species	Whooper Swan wintering population [a]	1031	1152	923	1031	283
Species	Bewick's Swan wintering population [a]	136	314	251	136	23
Species	Golden Plover wintering population [b]	5334	3625	Not listed	5298	1626
Species	Great Crested Grebe wintering population [a]	1431	1173	741	1821	110
Species	Pochard wintering population [a]	26441	31508	32165	26341	19588
Species	Tufted Duck wintering population [a]	22454	19372	23476	22372	17972
Species	Scaup wintering population [a]	3698	1584	2557	3798	1215
Species	Goldeneye wintering population [a]	10781	11521	12479	10776	6700
Assemblage species	Little Grebe wintering population	465	395	390	465	290
Assemblage species	Cormorant wintering population	718	815	781	728	445
Assemblage species	Greylag Goose wintering population	156	120	129	176	7
Assemblage species	Shelduck wintering population	180	142	165	159	107
Assemblage species	Wigeon wintering population	3117	2607	3447	3117	2607
Assemblage species	Gadwall wintering population	166	120	114	166	88
Assemblage species	Teal wintering population	1597	2288	1868	1596	1154
Assemblage	Mallard wintering	5422	5330	4982	5256	3591

species	population					
Assemblage species	Shoveler wintering population	163	169	173	148	43
Assemblage species	Coot wintering population	7018	5979	6676	6993	3062
Assemblage species	Lapwing wintering population	6946	3042	Not listed	6899	2822
Waterfowl assemblage	Waterfowl Assemblage wintering population[a] (Component species: Whooper Swan, Bewick's Swan, Golden Plover, Great Crested Grebe (wintering) Pochard, Tufted Duck, Scaup, Goldeneye, Little Grebe, Cormorant, Greylag Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Shoveler, Coot, Lapwing)	81827	87049	79915	99221	62352
Habitat[2]	Habitat extent					
Habitat[2]	Roost site locations					

Table 1. List of SPA selection features.

[1] Designation population given as 1995/96 five year running mean of maximum annual WeBS counts (except where stated). Note that for some of the selection features these differ from the figures given in the SPA citation, but have been used as they are considered to be more relevant to future monitoring

[2] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area. Extent of swamp/tall fen will be used for breeding waterfowl

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

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

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

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

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

6.1 ADDITIONAL ASSI SELECTION FEATURES

Feature Type (i.e. habitat, species or earth science)	Feature	Size/ extent/ pop.
Habitat	Purple Moor-grass and rush pastures (Lough Beg and Lough Neagh ASSI)	
Habitat	Wet woodlands (Lough Neagh ASSI)	
Habitat	Reed beds and swamps (Lough Neagh ASSI)	
Habitat	Fens (Lough Neagh ASSI)	
Species	Higher Plant Assemblage (Lough Beg and Lough Neagh ASSI)	
Species	Breeding waterbird assemblage (Lough Beg and Lough Neagh ASSI)	
Species	Breeding bird assemblage (wet woodland)	
Species	Breeding wader assemblage	

Species	Little Grebe wintering population	
Species	Cormorant wintering population	
Species	Greylag Goose wintering population	
Species	Shelduck wintering population	
Species	Wigeon wintering population	
Species	Gadwall wintering population	
Species	Teal wintering population	
Species	Mallard wintering population	
Species	Shoveler wintering population	
Species	Coot wintering population	
Species	Lapwing wintering population	
Species	Mute Swan wintering population	
Species	Freshwater and Estuarine fish (Lough Neagh ASSI)	
Species	Invertebrate assemblage (Lough Neagh ASSI)	
Earth Science	Coastal processes - refers to near-shore sand complexes (Lough Neagh ASSI)	

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

7 CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

To maintain each feature in favourable condition.

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

8 LOUGH NEAGH AND LOUGH BEG SPA CONDITION ASSESSMENT 2014

Species	Year 1	Year 2	Year 3	Year 4	Year 5	CSM	5 yr mean	% CSM	Status
Common Tern (B)	94	79	118	96	98	59	97.00	**164.41**	Favourable
Golden Plover	6475	3129	7097	4047	1539	1626	4457.40	**274.13**	Favourable
Bewick's Swan	0	0	0	0	0	23	0.00	**0.00**	Unfavourable
Whooper Swan	515	535	637	388	248	283	464.60	**164.17**	Favourable
Goldeneye	2993	4626	3684	3003	3437	6700	3548.60	**52.96**	Unfavourable
Great Crested Grebe (W)	236	1181	733	947	1030	110	825.40	**750.36**	Favourable
Great Crested Grebe (P)	634	676	nc	561	941	438	703.00	**160.50**	Favourable
Pochard	8878	8902	5770	9183	5027	19588	7552.00	**38.55**	Unfavourable
Scaup	4348	5587	6335	2989	2257	1215	4303.20	**354.17**	Favourable
Shelduck	131	87	193	188	126	107	145.00	**135.51**	Favourable
Tufted Duck	6336	5845	4995	9167	7669	17972	6802.40	**37.85**	Unfavourable
Waterbird assemblage	47771	48575	43168	43462	35837	75215	43762.60	**58.18**	Unfavourable

9 SPA SELECTION FEATURE OBJECTIVES

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

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

5.1 SPA SELECTION FEATURE OBJECTIVES

Feature	Component Objective
Common Tern breeding population	As above
Common Tern breeding population	Fledging success sufficient to maintain or enhance population
Great Crested Grebe breeding population	As above
Great Crested Grebe breeding population	Fledging success sufficient to maintain or enhance population
Great Crested Grebe passage population	As above
Whooper Swan wintering population	As above
Bewick's Swan wintering population	As above
Golden Plover wintering population	As above
Great Crested Grebe wintering population	As above
Pochard wintering population	As above
Tufted Duck wintering population	As above
Scaup wintering population	As above
Goldeneye wintering population	As above
Little Grebe wintering population	As above
Cormorant wintering population	As above
Greylag Goose wintering population	As above
Shelduck wintering population	As above
Wigeon wintering population	As above
Gadwall wintering population	As above
Teal wintering population	As above
Mallard wintering population	As above
Shoveler wintering population	As above
Coot wintering population	As above
Lapwing wintering population	As above
Waterfowl Assemblage wintering population	No significant decrease in population against national trends

Feature	Component Objective
Waterfowl Assemblage wintering population	Maintain species diversity contributing to the Waterfowl Assemblage
Habitat	To maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species subject to natural processes
Habitat	Maintain the extent of main habitat components subject to natural processes
Habitat	Maintain or enhance sites utilised as roosts

Table 3. List of SPA Selection Feature Component Objectives

Tern nesting localities current and historical (TO BE FINALISED)

Torpedo platform, Antrim Bay

Table 4. Tern nesting locations within the SPA

9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

Feature	Component Objective
Purple Moor-grass and rush pastures	
Wet woodlands	
Reed beds and swamps	
Fens	
Higher Plant Assemblage	
Breeding Birds	
Freshwater and Estuarine fish	
Invertebrate assemblage	
Coastal processes – refers to near-shore sand complexes	

Table 5. List of Additional ASSI Selection Feature Objectives

10 MANAGEMENT CONSIDERATIONS

See also Views About Management for relevant ASSIs

Owner/Occupier's – As of October 1995 there were 463 individual landowners within Lough Neagh SPA. These include the Shaftesbury Estate of Lough Neagh, the National Trust, Armagh, Banbridge and Craigavon Council and the Department of Agriculture and Rural Development for Northern Ireland (DANI). There are five National Nature Reserves (NNRs) within the SPA; Lough Neagh Islands, Rea's Wood, Farr's Bay, Oxford Island and Randalstown Forest with a proposed sixth at Blacker's Rock. There are also an additional four management agreements in place for four small landholdings within the SPA.

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

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

<u>Site/feature management issues</u>

No	Issue	Threat/comments	Local considerations	Action
1	Adjoining habitat	Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas	Imminent road development through Toome swanfields the effects of which will require monitoring.	Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact.

No	Issue	Threat/comments	Local considerations	Action
		lie without the site making effective management of developments other than those for which planning permission is required, difficult.		
6	Boating activity – commercial	Disturbance and potential for impact from commercial vessels.	No evidence of a significant impact on the selection features of Lough Neagh	Formal consultation likely relating to new schemes. Consider the collective impact.
7	Boating activity – recreational	Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site.	A major concern during the breeding season, particularly around the Torpedo platform at Six Mile Water.	Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact.
8	Coastal (shoreline) protection schemes	Where there is no history of this, it impacts on natural beach systems with loss of habitat.	There is ad hoc dumping around the shoreline, in places this is in response to erosion.	Liaise with Planning Service and other parties with an involvement in coastal management.
9	Cull of fledglings/ young	Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA.	Culling of larger gull species is undertaken to reduce impact on breeding wildfowl and terns.	NIEA to review all licenses. Consider the collective impact.
11	Drainage	Potential impact on water flooding regime. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding.	Routine watercourse maintenance programme by Rivers Agency is referred to NIEA for comment.	Identify key areas and promote site management schemes to protect and enhance site features. Consider the collective impact.
13	Enhanced bird competition	Activities onsite or offsite that influences or results in a shift in balance of species utilising a site.	General issue of gulls during breeding season. Historical high numbers of Black-headed Gull may have been related to access to feeding on a dump site (Denny's), now closed.	Liaise with Planning Service. Review wider countryside changes.
14	Fishing – commercial or recreational	Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass.	Important long-established commercial eel, coarse fish and salmonid fishery. Concern regarding diving duck taken as by-catch in nets either accidentally or deliberately.	Liaise with DARD and fishing authorities as required. Liaise with commercial fishing interests and angling clubs as required. Netting of diving duck as a Wildlife Order offence – action is dependant on evidence.
16	Habitat extent – open water	Loss likely to be limited but expansion of commercial port facilities can impact on key localities.	Not a concern.	Assess planning applications. Consider the collective impact.
18	Habitat quality – open water	Alteration of habitat quality through diminution of water quality or invasive species.	Water quality is a concern with progressive eutrophication. Longer	Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their

No	Issue	Threat/comments	Local considerations	Action
			term improvement in water quality will reduce productivity and may affect waterfowl populations.	impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact.
19	Habitat extent and quality-breeding	Alteration of habitat area or quality through inappropriate use or absence of site management.	Terns mainly breed on Torpedo Platform, Six Mile Water, but also on some islands.	Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management.
21	Introduced species	Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site.	Roach and Ruddy Duck are present, Zebra Mussel must be considered a real threat.	Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives.
22	Power cables	Specifically a problem in relation to swans and geese. Threat is through impact. Need to consider flight lines, as well as feeding and loafing areas, which ideally should be avoided.	Generally lines in the area are well marked. Assess all new proposals and existing network in relation to swan usage..	Liaise with NIE. Minimum need is for line marking based on best current practice. Consider the collective impact.
23	Predation.	Mainly of concern on bird breeding sites.	Impact from large gulls is deemed to be a problem. Care to be taken as breeding Lesser Black-backed Gull are notable.	Must be dealt with as part of wider countryside management considerations. Carry out appropriate site management.
24	Recreational activities.	Disturbance is the main consideration. Breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success.	Breeding birds are particularly vulnerable to disturbance. Cumulative disturbance impacts (e.g. boating, sand dredgers, wildfowlers, walkers, dogs etc) may also be a significant factor for wintering bird populations	Liaise with local authorities and other managing parties.
25	Research activities.	Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites.	Routine winter WEBS counts.	Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held.
26	Sand dredging - commercial	Issue presently limited to Lough Neagh and subject to current (2015) detailed evaluation	Restricted in area but possibly impacting the more diverse invertebrate assemblages. Possibly a limited disturbance issue.	Liaise with commercial operators, Planning Service and other regulatory authorities.
28	System dynamics	Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors	Historical lowering of the lough level reduced considerably the area subject to flooding but	Human induced change should be minimised. Assess planning applications and liaise with other relevant

No	Issue	Threat/comments	Local considerations	Action
		especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound.	also would have had implications for shore and nearshore morphology particularly the dynamics of sand bar and river mouth shoal complexes. Ongoing sand exploitation could alter lough bed substrate and influence near shore sediment mobility.	authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted.
29	Water abstraction	Potential impact on water flooding regime. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding.	Lough Neagh is a major source of drinking water with ongoing abstraction together with proposals for increased volumes taken.	Liaise with Water Service and Rivers Agency.
30	Water level control	Impacts on natural fluctuation of water body. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding.	Lough water level essentially controlled by sluice gates at Toome.	Liaise with Rivers Agency.
31	Wildfowling	Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands.	Generally a good relationship with main gun clubs. Overall perception is that lough is heavily shot.	Liaise with relevant shooting bodies to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the collective impact.

Table 3. List of site/feature management issues

12 MONITORING

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

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

12.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) **–** to ensure compliance with the SPA/ASSI schedule and identify likely processes of change (e.g. dumping, infilling, gross pollution). This SIM should be carried out once a year.

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

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

12.2 ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

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

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

13 SELECTION FEATURE POPULATION TRENDS

A summary statement of site population trends, together with wider geographical trends. Date of completion is given as well as information sources used. Site trends are reported as % increase/decline from designation population (1995/96) using running 5 year means of annual maximum count (WEBS data). For breeding populations the best available data is used. Other trends are generally limited to terms such as 'consistent increase/decline', 'variable with overall increase/decline', 'no discernable trend'.

SPECIES	SITE TREND	NI TREND	IRISH TREND	UK TREND	COMMENTS
Common Tern (breeding)	insufficient data	Data unavailable	34% decline between surveys in 1969-70 and 1985-87 (per SPA review)	11% increase between surveys in 1969-70 and 1985-87 (per SPA review)	
Great Crested Grebe	insufficient data	Data unavailable	I-WeBS data unavailable	No discernible trend (1994-99 Breeding	

SPECIES	SITE TREND	NI TREND	IRISH TREND	UK TREND	COMMENTS
(breeding)				Bird Survey)	
Great Crested Grebe (passage)	insufficient data	Data unavailable	I-WeBS data unavailable	Data unavailable	
Whooper Swan (wintering)	-10% (1999/2000)	Variable with overall decline 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000 (WeBS)	
Bewick's Swan (wintering)	-41% (1999/2000)	Consistent Decline 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	No discernible trend 1990/91-1999/2000 (WeBS)	
Golden Plover (wintering)	+6% (1999/2000)	Data unavailable	I-WeBS data unavailable	Data unavailable	
Great Crested Grebe (wintering)	-11% (1999-2000)	Variable with overall increase 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	No discernible trend 1990/91-1999/2000 (WeBS)	
Pochard (wintering)	-5% (1999-2000)	Variable with overall decline 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	No discernible trend 1990/91-1999/2000 (WeBS)	
Tufted Duck (wintering)	Stable (1999-2000)	No discernible trend 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	No discernible trend 1990/91-1999/2000 (WeBS)	
Scaup (wintering)	+9% (1999-2000)	Data unavailable	I-WeBS data unavailable	Data unavailable	
Goldeneye (wintering)	-29% (1999-2000)	Consistent decline 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	No discernible trend 1990/91-1999/2000 (WeBS)	
Little Grebe (wintering)	-10% (1999-2000)	No discernible trend 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Consistent increase 1990/91-1999/2000 (WeBS)	
Cormorant (wintering)	+89% (1999-2000)	Consistent increase 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000 (WeBS)	
Greylag Goose (wintering)	+114% (1999-2000)	Data unavailable	I-WeBS data unavailable	Data unavailable	
Shelduck (wintering)	+15% (1999-2000)	Consistent increase 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall decline 1990/91-1999/2000 (WeBS)	
Wigeon (wintering)	+8% (1999-2000)	No discernible trend 1990/91-	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000	

SPECIES	SITE TREND	NI TREND	IRISH TREND	UK TREND	COMMENTS
		1999/2000 (WeBS)		(WeBS)	
Gadwall (wintering)	-21% (1999-2000)	Variable with overall decline 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Consistent increase 1990/91-1999/2000 (WeBS)	
Teal (wintering)	+6% (1999-2000)	No discernible trend 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000 (WeBS)	
Mallard (wintering)	+1% (1999-2000)	No discernible trend 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Consistent decline 1990/91-1999/2000 (WeBS)	
Shoveler (wintering)	-31% (1999-2000)	No discernible trend 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000 (WeBS)	
Coot (wintering)	+1% (1999-2000)	Variable with overall increase 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000 (WeBS)	
Lapwing (wintering)	+11% (1999-2000)	Data unavailable	I-WeBS data unavailable	Data unavailable	
Wintering Waterfowl Assemblage (Component species: Little Grebe, Great Crested Grebe, Bewick's Swan, Whooper Swan, Greylag Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Shoveler, Pochard, Tufted Duck, Scaup, Goldeneye, Coot, Golden Plover, Lapwing)	-3% (1999-2000)	N/a	I-WeBS data unavailable	N/a	

ANNEX I

Feature (SPA) – Breeding seabirds - waterbirds

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

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

Non-avian factors

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

Feature (SPA) – Passage and Wintering waterfowl

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

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

Attribute	Measure	Targets	Comments
# Shelduck wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Wigeon wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Gadwall wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Teal wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Mallard wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Shoveler wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Coot wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Golden Plover wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.

Attribute	Measure	Targets	Comments
# Lapwing wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
*Waterfowl assemblage wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Waterfowl assemblage wintering population	Bird numbers	Maintain species diversity contributing to the Waterfowl Assemblage	

Non-avian factors

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

ANNEX II

Feature (ASSI)

Attribute	Measure	Targets	Comments
Purple Moor-grass and rush pastures (Lough Beg and Lough Neagh ASSI)			
Wet woodlands (Lough Neagh ASSI)			
Reed beds and swamps (Lough Neagh ASSI)			
Fens (Lough Neagh ASSI)			
Higher Plant Assemblage (Lough Beg and Lough Neagh ASSI)			
Breeding Birds (Lough Beg and Lough Neagh ASSI)			
Freshwater and Estuarine fish (Lough Neagh ASSI)			
Invertebrate assemblage (Lough Neagh ASSI)			
Coastal processes - refers to near-shore sand complexes (Lough Neagh ASSI)			

MONTIAGHS MOSS SAC

UK0030214

CONSERVATION OBJECTIVES

Document Details

Title	*Montiaghs Moss SAC Conservation Objectives*
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Approved By	*P. Corbett*
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V1	June 2013	Internal working document	PC
V2	January 2015	Complete review	RMK

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4. SITE INFORMATION

COUNTY: ANTRIM

GRID REFERENCE: IJ 091654

AREA: 151.28 ha

5. SUMMARY SITE DESCRIPTION

Montiaghs Moss is a cutover lowland raised bog, consisting of an intricate mosaic of peat ramparts, trenches, pools and drains, interspersed with grassland, alder and willow carr and tall hedgerows. These habitats support a wide range of plants and animals, including many rarities.

The area is particularly notable as one of the longest established colonies of the Marsh Fritillary butterfly *Euphydryas aurinia* in NI. The species was first recorded in 1983 and has been recorded annually since 1990 (except for 1997). It is believed that the colony here represents a metapopulation, with a comparatively large core permanent population. 89 webs were counted in 1999.

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 is very complex, and reflects the small-scale pattern of past hand-cutting, with piece-meal reclamation interspersed throughout the area. Around the edges of the site some of the deeper peats have been reclaimed for intensive agriculture, and these have been excluded. In the longer-term, restoring semi-

natural vegetation to these areas (which form part of the wider hydrological unit) would be beneficial.

The boundary includes the core peatland area, with all associated semi-natural vegetation (acid grassland, heath, birch and willow scrub, hay meadows, etc), but excludes improved agricultural land. Many of the rare plants occur within the drains, so a significant part of the network of drains has also been included. Pale Moss to the north was excluded, as it was deemed to be too far away from the core area to justify inclusion (several intervening fields to the north of the road have been reclaimed), in addition to parts of it becoming rank and invaded by scrub.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ pop~
Species	Marsh Fritillary Butterfly *Euphydryas aurinia*	B	89 webs recorded in Aug/Sept 1999
Habitat	Transition mires and quaking bogs	D	1.51
Habitat	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caenuleae)	D	4.54
Habitat	Northern Atlantic wet heaths with Erica tetralix	D	25

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

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

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

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

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

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

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

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

6.1 ASSI SELECTION FEATURES

Montiaghs Moss ASSI

Feature Type	Feature	Size/ extent/ pop~
Species	Marsh Fritillary *Euphydryas aurinia*	
Species	Higher Plant Assemblage	**6 A, B, C D species**
Species	Dragonfly Assemblage	**13 breeding species**
Species	Invertebrate Assemblage (Coleoptera and Heteroptera)	

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** ***Euphydryas aurinia to favourable condition.***

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

8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

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

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

Feature	Component Objective
Marsh Fritillary *Euphydryas aurinia*	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. *Spiranthes romanzoffiana, Hydocharis morsus-ranae, Lemna gibba, Spirodela polyrhiza, Thalictrum flavum* and *Cicuta virosa*.
Dragonfly Assemblage	To maintain (and if feasible enhance) the diversity of the Dragonfly populations, including their abundance and distribution (13 species recorded).
Invertebrate Assemblage	To maintain (and if feasible enhance) the diversity of the Coleoptera and Heteroptera populations, including their abundance and distribution.

10. MANAGEMENT CONSIDERATIONS

Ownership

Montiaghs Moss has been an ASSI since 1997. Given the fact that most of the land is unsuitable for normal agricultural activities, yet requires positive management to maintain the interest features, NIEA has pursued an active policy of acquisition since then. Currently, NIEA owns land within the ASSI.

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 Montiaghs Moss, 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

Due to the topography, with frequent ditches and old peat cuttings, most of the area is dangerous for livestock. Many farmers are understandably reluctant to graze. As a result, there is a trend towards increasing rankness and scrub encroachment. NIEA is actively encouraging grazing on its own land, where this is feasible. Ponies and hardy varieties of cattle are preferable, in that they tend to consume rough and unpalatable material (such as *Molinia*) that more selective grazers avoid. Sheep should generally be avoided, as they graze selectively on *Succisa pratensis*. The optimum time for *Molinia* control is generally May, when the young growth is present and is marginally more palatable.

Undergrazing is the more likely threat to the interest features; however, it should be noted that the peat soils are fragile and liable to poaching, so over-grazing should also be avoided. It should be noted that Marsh Fritillary larvae generally require large rosettes of *Succisa*. These are normally only present in ungrazed or very lightly grazed situations, yet if such conditions persist, *Succisa* will eventually be eliminated by coarse grasses and scrub. Therefore, a balance between grazed and ungrazed areas should be maintained.

Woodland and Scrub Management – Encroachment, Control and Removal

Scrub is an essential element in the system, providing shelter from wind and elevated positions for resting. The spread of scrub may be partly the result of natural seral succession, as a result of the build-up of vegetation litter; however, it may also be the result of under-grazing, or long-term hydrological deterioration.

In practical terms, the spread of scrub will lead to the loss of suitable Marsh Fritillary breeding habitat. Until further research indicates what the most appropriate balance should be between scrub and grassland areas, it may be assumed that the current extent of scrub is favourable. Therefore, clearance of well-established stands of woodland and scrub should generally be avoided. However, where recent scrub encroachment has extended into *Succisa* grassland and where there is good reason to believe that good-quality marshy grassland can be restored, control should be initiated. In the absence of grazing, or where the

scrub has become too tall for grazing to eliminate, control by either hand or mechanical methods is the only feasible option.

Turbary

The area has been extensively cut for turf in the past. Much of the cutting was by hand, using the "puddling" method (i.e. excavating wet peat from open water pools). A limited amount of machine cutting has been undertaken recently.

Currently, there is little active cutting, resulting in the gradual terrestrialisation of open water pools. Although this is probably not a direct factor in the breeding success of the Marsh Fritillary, many of the other interest features depend upon the presence of a range of different pool types, and the loss of this pioneer stage would render the site unfavourable. It is recommended that some existing vegetated pools are re-excavated to provide open-water sites for colonisation by fen vegetation. Since it is unlikely that the work could be carried out by hand, mechanical digger is recommended.

There may also be opportunities to dig open water pools within some of the more extensive stands of monodominant *Molinia*. This would require careful planning to avoid areas that are currently used or that could potentially be used by Marsh Fritillary. However, creating more open water would assist in fire management and would benefit other invertebrates.

Burning

The area has been burnt in the past on a fairly regular basis, often as a precursor to peat cutting. Even since the ASSI has been declared, several large fires have been started. Although burning may control *Molinia* spread and scrub encroachment to a certain degree, indiscriminate and uncontrolled burning destroys both Marsh Fritillary habitat and larvae. As indicated above, additional areas of open water could help to control fires.

Drainage

There are several large drains around the edge of the area, and running through the centre (Navvies Drain). It is not thought that these are having a serious effect on the site, as ultimately water levels appear to be controlled by Lough Neagh. However, it would be useful if this could be confirmed by a hydrological survey. This survey could also assist in developing a plan for the manipulation of water levels within NIEA land – such action might be necessary to enhance wetland habitats, if these are shown to be drying out.

In addition, the future clearance of ditches should ideally take place in liaison with the relevant statutory bodies to ensure that the main features of nature conservation interest are taken into consideration and to prevent detrimental effects upon the whole site.

Eutrophication/Water Quality

The area outside the ASSI is generally in intensive agriculture. Therefore, the area is potentially at risk from eutrophication caused by agricultural run-off from within the catchment. Changes in the vegetation – e.g. increase in nutrient indicators - should be picked up by regular monitoring exercises.

ACTION: Farmers of the immediate catchment should be approached with details of the NI Countryside Management Scheme in the hope that they adopt nutrient management plans and good practice in slurry disposal.

Dumping

Both fly-tipping and more extensive infilling have taken place on the site from many of the roads that cross the ASSI. This has caused the loss of semi-natural habitat. Although the ASSI declaration has stopped infilling, fly-tipping is still a problem. This activity is unsightly and also has the potential for nutrient enrichment, depending upon the type of waste. Gates and fences have been used by NIEA to control the problem within its own property.

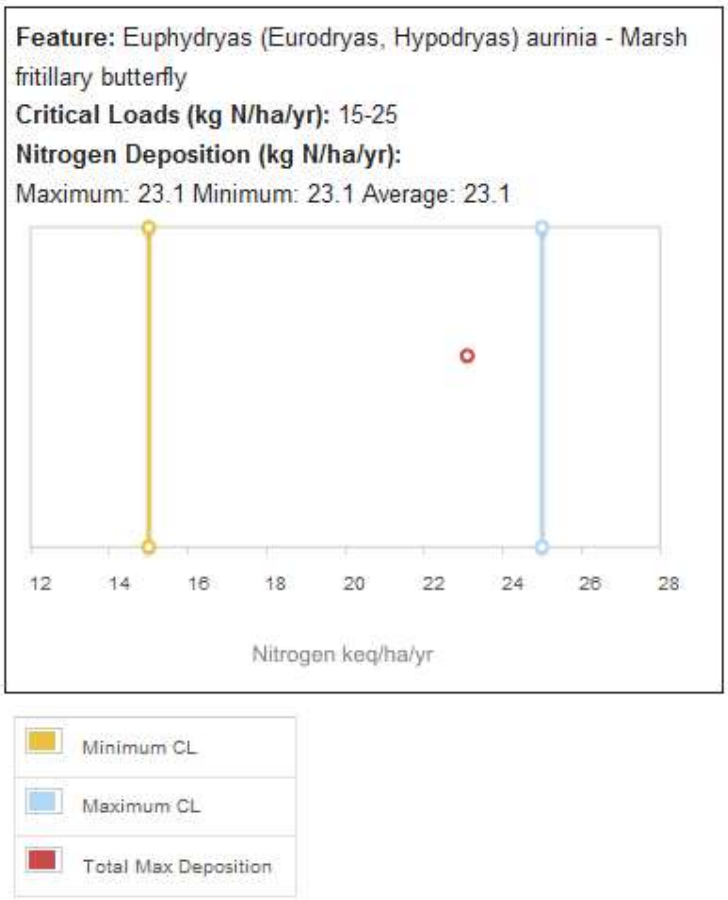
ACTION: Continue to monitor fly-tipping and initiate appropriate control measures (fencing, etc) as necessary.

Other activities (Agricultural reclamation/Cultivation/Application of fertiliser/Additions of manure/slurry/Supplementary feeding

Much of the site is unsuitable for normal agriculture without infilling and subsequent re-seeding. As a result, these activities are unlikely to take place and should be controlled by the ASSI declaration; there should be no reclamation or cultivation of land within the ASSI.

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 Montiaghs Moss SAC.



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

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

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

Changes to surrounding land use

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

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

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

12. MONITORING

Monitoring of SACs takes place 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)*
Check particularly for unauthorised burning (which has taken place in the recent past), and fly-tipping, which is an ongoing problem. Drains to be checked for signs of 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 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) – Marsh Fritillary Butterfly *Eurodryas 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 80 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 marshy grassland	Maintain the extent of suitable marshy grassland at 42 ha[1] [1] Estimated extent of acid marshy grassland is 18.0 ha, with an additional c. 24 ha occurring as part of a mosaic with other habitats – i.e. 42 ha in total	Definition of suitable marshy grassland - Stands of grassland where *Succisa pratensis* 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.

	Extent of good marsh fritillary breeding habitat	Maintain the extent of good marsh fritillary breeding habitat at 4.5 ha[2] [2] Estimated extent of fen meadow is 4.54 ha – this may not *necessarily* represent "good marsh fritillary breeding habitat" – some may be rank. On the other hand, some of the acid marshy grassland may be good habitat	Definition of good marsh fritillary breeding habitat - *Molinia*-dominated grassland where the vegetation height is within the range of 10 to 20 cm, and where *Succisa pratensis* 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	Maintain the extent of other semi-natural habitats which contribute to marsh fritillary breeding success (e.g. woodland and scrub (26.1 ha), wet heath, etc.) – No loss in extent of other semi-natural habitats	The comparatively large extent of the site, with the mosaic of different habitats is believed to contribute to the success of the colony on the site



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 level[1]. The Advice on Operations is site-specific but based on a broad assessment of the sensitivity of the harbour porpoise to anthropogenic pressures at a UK scale.

The advice in this document has been developed using the best available scientific information and expert interpretation as of February 2019. The advice provided here may be subject to change as our knowledge about the site and the impacts of human activities improves.

To ensure the site contributes in the best possible way to achieving FCS, management of human activities occurring in or around the site is required if these activities are likely to have an adverse impact (directly or indirectly) on the integrity of the site, with regards to its Conservation Objectives. It should be noted that as a European Protected Species under Annex IV of the Habitats Directive, harbour porpoises are already strictly protected throughout their European range. As such, several conservation measures are already in place in the UK.

To achieve the Conservation Objectives for the North Chanel SAC, the relevant[2] and competent[3] authorities should consider human activities within their remit which might affect the integrity of the site.

[1] http://jncc.defra.gov.uk/PDF/comm02D07.pdf

[2] Relevant authorities are those who are already involved in some form of relevant marine regulatory function and would therefore be directly involved in the management of a marine site lying within territorial waters. The bodies which may be relevant authorities are listed in Regulation 6 of the Conservation of Habitats and Species Regulations 2017. All relevant authorities are also competent authorities.

[3] Competent authorities are defined in Regulation 5 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 and Regulation 7 of the Conservation of Habitats and Species Regulations 2017. In summary, a competent authority is any person or organisation that has the legally delegated or invested authority (e.g. Minister, government department, public body of any kind or statutory undertaker) to perform a designated function.

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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 (MUs[4]) defined for the species (ICES, 2014; IAMMWG, 2015). The Welsh and Northern Irish Governments, along with Defra on behalf of England and relevant offshore waters, gave approval for sites within their areas of jurisdiction to proceed to consultation (January to May 2016). In light of the responses to the consultation, five sites were submitted to the European Commission as candidate SACs in January 2017. These five sites were adopted by the EC as Sites of Community Importance (SCIs) on 12 December 2017 and designated as SACs by Ministers on 26th February 2019. These sites are shown in Figure 1.

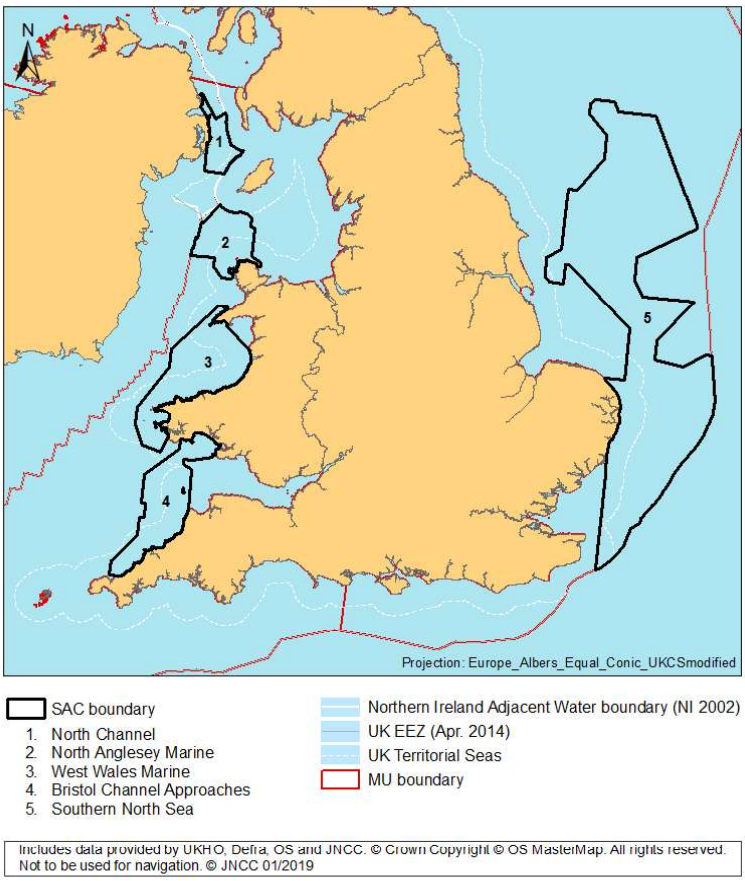


Figure 1: Special Areas of Conservation for the harbour porpoise, *Phocoena phocoena* identified in Northern Ireland, England, Wales and offshore waters. The Management Unit (MU) boundary (red line) refers to the UK portion of the North Sea and Celtic and Irish Seas MUs.

[4] For conservation and management purposes it is practical to divide the population into smaller units, termed Management Units (MUs). These MUs were developed to take account of biological populations of animals but were also determined by political boundaries and are at an appropriate scale at which to assess human activities. In the UK, three MUs have been defined for harbour porpoise: West of Scotland, Celtic and Irish Seas, and North Sea (IAMMWG, 2015)

This advice document is for the North Channel SAC (Figure 2) which is subject to protection under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)[5] and the Conservation of Offshore Marine Habitats and Species Regulation 2017[6] (collectively referred to as the Habitats Regulations). The advice is given in fulfilment of the duty of the Statutory Nature Conservation Bodies (SNCBs) under the Habitats Regulations to advise Relevant and Competent Authorities as to (a) the Conservation Objectives for the site; and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. The SNCBs aim to ensure that the Conservation Objectives are up-to-date, accessible and enable the assessment of the potential effects of plans and projects.

2 Responsibilities of Relevant and Competent Authorities

Competent Authorities (including those which are also Relevant Authorities) are required to exercise their functions to comply with the Habitats Regulations. Competent Authorities must, within their areas of jurisdiction, consider both direct and indirect effects on the site. This includes considering operations inside and outside the boundary of the SAC, if the impacts could affect the achievement of the site's Conservation Objectives. Decisions on management measures (e.g. the scale and type of mitigation) are the responsibility of the relevant regulatory or management bodies. These bodies will consider SNCB advice and hold discussions with the sector concerned, where appropriate. Where consent is required and the operation (if considered a plan or project) is likely to significantly affect a European Site, Article 6(3) of the Habitats Directive requires that an Appropriate Assessment (AA) is carried out. The AA is part of the "Habitat Regulations Assessment" (HRA), which is a case-specific assessment made in view of the Conservation Objectives for the affected site or sites. Each HRA requires case-specific advice from the SNCB but the assessment is the responsibility of the competent authority concerned.

The variability of harbour porpoise distribution and abundance within sites is in part due to their mobility and wide-ranging nature as well as natural and anthropogenic changes in habitat and prey. Relevant and Competent Authorities are not required to undertake any actions to ameliorate changes in the condition of the site if it is shown that the changes result wholly from natural causes. It is therefore important to contextualise any apparent changes in harbour porpoise presence within the site in terms of natural variability and the abundance and distribution patterns at the population level (i.e. MU).

3 Conservation Objectives for harbour porpoise SACs

3.1 The role of Conservation Objectives

Site level Conservation Objectives (COs) are a set of specified objectives designed to ensure that the site contributes in the best possible way to achieving Favourable Conservation Status (FCS) of the designated site feature(s) at the national and biogeographic level (EC, 2012). Conservation Objectives constitute a necessary reference for:

- identifying any site-based conservation measures that may be required;
- carrying out HRAs of the implications of plans or projects.

The purpose of the HRA is to determine whether a plan or project could adversely affect a site's integrity. The critical consideration in relation to site integrity is not the extent or degree of an impact, or whether an impact is direct or indirect, but whether a plan or project, either

[5] http://www.legislation.gov.uk/nisr/1995/380/contents/made
[6] http://www.legislation.gov.uk/uksi/2017/1013/contents/made

individually or in combination with other plans or projects, affects the site's ability to achieve its Conservation Objectives and therefore contribute to Favourable Conservation Status.

Harbour porpoise are protected everywhere in European waters under the provisions of the Habitats Regulations. The harbour porpoise in UK waters are considered part of a wider European population and the highly mobile nature of this species means that the concept of a 'site population' is not considered an appropriate basis for expressing Conservation Objectives for this species. Site based conservation measures will complement wider ranging measures that are in place for the harbour porpoise.

3.2 Background to Conservation Objectives

The Conservation Objectives are designed to help ensure that the obligations of the Habitats Directive can be met. Article 6(2) of the Directive requires that there should be no deterioration or significant disturbance of the qualifying species or to the habitats upon which they rely. Therefore, the focus of the Conservation Objectives for harbour porpoise sites is on addressing pressures that affect site integrity and would include:

- killing or injuring harbour porpoise (directly or indirectly);
- preventing their use of significant parts of the site (disturbance / displacement);
- significantly damaging relevant habitats; or
- significantly reducing the availability of prey.

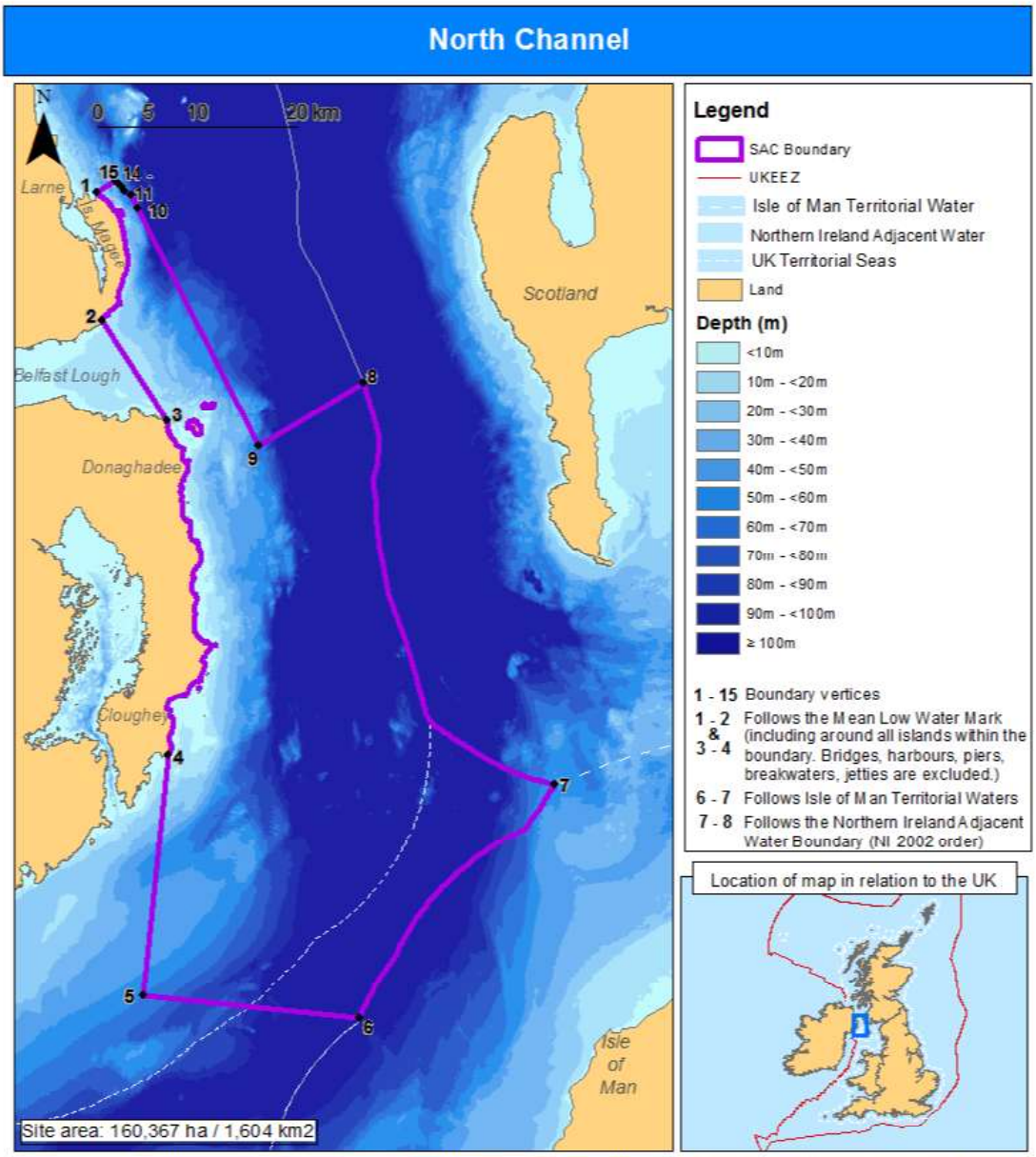
This document includes both a statement of the Conservation Objectives and explanatory text on their intent and interpretation specific to the site. The Objectives have been set taking account of European Commission guidance (EC, 2012). Further guidance on the management of specific pressures on harbour porpoise is being developed.

3.3 The North Channel SAC Conservation Objectives

The qualifying feature of the site is the Habitats Directive Annex II species:

- harbour porpoise (*Phocoena phocoena*)

Seasonal differences in the relative use of the site have been identified based on the analyses of Heinänen and Skov (2015). Harbour porpoise sightings data were modelled seasonally (Summer: April-September and Winter: October-March) for each MU. The outputs of this analysis were maps of areas by season and MU that persistently contained elevated densities of harbour porpoises. These areas were used as the basis for site identification and consequently, sites may have seasonal components which should be considered in the assessment of impacts and proposed management. The North Channel SAC (Figure 2) has been designated because of its importance to harbour porpoise in the winter months (October – March).



Includes data provided by UKHO, Defra, OS and JNCC. © Crown Copyright © OS MasterMap. All rights reserved.
Not to be used for navigation. © JNCC 02/2019. Coordinates displayed in WGS84 geographic coordinate system.
Site area calculated using modified Europe_Albers_Equal_Area_Conic_UK projection.

ID	Latitude	Longitude	ID	Latitude	Longitude	ID	Latitude	Longitude
1	54° 51' 34.7" N	5° 45' 46.6" W	6	54° 11' 30.7" N	5° 5' 8.3" W	11	54° 51' 50.6" N	5° 42' 33.9" W
2	54° 44' 55.9" N	5° 42' 33.0" W	7	54° 25' 59.8" N	4° 52' 7.7" W	12	54° 52' 1.0" N	5° 43' 14.3" W
3	54° 40' 30.7" N	5° 34' 37.0" W	8	54° 44' 48.0" N	5° 17' 30.8" W	13	54° 52' 11.2" N	5° 43' 35.8" W
4	54° 23' 6.4" N	5° 27' 40.7" W	9	54° 40' 16.0" N	5° 25' 43.8" W	14	54° 52' 19.8" N	5° 43' 59.1" W
5	54° 10' 8.4" N	5° 25' 0.3" W	10	54° 51' 14.4" N	5° 41' 45.0" W	15	54° 52' 25.8" N	5° 44' 21.3" W

Figure 2: The North Channel Special Area of Conservation for harbour porpoise.

The Conservation Objectives for the site are:

To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters

In the context of natural change, this will be achieved by ensuring that:

1. Harbour porpoise is a viable component of the site;

2. There is no significant disturbance of the species; and

3. The condition of supporting habitats and processes, and the availability of prey is maintained.

Conservation Objective 1: Harbour porpoise is a viable component of the site

The SACs have been selected primarily based on their long-term, relatively higher densities of porpoise in contrast to other areas of the MU. The implication is that SACs provide relatively good foraging habitat and may also be used for breeding and calving. However, because the number of harbour porpoise using the sites naturally varies (e.g. between seasons), there is no exact number of animals within the site.

The intent of this objective is to minimise the risk of injury and killing or other factors that could restrict the survivability and reproductive potential of harbour porpoise using the site. Specifically, this objective is primarily concerned with operations that would result in unacceptable levels of those impacts on harbour porpoises using the site. Unacceptable levels can be defined as those having an impact on the FCS of the populations of the species in their natural range. The reference population for assessments against this objective is the MU population in which the SAC is situated (IAMMWG, 2015).

Harbour porpoise is a European Protected Species (EPS) listed on Annex IV of the Habitats Directive and as such is protected under the Habitats Directive Article 12 and transposing regulations from deliberate killing (or injury), capture and disturbance throughout its range. In addition, Article 12 (4) of the Habitats Directive is concerned with incidental capture and killing. It states that Member States 'shall establish a system to monitor the incidental capture and killing of the species listed on Annex IV (all cetaceans). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned'. Site based measures should therefore be aligned with the existing strict protection measures in place throughout UK waters. Significant disturbance within or affecting the site is considered in the second conservation objective.

Conservation Objective 2: There is no significant disturbance of the species

Disturbance of harbour porpoise typically, but not exclusively, originates from operations that cause underwater noise including, as examples, seismic surveys, pile driving and sonar. Responses to noise can be physiological and/or behavioural. JNCC has produced guidelines to minimise the risk of physical injury to cetaceans from various sources of loud, underwater noise[7]. However, disturbance is primarily a behavioural response to noise and may, for example, lead to harbour porpoises being displaced from the affected area.

This SAC was identified as having persistently higher densities of harbour porpoises (Heinänen and Skov 2015) compared to other areas of the MU. This is likely linked to the habitats within the site providing good feeding opportunities. Therefore, operations within or affecting the site should be managed to ensure that the animals' potential usage of the site is

[7] http://jncc.defra.gov.uk/page-4273

maintained. Disturbance is considered significant if it leads to the exclusion of harbour porpoise from a significant portion of the site. Specifically, draft SNCB advice /guidance for assessing the significance of noise disturbance to a site suggests:

Noise disturbance within an SAC from a plan/project individually or in combination is significant if it excludes harbour porpoises from more than: 1. 20% of the relevant area[8] of the site in any given day[9], and 2. an average of 10% of the relevant area of the site over a season[10,11].

Conservation Objective 3: The condition of supporting habitats and processes, and the availability of prey is maintained

Supporting habitats, in this context, means the characteristics of the seabed and water column. Processes encompass the movements and physical properties of the habitat. The maintenance of supporting habitats and processes contributes to ensuring that prey is maintained within the site and is available to harbour porpoises using the site. Some evidence shows that the harbour porpoise has a high metabolic rate compared to terrestrial mammals of similar size (Rojano-Doñate et al., 2018) and high feeding rates (Wisniewska et al., 2016). The harbour porpoise is therefore thought to be a species that is highly dependent on a year-round proximity to food sources and its distribution and condition may strongly reflect the availability and energy density of its prey (Brodie 1995 in Santos & Pierce, 2003). The densities of porpoise using a site are likely linked to the availability (and density) of prey within the site. Harbour porpoise eat a variety of prey including gobies, sandeel, whiting, herring and sprat. However, the diet of porpoises when within the sites is not well known but is likely comparable to that in the wider seas.

There are several operations (Table 2) which potentially affect the achievement of this Conservation Objective. Whilst some plans/projects are unlikely to have a significant effect alone, an effect might become significant when considered in combination with other plans/projects and against the background of existing activities/pressures on the site. Further work is needed to assess historic, existing and planned levels of plans/projects in the sites and to better understand their impacts on the habitats and prey within the sites.

4 Advice on Operations

4.1 Purpose of advice

This section details the advice on activities specifically occurring within or close to the North Channel SAC that would be expected to impact the site; this is known as Advice on Operations. Initial assessments were conducted at a UK scale, with subsequent site-level

[8] The relevant area is defined as that part of the SAC that was designated on the basis of higher persistent densities for that season (summer defined as April to September inclusive, winter as October to March inclusive).

[9] Applicable only in Habitats Regulations Assessments (HRA / AA stage) due to impracticality of daily noise limit management of activities, but retrospective compliance analysis advised

[10] Summer defined as April to September inclusive, winter as October to March inclusive

[11] For example, a daily footprint of 19% for 95 days would result in an average of 19x95/183 days (summer) =9.86%

assessment detailing our understanding of the operations and their potential to impact the site (Section 5 & 6). Advice is only given where pressures[12] may impact the site and therefore, may require management, if the Conservation Objectives are to be met. Widespread pressures may also act to affect the overall status of harbour porpoise, but their effects are not restricted to specific sites. Such pressures are best dealt with through broader measures. Alongside and in addition to the identification of the network of harbour porpoise sites, an overarching conservation strategy (DETR, 2000) has been in place for harbour porpoise since 2000. In light of a recent conservation literature review (IAMMWG *et al,* 2015), a UK Dolphin and Porpoise Conservation Strategy is being developed.

The advice outlined below should also be used to help identify the extent to which existing operations are, or can be made, consistent with the Conservation Objectives, and thereby focus the attention of Relevant and Competent Authorities and monitoring programmes to areas that may need management measures.

This Advice on Operations will be supplemented through further discussions with the Relevant and Competent Authorities and any advisory groups that may be formed for the site.

4.2 Background

In compiling this Advice on Operations, the SNCBs have considered the pressures that may be caused by human activities and may affect the integrity of the site when considered against the Conservation Objectives. The advice is generated through a broad grading of sensitivity and exposure of the harbour porpoise to pressures associated with activities to gain an understanding of how vulnerable the species is to each activity at a UK level. The activities and their associated pressures to which the harbour porpoise is deemed vulnerable at a UK level are then considered at a site level to inform the risks to achieving the Conservation Objectives along with any potential management that may be required to mitigate against such risks. Annex A details the assessments of the level of impact risk[13] from operations on harbour porpoise populations at a UK-wide scale. This informs on the activities/operations likely to impact the site.

This document is guidance only and activities/operations and their management within or affecting the site will be considered in the context of a Habitats Regulations Assessment (HRA) and where applicable through other environmental assessment processes, such as Environmental Impact Assessment (EIA).

5 Operation assessments at UK scale

The assessments have been carried out using all available evidence as of February 2019. If further information is made available in future which would improve our understanding of harbour porpoise vulnerability in UK waters, the assessments may be updated. This advice is provided without prejudice for use by the Relevant and Competent Authorities. The level of any impact will depend on the location, timing and intensity of the relevant operation. This advice is provided to assist and focus the Relevant and Competent Authorities in their consideration of the management of these operations.

The harbour porpoise is a wide-ranging species and occurs throughout the UK Continental Shelf area (JNCC, 2013). It does occur in deeper waters but in very low densities, and perhaps only seasonally. As a predominantly continental shelf species, it is exposed to a wide range of pressures that are both ubiquitous (e.g. pollution) and patchy (e.g. bycatch) in nature, and the list of anthropogenic activities leading to these pressures is long. Based on current

[12] See Annex B for definition of key terms
[13] Risk includes consideration of severity of implications of impact

available information, the operations that pose the most notable risk of impact to UK harbour porpoise are shown in Table 1.

The current levels of impact of the various pressures are based on the Article 17 assessments[14] and the full list of assessed activities (operations) and key references can be found in Annex A. Updates to the assessments will occur as more evidence becomes available.

Definitions of pressures are explained in Annex B.

Activities which currently pose a low risk of impact to harbour porpoise at the UK level (Annex A) have not been considered in this advice. The exposure to the pressures associated with these activities is currently very limited and poses no significant threat to the maintenance of harbour porpoise at FCS. Non-anthropogenic impacts are also not considered, such as attack and predation from other marine mammal species that have the potential to impact harbour porpoise populations.

Table 1: Key activities/operations and the relative level of risk of impact on harbour porpoise throughout UK waters. Those pressures ranked 'high' are known to have the greatest impact relative to other pressures on the population of UK harbour porpoises. Activities which currently pose a low risk are not shown.

Operations	Pressures	Impacts	Current relative level of risk of impact
Commercial fisheries with bycatch of harbour porpoise (predominantly static nets)	**Removal of non-target species**	• Mortality through entanglement/bycatch	High
Discharge/run-off from land-fill, terrestrial and offshore industries	**Contaminants**	• Effects on water and prey quality • 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**	• 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**	• Mortality • Injury	Medium/Low
Commercial fisheries (reduction in prey resources)	**Removal of target species**	• 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 1,604km^2. A summary of the site can be found in the Selection Assessment Document on the Site Information Centre[15].

All available information on activities/operations within or in proximity to the site has been used to assess the threats and pressures within the site. However, precise information on some activities/operations is not currently available due to lack of targeted data collection to date. Assessing exposure carries certain assumptions about the spatial extent, frequency and intensity of the pressures associated with marine activities.

Table 2 is an overview of activities occurring within or in proximity to the North Channel site to which the harbour porpoise has a current level of impact risk of High or Medium at UK level (Table 1) and therefore may require further consideration concerning options for management. The impact of a pressure at the site level can differ to that at UK level dependent on the amount of activity within or adjacent to the site. GIS layers of spatial activity data as well as review of literature, were used to identify the impact risk within the site (where a pressure is concentrated within a site) and whether it differs from the UK level risk. These assessments include all available information as of February 2019.

JNCC and the country SNCBs are working with the Regulators and Industry to ensure that a pragmatic approach to mitigation and management of pressures that may affect the integrity of the site is adopted. Any future guidance documents will be made available on the Site Information Centre on the JNCC website[16].

[15] SAC Selection Assessment Document: http://jncc.defra.gov.uk/page-7242

[16] http://jncc.defra.gov.uk/page-7242

Table 2: Operations occurring within/near to the North Channel site which may affect the integrity of the site.

Operations	Pressure	Comment on current level of activity	Management considerations
Fisheries (commercial and recreational) with harbour porpoise bycatch	Removal of non-target (bycatch) species	Bycatch of harbour porpoise in fishing gear is one of the most significant anthropogenic pressures impacting the population at a UK level. The relevant commercial fisheries with harbour porpoise bycatch are bottom set nets, such as gillnets and tangle nets. UK registered vessels >12m: According to Vessel Monitoring System (VMS) data, there is no evidence of large vessel UK static net fishing activity within the site[17]. UK registered vessels <12m: current exposure is unknown within the site boundary. EU registered >12m vessels: VMS data show potential for low levels of dispersed static netting vessel activity in Northern Ireland waters.	Where bycatch may pose a risk to achieving the site's conservation objectives, mitigation may need to be considered. 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). The site sits within ICES area VIIa and as such, gillnetters > 12m are not legally obliged to use pingers under EU Regulation 812/2004. 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. Because the effort of static net fisheries within this site is currently considered low, the risk of bycatch is considered low. As such it is unlikely that further management would be required. A revised assessment of the risk would be required where new evidence of activity becomes available.
Discharge /run-off from land-fill, terrestrial/ offshore industries	Contaminants	Current exposure within or near the site is unknown.	This pressure generally cannot be managed effectively at the site level. Most of the relevant pollutants have been effectively phased out of use by action under the OSPAR Convention and, more recently, the EU (through Council Directives 67/548/EEC and 76769/EEC and the Stockholm Convention, which restrict the marketing and use of PCBs; plan for disposal of PCBs; and eliminate or restrict the production and use of persistent organic pollutants [POPs]).

[17] The fisheries data are aggregated VMS data collected between 2006 and 2013.

			However, human activities are the most likely cause of the re-release of these chemically stable chemicals into the environment or for introduction of other contaminants of which the impacts are poorly known. Any novel sources of potential contamination and/or activities likely to cause re-release of pollutants form stores associated with a new plan or project will be assessed under HRA both within and outside the site where there is the potential to impact upon site integrity. Current sources of exposure have to be identified and further efforts to limit or eliminate PCB discharges to the marine environment may still be needed.
Shipping	Anthropogenic underwater sound	The Northern Ireland port of Belfast is near the site resulting in large vessel shipping and ferry routes throughout the site.	Harbour porpoise use sound for foraging, navigation, social activities and predator detection. Underwater noise therefore has the potential to interrupt or affect these behaviours as well as cause hearing damage, particularly at short distances. The peak frequency of echolocation pulses produced by harbour porpoise is 120–130 kHz, corresponding to their peak hearing sensitivity although hearing occurs throughout the range of ~1 and 180 kHz (Southall *et al* 2007). The underwater sounds created by large ships are unlikely to cause physical trauma but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance). However, additional management is unlikely to be required based on current levels of activity. Significant increases in vessel traffic (e.g. associated with the installation of wind farms in the area), would need further assessment.
Oil and gas drilling		The northern-most area of the site overlaps with current licensed blocks for oil and gas.	Any future applications from existing or inactive (exploratory and dry) wells and oil and gas licensed blocks occurring within the site would be subject to an HRA.
Pile driving		There is overlap with an offshore wind resource zone in the southwest of the site, however, there	A European Protected Species (EPS) licence is already required for any construction activity which carries the risk of significant disturbance or injury

		are currently no plans in place for development of that zone. Although there is currently no pile driving within the site there are planned developments at Belfast Harbour that will engage this activity.	to cetaceans. Developers are required to follow the 'Statutory Nature Conservation Agency protocol for minimising the risk of injury to marine mammals from piling noise'[18]. 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. 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. Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs and Regulators in consultation with industry.
Dredging and disposal		Development and maintenance works at Northern Ireland's primary port at Belfast are ongoing.	Dredging and disposal can cause disturbance leading to changes in harbour porpoise behaviour as well as to their habitat and prey. There is also potential for resuspension of pollutants from the sediment. The risk from single plans/projects may be considered relatively low but is assessed through HRA. However, there is currently considerable uncertainty regarding effects on habitat and prey.

[18] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/50006/jncc-pprotocol.pdf

			New dredge and disposal projects (or licence renewals) are subject to HRA. Cumulative impacts will be considered within the HRA.
Geophysical surveys (including seismic) surveys		A range of acoustic ground discrimination surveys are undertaken within the site, including for scientific research and site surveys undertaken in association with various infrastructure projects.	Some geophysical surveys that may affect the integrity of the site may require consent and be subject to HRA. Each case needs to be assessed individually, and the *JNCC Guidelines for minimising the risk of injury to marine mammals from geophysical surveys* (updated August 2017[19]) are available online. Within the guidance, seismic survey is defined as *'Any geophysical survey that uses airguns to generate sound which is sent into the seabed and the reflected energy is recorded and processed to produce images of the geological strata below; described as 2D, 3D and 4D and includes any similar techniques that use airguns.'* 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. Cumulative impacts of geophysical surveys will need to be considered. Further advice on assessment and management of noisy activities within the sites is being developed by the SNCBs in consultation with Regulators, industry and NGOs.
Recreational boating activity		Royal Yachting Association (RYA) cruising routes throughout the site, particularly along coast.	Adherence to relevant existing wildlife codes of conduct is already advocated. UK SNCBs are looking at the option of developing an overarching wildlife watching code of conduct to sit alongside the Scottish code.
Acoustic deterrent/ mitigation devices		No known use within the site.	No further management required

[19] http://jncc.defra.gov.uk/pdf/jncc_guidelines_seismicsurvey_apr2017.pdf.

Pinger devices		The use of pingers is unknown but unlikely in the site given that the vessels >12m are not required to use pingers under Reg 812/2004 in the wider ICES area VIIa.	See 'Fisheries (commercial and recreational) with harbour porpoise bycatch'. 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).	Fisheries Policy and not at the site level. Harbour porpoise diet within UK waters includes a wide variety of fish and they will generally focus on the most abundant local species (De Pierrepont *et al* 2005; Camphuysen *et al* 2006). The predominant prey type appears to be whiting, gobies and sandeel, although shoaling fish such as mackerel and herring are also taken. Harbour porpoise diets overlap extensively with diets of other piscivorous marine predators (notably seals) and many of the main prey species are also taken by commercial fisheries, although porpoises tend to take smaller fish than those targeted by fisheries (Santos and Pierce 2003). The overlap between commercial fisheries and harbour porpoise prey is unknown within the site. Further research is required to establish whether there is any potential for direct overlap.

6.2 Limitations of the evidence

It is important to note that the information used to catalogue activities/operations occurring within the site is not complete. The available data are drawn from existing monitoring programmes (e.g. the UK's Bycatch Monitoring Scheme for Protected Species and other European datasets linked to VMS monitoring of fishing vessels) but these have limitations, including availability and accessibility of data at the time of preparing this advice. Caveats with how the data have been collected also need to be understood to correctly interpret the information. This has resulted in the use of expert judgement where sufficient evidence is lacking but risk is implied. Below are some points to consider alongside the above table to ensure the information is not taken out of context:

- **Data availability**
  - Globally, the marine environment is generally far behind the evidence levels of that on land, particularly in offshore areas, mainly due to scale and difficulty/cost of data acquisition.
  - There can be sensitivities surrounding data that have been gathered by industry, and some data are not available for use for advice and management purposes. Often these data can become available, but not in time to inform management decisions.

- **Fishing: Limitations of fishing Vessel Monitoring System (VMS) data**
  - VMS positional data are transmitted at approximately 2-hour intervals. There is no information transmitted regarding precise vessel activity, therefore assumptions about activity, based on logbook returns and vessel speed profile are often made.

- Vessel positional data (VMS) cannot inform regulators regarding extent of static gear deployment or soak times.
- Fishing vessels under 12m long, (and until 2013, vessels under 15m long) are not required to use the VMS, and therefore VMS data tells us nothing regarding the activity of this segment of the fleet. However, local information can be obtained from fisheries management authorities and will be used to develop more detailed guidance to assist with identification of any management measures where considered necessary.

- **Contaminants**
  - Although use of many of the relevant substances (e.g. PCBs) has been heavily regulated for many years, including a ban on further production, re-suspension or reintroduction of pollutants may occur. It is difficult to identify sources of contamination when dealing with highly mobile species.

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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 17[21]. See Annex B for the definitions of pressures as used for the harbour porpoise assessments. For the assessment, the relative importance of the pressure was assessed by considering the evidence available of an impact and the nature of that impact (direct/indirect) together with the area over which the pressure is acting in UK waters in relation to the species distribution. The relative levels are assigned according to the Article 17 guidance (Evans and Marvela, 2013) as:

Code	Meaning	Comment
H	High importance/impact	Important direct or immediate influence and/or acting over large areas
M	Medium importance/impact	Medium direct or immediate influence, mainly indirect influence and/or acting over moderate part of the area/acting only regionally
L	Low importance/impact	Low direct or immediate influence, indirect influence and/or active over small part of the area/acting only regionally

Table A1: Full assessment of level of the impact risk from activities/operations on harbour porpoise in UK waters based on considerations for Article 17 assessment for harbour porpoise conservation status[22].

Operations	**Pressures**	**Impacts**	**Relative level of risk of impact**	**Evidence**		**Key references**
				Spatial overlap (species & pressure)	**Post-mortem examination**	
Commercial fisheries with bycatch (predominantly static nets)	Removal of non-target species	• Mortality through entanglement/ bycatch	High	✓	✓	Deaville and Jepson, 2011; Morizur *et al* 1999; Read *et al* 2006; Northridge and Kingston, 2010; Northridge *et al* 2016; ICES 2015b
Discharge/run-off from land-fill, terrestrial and offshore industries	Contaminants	• Effects on water and prey quality • Bioaccumulation through	High		✓	Jepson *et al* 2005; Jepson *et al* 2016; Deaville & Jepson, 2011; ICES, 2015a; Van De Vijver *et al* 2003; Law *et al* 2012;

[21] http://jncc.defra.gov.uk/page-6564

[22] EU Habitats Directive Article 17 assessment, harbour porpoise report: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1351_UK.pdf

		contaminated prey ingestion • Health issues (e.g. on reproduction)				Pierce *et al* 2008; Murphy *et al* 2015.
Noise from shipping, drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys, underwater explosion, military activity, acoustic deterrent devices and recreational boating activity	Anthropogenic underwater sound	• Mortality • Internal injury • Disturbance leading to physical and acoustic behavioural changes (potentially impacting foraging, navigation, breeding, socialising) • Habitat change/loss	Medium	✓		Deaville & Jepson, 2011; Stone & Tasker, 2006; Stone, 2015; Jepson *et al* 2005; Fernandez *et al* 2005; Würsig & Richardson, 2009; WGMME, 2012.
Shipping, recreational boating, renewable energy installations	Death or injury by collision	• Mortality • Injury	Medium/ Low	✓	✓	Deaville & Jepson, 2011; Dolman *et al* 2006; ICES 2015a
Commercial fisheries, bycatch	Removal of target species	• 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 *et al* 2007a, b; Thompson *et al* 2007; Santos and Pierce, 2003; Pierce *et al* 2007; ICES 2015b
Agriculture, aquaculture, sewage	Nutrient enrichment	• Effects on water quality • Increased risk of algal blooms may present health issues • Habitat change/loss	Low	✓	✓	Craig *et al* 2013
Agriculture, aquaculture, sewage	Organic enrichment	• Effects on water quality • Increased risk of algal blooms may present health issues • Habitat change/loss	Low	✓		Craig *et al* 2013
Waste disposal - navigational dredging (capital, maintenance)	Physical change (to another seabed type)	• Changes in availability of prey species • Habitat change/loss	Low			

Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation)	Water flow (tidal current) changes - local	• Changes in location of prey species • Displacement of harbour porpoise • Habitat change/loss	Low			
Terrestrial and at-sea 'disposal'	Litter	• Mortality through entanglement • Ingestion	Low	✓	✓	Deaville and Jepson, 2011
Bridges, tunnels, dams, installations, presence of vessels (shipping, recreation)	Barrier to species movement	• Habitat inaccessible • Potential physiological effects • Habitat change/loss	Low	✓		WGMME., 2012; ICES 2015a
Sewage	Introduction of microbial pathogens	• Increased risk of disease	Low		✓	Harvell *et al* 1999; Gulland and Hall, 2007; Van Bressem *et al* 2009

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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

An Agency within the Department of the Environment

ENVIRONMENT AND HERITAGE SERVICE

The Ramsar Convention on Wetlands

Name: Outer Ards.

Unitary Authority/County: North Down Borough Council,
Ards Borough Council
County Down

Consultation proposal: Outer Ards and Ballymacormick Point Areas of Special Scientific Interest have been selected for designation as a Ramsar site because of their important breeding and wintering populations of waterfowl.

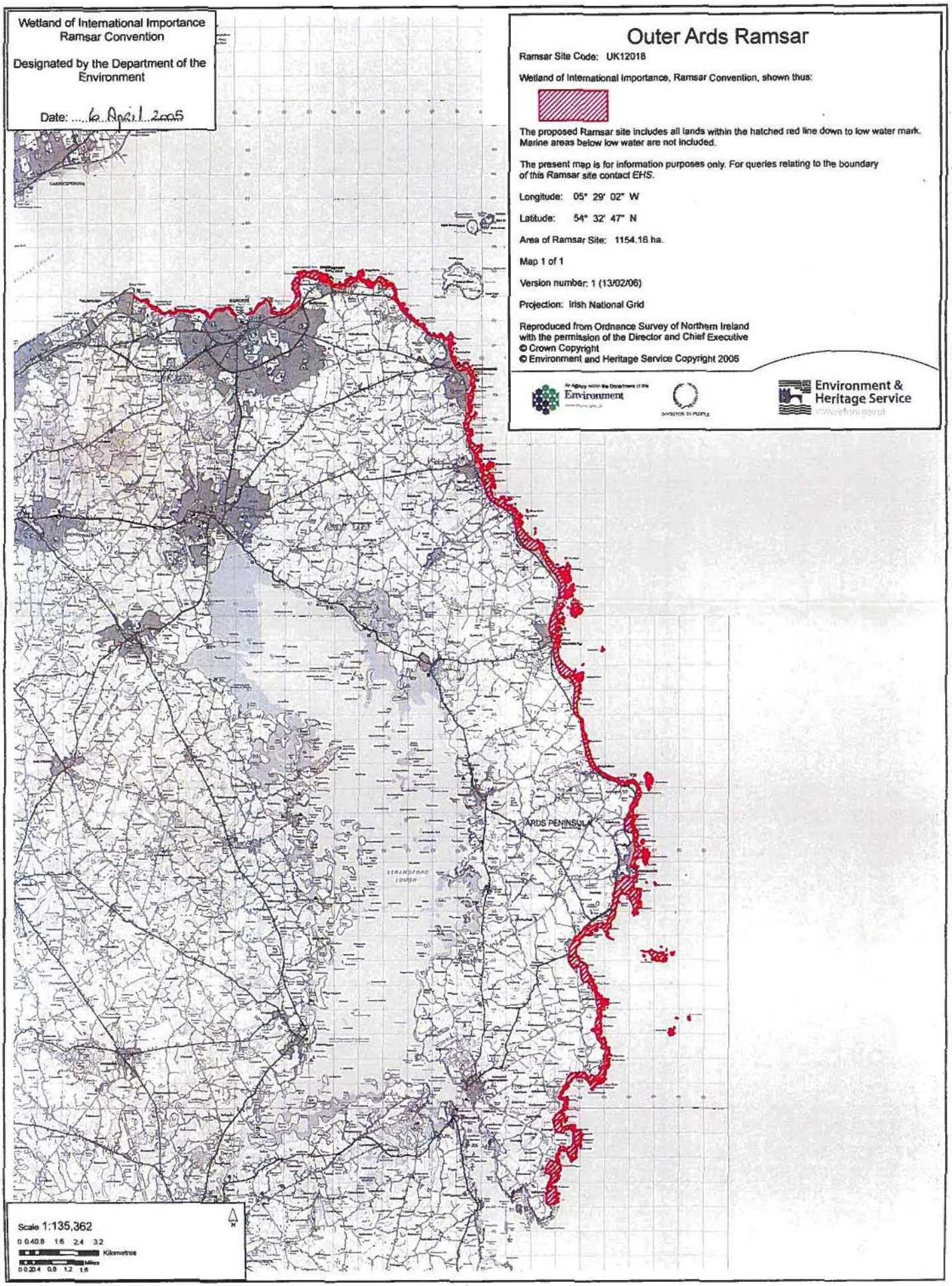
Site description: The Outer Ards site extends from Grey Point on the north Down coast, to Ballyquintin Point in the south. The site mainly encompasses the inter-tidal areas, but with some additional adjoining areas of notable habitat. It includes sand and mud dominated shores, cobble and boulder beaches together with rocky shores. Off shore islands are also present. Adjoining habitat includes areas of maritime grassland and heath. The principal interests are the breeding colonies of Arctic Tern and Manx Shearwater, together with the wintering populations of Light-bellied Brent Goose, Golden Plover, Turnstone and Ringed Plover. The boundary of the Ramsar site is entirely coincident with the Outer Ards Area of Special Scientific Interest together with the Ballymacormick Point Area of Special Scientific Interest.

Size of Ramsar site: The Ramsar site covers an area of 1278.82 ha.

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

Species	Count and season	Period	Biogeographic %
Arctic Tern *Sterna paradisaea*	207 pairs – breeding	5 year mean	4.7% Irish population
Manx Shearwater *Puffinus puffinus*	Minimum 3581 pairs – breeding	2000	1.3% world population
Light-bellied Brent Goose *Branta bernicla hrota*	209 individuals – wintering	5 year peak mean for 1991/92 – 1995/96	1.1% world population
Golden Plover *Pluvialis apricaria*	2109 individuals – wintering	5 year peak mean for 1991/92 – 1995/96	1.1% NW Europe population
Ringed Plover *Charadrius hiaticula*	516 individuals – wintering	5 year peak mean for 1991/92 – 1995/96	1.2 % Eastern Atlantic Flyway population
Turnstone *Arenaria interpres*	1210 individuals – wintering	5 year peak mean for 1991/92 – 1995/96	1.7 % Eastern Atlantic Flyway population

Bird figures from: WeBS database and Seabird 2000 census


Wetland of International Importance
Ramsar Convention
Designated by the Department of the Environment
Date: 6 April 2005
Outer Ards Ramsar
Ramsar Site Code: UK12018
Wetland of International Importance, Ramsar Convention, shown thus:
The proposed Ramsar site includes all lands within the hatched red line down to low water mark. Marine areas below low water are not included.
The present map is for information purposes only. For queries relating to the boundary of this Ramsar site contact EHS.
Longitude: 05° 29' 02" W
Latitude: 54° 32' 47" N
Area of Ramsar Site: 1154.16 ha.
Map 1 of 1
Version number: 1 (13/02/06)
Projection: Irish National Grid
Reproduced from Ordnance Survey of Northern Ireland with the permission of the Director and Chief Executive
© Crown Copyright
© Environment and Heritage Service Copyright 2005
Environment
Environment & Heritage Service
ARDS PENINSULA
STRANGFORD LOUGH
Scale 1:135,362
0 0.4 0.8 1.6 2.4 3.2
Kilometres
0 0.2 0.4 0.8 1.2 1.6

OUTER ARDS -
SPECIAL PROTECTION AREA (SPA)

UK9020271

CONSERVATION OBJECTIVES

Document Details

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

Revision History:

Version	Date	Summary of Changes	Initials	Changes Marked
V1	01/12/2002	Internal working document	IE	
V1.1	August 2013	Review	IE	
V2.0	February 2015	Draft	IE	Complete review

Site relationship

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

This SPA adjoins Belfast Lough SPA, Belfast Lough Open Water SPA and Strangford Lough SPA. It is also close to Copeland Islands SPA and adjoins the proposed East Coast Marine SPA.

The SPA boundary also includes the Outer Ards Ramsar site.

See also Boundary Rationale

1. INTRODUCTION

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4 GENERAL INFORMATION

COUNTY: Down

Outer Ards ASSI G.R. J628 694 AREA: 1240.82 ha.
Outer Ards SPA G.R. J628 694 AREA: 4753.82 ha.

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, ACTIVITES WITH IMPACTS ON THE SITE OR SITE FEATURES

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

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

No	Issue	Threat/comments	Local considerations	Action
1	Adjoining habitat	Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, difficult.	Mostly improved agricultural land but provides high tide roosts, most notably for Golden Plover, and additional feeding habitat.	Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact.
2	Aquaculture	Disturbance is a minor consideration unless carried	No licensed sites presently but the area	Liaise with DARD Fisheries Division. Assess all license

		out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors.	has been identified as having potential.	applications individually. Consider the collective impact.
3	Bait digging – commercial or 'recreational' and shellfish gathering.	Disturbance and impact on sediment and invertebrate fauna – may be positive through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated.	Extent unknown	Monitor scale of activity. Consider the collective impact.
4	Beach cleaning	Disturbance consideration. Loss of seaweed and other driftline material especially represents a net loss to the system in terms of habitat and biomass.	Widespread on local authority and amenity beaches, main concern regards seaweed. Destination of gathered seaweed is unknown – should be returned to the system.	Liaise with local authority to limit frequency or timing of beach cleaning, restricting it to key sites through the summer. Consider best use of organic component, ideally returning it to the system.
5	Beach sand and gravel extraction.	Disturbance issue together with loss of biologically active upper sediments. Most beach systems are sedimentalogically closed thus material removed may not be renewed making the activity unsustainable. May lead to changed sediment character of beach ultimately impacting on birds.	Apparently widespread especially in Cloghy area. Impact is unclear but practise is unlikely to be sustainable.	'Permitted' extraction of beach sand and gravel should be halted through management agreements. Ad hoc removal should be addressed in conjunction with local authorities.
6	Boating activity – commercial	Disturbance and potential for impact from high-speed liners.	Fishing boat activity is widespread, centred on the main harbours. Shipping within the Irish Sea may have a bearing with regard to the potential for pollution incidents. No immediate issues evident.	Formal consultation likely relating to new schemes. Consider the collective impact.
7	Boating activity – recreational	Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site.	Main boating centres are at Bangor and Donaghadee. Probably dispersed activity associated with most beaches also. Most activity is likely to be in the	Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact.

			summer period. Implications for seabird nesting sites.	
8	Coastal protection schemes	Where there is no history of this, it impacts on natural beach systems with loss of habitat.	Much of the coastline is highly engineered. Ongoing erosion is a problem locally with ad hoc dumping as a response.	Liaise with Planning Service and other parties with an involvement in coastal management.
9	Cull of fledglings/ young	Licensed selective culling of species impacting on 'more desirable' species. Licensed by NIEA.	Potentially an issue at tern colonies but numbers of breeding large gulls has declined considerably in recent years.	NIEA to review all licenses. Consider the collective impact.
13	Enhanced bird competition	Activities onsite or offsite that influences or results in a shift in balance of species utilising a site.	Future of landfill operations especially in the wider area could impact on breeding seabirds	Liaise with Planning Service. Review wider countryside changes.
14	Fishing – commercial or recreational	Minimal disturbance consideration but may represent 'competition' for piscivorous birds. Represents a net loss to the system in terms of biomass.	Scallop dredging and other trawling is ongoing.	Liaise with DARD and fishing authority as required. Liaise with angling clubs as required.
15	Habitat extent – inter-tidal	Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds.	Main threat is from ad hoc coastal protection schemes.	Assess planning applications. Monitor using aerial photography.
16	Habitat extent – open water	Loss likely to be limited but expansion of commercial port facilities can impact on key localities.	Not a significant issue	Assess planning applications. Consider the collective impact.
17	Habitat quality – inter-tidal	Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes.	No major impact although seaweed cleaning/harvesting and sand/gravel extraction are issues of concern.	Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution incidents. Consider the collective impact.
18	Habitat quality – open water	Alteration of habitat quality through diminution of water quality or invasive species.	Not a significant issue given the sites position in open coastal waters. Impacts are localised.	Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection as required with regard to water quality issues and pollution

				incidents. Consider the collective impact.
19	Habitat extent and quality-breeding	Alteration of habitat area or quality through inappropriate use or absence of site management.	Habitat management is main issue in context of seabirds. Tern site at Cockle Island	Assess needs of breeding species. Liaise with owner or appropriate authority to adjust or introduce site management.
20	High tide roosts	An essential component of sites hosting waders. Development of adjoining ground or actual traditional roost localities may adversely impact on the sites carrying capacity. Many such sites lie without the site making effective management of developments, other than those for which planning permission is required, difficult.	Localities should be mapped including extent of use of adjoining habitat. It is probable that there is movement of birds between Outer Ards and Strangford Lough.	Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact.
21	Introduced species	Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site.	Extent unknown	Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives.
23	Predation.	Mainly of concern on bird breeding sites.	Extent unknown but Cockle Island is accessible at extreme low tides.	Must be dealt with as part of wider countryside management considerations.
24	Recreational activities.	Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats. Breeding birds, especially seabirds, are vulnerable to disturbance as absence of adults can often result in predation or chilling of young with a reduction/loss in fledging success.	Widespread in summer with main concerns being access to Cockle Island (this is positively managed but is very vulnerable in terms of position). Sections of shoreline are heavily used for recreational activities. Cumulative disturbance impacts (e.g. boating, wildfowlers, walkers, dogs etc) may be a significant factor for wintering bird populations impacting on both feeding (inter-tidal) and roosting birds. Mainly an issue during the summer period.	Liaise with local authorities and other managing parties. Signage at vulnerable sites should be reviewed.
25	Research activities.	Census and ringing activities especially have the potential to impact on bird populations, particularly at	Routine winter WEBS counts are undertaken. Breeding seabirds are surveyed annually.	Census and ringing activities to be undertaken by competent individuals, appropriately trained. In

		breeding sites.		case of ringers, appropriate license must be held.
27	Seaweed harvesting	Either cutting living weed or gathering storm debris. The former, depending on scale and frequency, may fundamentally impact on shore communities and their ability to support waterfowl. The latter, represents a net loss to the system in terms of habitat and biomass.	See issue 4 – beach cleaning. In addition, commercial scale sublittoral seaweed cropping has been discussed.	
28	System dynamics	Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound.	Widespread engineered coastline and other management impacts. Ongoing localised erosion is also an issue. Separate embayments are possibly self-contained. Relationship between sand beaches and offshore sediments are presently unknown.	Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted.
31	Wildfowling	Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands.	Extent unknown – limited quarry species present within the site.	Liaise with relevant shooting bodies (BASC especially) to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the collective impact.

Table 6. List of site/feature management issues

12. MONITORING

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

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel

beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

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

12.1 MONITORING SUMMARY

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

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

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

12.2 ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

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

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be

necessary, but this may need to form part of a network of strategic species action. Further research may be required.

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

13 SELECTION FEATURE POPULATION TRENDS

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

SPECIES	SITE TREND	NI TREND	ROI TREND	UK TREND	COMMENTS
Golden Plover	Fluctuating	-	Slight Fluctuation	-	Golden Plover is not included in the indexing processes
Arctic Tern	-	-	-	-	Not known, to be compiled.
Light-bellied Brent Goose	Stable	Fluctuating	Slight Fluctuation	Not Applicable	
Ringed Plover	Declining	Fluctuating	Stable	Fluctuating	Medium Alert for UK and NI
Turnstone	Declining	Fluctuating	Increasing	Fluctuating	Medium Alert for UK and NI

ANNEX I

Feature (SPA) – Breeding Seabirds

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

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

Non-Avian Factors – habitat

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

Feature (SPA) – Wintering Waterfowl

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

Non-Avian Factors – habitat

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

ANNEX II

Feature 1 (ASSI) –

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

Attribute	Measure	Targets	Comments
Coastal mosaic			
Intertidal mud/sand			
Intertidal rock			
Fungi			
Higher Plant Assemblage			
Cormorant wintering population	Bird numbers	No significant decrease in populations against national trends	
Great Crested Grebe wintering population	Bird numbers	No significant decrease in populations against national trends	
Eider wintering population	Bird numbers	No significant decrease in populations against national trends	
Curlew wintering population	Bird numbers	No significant decrease in populations against national trends	
Dunlin wintering population	Bird numbers	No significant decrease in populations against national trends	
Lapwing wintering population	Bird numbers	No significant decrease in populations against national trends	

Oystercatcher wintering population	Bird numbers	No significant decrease in populations against national trends	
Purple Sandpiper wintering population	Bird numbers	No significant decrease in populations against national trends	
Redshank wintering population	Bird numbers	No significant decrease in populations against national trends	
Whiskin Rocks Structural Geology			
White House Port Structural Geology			
Ballyferris and Ballywhiskin Rocks Caledonian Igneous			
Ballyhabert Caledonian Igneous			
Kearney Point/Knockinelder Structural Geology			
Coalpit Bay Lower Palaeozoic stratigraphy			
Orlock Structural Geology			
Millin Bay Structural Geology			

PEATLANDS PARK SAC
UK0030236

CONSERVATION OBJECTIVES

Document Details

Title	*Peatlands Park SAC Conservation Objectives*
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Approved By	*P. Corbett*
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V2	Jan 2015	Complete review	RMK

1. INTRODUCTION

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

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

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

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

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

[1] 92/43/EEC and 2009/147/EC (codified version of 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: ARMAGH

GRID REFERENCE: IH 908609

AREA: 207.5 ha

5. SUMMARY SITE DESCRIPTION

Peatlands Park represents a large area of cutover bog and woodland, remnant of an extensive lowland raised bog complex, lying just south of Washing Bay in the south-western corner of Lough Neagh. It is located between the M1 motorway and the village of Maghery. Peatlands Park is a complex site with a wide range of habitats and associated flora and fauna that includes a number of rare and notable species. The site consists of a number of low wooded drumlins covered by mature Oak Woodland interspersed by a series of flat plains covered by both intact and cutover raised bog and bog woodland. Derryadd Lough situated in the south-eastern corner of the site, adds additional interest with its marginal swamp and poor acid fen.

The drumlins are comprised of glacial drift overlying Lough Neagh Clays and the woodlands they support are mildly acidic in type. The wet bog woodlands have developed in the inter-drumlin hollows and are dominated by Birch and Willow. The peatland consists of an extensive lowland raised bog that has been largely cutover. Remaining peat depths average around 5 m. and the vegetation is highly variable, reflecting the degree of wetness in the cuttings. Although most of the peatland has been cutover, relict areas of intact bog with deeper peat still occur. The range of habitats displayed throughout Peatlands Park supports a rich flora and fauna, including a 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 of Peatlands Park SAC /ASSI has been demarcated to include all areas of degraded raised bog still capable of regeneration, intact lowland raised bog, bog woodland, old sessile Oak woods and the wetland habitats and waters associated with Derryadd Lough. The boundary around much of the ASSI defines the edge of semi-natural habitat associated with the degraded bog, that is largely surrounded by improved agricultural land. However, extensive areas of cut-over bog and scrub woodland directly adjacent to the site have been excluded due to the very degraded state of the habitat and as some of these areas of peatland are still being actively harvested for peat.

The Northern Ireland Environment Agency (DOE) owns the vast majority of the ASSI, which is incorporated within a unique Country Park called Peatlands Park (the Park). In addition, in 1980, part of the Park was also declared as a NNR, known as Mullenakill and Annagarriff NNR. These adjacent reserves illustrate aspects of bog development and native woodland. Both the Park boundary and the NNR boundary are rather complex and due to the wilderness nature of the area, mapping has not been particularly accurate. In 2000, Keith Stanfield, the warden for the area commissioned a mapping exercise to establish the existing Park boundary in relation to NIEA ownership details etc. This boundary exercise clearly showed that there were many discrepancies between the existing Park boundary and the NIEA ownership boundary.

The boundary of the ASSI is not surprisingly rather complex given the history of the area. It endeavours to encompass all lands of special scientific interest, the boundary of which is generally marked by a physical feature on the ground such as a ditch, bank, track, road verge, hedge or fence. In many instances, the area of scientific interest, i.e. the ASSI boundary coincides with the existing boundary of the Park (as recently mapped), especially where it is clearly defined as a fence-line, hedge or ditch. This is the case around much of Derryadd Lough, for example. In other areas, the ASSI boundary extends beyond the boundary of the Park incorporating small pockets of land of scientific interest within private ownership. In addition, the ASSI boundary generally extends beyond the boundary of the NNR. However, there are also instances where the ASSI boundary excludes parts of the NNR and quite extensive areas of the Park. This is particularly apparent to the southwest of the site, where the buildings associated with the Park, an orchard and blocks of severely degraded heath and bog have been excluded from the ASSI.

After many discussions with Keith Stanfield, the warden for the area, it was decided that the ASSI boundary had to be drawn using the best information available at the time. The ASSI/SAC boundary was therefore drawn using the most up to date maps and aerial photographs that were available at the time of ASSI designation in June 2000.

Around the periphery of ASSI, many of the boundaries are stock proof. However, there are also many ASSI boundaries, which exclude lands within the Park, i.e. where the areas of scientific interest adjoin areas of managed parkland and orchards etc. These boundaries may be marked by a path or a ditch and are generally not stock proof.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ population
Habitat	Degraded raised bog	B	117.2 ha
Habitat	Bog Woodland	B	6.1 ha
Habitat	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	C	42.5 ha
Habitat	Active raised bog	C	21.8 ha

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

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

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

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

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

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

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

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

6.1 ASSI SELECTION FEATURES

Peatlands Park ASSI

Feature Type	Feature	Size/ extent/ population
Habitat	Lowland Raised Bog	**139 ha**
Habitat	Wet Woodland	**6.1 ha**
Habitat	Oakwood	**42.5 ha**
Habitat	Fen	
Species	Higher plant assemblage: Bog Rosemary *Andromeda polifolia*, Alder Buckthorn *Frangula alnus*, Oblong-leaved Sundew *Drosera intermedia*, Cowbane *Cicuta virosa,* Marsh Clubmoss *Lycopodium inundata*, *Calliergon cordifolia*, *Sphagnum fimbriatum* and S. *squarrosum*	
Species	Invertebrate assemblage including water beetles, dragonflies, butterflies and moths. Named species of note are *Acilius canaliculatus*, *Laccornis oblongus*, Wood Ant *Formica aquilonia*, Large Heath *Coenonympha tullia*, Marsh Fritillary *Eurodryas aurinia*, Green Hairstreak *Callophrys rubi*, Forester *Adscita statices*, Narrow-bordered Bee Hawk *Hemaris tityus*, Bordered Grey *Selidosema brunnearia* and the Dark Tussock *Dicallomera fascelina*.	

Table 2. List of ASSI features.

7. CONSERVATION OBJECTIVES

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

To maintain (or restore where appropriate) the

- ***Degraded Raised Bog***
- ***Bog Woodland***
- **Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles**
- ***Active Raised Bog***

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
Degraded raised bog still capable of natural regeneration	**B**	No loss in extent of degraded raised bog to agricultural reclamation, scrub encroachment, development, or further peat cutting.
		Expand the extent of actively regenerating cutover bog vegetation into areas of degraded (non-active) areas of cutover bog.
		Ensure that the hydrology of the cutover raised bog is favourable for active bog regeneration.
		Maintain and enhance the quality of actively regenerating cutover bog community types (*Sphagnum* moss, *Eriophorum* spp. and ericoid cover) including the presence of notable species.
		Maintain the diversity and quality of other habitats of conservation interest.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for further raised bog regeneration.
Bog Woodland	**B**	Maintain and where appropriate expand the existing area of bog woodland.
		Maintain and enhance bog woodland species diversity and structural diversity.
		Maintain the diversity and quality of habitats associated with the bog woodland, e.g. fen, swamp, especially where these exhibit natural transition to swamp woodland.
		Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion.

Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	**C**	Maintain and where appropriate expand the existing area of oak woodland.
		Maintain and enhance Oak woodland species diversity and structuraldiversity.
		Maintain the diversity and quality of habitats associated with the Oak woodland, e.g. fen, swamp, grasslands, scrub, especially where these exhibit natural transition to Oak woodland
		Seek nature conservation management over suitable areas immediately outside the ASSI where there may be potential for woodland expansion.
Active raised bog	**C**	Maintain the extent of intact raised bog and actively regenerating raised bog vegetation.
		Maintain and enhance the quality of the lowland raised bog community types including the presence of notable species.
		Seek to expand the extent of actively regenerating raised bog vegetation into degraded (non-active) areas of cutover bog.
		Maintain the diversity and quality of other habitats associated with the active raised bog, e.g. acid grassland, fen and swamp, especially where these exhibit natural transition to the raised bog.
		Maintain the hydrology of the raised bog peat mass.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for lowland raised bog rehabilitation.

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

Feature	Component Objective
Lowland Raised Bog	See SAC Selection Feature Objective Requirements table.
Wet Woodland	See SAC Selection Feature Objective Requirements table.
Oakwood	See SAC Selection Feature Objective Requirements table.
Fen	Maintain and expand the extent of existing fen.
	Maintain and enhance fen species diversity.
	Maintain and enhance woodland structure
	Maintain the diversity and quality of habitats associated with the fen
Rare plant assemblages	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.
Notable 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

The Northern Ireland Environment Agency owns the majority of Peatlands Park ASSI/SAC, including the turbary rights. Hence, the management of much of the area should be relatively straightforward. The remainder of the site is privately owned with approximately 4 individuals owning various sections of the ASSI.

There are a number of difficulties in reaching agreement over the exact boundary along some sections of Peatlands Park which have been ongoing for a number of years. These issues have still to be resolved. Apart from the boundary, there does not appear to be any other major management issues on the bog at the present time, although some issues need to be addressed on the periphery of the bog.

Adjoining Land Use

The main adjoining land-use outside the ASSI is improved agricultural land with areas of rough pasture and old cutover bog along the northern and western edges of the site.

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 Peatlands Park, or could affect it in the future. Although Degraded Raised Bog, Bog Wood, Old Sessile Oak Woods and Active Raised Bog 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.

Invasion by Exotics

Exotic species are widespread particularly in wooded areas. They vary in the degree of impact they have and the threat they pose. Very invasive species such as Sycamore *Acer pseudoplatanus*, Dogwood *Cornus sanguinea* and Rhododendron *Rhododendron ponticum* are seen as posing a current threat. Other are not seen as a immediate threat due to their limited occurrence they include Horse Chestnut *Aesculus hippocastanum*, Sweet Chestnut *Castanea sativa*, Solomon's-seal *Polygonatum multiflorum* and Conifers or slow rate of spread Beech *Fagus sylvatic*a.

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. Ensure that there is a management programme to monitor and remove invasive species and their seed source from the SAC.

Scrub Encroachment

There are some pockets of trees and scrub associated with cutover bog at Peatlands Park. Any further scrub encroachment into the actively regenerating cutover areas, or onto the intact surface is undesirable.

ACTION: Monitor further scrub encroachment (where it occurs) and take remedial action if required.

Drainage and Peat Cutting

Peat cutting and internal drainage in the past had a profound detrimental effect on the hydrology of the peatland by lowering the water table and causing drying of the surface peat. Recent proactive management in cutover areas has been undertaken to address this drainage problem, by lowering the surface layer to the current water table, to encourage active bog regeneration. The intact raised bog elements, adjacent to active cutting outside the SAC, remain at threat from localised drying out.

ACTION: Assess the effect of drains on intact raised bogs. Where peat cutting in adjacent areas outside the SAC boundary is identified as having a detrimental effect on the bog, this will have to be addressed.

Fly-tipping

Although fly-tipping does not occur within the site, it does occur around the periphery where it can be severe.

ACTION: Remove all evidence of fly-tipping as soon as possible to discourage the problem. If fly-tipping continues it may be necessary to erect gates, fences and "no dumping" signs around the sites periphery.

Burning

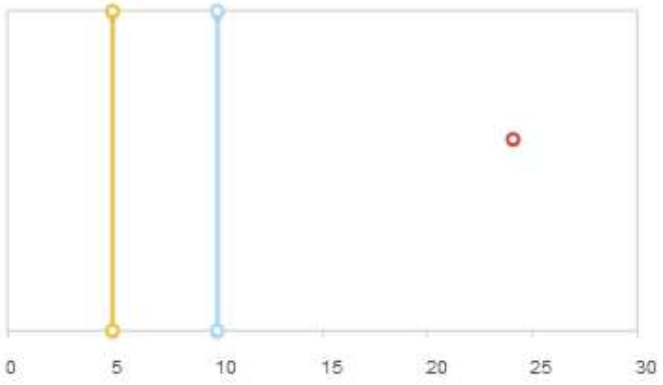
This indiscriminate method of removing the thatch vegetation from the peat surface before cutting is carried out in the cutover bog adjacent to the site has taken place. Uncontrolled burns have frequently spread into the site resulting in damage to both the peatland surface/vegetation and associated invertebrates. In some cases the uncontrolled fires can be long lived and so burn deep into the peat core.

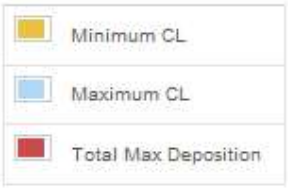
ACTION: No burning within the SAC. Develop a fire prevention management plan for the site.

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 Peatlands Park SAC.

Feature: Active raised bogs
Critical Loads (kg N/ha/yr): 5-10
Nitrogen Deposition (kg N/ha/yr):
Maximum: 24.1 Minimum: 19 Average: 20.5



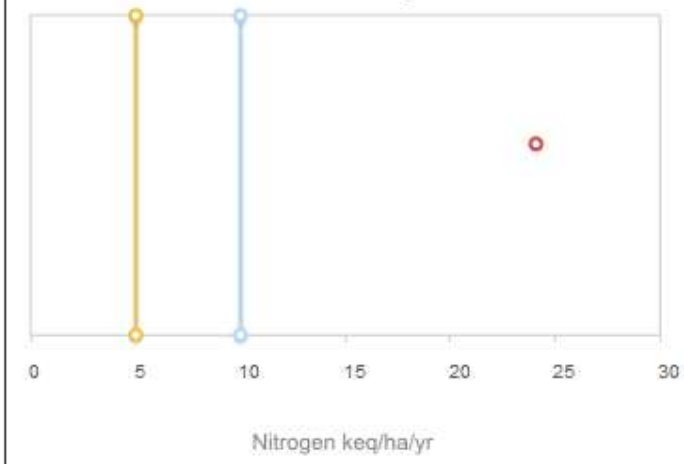


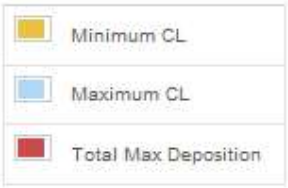
Feature: Degraded raised bogs still capable of natural regeneration

Critical Loads (kg N/ha/yr): 5-10

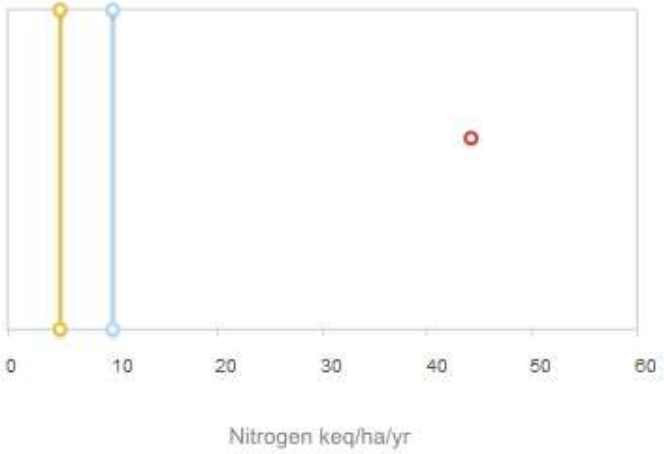
Nitrogen Deposition (kg N/ha/yr):

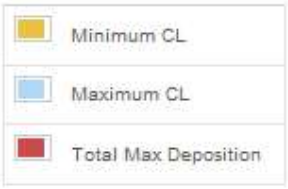
Maximum: 24.1 Minimum: 19 Average: 20.5

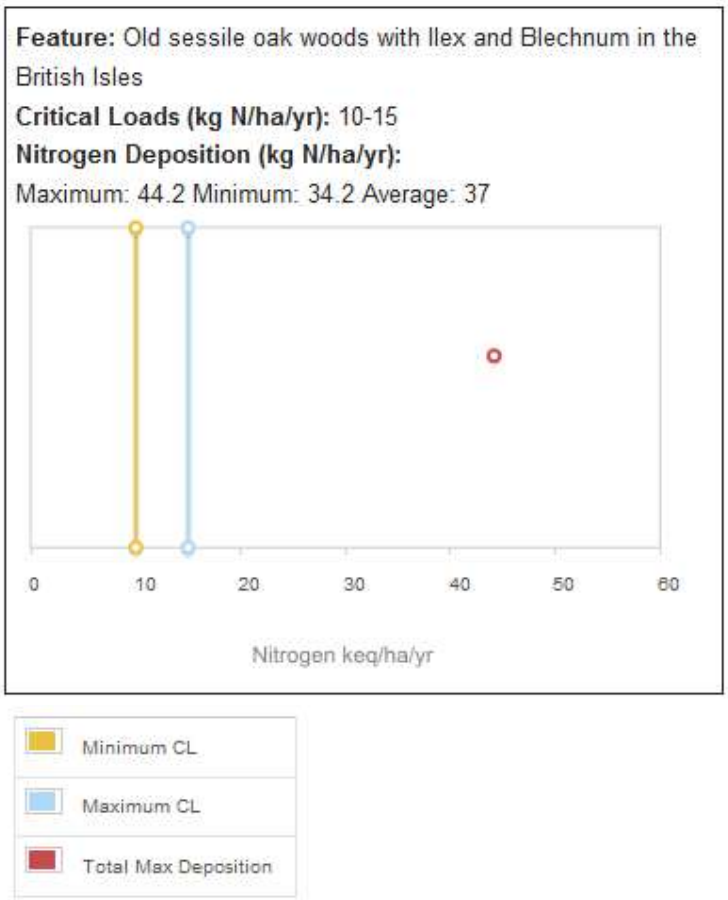




Feature: Bog woodland
Critical Loads (kg N/ha/yr): 5-10
Nitrogen Deposition (kg N/ha/yr):
Maximum: 44.2 Minimum: 34.2 Average: 37







(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 in surrounding land use

Activities occurring outside of Peatland Park SAC (e.g. agricultural intensification, drainage works, development) may be detrimental to the site through remote affects – e.g. lowering of the water table in adjacent areas.

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 bog and associated habitats through desiccation).

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. Ensure that there has been no peat cutting, 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 1.

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 1

Feature 1 (SAC) – Degraded bog capable of natural regeneration (Status B)

Attribute	Measure	Targets/Limits	Comments
* Extent	Area of cutover bog 117.2ha	Maintain the current extent of cutover bog at a minimum of 117ha and where appropriate, extend areas outside the current SAC boundary. NB The extent of cutover bog includes both degraded bog capable of natural regeneration and some areas of actively regenerating cutover bog. However, the target is to extend the area of regenerating cutover into all areas of degraded bog still capable of regeneration. **Re-instate a cover of suitable plant species, as guided by species growing in adjacent intact areas, over the cutover bog.** Approximately 80% of the degraded bog should be active to achieve favourable condition. The active raised bog communities include predominantly M18 *Sphagnum papillosum* raised and blanket mire with M1 *Sphagnum auriculatum*, M2 *Sphagnum cuspidatum/recurvum* and M3 *Eriophorum angustifolium* bog pool communities.	The degraded bog area should be monitored using a combination of aerial photographs and SIM. There should be no loss in extent of degraded cutover bog to agricultural improvement, or scrub encroachment. Similarly, there should be no loss in actively regenerating bog to scrub encroachment or further peat cutting.

* Active peat formation	*Sphagnum* Cover (% and DAFOR)	Ombrotrophic *Sphagnum* moss species should have a minimum cover of 33% over the cutover bog surface. At least 50% of the cutover area should have a *Sphagnum* moss cover of at least 33%. Species present should include a mixture of thin species :- *S. capillifolium* and *S. tenellum*, thick hummock forming species:- *S. papillosum* and *S. magellanicum* and in deeper pools and ditches, aquatic species:- S. cuspidatum and S. auriculatum.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrology of the actively regenerating cutover bog. A cover of 33% over 50% of the area has been adjusted from the intact lowland raised bog figures to allow for pockets within the cutover that cannot feasibly be restored to active bog. The mixture of *Sphagnum* species present will reflect the topography of the peat as a consequence of peat cutting. The hummocks and lawns will be found beside ditches cut for drainage and the ditch itself will act as the pool, as modified by rewetting.
* Vegetation Composition	*Eriophorum* spp. Cover (%)	The Cotton grasses *Eriophorum angustifolium* and *E. vaginatum* should account for the greater proportion of cutover bog that is not vegetated by *Sphagnum* bog mosses. *Rhynchospora alba* may also be prominent, but it should not persistently dominate over *Eriophorum* spp.	A mono-dominant sward of *Eriophorum angustifolium* may colonise bare peat where the water table is at or above the surface of the cutover bog. Providing the water table is maintained at or near the surface, a more diverse actively regenerating bog vegetation should develop in due course.

* Vegetation Composition	*Ericaceous* Cover (DAFOR)	*Calluna vulgaris* and *Erica tetralix* should be at least Frequent over a minimum of two thirds of the cutover raised bog surface.	Ideally the regenerating bog vegetation should be composed of a mix of *Sphagnum* species amongst Cotton grasses and ericaceous plants.
Vegetation Composition	Presence of rare or scarce species specific to the site.	Two or more of the named species at least present along the length of the W-walk. *Drosera anglica*, *Vaccinium oxycoccus, Andromeda polifolia, Lycopodium inundatum.*	If these species are not recorded on any one visit, it does not automatically make the SAC unfavourable.
* Structure	Bare Peat/ Open water (%)	Bare peat/open water either unvegetated or vegetated with uncharacteristic species should occupy less than 10% of the area of degraded bog still capable of natural regeneration.	Condition is unfavourable if there are still large areas of bare peat or open water either unvegetated or vegetated with uncharacteristic species such as *Juncus effusus*, *Typha latifolia* or *Phragmites australis.* Such species display evidence of eutrophication.

* Structure	Scrub/tree encroachment on any active peat surface. (DAFOR)	Scrub/tree encroachment should be no more than Rare on the cutover bog surface.	Scrub encroachment should be checked using a combination of aerial photographs and SIM. If scrub/tree species are more than Rare on any active cutover peat surface, scrub control should be carried out. Where invasive scrub species including Birch and Rhododendron are prominent along the ramparts, these species should be actively removed to prevent seeds blowing into the actively regenerating peatland areas.

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

ANNEX 1

Feature 2 (SAC) – Bog woodland (Status B)

Attributes	Measures	Targets	Comments
* Area	Extent	No loss – maintain bog wood at 6.1ha	Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable
* Natural processes and structural development	Structural Variation	Canopy cover 60% +	At least the current level of structural diversity should be maintained. Again, if natural processes result in target values falling outside the specified limits, this is likely to be acceptable.
		Shrub cover 10-80%	
		Field cover 5%+	
		Herb cover 25%+	
		Moss cover 75%+	
	Age-class variation	Young Trees (5- 10cm diameter) at least frequent in 30% of Plots	Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-classes present, including young and particularly over-mature trees.
		Mature Trees (10 - 30cm diameter) at least frequent in 50% of Plots	

		Over-mature Trees (>30cm diameter) at least present in 5% of Plots	Note that definition of young, mature and over-mature differs from drier woodland types, reflecting the fact that Birch will generally be the dominant species
	Presence of standing and fallen dead wood	Standing dead wood at least frequent	
		Fallen dead wood at least frequent	
	Presence of Epiphytes	Epiphytes and Climbers frequent in 10%+ of plots	
		Epiphytic bryophytes and lichens at least frequent in 90%+ of plots	
* Regeneration potential	Regeneration of native species	Saplings at least occasional in 10% of Plots	The general aim is for the successful establishment of young stems (i.e.

		Seedlings at least occasional in 10% of Plots	seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to maintain canopy density over a 10 year period. Regeneration is likely to be very variable and we cannot say what is an appropriate level. Assessment of this attribute will be further defined by condition assessment monitoring.
* Composition	Cover of native versus non-native species (all layers)	Non–Native Invasive Canopy Species no more than present in <5% of Plots	At least the current level of site-native species maintained. In addition, at least 90% of cover in any one layer of site-native or acceptable naturalised species. 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 no more than present in <5% of Plots	
		Non–Native Invasive Ground Species no more than present in <10% of Plots	

	Frequency of W2 & W4 community character species. (Positive Indicators)	At least two of the following at least frequent and two occasional*: Betula pubescens, Salix cinerea, Filipendula ulmaria, Viola palustris, Phragmites australis, Molinia caerulea, Carex laevigata, Brachythecium rutabulum, Sphagnum squarrosum, S. recurvum, S. fimbriatum, S. palustris.*	PROVISIONAL LIST To be further defined by field trials.
	Rare Species specific to site. IF PRESENT		Note: Rare Plant Assemblage is an ASSI selection feature; woodland plants will be monitored as part of this. Mapped locations of rare species will be inspected for presence or absence.
	Negative Indicators - Cover of *Pteridium*	No more than present in <15% of Plots	
	Negative Indicators - Cover of broad-leaved grasses	No more than present in <15% of Plots	
Management /Disturbance	% occurrence of poaching	No more than present in <10% of Plots	
	% occurrence of frequent recent (1-2 years) Goat Damage	No more than present in <10% of Plots	
	% occurrence of damage to seedling/saplings	No more than present in <10% of Plots	

	% occurrence of felling/coppicing	None	Felling non-native species as part of management for conservation is acceptable.

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

ANNEX 1

Feature (SAC 3) - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles (Status C)

Attributes	Measures	Targets	Comments
* Area	Extent	No loss – maintain oakwood at 42.5ha	Loss due to natural processes (e.g. windthrow during extreme storm) is acceptable
* Natural processes and structural development	Structural Variation	Canopy cover 70% +	At least the current level of structural diversity should be maintained. Again, if natural processes result in target values falling outside the specified limits, this is likely to be acceptable.
		Shrub cover 35 -80%	
		Field cover 20-60 %	
		Herb cover 50%+	
		Moss cover 20%+	
	Age-class variation	Young Trees (5- 20cm diameter) at least frequent in 75% of Plots	Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-classes present, including young and particularly over-mature trees.
		Mature Trees (20 - 75cm diameter) at least frequent in 90% of Plots	

		Over-mature Trees (>75cm diameter) at least present in 25% of Plots	
	Presence of standing and fallen dead wood	Standing dead wood at least frequent	
		Fallen dead wood at least frequent	
	Presence of Epiphytes	Epiphytes and Climbers frequent in 90%+ of plots	
		Epiphytic bryophytes and lichens at least frequent in 90%+ of plots	
* Regeneration potential	Regeneration of Oak	Oak seedlings at least occasional in canopy gaps	The general aim is for the successful establishment of young stems (i.e. seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to maintain canopy density over a 10 year period. Regeneration of Oak in particular is likely to
		Oak saplings at least occasional in canopy gaps	
	Regeneration of other native species	Other saplings at least occasional in 50% of Plots	

		Other seedlings at least occasional in 50% of Plots	be slow and sporadic; in some stands, there may currently not be sufficient and/or extensive enough gaps for oak to regenerate. This does not necessarily indicate unfavourable condition.
* Composition	Cover of native versus non-native species (all layers)	Dominance of Oak in canopy to be 60%+	At least the current level of site-native species maintained. In addition, at least 90% of cover in any one layer of site-native or acceptable naturalised species. Note that non-invasive species are not viewed as a significant threat, and a low level of occurrence may be acceptable.
		Non–Native Invasive Canopy Species no more than present in <10% of Plots	
		Non–Native Invasive Shrub Species no more than present in <10% of Plots	
		Non–Native Invasive Ground Species no more than present in <10% of Plots	
	Frequency of W11 & W17 community character species (Positive Indicators)	At least four of the following at least frequent and four occasional: *Dryopteris aemula, D. dilatata, Blechnum spicant Calluna vulgaris, Lonicera periclymenum, Luzula pilosa, L. sylvatica, Oxalis acetosella, Potentilla erecta, Hyacinthoides non-scripta, Vaccinium myrtillus, Viola riviniana, Mnium hornum, Dicranum majus, Dicranum scoparium, Hylocomium splendens, Plagiothecium undulatum, Rhytiadelphus loreus*	PROVISIONAL LIST To be further defined by field trials.

	Rare Species specific to site. IF PRESENT		Note: Rare Plant Assemblage is an ASSI selection feature; woodland plants will be monitored as part of this. Mapped locations of rare species will be inspected for presence or absence.
	Negative Indicators - Cover of *Pteridium*	No more than present in <15% of Plots	
	Negative Indicators - Cover of broad-leaved grasses	No more than present in <15% of Plots	
Management /Disturbance	% occurrence of poaching	No more than present in <10% of Plots	
	% occurrence of frequent recent (1-2 years) Goat Damage	No more than present in <10% of Plots	
	% occurrence of damage to seedling/saplings	No more than present in <10% of Plots	
	% occurrence of felling/coppicing	None	Felling non-native species as part of management for conservation is acceptable.

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

Annex 1

Feature 4 (SAC) – Active raised bog (Status C)

Attribute	Measure	Targets/Limits	Comments
* Extent	Area of intact surface 21.8ha	Maintain the current extent of the intact bog surface at 22 ha. The active raised bog communities include predominantly M18 *Sphagnum papillosum* raised and blanket mire with M1 *Sphagnum auriculatum*, M2 *Sphagnum cuspidatum/recurvum* and M3 *Eriophorum angustifolium* bog pool communities.	The intact surface should be monitored using a combination of aerial photographs and SIM. Any loss of the current intact area is unacceptable.
* Extent	Area of actively regenerating cutover bog (ha)	Maintain the current extent of actively regenerating cutover bog. This area should be extended where possible. The active raised bog communities include predominantly M18 *Sphagnum papillosum* raised and blanket mire with M1 *Sphagnum auriculatum*, M2 *Sphagnum cuspidatum/recurvum* and M3 *Eriophorum angustifolium* bog pool communities.	There should be no loss in extent of actively regenerating bog to scrub encroachment or further peat cutting.

* Active peat formation	*Sphagnum* Cover/Abundance (% and DAFOR)	Ombrotrophic *Sphagnum* moss species should have a minimum cover of 33% over the intact lowland raised bog surface. This minimum cover of 33% should be maintained over at least two thirds of area. Species present should include a mixture of both thin species :- *S. capillifolium* and *S. tenellum* and the thick hummock forming species:- *S. papillosum* and *S. magellanicum* at least Occasional over the surface.	A constant *Sphagnum* moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. *Sphagnum* moss is therefore used to measure the hydrological integrity of the intact bog surface.
* Vegetation Composition	Ericaceous Cover (%)	Ericoid cover should be maintained between 40% and 60% of the intact bog surface and should show no evidence of grazing or recent burning. *Erica tetralix* should be at least present over a minimum of two thirds of the intact lowland raised bog surface.	A mono-dominant sward of *Calluna vulgaris* may suggest that the surface of the intact bog is drying out – i.e. the water table is too far below the surface of the bog.
* Vegetation Composition	Graminoid Cover (%)	Graminoid cover should be maintained between 10 and 40 %.	
* Vegetation Composition	*Rhynchospora alba* Abundance (DAFOR)	*Rhynchospora alba* should be no more than Rare away from pool systems.	*Rhynchospora alba* only occurs as a natural component of the bog vegetation around pool systems. A high frequency of this species over the intact surface of the bog may be a consequence of excessive burning.

Vegetation Composition	Presence of rare or scarce species specific to the site.	Two or more of the named species at least present along the length of the W-walk. *Drosera anglica*, *Vaccinium oxycoccus, Andromeda polifolia.*	If these species are not recorded on any one visit, it does not automatically make the SAC unfavourable.
* Structure	Bare Peat (%)	Peat cutting or drainage should not damage the intact surface of the active raised bog. Bare peat should occupy < 5% of the total area of the active raised bog.	
* Structure	Scrub/tree encroachment on any active peat surface	Scrub/tree encroachment should be no more than Rare on the intact raised bog surface, or in the actively regenerating cutover areas.	Scrub encroachment should be checked using a combination of aerial photographs and SIM. If scrub/tree species are more than rare on any active peat surface, scrub control should be carried out. Particular attention should be paid to exotic species should be monitored closely.

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

REA'S WOOD & FARR'S BAY SAC
UK0030244

CONSERVATION OBJECTIVES

Document Details

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Approved By	*P. Corbett*
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V1	June 2013	Internal working document	PC
V2	Dec 2014	Complete review	RMK

Site relationships

To fully understand the conservation requirements of this site, it is necessary to also refer to the Conservation Objectives for Lough Neagh SPA.

The Rea's Wood & Farr's Bay SAC boundary partially overlaps with the boundary of the Lough Neagh SPA.

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4. SITE INFORMATION

COUNTY: ANTRIM

GRID REFERENCE: J091872, J142853

AREA: 38.02 ha

5. SUMMARY SITE DESCRIPTION

Rea's Wood and Farr's Bay have developed on a series of shorelines exposed by successive lowerings of Lough Neagh. The former lakebed has an undulating terrain consisting of raised ridges and wet, occasionally flooded hollows, with a resulting variation in the type of woodland cover.

The present foreshore supports inundation Willow/Alder woodland along the shore and Alder swamp woodland in the permanently flooded hollows behind, whilst the drier ridges support base-rich Ash woodland. The diversity of woodland types is reflected in the rich flora and fauna, which includes a large number of rare species.

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

5.1 BOUNDARY RATIONALE

The boundary takes in all of Rea's Wood NNR and Farr's Bay NR, and part of Randalstown Forest NR. It has been drawn to include the best examples of swamp woodland, in addition to other semi-natural habitats that form part of the natural transition, such as inundation zones, Ash woodland, swamp and fen

vegetation. The site boundary uses permanent boundary features where possible; however, at the eastern side of Farr's Bay the NR boundary was used.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ population
Habitat	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion alvae*)	B	26 ha

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

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

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

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

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

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

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

Click here to go to the Natura 2000 Standard Data Form for Rea's Wood & Farr's Bay SAC.

6.1 ASSI SELECTION FEATURES

Rea's Wood & Farr's Bay ASSI

Feature Type	Feature	Size/ extent/ population
Habitat	Wet Woodland	26 ha
Species	Higher Plant Assemblage. *Alisma lanceolatum* (3), *Butomus umbellatus* (1), *Chenopodium polyspermum* (5), *Leucojum aestivum* (3), *Polygonum mite* (3), *Prunus padus* (2), *Cicuta virosa* (2), *Cardamine amara* (5), *Rorippa sylvestris* (1), *Lemna polyrhiza* (2), *Carex elongata* (5), *C. strigosa* (2) and *Scirpus sylvatica* (2)	ABCD score 36
Species	Invertebrate Assemblage Survey at these two sites has amassed an extensive inventory of the various invertebrate groups present. A number of these groups are extremely rich in species, which include a large number of rare or very locally distributed individual species that have been recorded. Major groups recorded include Nemertea, Mollusca, Diplopoda, Coleoptera, Hemiptera, Lepidoptera, Diptera, Hymenoptera, Crustacea, Opiliones and Odonata	Further research required and the need to set firm selection criteria for invertebrate assemblages.

Table 2. List of ASSI features.

7. CONSERVATION OBJECTIVES

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

To maintain (or restore where appropriate) the Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) to favourable condition.

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

8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

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

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

ASSI Feature	Component Objective
Wet Woodland	See SAC Selection Feature Objective Requirements table.
Higher Plant Assemblage	Map location of rare species
	Maintain abundance and distribution and if feasible enhance population.
	Establish the status of these species and if appropriate draw up further conservation priorities for this species.
Invertebrate assemblage	Map location of rare species
	Maintain abundance and distribution and if feasible enhance population.
	Establish the status of these species and if appropriate draw up further conservation priorities for this species.

10. MANAGEMENT CONSIDERATIONS

Ownership

Both sections of this site are owned and managed as national nature reserves except for a small parcel of wood at the western end of Farr's Bay, which is in private ownership.

Adjoining Land Use

The extent of inundation is dependent on the level of Lough Neagh during the winter months. This level is regulated at the Toome Weir, which controls flow down the Lower Bann. Winter inundation of the marginal woodland supplies a renewable source of water borne seeds including exotics. Lough Neagh, already a major source of water for NI, will come under greater pressure from continual increase in demand for water resources.

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

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most 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 <u>any</u> of the Notifiable Operations listed in the ASSI schedule could affect the site.

Woodland Clearance

Removal of woodland would lead to a reduction in diversity. No recent significant broadleaved woodland clearance has been recorded, although *ad hoc* clearance continues.

ACTION: No further removal of woodland from the site.

Dead Wood Removal

Dead wood should be left *in situ* if safe or practical to do so. This provides valuable habitat for fungi, invertebrates etc. Removal of wood or fire-wood should be discouraged.

ACTION: No removal of dead wood from the site.

Invasion by Exotics

Exotic species are widespread particularly in Rea's Wood, varying in their degree of impact and threat they pose. Very invasive species such as Sycamore *Acer pseudoplatanus*, Indian Balsam *Impatiens glandulifera*, Pick–a-Back Plant Tolmiea menziesii, Dogwood *Cornus sanguinea*, Japanese Knotweed *Fallopia japonica,* Salmon Berry *Rubus spectabilis*, Skunk Cabbage *Lysichiton americanus* and Giant Hogweed *Heracleum mantegazzianum* are seen as posing a current threat. Other invasives not seen as an immediate threat due to their limited occurrence, include Horse Chestnut *Aesculus hippocastanum*, Rhododendron *Rhododendron ponticum*, Bamboo *Bambosoideae*, Monkey Flower *Mimulus guttatus*, Common Comfrey *Symphytum officinale*, Monk's-hood *Aconitum napellus*, Ostrich fern *Matteuccia struthiopteris*, Hop *Humulus lupulus*, Cherry Laurel *Prunus laurocerasus*, Black Current *Ribes nigrum* or slow rate of spread Beech *Fagus sylvatic*a. Other species which have been established for a long time on the site such as Keeled Garlic *Allium carinatum*, Summer Snowflake *Leucojum aestivum*, Confused Michaelmas-daisy *Aster x salignus*, are not seen as a threat.

ACTION: The very invasive species require management to control their spread, which in most cases will require the current seed source to be removed from site. This is impractical with those species such as Indian Balsam *Impatiens glandulifera* and Giant Hogweed *Heracleum mantegazzianum* whose seed supply is partly recruited annually from water borne seeds, here other methods of control will be required. In the case of Indian Balsam *Impatiens glandulifera* it will probably be impossible to control its spread and so research should be carried out to identify the effect this species is having on the woodland community. Those species not posing a threat at present should be monitored and in the long-term controlled if required.

Changes in Water Level

The past series of lowering Lough Neagh's water levels has had a fundamental impact on the marginal habitats, including woodland. Each lowering of the water

level has resulted in a successional series of shoreline colonisation. Wet woodland which has developed on previously exposed lake bed has changed to dryer woodland community types, with the increasingly elevated shoreline, after each lowering of the loughs water level. The lowering of water levels also creates newly exposed beds which are subsequently colonised by new wet woodland. Proposals to increase water extraction from the Lough will lower the summer water level again but is unlikely to effect winter levels.

ACTION: Monitor the effects of the increased summer drop down resulting from the increase in water-extraction.

Drainage of Swamp Woodland

A series of foreshore ridges, created during past lowering of water levels, previously acted as a natural barrier to drainage resulting in impoundment of water. The impounded areas remained flooded throughout the year, supporting much of the best swamp woodland. A study of the changes in the vegetation of Rea's Wood between 1984 and 1991 by Rachel Shepperson and Brian Rushton, (Applied Ecology Research Group, UUC) found there has been a shift in the composition of the woodland flora in general from characteristic wetland species to those preferring drier conditions. No reasons for this vegetation community shift were proposed during the study. However, it was noted, woodland adjacent to drains that have been cut through these ridges, show pronounced signs of drying out.

ACTION: Further study should be undertaken to assess the effect of the drains on the impounded areas, to evaluate the impacts of increased rate of water loss. If the effects of drainage are proven significant, the installation of weirs across these drains would allow for controlled retention of water during the summer.

Fly-tipping

Water borne material is the major source of rubbish deposited onto the shore line wood, during winter flooding or storms.

ACTION: Where practical, remove tide-line deposited rubbish from the woods to prevent the build up of debris and to discourage fly-tipping.

Nitrogen Deposition

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

Designated feature/feature habitat not sensitive to eutrophication.

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

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

Changes to surrounding land use

Activities occurring outside the site (e.g. agricultural intensification, drainage works, and development) may be detrimental to the site through remote affects.

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

Climate Change

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

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

12. MONITORING

Monitoring of SACs takes place on using two monitoring techniques.

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

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

12.1 MONITORING SUMMARY

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

   Complete boundary survey to ensure that walls and fences are still intact. Ensure that there has been no tree felling, ground disturbance, dumping or inappropriate burning carried out within the SAC boundary. Evaluation of feral goat damage should be carried out throughout the site. SIM should be carried out once a year.

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

Monitor the key attributes for each selection feature. This will detect if the features are in favourable condition or not.

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

13. REFERENCES

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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 and across the extent of the woodland using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable
Alder woodland community diversity	Maintain presence of the woodland community, W5 as established at base line survey.	Visual estimate in 10x10m plots	
Presence of associated features and semi-natural habitats	Maintain existing associated features and semi-natural habitats.	Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost. 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.	Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-

	Mature trees (20 - 75cm diameter) at least frequent in 75% of plots.	Visual estimate in 10x10m plots.	classes present, including young and over-mature trees. 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.	

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

* Frequency of recent goat damage (1-2 years) (DAFOR)	Recent goat damage should be absent, or recorded in less than 20% of plots.	Visual estimate in 10x10m plots.	
* Frequency of damage to seedlings/saplings (DAFOR)	Damage to seedling/saplings should be absent, or recorded in less than 20% of plots.	Visual estimate in 10x10m plots.	
Frequency of felling/coppicing (within 6 year monitoring cycle) (DAFOR)	There should be no felling or coppicing of native trees or shrubs.	Visual estimate in 10x10m plots and across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Felling non-native species as part of management for conservation is acceptable.
Maintain the diversity of woodland species throughout the wood.	Record the % of plots with each of the wet woodland indicators (W5 community) listed below:- *Filipendula ulmaria,* *Galium palustris,* *Caltha palustris,* *Cardamine pratensis,* *Lysimachia. nummularia,* *Ranunculus repens,* *Mentha aquatica,* *Angelica sylvestris,* *Potentilla palustris,* *Lythrum salicaria,*	Visual estimate in 10x10m plots.	

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

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

SKERRIES AND CAUSEWAY SAC
UK0030383

CONSERVATION OBJECTIVES

Document Details

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Version	Date	Summary of Changes	Initials
V1	February 2016	Internal working document	LP
V2	March 2017	Complete review	LP

1. INTRODUCTION

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

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

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

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

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended). However, the Environment Order only extends to the Mean Low Water (jurisdictional limit of local authorities); therefore, some marine Natura 2000 sites are not underpinned by ASSI designations.

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4. SITE INFORMATION

COUNTY: ANTRIM

REFERENCE COORDINATES: 55.2425 -6.5967

AREA: 10,862 ha

5. SUMMARY SITE DESCRIPTION

Skerries and Causeway proposed SAC is sited on the north coast of Northern Ireland. It is the eastern part of a 30km wide embayment that has the Inishowen peninsular to its west and Benbane Head to its east. The site is influenced oceanographically and biologically both by the warming gulf stream and by the strong tidal currents that flow through the North Channel to and from the Irish Sea. It is subject to considerable wave action being open to the Atlantic to the northwest, but is relatively sheltered from other prevailing swells and includes areas of relative shelter such as behind the Skerries islands. The site is predominantly marine although there are significant influxes of freshwater, from the River Bann to the west and the River Bush to the east, which can influence the immediate coastal areas.

The Skerries and Causeway site is located adjacent to the coastline of Portstewart, Portrush, Bushmills and the Giant's Causeway World Heritage Site (which lends part of its name to the SAC site; the other half of the SAC name comes from the Skerries islands and rocks off Portrush). The site contains the qualifying Features: Annex I *Reef*; Annex I *Sandbanks which are slightly covered by seawater at all times*; Annex I *Submerged or partially submerged sea caves;* and Annex II *Harbour porpoise.* It also contains non-qualifying Annex II species, *grey seal, common seal, and bottlenose dolphin*.

Much of the reef in this area is sand scoured reef (which is an unusual type of reef in a Northern Ireland context). This produces a close relationship between the

reef and the adjacent sediments: as well as the sand scoured areas of reef and stony reef, there are also large areas of bedrock reef that have a thick veneer of sediment, but still support bedrock epifauna (attached to the bedrock but growing up through the sediment); and conversely, there are also areas of coarse and mixed sediments that support epifauna communities more reminiscent of the reef habitat.

The Annex I *Reef* is noted for its southern species, rare and priority species, and a number of species first described from the Skerries and Causeway area, including one nudibranch species that has not yet been found elsewhere. As well as the coarse and mixed sediments noted above, the Annex I *Sandbanks which are slightly covered by sea water all the time* also contains areas of subtidal eel grass *Zostera marina* (sheltered behind the Skerries) and varied and dramatic sand waves, some over 30m high. There are also many Annex I *Submerged and partially submerged sea caves* that can be found in a range of rock types including the basalts of the Giant's Causeway and the metamorphosed chalk of the Ulster White Limestone series.

Harbour porpoise (*Phocoena phocoena*) have been consistently recorded during more than 140 dedicated effort watches at six sites within the proposed boundary. These records span every month of the year, including months outside of the breeding and calving seasons and confirm the continuous presence of harbour porpoise within this area. Continuous or regular presence is graded A (excellent conservation).

Non-qualifying habitats and species

Up to 35 adult Grey Seal (*Halichoerus grypus*) and three adult Common seal (*Phoca vitulina*) have been recorded on surveys carried out by the Department (2006-2009). Both species have been graded as D, non-significant presence. Bottlenose dolphin (*Tursiops truncatus*) was recorded during two effort watches in 2009 but due to low numbers this species has been graded as D, non-significant presence.

Further details of the site are available on the DAERA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-skerries-and-causeway).

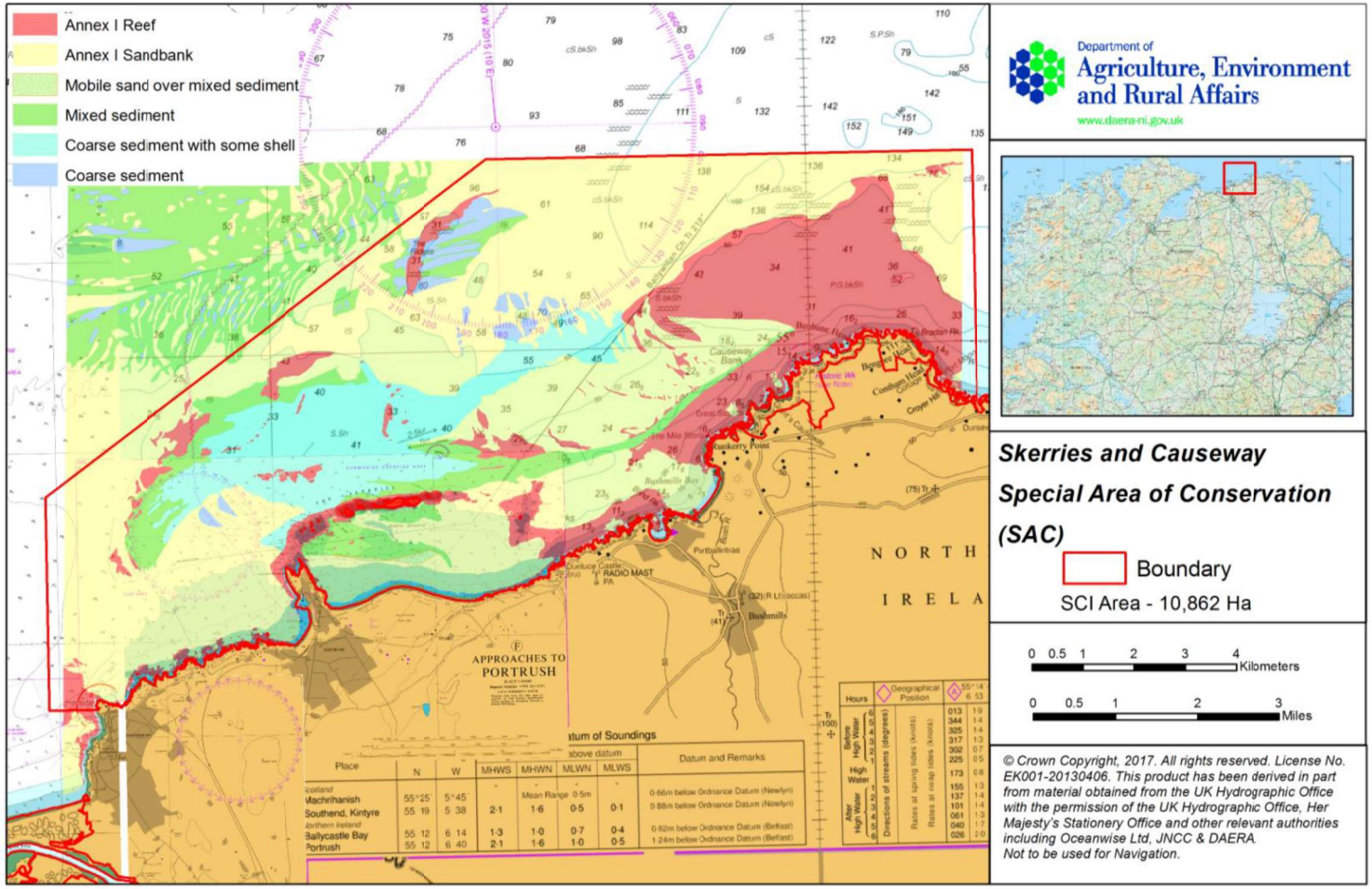
5.1 BOUNDARY RATIONALE

This area was first identified as being of marine conservation interest in the Northern Ireland Sub-littoral Survey (NISS), (Erwin *et al*. 1986). More recent dive surveys to determine the extent of its conservation interest (2006-2008 as part of the Sub-littoral Survey of Northern Ireland (SSNI) and 2009-2010 as part of the

Nationally Important Marine Features (NIMF) project) were completed by the Northern Ireland Environment Agency/National Museums Northern Ireland partnership (NIEA/NMNI) (Goodwin *et al.,* 2012; Goodwin *et al.*, 2011). The dive surveys of 2009-2010 also targeted the survey of reefs that had been identified for the first time from the multi-beam mapping of the Joint Irish Bathymetric Survey (JIBS, 2008). The JIBS work also allowed the first sight of the many sand waves and the dramatic submerged cliff of the Benbane Reef Complex. In 2010, the Department contracted the University of Ulster to provide a habitat map of the Causeway Coast (Clements *et al*., 2010). This habitat map was based on the bathymetric and backscatter data acquired as part of the JIBS work with ground-truthing provided by various surveys (NIEA dive and ROV surveys, AFBI surveys, NISS and any other relevant sources). Map 1 shows the results of this work, detailing the boundary of the SAC and seabed habitat map.

The boundary around the Skerries and Causeway site has been drawn using the guidance provided by the Joint Nature Conservation Committee (JNCC) (2004, amended by Aish *et al*. 2008), and was defined through GIS modelling using data from the mapping survey and considered against the guidelines. The key parts of this guidance are that the boundary should be restricted to only include Annex I habitat or that which is required for the maintenance of that habitat and the boundary line defined in whole degrees and minutes and seconds where possible. NIEA have used minutes to two decimal places as an equivalence of seconds as it is more commonly displayed on vessel Global Positioning System (GPS)/Chartplotter systems. The guidance also states that the boundary should include as little non-Annex I habitat as possible and should also be sufficient to allow for elimination of potential damage to the area from activities such as trawling and dredging.

The seaward boundary of the Skerries and Causeway site conforms to the guidance of JNCC in Aish *et al.* (2008) in being "drawn as straight lines to ensure ease of identification on charts and at sea" (Brown *et al*. 1997, McLeod *et al.* 2002). The northern limit of the site is therefore based on a line of latitude that allows inclusion of the Benbane Reef Scarp Complex and the reef marked on the Admiralty Charts as The Ridges. The eastern boundary is a line of longitude that allows the inclusion of the deep reef to the east of the Benbane Reef Scarp Complex. The western boundary is a line to allow the inclusion of a part of the Portstewart stony reef and the outlying reefs north-west of the Skerries. The southern boundary is the coastal Mean Low Water mark which permits a clearly defined 'real' boundary; while the rocks and islands of the Skerries have a boundary of Mean High Water to include seal haul-out areas, an area already designated in national legislation as an Area of Special Scientific Interest (ASSI).



Map 1 Skerries and Causeway SAC with Annex I habitats 'Reef' and 'Sandbanks which are slightly covered by seawater all the time' and other ground types as provided under contract by the University of Ulster (Clements *et al., 2010*)

SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ pop~
Habitat	Reefs	B	2280 ha
Habitat	Sandbanks which are slightly covered by sea water all the time	B	1601 ha
Habitat	Submerged and partially submerged sea caves	B	Approximately 30
Species	Harbour porpoise *Phocoena phocoena*	C	
Species	Common Seal *Phoca vitulina*	D	
Species	Grey Seal *Halichoerus grypus*	D	
Species	Bottlenose Dolphin *Tursiops truncatus*	D	

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

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

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

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

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

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

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

Click here to go to the Natura 2000 Standard Data Form for the Skerries and Causeway SAC.

6. *CONSERVATION OBJECTIVES*

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

To maintain (or restore where appropriate) the

- ***Reefs***
- ***Sandbanks which are slightly covered by sea water all the time, and***
- ***Submerged and partially submerged sea caves***
- ***Harbour porpoise (Phocoena phocoena)***

to favourable condition.

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

7. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

Feature	Global Status	Component Objective
Reefs	**B**	Maintain and enhance, as appropriate the extent of the reefs.
		Allow the natural processes which determine the development, structure, function and distribution of the habitats associated with the reefs, to operate appropriately.
		Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.
Sandbanks which are slightly covered by sea water	**B**	Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes.
		Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately.
		Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.

Submerged and partially submerged sea caves	B	Maintain and enhance, as appropriate the extent of the sea caves.
		Allow the natural processes which determine the development, structure, function and distribution of habitats associated with the sea caves, to operate appropriately.
		Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.
Harbour Porpoise (*Phocoena phocoena*)	C	Ensure the species is a viable component of the site.
		Ensure there is no significant disturbance of the species.
		Ensure the supporting habitats and processes relevant to harbour porpoises and their prey are maintained.

8. MANAGEMENT CONSIDERATIONS

The Skerries is a fairly natural open coast SAC with few significant issues which are not currently being managed successfully. The exception to this the potential for impact on reef features by vessels without knowledge of the exact location of the sensitive low-lying reefs. The current voluntary measure has been shown to be ineffective and will be replaced with a fisheries regulation which manages what type of fishing gear can be used within specific zones in the SAC boundary. Enforcement of this activity will require the use of enhanced vessel tracking. The Department is currently developing a scheme of management for the site which will go out for consultation in 2017. The following issues relate to many marine sites and in certain circumstances may have some bearing on the management of the Skerries and Causeway SAC.

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

Both on-site and off-site activities can potentially affect SAC features. The list below is not exhaustive, but deals with the most <u>likely</u> 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 (*Zostera marina*)	Extent	Area (ha) of eelgrass beds, measured during peak growth period twice during the reporting cycle.	No decrease in extent from an established baseline subject to natural change.	The extent and distribution eelgrass beds provide a long-term integrated measure of environmental conditions. Location of a single seagrass bed is known but the exact extent and boundary has not yet been accurately mapped. This is due to be carried out as part of the ongoing monitoring programme.

Feature	Sub-feature	Attribute	Measure	Target	Comments
	Subtidal Sand and Gravel Communities Subtidal Fine Sand and Mud Communities	*Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature.	Presence of the selected biotopes as identified by the NI Sublittoral survey at selected sites measured once during the reporting cycle. This was further refined by the University of Ulster in the production of a broadscale habitat map for the designation of the SAC (http://www.tandfonline.com/doi/pdf/10.1080/17445647.2012.661957).	Results should not deviate significantly from the established baseline, subject to natural change.	Changes in extent and distribution may indicate long term changes in the physical conditions at the site.
		* Species composition of selected biotopes at monitoring sites.	Species composition of the selected biotopes as identified by the NI Sublittoral survey measured once during the reporting cycle.	Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change.	Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites.

Feature 2 (SAC) Reefs (status B)

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

Feature	Sub-feature	Attribute	Measure	Targets	Comments
Reef	Subtidal Rock and Boulder Communities Subtidal Rocky Reef Communities	* Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-feature.	Presence of the selected biotopes at selected sites measured once sure the reporting cycle. This was further refined by the University of Ulster in the production of a broadscale habitat map for the designation of the SAC (http://www.tandfonline.com/doi/pdf/10.1080/17445647.2012.661957).	Results should not deviate significantly from the established baseline, subject to natural change.	Changes in extent and distribution may indicate long term changes in the physical conditions at the site. Some of the reefs in the SAC are unique in that they are sand scoured and low profile in nature and may be subject to natural burial. This will present problems in monitoring due to the fact the temporary absence of the reef through burial may be entirely natural cyclical process.
		* Species composition of selected biotopes at monitoring sites.	Species composition of the selected biotopes measured once during the reporting cycle.	Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change.	Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities. A list of selected indicator species identified by field surveys will be utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites.

Feature 3 (SAC) Submerged and partially submerged sea caves (status B)

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

Feature	Sub-feature	Attribute	Measure	Targets	Comments
Sea caves		* Extent	Number and location, measured once during the reporting cycle.	No decrease in extent from a baseline to be established, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. The extent may alter as a result of natural erosion and collapses as well as a result of human activity, hence the need for periodic measurement.
		* Distribution of characteristic sea cave communities	Distribution of intertidal cave biotopes. Measured during summer, once during reporting cycle. This will only be delivered for a representative number of the caves. Access to these caves given their exposed Atlantic location is problematic and subject to comprehensive risk assessment.	Baseline yet to be established. Distribution should not deviate significantly from a baseline to be established, subject to natural change.	Distributions of certain biotopes are an important structural component of the sea caves of the Skerries and Causeway. Changes in extent and distribution may indicate long term changes in physical conditions at the site

Feature 4 (SAC) Harbour Porpoise (status C)

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

Attribute	Measure	Targets	Comments
Mean abundance of adults within the SAC	* Maintain and enhance the population as appropriate.	Sightings rate from land based watches not less than 0.314 harbour porpoise per hour (based at Ramore Head).	Data generated by ongoing DAERA Marine and Fisheries Division survey. A recent report (Nykanen *et al*., 2017) examining the land based Harbour porpoise watch data for Northern Ireland suggested that an effort watch of 11 watches per month (130/year) is required to detect a 57% change in the HP population.
Presence/absence of young	* Maintain and enhance the population as appropriate.		At the time of designation approximately 30.6% of the total numbers counted were young (all ages i.e. young, juveniles and calves).

THE MAIDENS SAC
UK0030384

CONSERVATION OBJECTIVES

Document Details

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1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

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

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

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

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

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

3.1 DEFINITION OF FAVOURABLE CONDITION

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

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

4. SITE INFORMATION

COUNTY: DOWN

REFERENCE COORDINATES: 54.9436 -5.7519

AREA: 7461.36 ha

5. SUMMARY SITE DESCRIPTION

The Maidens proposed SAC is a group of rocky reefs detached from the coast, north east of Larne, Northern Ireland. The Maidens (or Hulin Rocks) are identified on the Admiralty Charts as a group of small rocky reefs either awash or just emergent. In only two cases are they large enough to be termed islands and to carry buildings, namely the West Maiden, which has a disused lighthouse and the East Maiden, which supports the present lighthouse (cover photograph inset). As well as the main reef plateau of East and West Maiden, there are also four other reef areas that form a part of the proposed SAC: North Klondyke Shoal which is a large submerged reef or shoaling, approximately 9 km north of West Maiden; Outer Klondyke Pinnacle, a submerged pinnacle 6km east of West Maidens; an unnamed small deep reef 8km north west of West Maiden; and Hunter Rock 5km to the south of West Maiden.

The primary reason for the proposed designation of The Maidens as an SAC is for the Annex I habitat *Reef*. Most of the reef area of The Maidens is bedrock reef with a smaller proportion of stony reef. From the multibeam echo sounding (MBES) survey analysis, combined with video tow ground truthing, some of the area has been classified as 'rock with sand infill'. It is suggested that most of this 'rock with sand infill' should be classed as Annex I *Reef* as the ground truthing suggests that the mobile sand veneer would cover and uncover that reef area.

A small area to the south of East Maiden island has been shown by diving surveys to be shallow stable sandy gravels (partially sheltered by East and West Maiden

islands) that includes maerl and other long lived species and this small area has therefore been classed as Annex I *Sandbanks slightly covered by sea water all of the time*.

Like Annex I *Sandbanks slightly covered by seawater all the time*, Annex II *Grey seals* are not the primary feature of The Maidens proposed SAC. However, these relatively remote rocks, islands and the waters surrounding them in the North Channel are important for providing haul-out sites, resting sites and foraging areas for *Grey seals*, with a maxima count of 70 adults recorded in a July 2000 survey. Recent surveys in 2009 confirmed use of the site for both pupping and breeding.

Further details of the site are available on the NIEA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-maidens).

5.1 BOUNDARY RATIONALE

The boundary around The Maidens site has been drawn using the guidance provided by the JNCC (2004, amended by Aish *et al*. 2008), and was defined through GIS modelling using data from the mapping survey and considered against the guidelines. The key parts of this guidance are that the boundary should be restricted to only include Annex I habitat or that which is required for the maintenance of that habitat and the boundary line defined in whole degrees and minutes and seconds where possible. NIEA have used minutes to two decimal places as an equivalence of seconds as it is more commonly displayed on vessel GPS/Chartplotter systems. The guidance also states that the boundary should include as little non-Annex I habitat as possible, and should also be sufficient to allow for elimination of potential damage to the area from activities such as trawling and dredging.

The Maidens site is made up of five blocks of Annex I Reef:

1. The Maidens plateau
2. North Klondyke shoal
3. Deep reef west of North Klondyke
4. Outer Klondyke pinnacle
5. Hunter Rock

The North Klondyke shoal and the Outer Klondyke pinnacle are separated from each other and from the main Maidens plateau by deep sediment channels, over 200m deep in places, and these deep sediment channels have been excluded from the SAC area.

The Annex I sandbank (maerl and sandy gravel) feature is small and sited on The Maidens plateau reef area south of the East Maiden lighthouse.

The site is almost entirely subtidal and is remote from the coast. At the small islands of East Maiden and West Maiden and on the emergent outlying rocks the boundary of the proposed SAC extends up to Mean High Water. These intertidal areas include haul-outs for Annex II Grey seal and Common seal and are already designated in national legislation as an Area of Special Scientific Interest (ASSI).

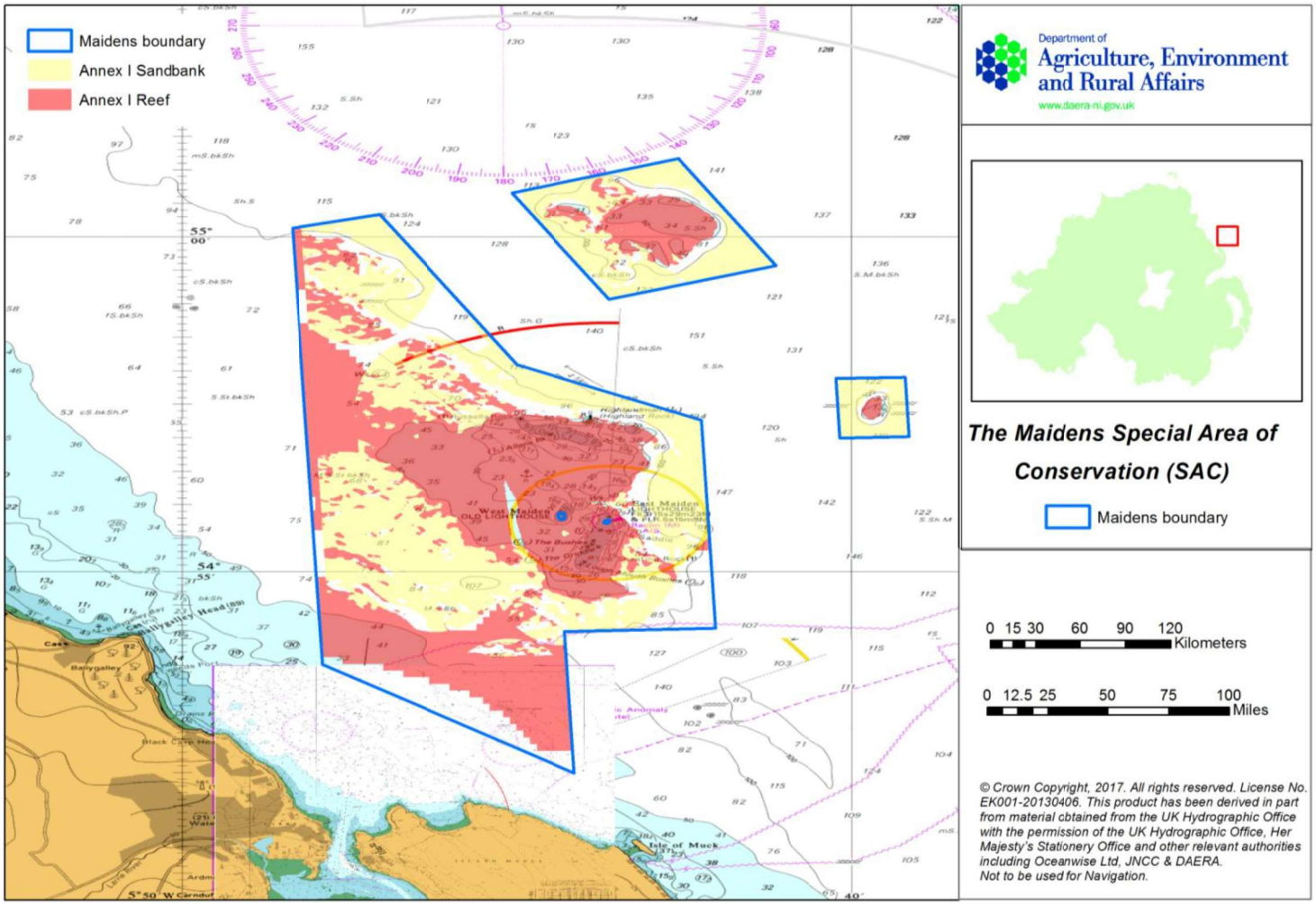


Figure 1 The Maidens SAC with Annex I habitats Reef and Sandbanks which are slightly covered by seawater all of the time

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ pop·
Habitat	Reef	A	2550 ha
Habitat	Sandbanks which are slightly covered by sea water all the time	B	200 ha
Species	Grey Seal *Halichoerus grypus*	C	50 individuals
Species	Common Seal *Phoca vitulina*	D	
Species	Harbour Porpoise *Phocoena phocoena*	D	

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

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

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

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

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

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

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

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

6.1 ASSI SELECTION FEATURES

The Maidens ASSI

Feature Type	Feature	Size/ extent/ pop~
Habitat	Intertidal rock	XXha
Species	European Shag breeding population	97 individuals
Species	Common Seal (*Phoca vitulina*)	20[2] individuals
Species	Grey Seal (*Halichoerus grypus*)	60[2] individuals

[1] Population given as number of nests/individuals recorded during the Seabird 2000 survey
[2] Population given as number of individuals recorded during the 2008 seal survey

Table 2 List of ASSI features

7. CONSERVATION OBJECTIVES

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

To maintain (or restore where appropriate) the

- **Reefs**
- **Sandbanks which are slightly covered by sea water all the time**
- **Grey Seal *Halichoerus grypus***

to favourable condition.
Maintain implies that the feature is in favourable condition and will, subject to natural change, remain at its condition at designation. Restore implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment can refer to natural recovery through the removal of unsustainable physical, chemical and biological pressures, as well as intervention.

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

8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

Feature	Global Status	Component Objective
Reefs	A	Maintain and enhance, as appropriate the extent of the reefs
		Allow the natural processes which determine

		the development, structure, function and distribution of the habitats associated with the reefs, to operate appropriately.
		Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.
Sandbanks which are slightly covered by sea water all the time	**B**	Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes.
		Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately.
		Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.
Grey Seal *Halichoerus grypus*	**C**	Maintain (and if feasible enhance) population numbers and distribution of Grey Seal.
		Maintain and enhance, as appropriate, physical features used by Grey Seals within the site.

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

Feature	Component Objective
European Shag breeding population	No significant decrease in population against national trends, caused by on-site factors
Intertidal Rock	Maintain and enhance species diversity within the maritime communities
	Maintain and enhance, as appropriate, transitions to other communities
Grey Seal *Halichoerus grypus*	See SAC Selection Feature Objective Requirements table
Common Seal *Phoca vitulina*	No significant decrease in population against national trends, caused by on-site factors

10. MANAGEMENT CONSIDERATIONS

The following issues relate to many marine sites and in certain circumstances may have some bearing on the management of the Maidens SAC.

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

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting The Maidens, or could affect it in the future. Although **Reefs, Sandbanks which are slightly covered by sea water all the time, and Grey Seal *Halichoerus grypus*** are the qualifying SAC features, factors affecting coastal ASSI features are also considered.

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

Aggregate extraction/Maerl extraction
Extraction of aggregates or extraction of maerl, either within or adjacent to the SAC, have the potential to cause direct loss or deterioration of qualifying habitats and communities; including the deterioration of qualifying habitats and communities by smothering and increased turbidity from re-suspended material.

Agriculture and Forestry Operations
Diffuse run-off from agricultural practices has the potential to cause deterioration of qualifying habitats and communities, primarily through the alteration of water quality by discharge of organic or inorganic pollutants. Changes in agricultural (including grazing regimes) or forestry practices or changes of land use have the potential to cause deterioration of qualifying habitats and communities through changes in the nature and loading of sediments in rivers that discharge to coastal areas.

Aquaculture – Finfish farming
Finfish farming has the potential to cause deterioration of qualifying habitats and communities through changes in water quality, smothering from waste material and physical disturbance from mooring systems. There is potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals which are already widely distributed in the UK. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Aquaculture – Shellfish farming
Shellfish farming has the potential to cause deterioration of the qualifying habitats and communities through physical damage (e.g. installation of mooring blocks and continued scouring by riser chains) and changes in community structure caused by smothering from pseudo-faeces (undigested waste products) and debris (including dead shells) falling from the farm. There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through importation or translocation of

shellfish stocks. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Coastal and Marine Development and Infrastructure Maintenance
The construction and maintenance of structures, both within and adjacent to the sea, have the potential to cause direct loss or deterioration of qualifying habitats and communities. An example of this may be coastal defence structures that may change local patterns of sediment suspension or deposition. Other examples include: renewable and other energy installations (including offshore wind, tide and wave energy and oil and gas installations); pipelines and cables; and marina and harbour developments and maintenance including the dredging of harbours, marinas and navigation channels. In many of these cases disturbance of the seabed may cause increased turbidity and smothering in adjacent areas as well as the direct impact in the area of operation.

Discharge of Commercial effluent or sewage
Commercial effluent has the potential to cause deterioration of qualifying habitats and communities, through pollution or nutrient enrichment, which may cause subsequent changes in community structure. Contaminants may enter species food chains, including those that are persistent and those that tend to bioaccumulate and biomagnify. Lipophyllic contaminants such as organohalides are of particular concern as they tend to accumulate within fatty tissue and are remobilised during lactation in seals. Contamination of female seals by hydrocarbon residues may be detrimental to suckling pups.

Disposal of dredge spoil
The disposal of either capital or maintenance dredge spoil, either within or adjacent to the SAC, has the potential to cause deterioration of qualifying habitats and communities, through smothering, increased turbidity, or re-suspension of pollutants.

Commercial Fishing – Mobile gear (dredging and bottom trawling)
Benthic dredging and bottom trawling have the potential to cause deterioration and damage to qualifying habitats and communities (particularly maerl, Hall-Spencer, 2000) through direct contact with the dredge gear, and sedimentation when dredging occurs close to the qualifying interest. Loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities. The Department is currently engaging with the fishing community to gather detailed evidence on the locations of specific gear usage with a view to producing a fisheries management plan for the SAC. This includes a full analysis of all known fishing activities gathered over recent years.

Commercial Fishing – Pelagic mid-water trawling
Pelagic mid-water trawling has minimal potential to cause deterioration of qualifying habitats and communities through direct contact, as the trawl gear is

mostly well above the seabed (except occasionally for vessel turning in shallow water). However loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities.

Commercial Fishing – Static gear (creel/pot fishing)
The use of creels and / or pots in a localised area has the potential to cause deterioration of qualifying habitats and communities through direct contact, particularly during their deployment and / or recovery. Loss of certain species through targeted catch or by-catch has the potential to cause deterioration of qualifying habitats and communities. Seals can be accidentally captured and drowned in static fishing gear and persistent synthetic fishing gear debris, in particular, pups.

Marine Traffic – Boat maintenance and antifoulant use
Most antifoulant products are designed to kill or discourage naturally occurring organisms and, as such, cause damage to the water environment if used carelessly. Under such circumstances use of antifoulant has the potential to cause deterioration of qualifying habitats and communities within this site.

Marine Traffic – Commercial and recreational vessels
The Maidens SAC is within the confines of the North Channel, a busy shipping route. The ferry route between Larne and Lough Ryan passes through The Maidens SAC boundary. The Port of Larne has a Port Marine Safety Code and the following documents should be reviewed: 'Safety Management System' and 'Safety Policy Objectives'. The pumping of bilges, discharge of ballast water, accidental grounding, or accidental oil (or other chemical) spillage from commercial vessels could therefore all occur close to the SAC. Such incidents have the potential to cause deterioration of qualifying habitats and communities through direct or indirect impacts. Emergency and oil spillage contingency plans should take into account specific qualifying interests and recognise the importance of marine SACs should such incidents occur. Smaller recreational and fishing vessels also have the potential to cause deterioration of qualifying habitats and communities through fuel spillage and grounding.

There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through bilge or ballast water, sea chests, and bio-fouling on hulls (identified as a particular risk on vessels for sale that are in the water for some time before being moved to a new location). Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Disturbance at seal haul-outs may disrupt the mother-pup bond and cause separation. Disturbance during the breeding season may lead to modifications of pupping activity as seen through avoidance of sites easily accessible by boats or through habituation to human presence.

Marine Traffic – Boat anchorages and moorings

Anchors and moorings have the potential to cause deterioration of qualifying habitats and communities through the direct impact of the anchor/mooring and the riser chains.

Marine Renewables

The Strategic Environmental Assessment (SEA) of Offshore Wind and Marine Renewable Energy by the Department of Energy, Trade and Investment (DETI, 2009) assessed the potential for commercial and test/demonstration sites in NI waters. This assessment identified potential impacts of such developments and related mitigating actions to be considered at the project developments stage. A possible commercial scale Tidal Resource Zone was identified off the North Coast within which the Crown Estate as managers of the seabed has offered development rights to two consortia, Tidal Ventures Ltd and Fair Head Tidal. However there are no tidal energy developments in this area at present and the Department is engaging with the developers in considering their respective marine licence applications.

The UK's Department of Business, Energy and Industrial Strategy (UK BEIS) administers marine environmental regulations associated with oil and gas exploration and production and the decommissioning of marine installations, wells, pipelines and associated infrastructure in the UK marine area (excluding internal waters). At present there is no oil or gas exploration licence for the 5 offshore blocks in the Antrim Coast (the Maidens SAC lies approximately 22km from this area).

The development of marine renewables has the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these qualifying interests and their associated species. Furthermore, deterioration of qualifying habitats and disturbance of species may occur through the use of pile driving or powerful sonar required for surveys or construction phases as these may directly harm marine mammals or act as a barrier to marine mammals using the area.

Scientific research

Research activities have the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these qualifying interests and their associated species. In addition, disturbance of seals may occur through various research activities, including the use of remotely operated technology (e.g. drones) especially when hauled out. These activities should be communicated to the Department for specific advice about the potential of impact and subsequent mitigation.

Geological surveys and military exercises

Geological and other surveys and military exercises all have the potential to cause deterioration of qualifying habitats and species, particularly through the use of

seismic surveys or powerful sonar that may harm cetaceans or act as a barrier to cetaceans using the area. These activities should be communicated to the Dept for specific advice for the potential of impact and subsequent mitigation.

Wildlife watching trips

Wildlife watching trips (boat and land based) have the potential to cause disturbance to species if operators are not appropriately trained in how to approach species while minimising potential disturbance. In addition, damage to sensitive habitats may occur through lack of knowledge of their location. Various wildlife training courses are available which teach best practice when dealing with wildlife.

Climate Change

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events. The Northern Ireland Climate Change Adaptation Programme was published in January 2014. This contains the Northern Ireland Executive's response to the risks and opportunities identified in the Climate Change Risk Assessment for Northern Ireland (published January 2012) as part of the overall UK Climate Change Risk Assessment. The Adaptation Programme provides the strategic objectives in relation to adaptation to climate change, the proposals and policies by which each department will meet these objectives and the timescales associated with the proposals and policies identified in the period up to 2019.

12. MONITORING

The SACs are surveyed using two forms of monitoring:

Site Integrity Monitoring (SIM) is carried out to ensure compliance with the ASSI/ SAC conservation objectives. The most likely processes of change will either be picked up by SIM (e.g. fishing, disturbance etc.) or will be comparatively slow (e.g. gradual degradation of the habitat). Although the Maidens are remote, SIM is combined with regular seal counts as well as through the active marine ranger programme.

Site Condition Assessment of the designated features is carried out on a rolling 6 year basis to pick up subtle changes in the condition of the feature.

Site condition assessments include a variety of techniques such as diving, remote cameras, sediment sampling and acoustic seabed mapping. Marine mammal monitoring programmes also contribute.

12.1 MONITORING SUMMARY

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

This SIM should be carried out at least once a year.

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

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

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

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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 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 sure the reporting cycle.	Results should not deviate significantly from the established baseline, subject to natural change.	Baseline survey conducted by the Department with NMNI 2006-2009 and as a contract with AFBI (Strong, 2010). Changes in extent and distribution may indicate long term changes in the physical conditions at the site.
		* Species composition of selected biotopes at	Species composition of the selected biotopes measured once during the	Composite species of selected biotopes	Species composition will be used to determine the biotope classification. A list of selected indicator species identified by field surveys will be

		monitoring sites.	reporting cycle.	should not deviate significantly from the established baseline, subject to natural change.	utilised to determine the achievement of the conservation objectives through presence/absence at monitoring sites. The species composition of some biotopes may provide further information on changes/trends in these communities.

Feature 2 (SAC) – Sandbanks which are slightly covered by seawater all of the time (status B)
*=primary attribute. One failure among primary attribute = unfavourable condition

Feature	Sub-feature	Attribute	Measure	Targets	Comments
Subtidal sandbanks		*Extent	Area (ha) of the subtidal sandbanks to be measured periodically (frequency to be determined).	Ensure that quality and extent of sandbank are not threatened by aggregate removal.	Currently there is no licensed aggregate removal activity within or near to this SAC.
		*Sediment character	Particle size analysis (PSA). Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Sediment character to be measured once during the reporting cycle.	Average PSA parameters should not deviate significantly from an established baseline subject to natural change.	Sediment character defined by PSA is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it. This is currently addressed through WFD monitoring programme.
		*Topography	Depth distribution of sandbanks from selected sites, measured periodically (frequency to	Depth distribution should not deviate significantly from an established	Depth and distribution of the sandbank reflects the energy conditions and stability of the sediment, which is key to the

			be determined).	baseline, subject to natural change.	structure of the feature. Depth of the feature is a major influence on the distribution of communities throughout. The baseline for this feature was delivered through work carried out by AFBI (2010) on to provide habitat maps.
	Subtidal Sand and Gravel Communities Subtidal Fine Sand and Mud Communities	*Characteristic biotopes at sites chosen so as to provide some indication of the distribution and extent of the Sub-Feature.	Presence of the selected biotopes as identified by the NI Sublittoral survey at selected sites measured once during the reporting cycle	Results should not deviate significantly from the established baseline, subject to natural change.	Baseline survey required. Changes in extent and distribution may indicate long term changes in the physical conditions at the site
		*Species composition of selected biotopes at monitoring sites.	Species composition of the selected biotopes as identified by the NI Sublittoral survey measured once during the reporting cycle.	Composite species of selected biotopes should not deviate significantly from the established baseline, subject to natural change.	Species composition will be used to determine the biotope classification. The species composition of some biotopes may provide further information on changes/trends in these communities.

Feature 3 (SAC) – Grey Seal *Halichoerus grypus* (status C)

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

Attribute	Measure	Targets	Comments
*Number of Adults	Maintain and enhance the population as appropriate.	The number of adults to be at least 50 individuals.	Data generated by ongoing DAERA Marine and Fisheries Division survey.
*Distribution of adults	Maintain the range and distribution of grey seals.		Ensure individuals operations or activities (in combination with other operations or activities) do not cause a change in range, distribution or population structure which would result in unfavourable conditions for the future conservation interests of this species.
*Habitat availability	Number of areas used for moulting, haul-out and breeding.	Ensure that there is a sufficiently large habitat (haul-outs) of suitable quality available to support the long term survival of this species.	

WOLF ISLAND BOG SAC
UK0030303

CONSERVATION OBJECTIVES

Document Details

Title	*Wolf Island Bog SAC Conservation Objectives*
Prepared By	*R. McKeown*
Approved By	*P. Corbett*
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Contact	cdp@doeni.gov.uk

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Version	Date	Summary of Changes	Initials
V1	June 2013	Internal working document	PC
V2	Nov 2014	Complete review	RMK

1. INTRODUCTION

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

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

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

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

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

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

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

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

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

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

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status as 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: LONDONDERRY

GRID REFERENCE: IC 922080

AREA: 118 ha

5. SUMMARY SITE DESCRIPTION

Wolf Island Bog lies to the west of the River Bann directly south of Kilrea and with an intact surface of 71.8 ha, it represents one of the largest remaining areas of uncut lowland raised bog in County Londonderry. The bog lies within the river valley at an elevation between 30m and 40m O.D. and displays the classic characteristics of a lowland raised bog.

The active raised bog supports hummocks and hollows, pool complexes and notable peatland flora including Great Sundew *Drosera anglica*, Oblong-leaved Sundew *D. intermedia*, and the bog mosses *Sphagnum fuscum* and *S. imbricatum*.

Wolf Island (Fallahogy) was the bog where 'Landnan' (early land clearance event) was first discovered in Ireland, and first radiocarbon dated. It has since become an important site for tephra studies and for investigations of Medieval and recent landscape change. The bog is divided into two parts, but despite this, it is a reasonably compact site within a landscape, which has largely been improved for agricultural use.

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 demarcated to include all areas of intact lowland raised bog and associated semi-natural habitats, including cutover bog and small pockets of Birch scrub. The intact surface of the bog is divided into two hydrological units, separated by a small drumlin and an old rampart running from west to east.

The boundary around the entire site is clearly defined as the edge of the peatland hydrological unit, being completely surrounded by improved agricultural land. Drumlane Road forms the boundary along the southern edge of the bog and part of the eastern boundary follows the edge of Gorse Road. There is no fencing of any description along the road verges. The remaining boundaries around the site are clearly defined by a series of ditches and old tracks, which are securely fenced and mark the edges of the surrounding fields. Many of these surrounding fields have been reclaimed from the cutover bog in recent years.

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ population
Habitat	**Active raised bog**	**B**	**103.1 ha**
Habitat	Degraded raised bog still capable of regeneration	D	14.9 ha
Habitat	Depressions on peat substrates of the Rhynchosporion	D	0.1 ha

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

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

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

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

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

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

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

Click here to go to the Natura 2000 Standard Data Form for Wolf Island Bog SAC.

6.1 ASSI SELECTION FEATURES

Wolf Island Bog ASSI

Feature Type	Feature	Size/ extent/ population
Habitat	Lowland Raised Bog	118 ha
Earth Science	Holocene Peat and related stratigraphy.	118 ha ie the entire raised bog unit including the cutover areas.

Table 2. List of ASSI features.

7. CONSERVATION OBJECTIVES

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

To maintain (or restore where appropriate) the active raised bog 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
Active raised bog	B	Maintain the extent of intact lowland raised bog and actively regenerating raised bog vegetation.
		Maintain and enhance the quality of the lowland raised bog community types including the presence of notable species.
		Seek to expand the extent of actively regenerating raised bog vegetation into degraded (non-active) areas of cutover bog.
		Maintain the diversity and quality of other habitats associated with the active raised bog, e.g. acid grassland, fen and swamp, especially where these exhibit natural transition to the raised bog.
		Maintain the hydrology of the raised bog peat mass.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for lowland raised bog rehabilitation.

9. ASSI FEATURE OBJECTIVE REQUIREMENTS

ASSI Feature	Component Objective
Lowland Raised Bog	Maintain the extent of intact lowland raised bog.
	Seek to expand the extent of actively regenerating raised bog.
	Maintain the hydrology of the raised bog peat mass.
Holocene Peat and Related Stratigraphy	Maintain the extent of intact lowland raised bog.
	Seek to expand the extent of actively regenerating raised bog.
	Maintain the hydrology of the raised bog peat mass.

10. MANAGEMENT CONSIDERATIONS

Ownership

Wolf Island Bog, including the turbary rights, is privately owned with over 30 individuals owning various sections of the bog. This complex ownership pattern within the bog makes a unified approach to site management more difficult.

The British Association for Shooting and Conservation (BASC) has a special interest in managing the site for conservation and shooting. Snipe are abundant on the bog surface in winter and wildfowl frequently feed in the flooded pools around the periphery of the site. BASC currently own the shooting rights over a large proportion of the SAC and is interested in acquiring the remaining shooting rights. BASC are unhappy with some aspects of the current management of the SAC. Action should be taken to reach a satisfactory conclusion to ongoing negotiations.

Adjoining Land Use

The main adjoining land-use outside the ASSI is improved agricultural land with an area of rough pasture along the south-western edge of the bog.

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 Wolf Island Bog, or could affect it in the future. Although Active Raised Bog is the qualifying SAC feature, factors affecting ASSI features are also considered.

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

Peat Cutting

For many years extensive hand cutting of peat around the periphery of Wolf Island Bog has encroached significantly into the intact surface of the raised bog. However, the majority of old hand cuttings now support actively regenerating bog vegetation. In recent years mechanised peat cutting has encroached, in some areas, unto the remaining intact peat bog surface. In some instances mechanised cutting has encroached onto the remaining intact surface of the bog. Peat cutting at the time of designation was problematical, but has been addressed by a series of management agreements with landowners. All peat cutting now appears to have been stopped.

ACTION: No peat cutting within the SAC.

Burning

Burning of the vegetation has taken place occasionally, with some areas of past burning being clearly identified. Excessive burning will tend to reduce the cover of *Sphagnum* mosses and ericaceous species, whilst increasing the proportion of *Molinia caerulea* and *Trichophorum cespitosum*. In addition, the burning of the vegetation can reduce its structural diversity. There has been no evidence of burning within the SAC since 1997 when the site was declared as an ASSI.

ACTION: No burning within the SAC.

Drainage

Within the main intact dome there are a few very old drains associated with the cuttings. These drains show up on the aerial photograph and are clearly apparent on the ground. Some of these drains are carrying water off the intact dome of the bog. There has also been extensive drainage within the old cutover areas. Note that drainage works outside of the site's boundaries could potentially impact upon the bog's hydrology.

ACTION: Block active drains where appropriate.

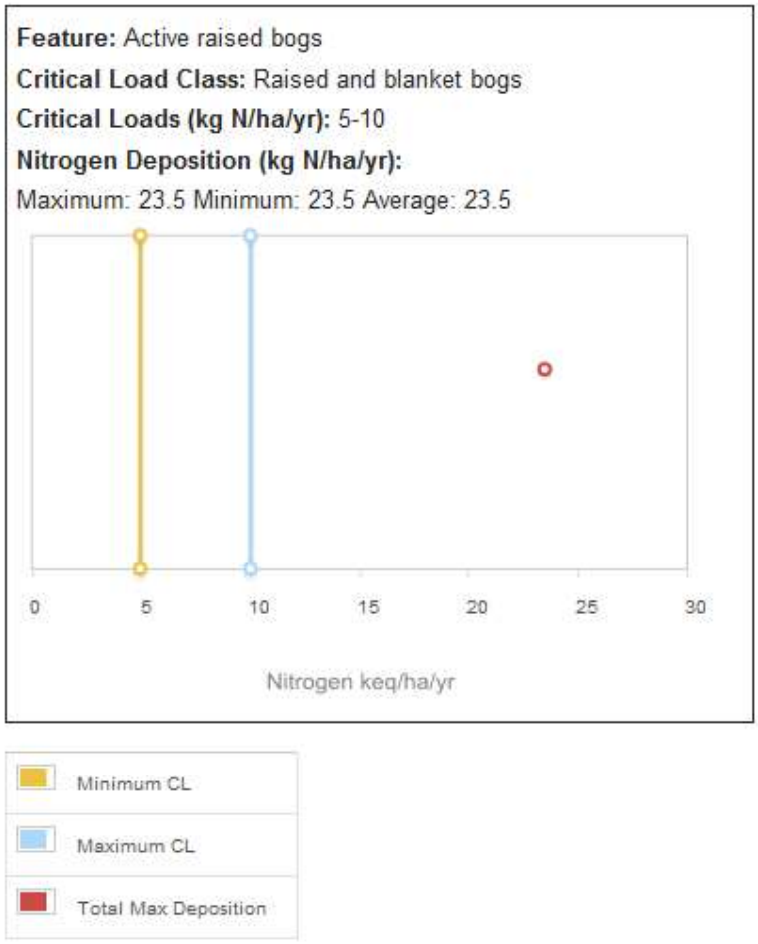
Grazing

Lowland raised bogs are not suitable for grazing, as the surface is fragile and easily damaged by poaching.

ACTION: Fences around the periphery of the bog should be maintained to prevent grazing occurring on the site.

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 Wolf Island Bog SAC.



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

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

Scrub Encroachment

There are some pockets of trees and scrub associated with the lagg and cutover bog around the periphery of the intact surface at Wolf Island Bog. Any further

scrub encroachment into the actively regenerating cutover areas, or onto the intact surface is undesirable.
ACTION: Monitor scrub encroachment and take remedial action if required. Remove any invasive exotic species, such as Rhododendron as a matter of urgency.

Fly-tipping
There has been some localised fly tipping along the edge of both the Drumlane Road and the Gorse Road. Although this is not damaging to the main interest features, it is unsightly and may encourage others to continue the practice. The removal of dumped material may alleviate the problem
ACTION: If localised fly-tipping does occur, it should be removed as soon as possible to help prevent any further incidences of dumping.

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 bog and associated habitats through desiccation).

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

- *Monitor the integrity of the site (SIM or Compliance Monitoring)*
  Complete boundary survey. Ensure that there has been no peat cutting, dumping or burning carried out within the SAC boundary. This SIM should be carried out once a year.

- *Monitor the condition of the site (Condition Assessment)*
  Monitor the key attributes for the active raised bog. This will detect if the active raised bog is in favourable condition or not. See Annex 1 for SAC 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 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 1

Feature 1 (SAC) – Active raised bogs (Status B)

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

Attribute	Targets/Limits	Method of Assessment	Comments
Extent			
*Area of intact surface (ha)	Maintain the current extent of intact bog surface at 103.1 ha	Visual estimate in 2x2 plots and across the intact raised bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Any loss of the current intact area is unacceptable. The active raised bog communities include M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire community and M2, the *Sphagnum cuspidatum/recurvum* bog pool community dominated by *S. cuspidatum*.
*Area of actively regenerating cutover bog (ha)	Maintain the current extent of actively regenerating cutover bog. This area should be extended where possible.	Visual estimate in 2x2 plots and across the intact raised bog using a combination of aerial photographs, SIM and Condition Assessment structured walk.	There should be no loss in extent of actively regenerating bog to scrub encroachment or further peat cutting.

* Area of mosaic communities and associated habitats	Maintain associated mosaic communities and habitats (bog woodland, fen, etc)	Visual estimate across the ASSI 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.
Structure			
Dwarf-shrub height	Average ericoid height should be 15 – 35 cm.	Visual estimate in 2x2 m plots.	
*Bare Peat (%)	Peat cutting or drainage should not damage the intact surface of the active raised bog. Bare peat should occupy < 5% of the total area of the active raised bog.	Visual estimate in 2x2m plots	

*Pool/hummock system extent and diversity	The extent and diversity of the raised bog pool system must be at least maintained. Permanent pools containing any of the species listed below within a 10x10 m radius of the plot should be recorded. *S. cuspidatum* , *S. denticulatum S. magellanicum, Drosera, anglica, D. intermedia,* Menyanthes trifoliata.	Visual estimate within a 10x 10m radius of plots and across the feature using a combination of aerial photographs and Condition Assessment structured walk.	Pool systems do not always occur on lowland raised bog systems. However, where they do occur, they are a very important micro-topographical feature of bog surface and their extent and condition should be maintained.

Vegetation Composition – Positive Indicators			
*_Sphagnum_ Cover/Abundance (% cover and frequency) Active Peat Formation (DAFOR)	Ombrotrophic _Sphagnum_ moss species should have a minimum cover of 33% over at least 66% of the intact lowland raised bog surface. Thick, hummock forming species of sphagnum should be at least occasional.	Visual estimate in 2x2m plots. Visual estimate in 2x2m plots.	A constant _Sphagnum_ moss cover is indicative of active peat formation and is dependent on the maintenance of a high water table. _Sphagnum_ moss is therefore used to measure the hydrological integrity of the intact bog surface.
*Ericaceous Cover (%) and frequency of _Erica tetralix_ (DAFOR).	Ericoid cover should be maintained between 40% and 60% of the intact bog surface. _Erica tetralix_ should be at least present over a minimum 66% of the intact lowland raised bog surface.	Visual estimate in 2x2m plots	A mono-dominant sward of _Calluna vulgaris_ may suggest that the surface of the intact bog is drying out – i.e. the water table is too far below the surface of the bog.
*Graminoid Cover (%)	Graminoid cover should be maintained between 10 and 40 %.	Visual estimate in 2x2m plots	

Vegetation Composition – Indicators of negative Change			
*Frequency and % cover of scrub/tree encroachment on any active peat surface (DAFOR and % cover)	Scrub/tree encroachment should be no more than Rare on the intact raised bog surface or in the actively regenerating cutover areas. Mean cover should be less than 2%.	Visual estimate within a 10x10 m radius of plots and across the active peat surface using aerial photographs and Condition Assessment structured walk.	If scrub/tree species are more than rare on any active peat surface, scrub control should be carried out.
**Rhynchospora alba* Abundance (% cover)	*Rhynchospora alba* cover should be less than 10%.	Visual estimate in 2x2m plots	*Rhynchospora alba* only occurs as a natural component of the bog vegetation around pool systems. A high frequency of this species over the intact surface of the bog may be a consequence of excessive burning.
**Myrica gale* Abundance (% cover)	*Myrica gale* cover should be less than 10%.	Visual estimate in 2x2m plots	
* Management - Burning (% cover)	Signs of recent burning should occupy less than 5% of the intact raised bog surface and the actively regenerating cutover areas.	Visual estimate in 2x2 m plots and across the active bog surface using a combination of aerial photographs and Condition Assessment structured walk.	

* Management - Grazing (% cover)	Signs of grazing (poaching/dung) should be no more than rare on the intact raised bog surface and the actively regenerating cutover areas.	Visual estimate in 2x2 m plots.	The frequency of droppings, the extent of poaching, uprooting of dwarf shrubs, invasion by *Juncus squarrosus* etc. and the presence of grazing induced *Calluna vulgaris* growth forms indicate moderate and heavy grazing.
Indicators of Local Distinctiveness			
* Presence of rare or scarce species specific to the site. *Sphagnum austinni* *Sphagnum fuscum* *Sphagnum pulchrum* *Utricularia spp.* *Andromeda polifolia*	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.

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