

Draft Regulatory Impact Assessment

Marine Special Protection Areas in the Northern Ireland Inshore Region

November 2015

1. Introduction & Background

The sea around Northern Ireland is as environmentally important and diverse as the land, and as fundamental to our economic prosperity. It is important that it is managed sustainably and promoted as a valuable social and economic asset. The Department of the Environment (the Department) is committed to the vision of a clean, healthy, safe, productive and biologically diverse marine and coastal environment that meets the long term needs of people and nature. Marine nature conservation is an integral component of how this can be achieved.

The Department's 'Strategy for Marine Protected Areas in the Northern Ireland inshore region'¹ sets out the aims and key objectives to which marine conservation policy can contribute. Site protection for species and habitats of European importance is an important element of marine and coastal conservation helping to meet our obligations under the EC Wild Birds and Habitats Directives².

Special Protection Areas are classified under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended). The European Directive on the Conservation of wild birds requires Member States to identify and classify the most suitable areas to ensure the survival and reproduction of selected species of conservation importance. Further information on the UK's programme relating to these designated sites can be found on the JNCC website (<http://jncc.defra.gov.uk/page-162>)

Northern Ireland holds important populations of seabirds and waterbirds, many of which are migratory. It is important that we ensure that the habitats which support these populations are managed in an appropriate manner.

The proposed marine SPAs and marine extensions to SPAs to will provide an additional element to this nationally and internationally important network of protected sites which contribute to the future of threatened or vulnerable bird populations by protecting them and the habitats on which they depend.

<https://www.doeni.gov.uk/publications/strategy-marine-protected-areas-northern-ireland-inshore-region>

http://ec.europa.eu/environment/nature/index_en.htm

These proposed SPAs will help deliver national priorities on biodiversity, including Northern Ireland's contribution to national, European and wider international commitments on biodiversity. Such designations may however have an impact on activities which are undertaken in or around the sites, and this could result in adverse social or economic impacts.

The proposed sites are a marine extension to the existing SPA at Carlingford Lough and an entirely new marine SPA known as East Coast (Northern Ireland) Marine SPA. These areas are important for a number of species which use the marine area for activities including foraging/feeding, loafing/rafting and for display purposes. Many of these species are vulnerable to a range of impacts including disturbance but also activities which adversely affect habitats on which they, or their favoured prey items, depend.

2. Rationale for Government Intervention & Objective

A biologically diverse marine environment is of high value to society through the services that it provides and as a basis for human health and livelihoods. In the marine environment, the main traded ecosystem services are fish landings and aquaculture, while non-traded services include education, flood control, recreation and research. Aside from its economic value to society, the natural environment has intrinsic or 'non-use' value.

Human activities can have a detrimental effect on the extent and condition of many diverse habitats and their ecosystems. Fishing can affect large areas of the sea bed and can have large impacts on marine ecosystems. Pressures exerted by other activities including aggregate extraction, coastal defence, shipping, marine renewable energy developments and off-shore wind farms are increasing. The diverse range of coastal and marine recreational pressures is also an important consideration.

The range of impacts on marine habitats and the species they support can result in degradation of such sites and, ultimately, a reduction or loss of the seabird and waterbird populations they support. One view is that such impacts come about from

a market failure and non-appreciation of the importance of such areas, hence the need for government intervention to protect valuable features of the marine environment.

Market failure occurs because no monetary price is attached to many goods and services provided by the marine environment so market mechanisms cannot ensure that actions are fully paid for. This has led to resource depletion and environmental degradation, including biodiversity loss and pollution. Even for those goods that are traded (such as wild fish), market prices often do not reflect the true cost, which end up being borne by the environment, other individuals and society.

Furthermore, as some marine environmental goods and services are 'public goods' (in that no one can be excluded from benefiting from them) individuals do not have an economic incentive to voluntarily contribute effort or money to ensure the continued existence of these goods (HM Government, 2011).

Hence, government intervention is required to address the environmental degradation and resource loss that is occurring as a result of market failure and public good characteristics.

Northern Ireland is planning to progress a number of marine SPAs in their inshore waters. These sites will be informed by distribution of important wintering waterbird populations and extensions to a number of existing seabird colony SPAs. Wales are progressing extensions to existing seabird colony SPAs in their territorial waters, and are also considering the available evidence for fully marine SPAs. England are progressing a network of marine SPAs in their inshore waters, including extensions to existing seabird colony SPAs and entirely marine SPAs for both waterbirds and seabirds. JNCC is considering possible marine SPAs in offshore waters elsewhere in the UK. Similarly in Scotland a suite of similar sites are being progressed.

Collectively, a network of marine SPAs for rare, vulnerable and migratory bird species using waters around the UK should be largely established by 2016. This should include the most important regularly occurring aggregations of waterbirds and seabirds but there will probably be a need for review of the adequacy of this network beyond that date.

The objective of these designations is to meet our obligations under the Wild Birds Directive but also to contribute to the vision of the NI Marine Plan of:

'A healthy marine area which is managed sustainably for the economic, environmental and social prosperity of present and future generations.'

Each of the proposed SPAs has been assessed in turn below; however, it is important to note that the assessment is mostly qualitative due to data restraints and the difficulty with isolating impacts of the various management options. It is also important to note that under a European ruling, the UK government cannot take socio-economic considerations into account when considering whether to classify an SPA.

3. Proposed Marine Extension to Carlingford Lough SPA

3.1 Description of SPA

The principal interests are as follows –

- breeding colony of Sandwich and Common Tern (both Annex I species) and
- non-breeding population of Light-bellied Brent Geese (Species relevant to Article 4.2).

The qualifying populations are -

At the time of classification in 1998 the site qualified for the following species:

The site qualifies under **Article 4.1** of the Directive (2009/147/EC) by supporting internationally important populations of the following species:

Annex I species	Count and Season	Period	% of population
Sandwich Tern <i>Thalasseus sandvicensis</i>	575 pairs – breeding	5 year mean (1993 – 1997)	13.1 % of the all-Ireland population
Common Tern <i>Sterna hirundo</i>	339 pairs – breeding	5 year mean (1993 – 1997)	10.9 % of the all-Ireland population

Data from annual site monitoring by RSPB and national seabird surveys coordinated by JNCC

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

Species relevant to Article 4.2	Count and Season	Period	% of population
Light-bellied Brent Goose <i>Branta bernicla hrota</i>	319 individuals – non-breeding	5yr peak mean 1990/01 – 1994/95	1.6 % of the international biogeographical population

Waterbird data from annual WeBS programme coordinated by BTO

More recently the populations of the above species have been as follows:

Species	Count and Season	Period	% of population
Sandwich Tern <i>Thalasseus sandvicensis</i>	51 pairs – breeding	5 year mean (2010–2014)	1.4 % of the all-Ireland population
Common Tern <i>Sterna hirundo</i>	117 pairs – breeding	5 year mean (2010–2014)	2.8 % of the all-Ireland population
Light-bellied Brent Goose <i>Branta bernicla hrota</i>	435 individuals – non-breeding	5yr peak mean 2007/08 – 2011/12	1.1 % of the international biogeographical population

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

Waterbird data from annual WeBS programme coordinated by BTO

Carlingford Lough Special Protection Area complements the equivalent designation on the Republic of Ireland side of Carlingford Lough, the latter designation made for the internationally important wintering population of Light-bellied Brent Goose.

The proposed marine area has been shown to provide foraging habitat for both Sandwich and Common Tern originating from the breeding colony at this site. The work supporting this aspect of the Carlingford Lough site has been undertaken as part of a UK-wide study specifically to define foraging areas associated with designated (SPA) tern colonies. Further information on the UK marine SPA programme can be found at <http://jncc.defra.gov.uk/page-4561>

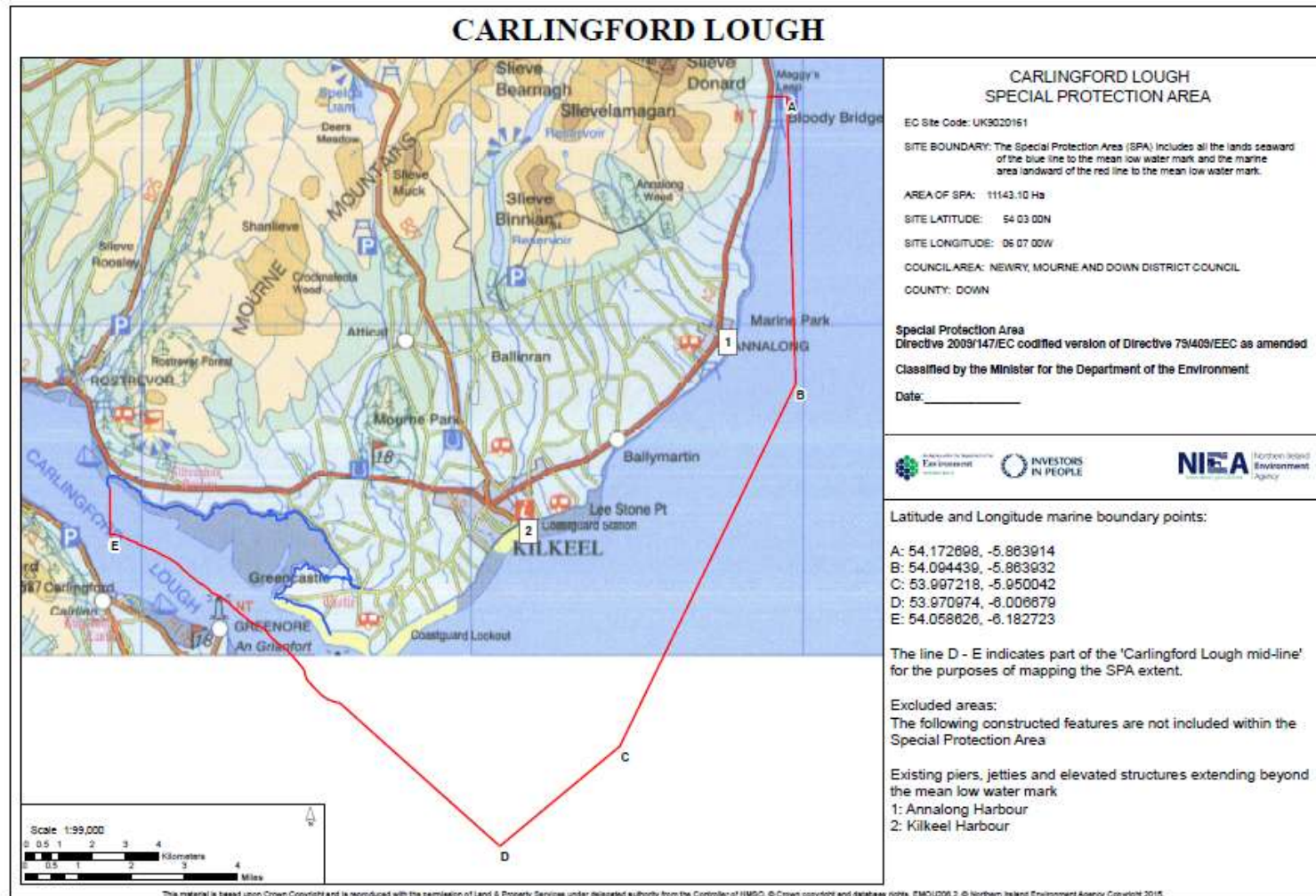


Figure 1: Carlingford Lough SPA (seaward of blue line to mean low water mark) and proposed marine extension (landward of red line to mean low water mark)

3.2 Conservation Objectives

A conservation objective is a statement of the desired ecological quality of a feature (habitat, species or geological) for which a SPA is designated. The conservation objective establishes whether the feature condition meets the desired state and should be maintained, or falls below the desired state and should be recovered to favourable condition.

Carlingford Lough SPA and proposed marine extension seeks to contribute to the protection of the selection features noted above (section 3.1).

The overall conservation objective for the proposed East Coast Marine SPA will be: (for complete information, the site conservation objectives should be read) **to maintain the associated feature populations in favourable condition (to achieve stable or increasing populations with reference made to these populations at time of designation) together with the habitats on which they depend.**

3.3 Assessment of Management Options

A number of activities take place in or adjacent to Carlingford Lough SPA and the proposed extension and the designation, which may entail implementing management measures, and so could have an impact on these activities.

The management options considered for each activity were either to reduce or limit pressures, or to remove or avoid pressures altogether.

Note that the Department recognises the consequences that any change in activity could have and has attempted to limit these where possible. The Department's aim is to achieve the conservation objectives with the least possible impact on the activities in the area. Therefore, the selection of management options can be attributed to the achievement of these aims. In addition, where there is a low level of specific activity the impact is assumed to be negligible.

Table 3.1 below outlines each activity and the possible management options. The subsequent table (5.1) shows the preferred management option for each activity and an indication of the possible impact.

Table 3.1: Carlingford Activities and Management Issues

Issue	Threat/comments	Local considerations	Management considerations
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 may lie without the site making effective management of developments other than those for which planning permission is required, difficult.	Appears to be of minimal importance other than for high tide roosts.	Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact.
Aquaculture	Disturbance is usually a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration and loss 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.	Existing licences widespread both within and outside SPA.	Liaise with DARD Fisheries Division. Assess all licence applications individually. 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.	Degree unknown	Monitor scale of activity. Consider the collective impact.
Beach sand and gravel extraction.	Disturbance issue together with loss of biologically active upper sediments. Most beach systems are sedimentologically closed thus material removed may not be renewed making the activity unsustainable. May lead to changed sediment character of beach ultimately impacting on birds.	Degree unknown. Offshore gravel islands are subject to erosion and so no sand or gravel extraction should be permitted that could impact on these.	‘Permitted’ extraction of beach sand and gravel should be halted through management agreements. Ad hoc removal should be addressed in conjunction with local authorities and through marine legislation.

Boating activity – commercial	Disturbance and potential for impact from high-speed boats.	Active ports at Greenore and Warrenpoint with proposed ferry operating from Greencastle. Disturbance and enhanced wash impact on islands especially are the main consideration.	Formal consultation likely relating to new schemes through planning and marine legislation. Consider the collective impact.
Boating activity – recreational	Disturbance and potential for impact especially from jet skies. Generally relevant to particularly sensitive areas within site.	Current level of activity is unknown – main concern is of disturbance at tern colonies.	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.	Mainly natural coastal transitions except around Greencastle. Proposed ferry development may bring need for additional works.	Liaise with planning and marine licensing authorities together with other parties with an involvement in coastal management.
Cull of fledglings/ young	Licensed selective culling of species impacting on ‘more desirable’ species. Licensed by NIEA.	No activity at present – may be required as part of the management of the tern colonies.	Consider the collective impact.
Dredging	Generally only an issue in relation to commercial shipping channels. Issues include disturbance, remobilisation of contaminated sediment and spoil dumping zones.	Current position unknown. Main channel activity is long-established. Dredging to accommodate the proposed ferry is close to the semi-stable tern islands and must be assessed very carefully.	Liaise with port authority and licensing bodies 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. 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.

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.	Limited development pressure except from ferry proposal.	Assess planning and marine licensing 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.	Limited development pressure except from ferry proposal.	Assess planning and marine licensing 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.	Main concern relates to Spartina.	Assess planning and marine licensing applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Water Management Unit 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.	Commercial activity is centred on Warrenpoint and Greenore. No obvious impacts on SPA.	Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Water Management Unit as required with regard to water quality issues and pollution incidents. Consider the collective impact.
Habitat extent and quality- breeding	Alteration of habitat area or quality through inappropriate use or absence of site management.	Historical tern colonies impacted by erosion. May require stabilisation and periodic 'rebuilding'.	Assess needs of breeding species. Liaise with RSPB and other owners or appropriate authority to adjust or introduce site management if necessary.
Introduced species	Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site.	Issues relate to aquaculture and Spartina. Spartina is the main issue with spread resulting in loss of more significant inter-tidal and saltmarsh	Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives.

		habitats.	
Marine renewable energy developments	Potential for disturbance and direct impact to terns in flight and actively feeding (diving)	No site related proposals at time of writing. Potential for impact from schemes elsewhere	Assess planning and marine licensing applications. To be addressed through HRA process.
Predation.	Mainly of concern on bird breeding sites.	Need to assess large gull impact on tern colony. See culling issue above.	Liaise with RSPB. Carry out appropriate site management.
Recreational activities.	Disturbance is the main consideration. 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 eggs/young with a reduction/loss in productivity success.	Greencastle area is an important tourism/recreational destination but terns seem unaffected. Issue as it relates to Brent is unknown. Shoreline has been heavily used for recreational activities over long timescale. 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	Liaise with local authorities and other managing parties.
Research activities.	Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites.	Routine winter WEBS counts and summer breeding census of terns nests are undertaken.	Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate licence must be held.
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	Current position unclear	'Permitted' harvesting may be undertaken and should be reviewed with regard to location, scale and assessed for impacts.

	habitat and biomass.		
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.
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.	Coastal engineering at Greencastle, Cranfield area and along the coastline northwards to the boundary limits. 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. Green Island, one of the Tern nesting sites, is subject to erosion. Action to stabilise may be necessary in the future.
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 of activity is unclear.	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.

4. Proposed East Coast (Northern Ireland) Marine SPA

4.1 Description of SPA

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

- Non-breeding population of Great Crested Grebe (Species relevant to Article 4.2)
- Non-breeding population of Red-throated Diver (Annex I species)
- Rafting Manx Shearwater in the breeding season originating from the adjoining colony at Copeland Islands SPA (Species relevant to Article 4.2)
- Foraging Sandwich, Common and Arctic Tern in the breeding season originating from adjoining tern colonies at Larne Lough SPA, Belfast Lough SPA, Copeland Islands SPA, Outer Ards SPA and Strangford Lough SPA (Annex I species).

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

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

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

Waterbird data from annual WeBS programme coordinated by BTO

In recent years the population of Great Crested Grebe on Belfast Lough Open Water SPA has declined. For the period 2008/09 – 2012/13, the mean Great Crested Grebe numbers were 737 wintering individuals (<1% of the international biogeographical population). Great Crested Grebe has been retained as a qualifying species for Belfast Lough as the population is still notable (13.4% all-Ireland population) while the site can be of increased importance e.g. as a cold weather refuge. Retention of such site selection features is in line with agreed UK practice.

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

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

JNCC targeted site survey

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

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

Annex I species	Count and Season	Period	% of population
Sandwich Tern <i>Thalasseus sandvicensis</i>			
Larne Lough SPA	413 pairs Breeding	5 year mean (2010 - 2014)	
Outer Ards SPA	353 pairs Breeding	5 year mean (2010 - 2014)	
Strangford Lough SPA	890 pairs Breeding	5 year mean (2010 - 2014)	
TOTAL	1656 pairs Breeding	5 year mean (2010 - 2014)	44.8 % of the all-Ireland population
Common Tern <i>Sterna hirundo</i>			
Larne Lough SPA	295 pairs Breeding	5 year mean (2010 - 2014)	
Belfast Lough SPA	243 pairs Breeding	5 year mean (2010 - 2014)	
Strangford Lough SPA	370 pairs Breeding	5 year mean (2010 - 2014)	
TOTAL	908 pairs Breeding	5 year mean (2010 - 2014)	21.6 % of the all-Ireland population
Arctic Tern <i>Sterna paradisaea</i>			
Belfast Lough SPA	53 pairs Breeding	5 year mean (2010 - 2014)	
Outer Ards SPA	141 pairs Breeding	5 year mean (2010 - 2014)	
Copeland Islands SPA	954 pairs Breeding	5 year mean (2010 - 2014)	
Strangford Lough SPA	203 pairs Breeding	5 year mean (2010 - 2014)	
TOTAL	1351 pairs Breeding	5 year mean (2010 - 2014)	38.6 % of the all-Ireland population

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

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

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

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

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

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

Waterbird data from annual WeBS programme coordinated by BTO

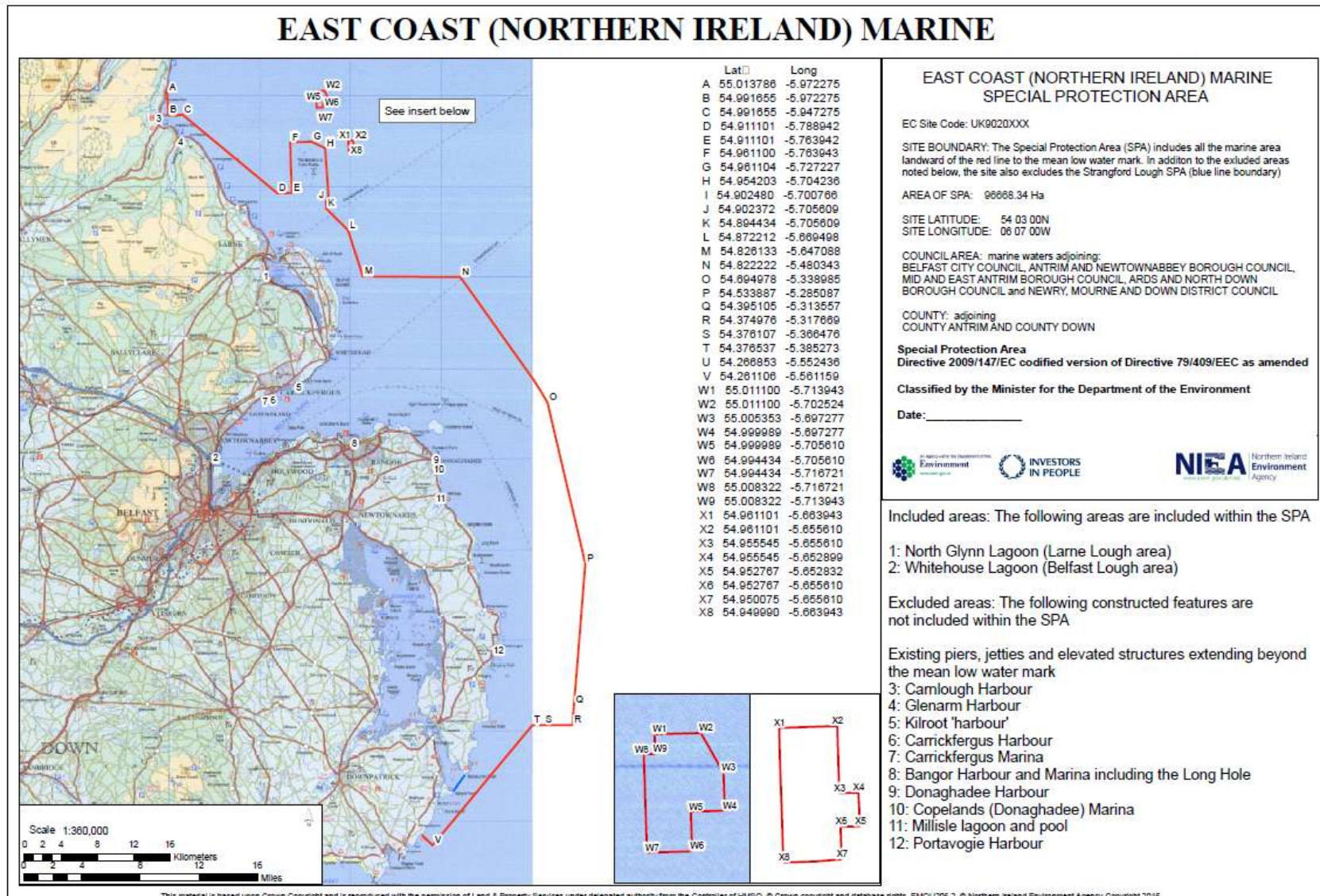


Figure 2: East Coast (Northern Ireland) proposed SPA (landward of red line to mean low water mark)

4.2 Conservation Objectives

A conservation objective is a statement of the desired ecological quality of a feature (habitat, species or geological) for which a SPA is designated. The conservation objective establishes whether the feature condition meets the desired state and should be maintained, or falls below the desired state and should be recovered to favourable condition.

The proposed East Coast Marine SPA seeks to contribute to the protection of the selection features noted above (section 4.1).

The overall conservation objective for the proposed East Coast Marine SPA will be: (for complete information, the site conservation objectives should be read) **to maintain the associated feature populations in favourable condition (to achieve stable or increasing populations with reference made to these populations at time of designation) together with the habitats on which they depend.**

4.3 Assessment of Management Options

A number of activities take place in or adjacent to the proposed East Coast Marine SPA and the designation, which may entail implementing management measures, and so could have an impact on these activities.

The management options considered for each activity were either to reduce or limit pressures, or to remove or avoid pressures altogether.

Note that the Department recognises the consequences that any change in activity could have and has attempted to limit these where possible. The Department's aim is to achieve the conservation objectives with the least possible impact on the activities in the area. Therefore, the selection of management options can be attributed to the achievement of these aims. In addition, where there is a low level of specific activity the impact is assumed to be negligible.

Table 4.1 below outlines each activity and the possible management options. The subsequent table (5.1) shows the preferred management option for each activity and an indication of the possible impact.

Table 4.1: East Coast (Northern Ireland) Marine Activities and Management Issues

Issue	Threat/comments	Local considerations	Action
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, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors.	Licensed aquaculture areas in Larne Lough and Belfast Lough especially.	Liaise with DARD Fisheries Division. Assess all licence applications individually. Current extent of licences may significantly alter seabed conditions. Consider the collective impact.
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.
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.
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	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.

	zones.		
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.
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.
Habitat quality – open water	Alteration of habitat quality through diminution of water quality or invasive species.	Historically impacted by industrial and sewage 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 Water Management Unit as required with regard to water quality issues and pollution incidents. 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.
Marine renewable energy developments	Potential for disturbance and direct impact to birds in flight and actively feeding (diving)	No site related proposals at time of writing. Potential for impact from schemes elsewhere	Assess planning and marine licensing applications. To be addressed through HRA process.
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, wildfowling etc) may be a significant	Liaise with local authorities and other managing parties.

		factor for wintering bird populations	
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.
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.

5. Summary impact table

Table 5.1 summarises the impacts of the two proposed SPAs.

Table 5.1: Summary of Impact

Activity	Impact on Activity Due to SPA proposals	
	Carlingford Lough and marine extension	East Coast Marine
Aquaculture	Moderate	Moderate
Discharges/waste disposal	Low	Low
Fishing	Low	Low
Energy production	Moderate	Moderate
Extraction	Low	Low
Infrastructure	Moderate	Moderate
Marine traffic	Low	Low
Recreation and Tourism	Low	Low
Scientific research	Low	Low

As shown in Table 5.1, generally the impact on activities which take place within the SPA proposed areas is deemed to be Moderate to Low. Impact should be viewed as primarily relating to new projects, development proposals or activities. The impact will typically relate to the scale of assessment (Habitat Regulations Assessment) such proposals may be subjected to. Reviews of existing permissions or activities may be also undertaken.

6. Public Sector Costs

Implementaiton of the SPA proposals is likely to result in costs to the public sector including:

- Preparation of designation and management documents;
- Development of voluntary measures;
- Site monitoring;
- Compliance and Enforcement;
- Promotion and Marketing; and
- Regulatory & advisory costs associated with licensing decisions.

To provide an indication of possible scale, figures have been taken from the impact assessment for designating Marine Conservation Zones (MCZs) in England and Wales³.

The English impact assessment estimated a cost to the public sector of £0.591m per annum (2010 prices) for licence application costs and managing the MCZs; this covered designation of 28 sites (although only 27 were designated in the first tranche). Using this as a simple proxy, and updating to 2016 prices, the cost to the public sector in NI is estimated to be £93,000 per annum based on number of sites⁴ or £8,000 based on total area⁵. Therefore, costs are estimated to range from £0.008m - £0.093m per annum.

7. Benefits

Designation of these SPAs will help to conserve the range of biodiversity in NI waters. It will complement other types of designation and provide an essential contribution to establishing an ecologically coherent network of marine protected areas throughout the UK. In the absence of the SPAs, there would be areas of NI's marine environment, and a high number of species and habitats, that would

³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82721/mcz-designate-ia-20121213.pdf

⁴ Uplifted costs estimated for 4 sites instead of 28

⁵ NI's total area of pMCZs is 116.86km²; England & Wales is 10,100km²

continue to be unprotected. It is worth noting that coastal waters contain over 50% of the region's biodiversity.

On designation, appropriate management will reduce the risk that the extent, population, structure, natural environmental quality and processes of features protected will decrease or degrade over time. The risk that the features will be adversely affected by human activities is greater if not protected by an SPA. In addition, beyond a certain point of degradation, changes to ecosystems may be large and irreversible, resulting in a significant societal cost. Avoiding such a reduction in ecosystem services is thus a key benefit of designation.

While it may not be possible with current levels of research to monetise benefits, it is clear that many of the benefits relate to aspects of our lives that we take for granted and for which it is good practice and common sense to maintain through protection measures such as SPAs.

Designating sites and implementing the management options should help to achieve the conservation objectives (sections 3.3 and 4.3) for each site. This should result in other benefits accruing linked to biodiversity including tourism, fishing and aquaculture which, in turn, can have a positive impact on the economy.

8. Enforcement

The regulation, policy and enforcement of marine activities remain the responsibility of the relevant public authorities.

9. Monitoring

An evaluation of the SPA features will be undertaken on an ongoing basis with not less than 6 years between monitoring exercises.

10. Small and Micro Business Impact

As set out above, the overall impact is likely to be Low.

11. Recommendation

It is recommended that the SPA proposals outlined in this report are designated and managed to achieve the stated conservation objectives.