



Marine Protected Areas in Northern Ireland

Introduction

Marine and coastal environments are important ecosystems for the provision of ecosystem services to sustain societal and ecological livelihoods, through the goods and services it provides. The marine environment of Northern Ireland/North of Ireland are home to some of the most internationally important and biologically diverse habitats and species. It is important that these environments are managed in an appropriate way for the maintenance of the social, environmental and economic well-being of our society. As of 2014, 14% of our waters are afforded some protection based on a network of protected areas¹.

There are several types of Marine Protected Areas (MPA) in the Northern Ireland, which in combination are intended to form an 'ecologically coherent and well-managed network' as a contribution to the effective conservation and sustainable use of the Northern Ireland's marine environment. The term "MPA" is

*"Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment"*²

MPAs designate a wide range of marine areas which "have some level of restriction of activity to protect living, non-living, cultural and/or historic resources"³. They are designated primarily to

*"Help conserve or recover nationally significant or representative examples of marine biodiversity, including threatened or declining species and habitats of European and national importance"*⁴

MPAs are one of the tools that can help to protect the marine environment, whilst also enabling its sustainable use, ensuring it remains healthy and contributes to our society for generations to come.

In Northern Ireland various forms of MPA have been designated under different legislations at both national and international levels due to international agreements and national legal obligations. Within the MarPAMM Regions from the North Channel- North Coast and Co. Down – Co. Louth there are 37 areas covering MPA 44 designations for nature conservation. This report will discuss each of these sites explicitly in terms of the specific protection and conservation.

Northern Ireland Marine Protected Area Network

The Northern Ireland Executive through the Department of Agriculture, Environment and Rural Affairs (DAERA), is committed to the continued development and enhancement of a well-managed

¹ DAERA, 2014. A Strategy for Marine Protected Areas in the Northern Ireland inshore region.

² International Union for Conservation of Nature – Dudley, N (Editor), 2008. Guideline for applying Protected Area Management Categories. Gland, Switzerland, p8.

³ Joint Administrations Statement, 2012. UK Contribution to Ecologically Coherent MPA Network in the North East Atlantic.

⁴ DEFRA, 2016. Marine Conservation Zones: Update.

and ecologically network of MPAs from a devolved perspective and through the UK's contribution to the OSPAR network.

International Designations

Special Protection Areas (SPA) are sites that have been designated for seabirds of European importance and are classified under the Wild Birds Directive. Species listed under Annex I of this Directive, including Razorbill, Guillemot and Kittiwake are protected, along with their essential habitats. The Directive requires measures to be taken to maintain populations of all naturally occurring birds.

Special Areas of Conservation (SAC) are sites designated under the Habitats Directive for habitats of European Importance. SACs are designated for habitats and species listed under Annex I and II of the EC Habitats Directive, such as reefs and sandbanks. The Habitats Directive requires Member States to take measures that contribute to the conservation of biodiversity by maintaining or restoring certain habitats and species at a favourable conservation status. The Habitats Directive was transposed by The Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 and is required to identify and protect a series of Special Areas of Conservation (SACs).

Collectively SPAs and SACs are known as the Natura 2000 network which is a European network of nature conservation protected areas. This network is the cornerstone of Europe's nature conservation policy, protecting important habitats and also laying out a strict system of species protection in order to protect biodiversity.

Where a SPA or a SAC incorporates a subtidal and/or an intertidal area, they are also referred to as 'European Marine Sites' (EMS). EMSs are areas at sea that are designated to protect wildlife and habitats that are important at a European level. They are created under EU Legislation. There are two types of EMS: Special Protection Areas (SPAs) which protect birds and their essential habitats and Special Areas of Conservation (SACs) which protect other wildlife and important habitats⁵.

The UK is signed up to is the "Convention on Wetlands of International Importance", the Ramsar Convention 1971. The convention solely focuses on the sustainable use of wetlands, to ensure their effective management. The convention has a commitment to international coordination on transboundary and shared wetland and species.

National Sites

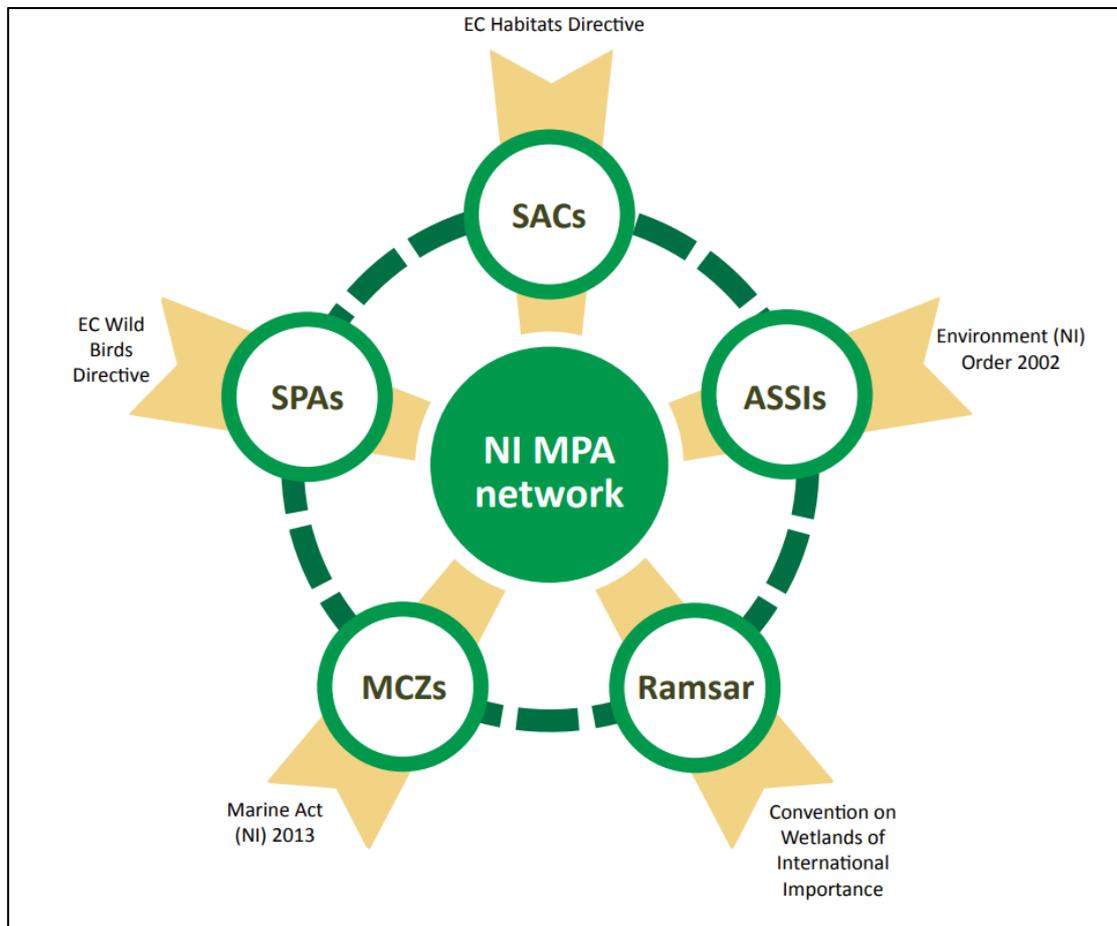
Across the UK, each devolved administration has the power to create Marine Protected Areas to conserve nationally important wildlife and habitats. These national sites have different names in the devolved nations of the UK. The Marine Act (Northern Ireland) 2013, establishes a strategic system of marine planning within the inshore region (out to 12 nautical miles) and helps to streamline the process of marine licensing. The Act enables the delivery of an "ecologically coherent network of Marine Protected Areas", through giving DAERA the power, with the agreement of the Secretary of State, to designate MPAs, called Marine Conservation Zones (MCZ).

Areas of Special Scientific Interest (ASSIs) are designated under The Environment (Northern Ireland) Order 2002. It contains powers for the protection of nationally important flora and fauna within

⁵ DAERA, 2014. A Strategy for Marine Protected Areas in the Northern Ireland inshore region

Northern Ireland. Schedules of listed nationally important habitats and species include reference to coastal and marine features, including mudflats and common seals.

Figure 1: Ecologically coherent network of Northern Ireland's Marine Protected Areas



Source: DAERA, 2014

Other Notable International Obligations

- The OSPAR Convention to develop an ecologically coherent network of well-managed MPAs by 2016;
- The World Summit for Sustainable Development (WSSD) in 2002 to establish a representative network of MPAs;
- The Water Framework Directive, transposed into the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003; and
 - Sets out that Member States must aim to achieve good chemical and ecological status in identified water bodies by 2015. This includes transitional (estuarine) and coastal waters out to one nautical mile.
- The Marine Strategy Framework Directive (MSFD) (2008) requires that Member States prepare national strategies to manage the seas to achieve or maintain Good Environmental Status.
 - The UK Marine Strategy replaces MSFD post-Brexit and provides the framework for delivering marine policy at the UK level and sets out how we will achieve the vision of clean, healthy, safe, productive and biologically diverse oceans and seas.

Marine Protection Designations in the North Coast / North Channel Region Northern Ireland⁶

Special Protection Areas

Lough Foyle SPA

The Lough Foyle SPA covers an area 2204.36 hectares and is situated within Lough Foyle on the north coast of Northern Ireland immediately downstream and extending to the north-east of the city of Londonderry/Derry. The site is comprised of a large shallow sea lough which includes the estuaries of the rivers Foyle, Faughan and Roe. The site contains extensive intertidal areas of mudflats and sandflats, saltmarsh and associated brackish ditches.

The site qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting, in winter, internationally important numbers of the following species: Light-bellied Brent Goose *Branta bernicla hrota* (the five year peak mean for the period 1991/92 to 1995/96 was 3730 which comprises 18.7% of the international population) and Bar-tailed Godwit *Limosa lapponica* (the five year peak mean for the period 1991/92 to 1995/96 was 1896 which comprises 1.9% of the international population}. Additionally, the site also qualifies under Article 4.2 of the Directive by supporting over 20,000 migratory waterfowl. Peak numbers averaged 36,599 birds in the five years between 1991/92 and 1995/96. This total includes the internationally important species listed above and the following waterfowl species which are nationally important in an Island of Ireland context.

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SPA Conservation Objectives [Report](#) are available on Page 8.

Rathlin Island SPA

Rathlin Island is a large inhabited marine island situated some 4km from the north Antrim coast of Northern Ireland. There are basalt and chalk cliffs, some as high as 100 metres, as well as several sea stacks on the north and west shores of the island. The south and east shores are more gently sloping with areas of maritime grassland and rocky shore. The length of the coastline is approximately 30km.

The site qualifies under article 4.1 for supporting nationally important numbers of the Annex 1 species peregrine falcon. Additionally, under Article 4.2 of the Directive the site qualifies by supporting internationally important breeding numbers of the following migratory species: Razorbill *Alca torda*, Guillemot *Uria aalge* and Kittiwake *Rissa tridactyla*. The most recent complete seabird census was carried out in 1985 and the following numbers of individuals of the above species were recorded: Razorbill 8,922 (4.8% International population, 17.8% of the Irish population) and Guillemot 41,887 (3.4%, 41.8%). A total of 6,822 pairs of Kittiwake were also recorded representing 1.2% of the international population and 15.1 % of the Irish population. The site also qualifies under Article 4.2 by regularly supporting over 20,000 breeding seabirds. The 1985 census indicated an assemblage of approximately 66,000 breeding birds on Rathlin Island.

⁶ All information and Background Context presented in the sections below have been taken from a wide array of DAERA or historic DOENI reports on SPAS, SACs, MCZS and ASSIs.

Rathlin Island has a [management scheme](#) developed in 2013 through the Rathlin Island Forum and the Rathlin Island Environmental Forum.

Outer Belfast Lough/ Belfast Lough Open Water SPA

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 SPA covers an area of 5592.99 ha. The site supports internationally important numbers of Redshank, and populations of Great Cormorant, Red-breasted Merganser, Ringed Plover, and Tumstone that are significant in an all-Ireland context.

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SPA Conservation Objectives [Report](#) are available on Page 7.

Special Areas of Conservation

Rathlin Island SAC

Rathlin Island is surrounded by a wide range of coarse sediment and rocky habitats. Strong tidal streams prevail around most of the island. The SAC covers an area of 3344.62ha. The site qualifies under European interests with Sandbanks which are slightly covered by sea water all the time. Subtidal sandbanks are permanently covered by sea water to depths of up to 20 metres below low water can include muddy sands, clean sands, gravelly sands, eelgrass *Zostera marina* beds, and maerl beds (carpets of small, unattached, calcareous seaweed).

Additionally, the site hosts reefs, which are considered to be one of the best areas in the United Kingdom. Reefs are areas of rock or biological concretions formed by various invertebrate species. Reefs occur in the subtidal zone, but may extend onto the shore. They form the habitat for a variety of biological communities such as those characterised by encrusting animals and attached seaweeds.

The area has submerged or partially submerged sea caves, which is considered to be one of the best areas for sea caves in the United Kingdom. Sea caves are tunnels or caverns on the shore or below the sea surface in which vertical or overhanging rock surfaces form the main habitat. They are typically colonised by encrusting animal species.

Rathlin Island has a [management scheme](#) developed in 2013 through the Rathlin Island Forum and the Rathlin Island Environmental Forum.

Red Bay SAC

Red Bay SAC is sited within the northern part of Red Bay. Red Bay is the largest embayment of the east Antrim coastline outside Larne Lough, and measures approximately 9.5km across the mouth of the bay as measured from Garron Point in the south to Tornamoney Point north of Cushendun village. The bay is open to the east and sheltered from westerly winds by the Antrim Coast and Glens Area of Outstanding Natural Beauty. The SAC area covers 965.54 hectares.

The SAC contains the qualifying features of sandbanks slightly covered by seawater at all times. The sandbanks are composed of maerl, sub-fossil maerl, coarse sands, gravels and cobbles. The sandbank is comprised of relic drowned drumlins from the last ice-age ca 15000 yr BP. The Red Bay sandbanks are dominated by both living maerl and sub-fossil maerl.

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SAC Conservation Objectives [Report](#) are available on Page 9.

Skerries and Causeway SAC

The Skerries and Causeway SAC is situated in the north coast of Northern Ireland and is the eastern part of a 30km wide embayment that has the Inishown peninsula to its west and Benbane Head to its east. The site is next to the coastline of Portstewart, Portrush, Bushmills and the Giant's Causeway World Heritage Site. The site is influenced by the warming gulf stream and by strong tidal currents that flow through the North Channel to and from the Irish Sea. As the site is open to the Atlantic it can have considerable wave action but is relatively sheltered from other prevailing swells and includes areas of relative shelter behind the Skerries islands. The SCA area is 10867.43 hectares.

The SAC contains the qualifying features of sandbanks which are slightly covered by seawater all the time. Located both in the area shallower than 20m and in the deeper flanks and sandwaves there are a diversity of sandbank types and communities. The SAC contains the qualifying features of reefs a diversity of reef type and community structure from bedrock and stony reefs; flat, sloping and terraced bedrock reef; vertical reef; silt covered and sand scoured reefs; coastal shallow reefs and reefs that are five miles from the coast and extend over 90m deep. The varied reef types and conditions support a number of rare and priority species.

The Skerries and Causeway coastline is predominantly characterised by rocky cliffs. Some of these cliffs have 30 estimated submerged or partially submerged sea caves. As well as these caves in coastal cliffs there are a number of fully submerged caves, including one in Great Skerrie Island. The sea caves exhibit a wide range of size, shape, water depth, rock type (i.e. Basalt) and aspect relative wave surges and tides.

The SAC has recorded the presence of Harbour Porpoise through a 6-year monitoring (2004- 2010) through both the NIEA Cetacean Monitoring Programme and the Irish Whale and Dolphin Group observer programme. Harbour porpoises have been recorded more than 140 times in effect watches at 6 sites within the SAC boundary.

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SAC Conservation Objectives [Report](#) are available on Page 10.

The Maidens SAC

The Maidens SAC is a group of rocky reefs detached from the, north east of Larne, Northern Ireland. This area is identified as a group of small rocky reefs either awash or just emergent. Only in two locations are they large enough to be considered as islands, namely West Maiden, which has a disused lighthouse and Easy Maiden which supports the present lighthouse. As well as the main reef plateau there are four other reef areas at North Klondyke Shoal (submerged), Outer Klondyke Pinnacle (submerged), small unnamed reef north west of West Maiden and Hunter Rock.

The reefs of The Maidens stand in the strongly tidal North Channel that connects the Atlantic to the Irish Sea. Tidal strengths can be up to 2.5 knots, but this can increase to 4 knots as the tide rises over the plateaus of The Maidens. The tidal conditions, relative shelter from wave action and the proximity to deep upwelling water are partly responsible for rare habitats and other habitats.

The area of The Maidens between East and West Maidens, continuing west to Sheaffing Rock is classed as sandbank which is slightly covered by sea water at all times, there is a small but important mearl bed with rare algal species. The Maidens reef is recognised as an area of conservation

importance⁷ and it supports very rare communities of hydroids and sponges. The area contains approximately 50ha of sandbank in less than 20m water depth and 150ha of sandbank representing the flanks down to 40m. The Maidens is important habitat for a relatively small grey seal population. Grey Seals have been recorded during NIEA surveys at eight separate haul-outs within the Maidens. Surveys conducted in 2009 highlighted the use of the Maidens by 30-40 grey seals, including pupping and breeding.

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SAC Conservation Objectives [Report](#) are available on Page 11.

Marine Conservation Zones

Rathlin Island MCZ

Rathlin MCZ has been designated for Deep-sea bed, Black guillemot and Geological/Geomorphological features. The MCZ contains the only known location of the broad scale habitat, Deep-sea bed in Northern Irish waters. Deep-sea bed Predictive seabed habitat mapping (JNCC EU Seamap, 2011) shows that Rathlin Island is surrounded by a wide range of rocky and sandy habitats with Deep-sea bed habitat (depth ranging from 200-260m) to the north of Rathlin. Surveys carried out in 2014 and 2015 identified areas of deep mobile sediment interspersed with stony reef and other areas of cobbles and boulders. The uniqueness of the Deep-sea bed habitat in Northern Ireland warrants its inclusion as a MCZ feature. In addition, due to the strong tidal currents and exposed nature of the site, it is thought mobile gear fishing does not regularly occur within the northern MCZ extension to the existing SAC boundary. This suggests that the seabed may be in a near natural or undisturbed condition.

The waters between Bull Point and Church Bay have been designated as they support a large population of breeding Black guillemot. The sea-bed in this area comprises a mosaic of well-mixed medium sediment, muddy gravel, sand and 3 coarse shell, interspersed with occasional boulders and cobbles. The Church Bay area is used primarily for loafing and display activities, particularly in relation to breeding behaviour. Productive waters in the area create feeding hotspots for fish, which in turn support the bird population. Black guillemots are pursuit divers that typically feed close inshore where the seabed is rocky with dense kelp stands preying mainly on butterfish and blennies. The nesting site for Black guillemot is located on the cliffs of Rathlin Island and they are afforded indirect protection through the SAC (Annex I Habitat is Vegetated sea cliffs) and SPA (Annex II breeding seabird population which also nest on the cliffs) designations.

Geological Features Acoustic survey work carried out as part of the Joint Irish Bathymetric Survey (JIBS) in 2008 provided previously uncharted seabed features indicating global sea-level change. This was associated with the retreat of the last ice sheet 20,000 years ago and includes a submerged lagoon on the north east coast of the island and a shallow shelf dropping off sharply to over 200m to the north west of the island. The combined heights of the submerged and terrestrial cliffs make them the third highest in the UK. Submerged cliffs, gullies, arches and caves were recorded in different dive surveys (from 1984 to 2013).

Activities and Potential Management Options are located in the Rathlin Island MCZ [Report](#) on Page 17.

⁷ Erwin, D.G., Picton, B.E, Connor, D.W, Howson, C.M., Gilleece, P., & Bogue, M.J., 1986. The Northern Ireland Sublittoral Survey. Belfast: Ulster Museum.

Waterfoot MCZ

Waterfoot MCZ is located in a small embayment offshore from the village of Waterfoot (within the wider Red Bay area) on the east coast of County Antrim, Northern Ireland. Waterfoot MCZ has been designated for Seagrass bed (*Zostera marina*) on Subtidal (sublittoral) sand.

Zostera marina is a marine flowering plant (angiosperm) with long leaves up to 1-2m long. This seagrass species forms dense beds in sheltered bays, loughs and lagoons from the lower shore to approximately 5m depth. Subtidal seagrass beds play an important role in coastal ecosystems and are known as ecosystem engineers.

Activities and Potential Management Options are located in the Waterfoot MCZ [Report](#) on Page 14.

Outer Belfast Lough MCZ

Belfast Lough is a large sea inlet situated at the mouths of the Lagan, Farset and Blackstaff Rivers on the eastern coast of Northern Ireland. Outer Belfast Lough MCZ is an exposed area and is located within Northern Ireland's busiest sea-lough. Home to a variety of species, the Outer Lough encompasses a wide range of habitats such as subtidal sand and subtidal mixed sediments, sediment dominated bays and rocky shores. The Subtidal (sublittoral) sand habitat in the MCZ provides an ideal substrate for the long-lived Ocean quahog *Arctica islandica*. The MCZ has been designated due to the presence of a well-established population of Ocean quahog that lives buried in the sediment. Although distributed throughout Northern Ireland, Ocean quahog is present in a dense aggregation in Outer Belfast Lough; it is thought that the species is well conserved here due to continuous recruitment and high population numbers

The Ocean quahog *Arctica islandica* is a large suspension feeding bivalve mollusc that can reach over 400 years in age. The oldest recorded Ocean quahog from Belfast Lough was approximately 220 years old. This species can survive for long periods of time buried in the sediment, enabling it to avoid predation.

Activities and Potential Management Options are located in the Waterfoot MCZ [Report](#) on Page 15.

Coastal Areas of Special Scientific Interest

Lough Foyle ASSI

The fauna of Lough Foyle includes a large and diverse population of waders and other bird species and regularly supports a wintering bird assemblage of over 5,000 waterfowl. The ASSI supports internationally important populations of water birds including the Great Crested Grebe and the Great Cormorant.

Overwintering species whose numbers are sufficient to qualify the species as important in an all-Ireland context include the following: Great Crested Grebe *Podiceps cristatus* (220, 7.3%), Eider *Somateria mollissima* (50, 2.5%), Greylag Geese *Anser anser* (67, 1.7%) and Red-breasted Merganser *Mergus serrator* (73, 3.7%). The Lough Foyle ASSI covers 2004.97 hectares.

Feature	MPA Type
Great Cormorant	ASSI
Eider	ASSI
Great Crested Grebe	ASSI
Greylag Goose	ASSI

Red-breasted Merganser	ASSI
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Bann Estuary ASSI

The Bann Estuary area is of special scientific interest because of its coastal physiography and habitats. These include a series of sand dune systems, which contain important historical information on climatic and sea-level change. The dunes and estuary support important plant communities including saltmarsh. In addition, a number of rare species have been recorded.

Within the river estuary itself, much of the river is fringed by saltmarsh. Typical species include Sea Club-rush *Bolboschoenus maritimus*, Common Scurvygrass *Cochlearia officinalis* and Sea-milkwort *Glaux maritima*, while the Whorled Caraway *Carum verticil/atum*, which is restricted in distribution to the north and west, is also present. Parsley Water-dropwort *Oenanthe lachenalii* is widespread throughout the saltmarsh to the south of the river. Moving inland, the saltmarsh grades into fen and drier grassland in places.

The Bann Estuary is used by significant numbers of passage and wintering waders and wildfowl. It is strategically placed for birds entering and leaving Ireland along the Lough Neagh/Bann system. Winter populations of 3000 Lapwing *Vanellus vanellus*, 1200 Golden Plover *Pluvialis apricaria* and 300 Curlew *Numenius arquata* are frequent. Breeding species include Shelduck *Tadorna tadorna*, Redshank *Tringa totanus*, Snipe *Gallinago gallinago* and Lapwing *Vanellus vanellus*. The Bann Estuary ASSI covers 347.94 hectares.

Feature	MPA Type
Coastal Saltmarsh	ASSI
Breeding Bird Assemblage	ASSI

Giant's Causeway and Dunseverick ASSI

The Causeway area is notable for its maritime cliff plant communities. The diversity of these habitats and associated floristic communities are influenced by exposure to marine conditions and sea spray, soil depth, aspect, slope and degree of water-logging, together with past and present management practices, particularly grazing regimes. Saltmarsh is restricted to the more sheltered bays, occurring both in perched and inundation situations, the former maintained by sea spray. Invariably dominated by Saltmarsh Rush *Juncus gerardii*, other typical species include Common Scurvygrass *Cochlearia officinalis* and Sea Sandwort *Honckenya peploides* with patches of Sea Club-rush *Bolboschoenus maritimus*. Notable shoreline species include Oysterplant *Mertensia maritima* and Saltmarsh Flat-sedge *Blysmus rufus* while Scots Lovage *Ligusticum scoticum*, although sparsely present throughout the site, is more frequent along the shore. Saltmarsh generally forms in the upper parts of intertidal mudflats, usually in more sheltered coastal locations. The vegetation typically shows a succession from lower marsh communities to upper marsh communities depending upon the extent of tidal inundation. Saltmarshes provide valuable habitat for invertebrates and birds, and act as nursery sites for several fish species. The ASSI is notable for the presence of areas of perched saltmarsh on cliff-tops, maintained by sea spray. Coastal processes are complex and the management of saltmarshes should take into account the need to maintain or restore, where necessary, the natural processes of sediment movement and the dynamics of saltmarsh succession. The Lough Foyle ASSI covers 226.33 hectares.

Feature	MPA Type
Coastal Saltmarsh	ASSI

Sheep Island ASSI

Sheep Island ASSI holds more than 5% of the all-Ireland breeding population of Great Cormorant. Breeding cormorants are highly social. They require undisturbed nest sites, secure from predators and close to abundant fish stocks. The Great Cormorant colony on Sheep Island is dependent on the island remaining free from human activity and predatory mammals during the nesting season and on the continuing abundance of local marine and freshwater fish resources. The Sheep Island ASSI covers 3.5 hectares.

Feature	MPA Type
Great Cormorant	ASSI

Carrickarde ASSI

The island of Carrickarde and the adjoining mainland represent a section through an explosive volcano which is unique in its extent in the whole of the Tertiary igneous province of Northeast Ireland. The area has a number of important animal species present. Breeding birds are a conspicuous element of the site with regular records of twite (*Carduelis flavirostris*), a rare breeding species in Northern Ireland. Small populations of seabirds include Kittiwake (*Rissa tridactyla*), Guillemot (*Uria aalge*) and Razorbill (*Aka torda*). The Carrickarde ASSI covers 9.2 hectares.

Feature	MPA Type
Breeding Bird Assemblage	ASSI

Castle Point ASSI

Castle Point, located on the shoreline of Ballycastle has been declared an ASSI because of its important geology and intertidal communities. There are two types of rock at Castle Point; basalt (part of the Antrim Lava Group) and limestone (part of the Ulster White Limestone Formation). The basalt dates from the Palaeogene (60 million year old) and the limestone from the Cretaceous and is some 80 million years old. It is the limestone that holds the most important geological features. The area is also notable for its intertidal communities. An extensive limestone wave cut platform on a moderately exposed shore supports many wide and shallow rock pools and crevices. The Castle Point ASSI covers 8.54 hectares.

Feature	MPA Type
Intertidal Rock	ASSI

Rathlin Island ASSI

The Rathlin Island Coast ASSI supports the largest aggregation of breeding seabirds in Northern Ireland. The site holds numbers of Fulmar, Puffin, Common Gull, Lesser Black-backed Gull, Herring Gull and Great Black-backed Gull that are important in an all-Ireland context. The suitability of the site for breeding seabirds is largely dependent on its physical structure. This determines the availability of nest sites and may reduce the vulnerability of nests to predators, It is therefore

important that the physical integrity of the site is maintained as far as is possible, taking into account natural processes.

Rocky shores around Rathlin Island are an important habitat for wildlife. The intertidal, or littoral, zone is composed of a variety of different habitats and communities, including rock pools, bedrock ledges and platforms, gullies, crevices and boulder fields, and sea caves. A diverse range of seaweeds and marine animals are associated with these habitats and most are specially adapted to periods of immersion. The Rathlin Island ASSI covers 257 hectares.

Feature	MPA Type
Fulmar	ASSI
Herring Gull	ASSI
Lesser Black-backed Gull	ASSI
Puffin	ASSI
Breeding Bird Assemblage	ASSI

Fair Head and Murlough Bay ASSI

Situated on the north-east coast of Northern Ireland, the tall cliffs of Fair Head and Murlough Bay ASSI stand over 200m above the sea below. The ASSI is notable for its intertidal rock communities. The intertidal area is typical of the North Antrim Coast shoreline and can be divided into five sites. These sites range from an exposed boulder shore with a narrow tidal range at Fair Head to a moderately exposed tidal shore made up of metamorphic ridges and sandstone platforms with boulders at Murlough Bay. Fair Head and Murlough Bay is an area of semi-natural habitat managed in a traditional way. As such, it provides valuable feeding and roosting sites for a range of animals, the cliffs provide a regular nesting site for Peregrine Falcon, *Fa/co peregrinus*, with two known nests within the site boundary. County Antrim is a stronghold for this endangered bird of prey. The Fair Head and Murlough Bay ASSI Covers 251.26 hectares.

Feature	MPA Type
Peregrine Falcon	ASSI
Intertidal Rock	ASSI

Galboly ASSI

The area is of special scientific interest because of its geological and geomorphological features, woodland, grasslands (in particular herb-rich calcareous grassland), cliff vegetation, bryophyte-rich scree, dry heath, intertidal communities, rare plants and fungi. Galboly is also notable for its intertidal rock communities. The intertidal area is typical of the North Antrim Coast shoreline. This site ranges from a moderately exposed boulder shore in the upper intertidal with rock pools present, to limestone ridges which run parallel to the shore in the lower intertidal. Galboly is notable for the several biotopes, which are typical of a moderately exposed rocky shore. The Galboly ASSI covers 192.78 hectares.

Feature	MPA Type
Intertidal Rock	ASSI

Larne Lough ASSI

Larne Lough is a sea lough approximately 9 km long whose form was mainly determined in relation to the Larne Lough Fault, which runs in a north-northwest direction. Larne Lough is of botanical interest for its maritime plant communities. These include significant areas of saltmarsh, which is generally a scarce habitat in Northern Ireland, and contain a number of notable plant species. Beds of Narrow-leaved Eelgrass *Zostera angustifolia* are present on the intertidal mudflats. These often give way up-shore to saltmarsh vegetation, which occurs all around the foreshore, but is most extensive at Ballycarry, in the southern end of the lough. The majority of this has plant communities typical of the middle parts of saltmarsh and is characterised by the dominance of Red Fescue *Festuca rubra* and Saltmarsh Rush *Juncus gerardii*.

Some of the saline lagoons on the west shore are also of interest. This is a very rare habitat in Northern Ireland, and the plant communities associated with the transition from open water to terrestrial vegetation are of particular note. The sequence comprises an open water macrophyte community of Eelgrass *Zostera marina*, Spiral Tasselweed *Ruppia cirrhosa*, both of which are rare species, and marine algae.

Larne Lough also holds important numbers of wintering waterfowl, Light-bellied Brent Goose *Branta bernicla hrota* (an average of 202 birds, 1.01% of the international population) are of international importance. Over the period 1989-1993 an average of 6 pairs of Roseate Tern *Sterna dougallii* (1.8% of the European Union's breeding population) was recorded, making this an internationally important area for the species. Nationally important species include the Red-breasted Merganser *Merqus serrator* (180, 9%). The Larne Lough ASSI covers an area of 398 hectares.

Feature	MPA Type
Light bellied Brent Goose	ASSI
Red-breasted Merganser	ASSI
Roseate Tern	ASSI
Saline Laggons	ASSI
Coastal Saltmarsh	ASSI
Breeding Bird Assemblage	ASSI

Portmuck ASSI

The coastal section from McIlroy's Port to Isle of Muck exhibits a range of notable geological and geomorphological features. The cliffs at the Isle of Muck are the site of a small seabird colony, including a notable population of breeding seabirds. The most numerous group are the auks with Razorbill *Alca torda* which utilises a series of small caves and crevices for nesting. The Portmuck ASSI covers 20.18 hectares.

Feature	MPA Type
Razorbill	ASSI

The Gobbins ASSI

The Gobbins cliffs are of importance for their geological interest, breeding seabird colony and a range of maritime plant communities and notable species. The Gobbins is an area of basalt sea-cliffs, up to 60m in height, on the eastern coast of Island Magee, Co. Antrim. The intertidal area is

generally rather narrow, and is dominated by bedrock with wavecut platforms. Most of the site is very exposed with reduced species diversity, but there are some localised pockets of shelter with high furoid cover (Spiral Wrack *Fucus spiralis* and Toothed Wrack *Fucus serratus*) and Channelled Wrack *Pelvetia canaliculata* is present in the more sheltered areas. The area is characterised by an upper splash zone dominated by the lichen *Verrucaria maura*. Occasional upper shore rock pools contain ephemeral species of green algae, including *Enteromorpha* spp. and *Cladophora* spp and the brown alga *Chorda filum*. Shallow eulittoral rock pools are characterised by the red alga *Corallina officinalis*. The Gobbins ASSI covers 27.59 hectares.

Feature	MPA Type
Intertidal Rock	ASSI

Inner Belfast Lough ASSI

Inner Belfast Lough ASSI is a wintering site for large numbers of migratory water birds, As part of the Belfast Lough area it supports internationally important numbers of Redshank, and populations of Great Cormorant, Red-breasted Merganser, Ringed Plover, and Turnstone that are significant in an all-Ireland context. Wintering wildfowl and waders are attracted by a rich food supply and secure roost sites. Wildfowl make use of both open water and shoreline habitats for feeding. The Inner Belfast Lough ASSI Covers 240 hectares.

Feature	MPA Type
Great Cormorant	ASSI
Red-breasted Merganser	ASSI
Ringed Plover	ASSI
Turnstone	ASSI

Marine Protection Designations in the County Down to County Louth Region

Special Protection Areas

East Coast SPA

The proposed East Coast (Northern Ireland) Marine Special Protection Area includes coastal and near shore waters from Ringfad near Carnlough, Co. Antrim in the north, the marine area of Larne Lough, the marine area of Belfast Lough, waters around the 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.

The boundary adjoins the following existing Special Protection Areas – Larne Lough SPA, Belfast Lough SPA, Outer Ards SPA, Copeland Islands SPA, and Strangford Lough SPA. This site also subsumes the existing Belfast Lough Open Water SPA. The landward boundary for this marine area is the mean low water mark, medium tide.

The principal interests are as follows – marine area used by – Non-breeding population of Great Crested Grebe, Non-breeding population of Red-throated Diver, Rafting Manx Shearwater in the breeding season originating from an adjoining colony Foraging Sandwich, Common and Arctic Tern in the breeding season originating from adjoining tern colonies

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SPA Conservation Objectives [Report](#) are available on Page 8.

Killough Bay SPA

Killough Bay encompasses the intertidal areas, and additional adjoining areas of notable habitat. These include mudflats, sand dominated beaches, gravel and cobble units and rocky shore.

The principal interest is the wintering population of light-bellied Brent goose. The boundary of the Killough Bay SPA includes Killough Harbour and Coney Island Bay.

Feature Type	Feature	Population 1992 - 1997	Population at time of designation (ASSI)	Population at time of designation (SPA)	SPA Review population	Generic threshold
Species	Light-bellied Brent Goose ^a	354	354	354	354	354

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SPA Conservation Objectives [Report](#) are available on Page 6.

Carlingford Lough SPA

The Carlingford Lough SPA lies between Killowen Point and Soldiers Point on the northern shores of Carlingford Lough and the landward boundary is entirely coincident with that of the Carlingford Lough Area of Special Scientific Interest. The terrestrial area within the SPA boundary is also entirely coincident with that of the Carlingford Lough Ramsar Site. The terrestrial section of the SPA includes all lands and intertidal areas as shown on the designation map. It also includes the offshore islands of Green Island and Blockhouse, together with their associated islets. The marine section of the site includes areas of open water within the Lough itself and in the area of the Lough mouth seawards to the limits of territorial waters as well as coastal waters northwards to the Bloody Bridge area on the Mourne Coast. The landward boundary for this area is the low water mark, medium tide.

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

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

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

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SPA Conservation Objectives [Report](#) are available on Page 8.

Special Areas of Conservation

Strangford Lough SAC

Strangford Lough is a large (150 km²) marine inlet on the east coast of County Down, of which about 50 km² lies between high water mark mean tide (HWMMT) and low water mark mean tide (LWMMT). The Lough supports an impressive range of marine habitats and communities with over 2,000 recorded species. It is important for marine invertebrates, algae and saltmarsh plants, for wintering and breeding wetland birds, and for marine mammals.

Feature type	Feature	Global Status	Size/ extent/ pop~
Habitat	Large shallow inlet and bay	A	15090.6 ha
Habitat	Coastal lagoons	B	45.0 ha
Habitat	Mudflats and sandflats not covered by sea water at low tide	B	2000.0 ha
Habitat	Reefs	B	1600.0 ha
Habitat	Annual vegetation of drift lines	C	250 km
Habitat	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)	C	75.0 ha
Habitat	Perennial vegetation of stony banks	C	30.0 ha
Habitat	<i>Salicornia</i> and other annuals colonising mud and sand	C	
Species	Harbour (Common) Seal <i>Phoca vitulina</i>	C	210

The Strangford Lough management scheme is intended to safeguard the conservation status of those features within the SPA and SAC. The Scheme sets the framework through which activities will be managed, either voluntarily or through regulation, so as to achieve the conservation objectives of the European marine site. Management of the conservation interests will work to accommodate, and may in some cases encourage, appropriate human activities. Factors, Operations and Processes that may affect the Conservation Features within the [Management Scheme](#) are available on Page 35.

North Channel Candidate SAC

The North Channel Candidate SAC is around the size of County Fermanagh and has been identified for the protection of harbour porpoise. The site includes locations where some of the largest groups of harbour porpoise have been observed around Northern Ireland.

Habitats within the site consist mainly of coarse or sandy sediments, with patches of rock and mud. Water depths reach a maximum of 150m along the eastern boundary, but much of the site lies between 10m and 40m. The site covers important winter habitat for harbour porpoise and extends from the coast into offshore waters.

To ensure the site contributes in the best possible way to achieving Favourable Conservation Status, the Relevant and Competent Authorities should consider the need for managing human activities within their remit which might affect (directly or indirectly) the integrity of the site, with regards to its Conservation Objectives⁸.

Murlough SAC

Murlough SAC adjoins Dundrum Bay and includes the shallow waters of the Bay itself, it is of importance as the largest area of shallow sub-littoral sandbanks in Northern Ireland. The intertidal sands and muds are also extensive, the beach area at Ballykinler is important as a haul-out for Common Seal.

Atlantic salt meadows (*Glauco-Puccinellietalia maritima*), is considered to support a significant presence. This habitat encompasses saltmarsh vegetation containing perennial flowering plants that are regularly inundated by the sea. The species found in these saltmarshes vary according to the duration and frequency of flooding with seawater, geographical location and grazing intensity.

Mudflats and sandflats are not covered by seawater at low tide. Mud and sand sediments on the shore that are exposed at low tide but submerged at high tide. Many sites are important feeding areas for waders and wildfowl.

It has sandbanks which are slightly covered by sea water all the time for which the area is considered to support a significant presence. It also comprises of subtidal sandbanks, which are sandbanks permanently covered by sea water to depths of up to 20 metres below low water. These can include muddy sands, clean sands, gravelly sands, eelgrass *Zostera marina* beds, and maerl beds (carpets of small, unattached, calcareous seaweed).

Common Seal *Phoca vitulina*, which the area is considered to support a significant presence. About 50% of the European Union population of common seals breed in the UK. Common seals range around the shore of the UK and are the characteristic seal of sandflats and estuaries, but are also found on rocky shores in Scotland.

Management considerations including, Main Threats, Pressures, Activities with impacts on the site or site features within the SAC Conservation Objectives [Report](#) are available on Page 10.

Marine Conservation Zones

⁸ JNCC, 2019. Special Area of Conservation – North Channel SAC.

Outer Ards Proposed MCZ

The Outer Ards Areas of Search, is linked to the Strangford Lough biogenic reef restoration plan. The inclusion of areas of search, including the Outer Ards Area would greatly increase the biodiversity and recovery of Northern Ireland's waters, help achieve OSPAR and MSFD measures to achieve favourable conservation status of key threatened habitats, recover modified ecosystems, and move Northern Ireland's seas towards Good Ecological Status⁹.

Strangford Lough MCZ

Strangford Lough's 1995 designation as a Marine Nature Reserve (MNR) has now been superseded by the Marine Act (Northern Ireland) 2013: Strangford Lough MNR became Strangford Lough Marine Conservation Zone (MCZ) when this legislation came into operation on 17 September 2013.

Strangford Lough also qualifies as a Ramsar site because of its international importance as a wetland which supports important wetland features and internationally important numbers of wintering and breeding birds (Strangford Lough and Lecale Partnership, 2018).

MPA Type	Feature
MCZ	Sublittoral (subtidal) sand: Seagrass (<i>Zostera</i>) beds
MCZ	Sublittoral (subtidal) muds: Sea-pen and burrowing megafauna communities
MCZ	Sublittoral (subtidal) mixed sediments: Brittlestar beds
MCZ	Sublittoral (subtidal) biogenic reef: Blue mussel beds
MCZ	Intertidal biogenic reef

Carlingford Lough MCZ

The MCZ consists of a shallow subtidal area of fine mud encompassing 3.23km². The MCZ has been designated as it supports the habitat *Philine aperta* (White lobe shell) and *Virgularia mirabilis* (Seapen) in soft stable infralittoral mud. This habitat is only present in Carlingford Lough. The biotope 'Philine aperta and Virgularia mirabilis in soft stable infralittoral mud' is characterised on the basis of its epifauna. The habitat created by the Sea-pens offer shelter, food and oxygen to a diverse range of small benthic infaunal organisms such as the very rare sea cucumber, *Ocnus planci*, which has regularly been observed in the MCZ.

Activities and Potential Management Options are located in the Carlingford Lough MCZ [Report](#) on Page 14.

Coastal Areas of Special Scientific Interest

Ballymacormick Point ASSI

The area is of special scientific interest because of the diversity of wildlife that it supports. Ballymacormick Point lies on a low, indented, rocky coastline with small promontories, sandy bays and islands. The littoral sediments support a wide variety of marine invertebrates that represent an important food source for many fish and bird species. The Ballymacormick Point ASSI covers an area 39 hectares.

Feature	MPA Type
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⁹ Marine Conservation Society, 2016. Outer Ards Proposed MCZ.

Mudflats	ASSI
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Copeland Islands ASSI

The Copeland Islands ASSI is located off the County Down coast and comprise Big Copeland, Light House Island and Mew Island. The islands are important sites for breeding seabirds and waders, in addition to their coastal plant communities and geological features. The Islands also support a nationally important population of Common Gull *Larus canus* with 250 pairs present. This is 7% of the Irish population and the site is the most important breeding location for this species in Northern Ireland. The Copeland Islands ASSI covers an area of 201.52 hectares.

Feature	MPA Type
Common Gull	ASSI

Outer Ards ASSI

The maritime vegetation along this exposed coastline has been strongly influenced both by the physiography and by human activity. Although some more extensive areas remain, most of the terrestrial semi-natural vegetation is now confined to a narrow, fragmented shoreline strip and includes areas of dune and maritime grassland, maritime heath and cliff ledge vegetation, in addition to saltmarshes, tidal and nontidal fens and wet flushes.

The Outer Ards coastline is of international importance for the wintering populations of four species of waterfowl. Turnstone *Arenaria interpres* favour cobble and boulder shores with an average of 1210 birds, 1.7 % of the Eastern Atlantic Flyway population. Ringed Plover *Charadrius hiaticula*, which averages 516 birds, 1.2 % of the Eastern Atlantic Flyway population occur on a range of shoreline types. Both the Ringed Plover and Turnstone at Outer Ards achieve the highest shoreline densities for these species at any exposed coastal, non-estuarine, site in the United Kingdom. A large number of other species are present in nationally important numbers. Great Cormorant *Phalacrocorax carbo* (5 year average of 221, 4.4 % of the Irish wintering population) occur offshore. Wading species of significance are Purple Sandpiper *Calidris maritima* (78, 7.8 %). Between them these species utilise a great range of shoreline habitats. The Outer Ards ASSI covers an area of 1116.16 hectares.

Feature	MPA Type
Great Cormorant	ASSI
Purple Sandpiper	ASSI
Ringed Plover	ASSI
Turnstone	ASSI
Coastal Saltmarsh	ASSI
Mudflats	ASSI
Intertidal Rock	ASSI

Ballyquintin Point ASSI

Ballyquintin Point exhibits an exceptionally well developed raised cobble beach of the cusped foreland type, with associated ridges and bars, together with a range of contemporary coastal

landforms. The ASSI Conservation of Wild Birds helps to support internationally important breeding populations of both sandwich and common tern and nationally important breeding populations of arctic tern. Additionally, the area regularly supports in winter over 20,000 waterfowl, which includes the internationally important species light-bellied Brent geese, knot and redshank. The Ballyquintin Point ASSI covers an area of 1116.16 hectares.

Feature	MPA Type
Breeding Bird Assemblage	ASSI

Strangford Lough ASSI

The Strangford Lough system supports internationally important populations of water birds including Light-bellied, Great Cormorant and Greylag Goose.

Mudflats are an important habitat for wildlife. The littoral sediments support a wide variety of marine invertebrates that represent an important food source for many fish and bird species. They also support beds of seagrass and a rich algal and sponge assemblage which are sensitive to habitat disturbance and water and sediment quality.

Intertidal rocky shores are an important habitat for wildlife. The littoral zone is composed of a variety of different habitats and communities, including rock pools, bedrock ledges and platforms, gullies, crevices and boulder fields. A diverse range of seaweeds and marine animals are associated with these habitats and most are specially adapted to periods of immersion.

Coastal saltmarsh is an important habitat for wildlife. Saltmarsh generally forms in the upper parts of intertidal mudflats, usually in more sheltered coastal locations. The vegetation typically shows a succession from lower marsh communities to upper marsh communities, depending upon the extent of tidal inundation. Saltmarshes provide valuable habitat for invertebrates and birds and act as nursery sites for several fish species. The three parts of the Strangford Lough ASSI covers 4107.5 hectares.

Feature	MPA Type
Great Cormorant	ASSI
Greylag Goose	ASSI
Coastal Saltmarsh	ASSI
Mudflats	ASSI
Intertidal Rock	ASSI

Murlough ASSI

The area is of special scientific interest because of the coastal flora, fauna and physiography. It is a coastal complex exhibiting a range of gravel ridges, re-curved spit, subtidal mudflats, palaeosols and contemporary beach processes dating from between late glacial and modern times. This gives rise to an extensive range of coastal habitats, including scarce vegetation communities and rare plant species.

Murlough ASSI is a wintering site for large numbers of migratory waterbirds, supporting populations of Great Crested Grebe. Species which are important within an All-Ireland context are Common Scoter *Melanitta nigra* (71% of the All-Ireland population), which roost and feed in Outer Dundrum

Bay and Red-breasted Merganser *Mergus serrator* (7.2% of the All-Ireland population). The Murlough ASSI covers 1452.8 hectares.

Feature	MPA Type
Subtidal Mudflats	ASSI
Coastal Saltmarsh	ASSI
Common Scoter	ASSI
Great Crested Grebe	ASSI
Red-breasted Merganser	ASSI

Killough Bay and Strand Lough ASSI

Killough Bay and Strand Lough ASSI is a coastal site with linked tidal lough, swamp, fen and wet meadows. Within this ASSI, saline lagoons are an important habitat for wildlife. They are bodies of water that have a restricted connection to the sea and may vary from brackish to fully saline or hyper-saline. Associated species of saline lagoons are highly specialised to cope with these conditions. Strand Lough is a brackish lake while many of the surrounding fields still contain species indicative of their saline nature.

Mudflats are an important habitat for wildlife. The littoral sediments support a wide variety of marine invertebrates that represent an important food source for many fish and bird species. They also support beds of seagrass and a rich algal and sponge assemblage which are sensitive to habitat disturbance and water and sediment quality.

Intertidal rock shores are an important habitat for wildlife. The littoral zone is composed of a variety of different habitats and communities, including rock pools, bedrock ledges and platforms, gullies, crevices and boulder fields. A diverse range of seaweeds and marine animals are associated with these habitats and most are specially adapted to periods of immersion.

Killough Bay and Strand Lough ASSI supports an assemblage of bird species typical of Irish reedbeds. Reedbeds within Killough Bay and Strand Lough ASSI should be managed in such a way as to maintain and enhance its bird assemblage. This Killough Bay and Strand Lough covers 175.91 hectares.

Feature	MPA Type
Saline Lagoons	ASSI
Mudflats	ASSI
Intertidal Rock	ASSI
Breeding Bird Assemblage	ASSI

St Johns Point ASSI

St. John's Point has been declared an ASSI because it supports a great variety of earth science features, habitats and species. Exposed rock ridges with deep pools and crevices dominate in the upper, middle and lower shores, with boulder shores, flat rock outcrops, areas of shingle and sandy rock pools also present. The supralittoral consists of patchy saltmarsh on bedrock leading to a

patellobarnacle dominated shore comprised of fractured rock ridges and shingle with boulders. Channelled Wreck *Pelvetia canaliculata* is scattered among rock ridges with Dog Whelk *Nucella lapillus*, Rough Periwinkle *Littorina saxatilis* and Common Periwinkle *L. littorea* present on the rock surfaces and within rock pools. The St Johns Point ASSI covers an area of 84.54 hectares.

Feature	MPA Type
Coastal Saltmarsh	ASSI
Intertidal Rock	ASSI

Tyrella and Minerstown ASSI

Tyrella and Minerstown has been declared as an ASSI because of its intertidal sand and rock communities, sand dune systems and the associated flora and fauna. Tyrella and Minerstown is notable for its intertidal rock and sand communities. The intertidal area is characteristic of the south Lecale coastline. The Minerstown shore is composed of a wide expanse of small and medium boulders with some small bedrock outcrops in the middle and lower shore. The shore is generally sheltered in character and dominated by fucoids and Knotted wrack *Ascophyllum nodosum*, although more exposed rock tops are *Patellobarnacle* dominated. This part of the area ranges from a moderately exposed boulder shore in the mid-eulittoral with rockpools present, to sandstone ridges. The Tyrella and Minerstown ASSI covers an area of 272.08

Feature	MPA Type
Intertidal Rock	ASSI
Intertidal Mudflats and Sandflats	ASSI

Mournes Coast ASSI

The Mournes Coast has been declared as an ASSI because of its geological features, the Honeycomb Worm biogenic reefs, intertidal rock communities and important bird populations of Black-legged Kittiwake and Black Guillemot. The Mournes Coast has the best example in Northern Ireland of reefs constructed by the Honeycomb Worm. Biogenic reefs of the Honeycomb Worm *Sabellaria alveolata* are present in sandy areas between lower midlittoral and lower littoral boulders, with some reefs extending into the upper sublittoral zone.

The intertidal rock communities of Mourne Coast are also notable. The intertidal area is typical of the south Down coast, being dominated by boulders, sand and bedrock. One of the more significant areas is around Glassdrumman, where there is a moderately exposed boulder, stone and sand shore with intermittent shallow rock ridges in the upper shore.

The northern section of the site regularly supports a colony of breeding Black-legged Kittiwake *Rissa tridactyla*. A survey of the colony in 2011 showed that there were 523 apparently occupied nests (the standard means of assessing population size) so the population is likely to exceed 1000 birds. The Mournes Coast ASSI covers an area of 84.66 hectares.

Feature	MPA Type
Intertidal Rock	ASSI
Reef	ASSI
Kittiwake breeding population	ASSI

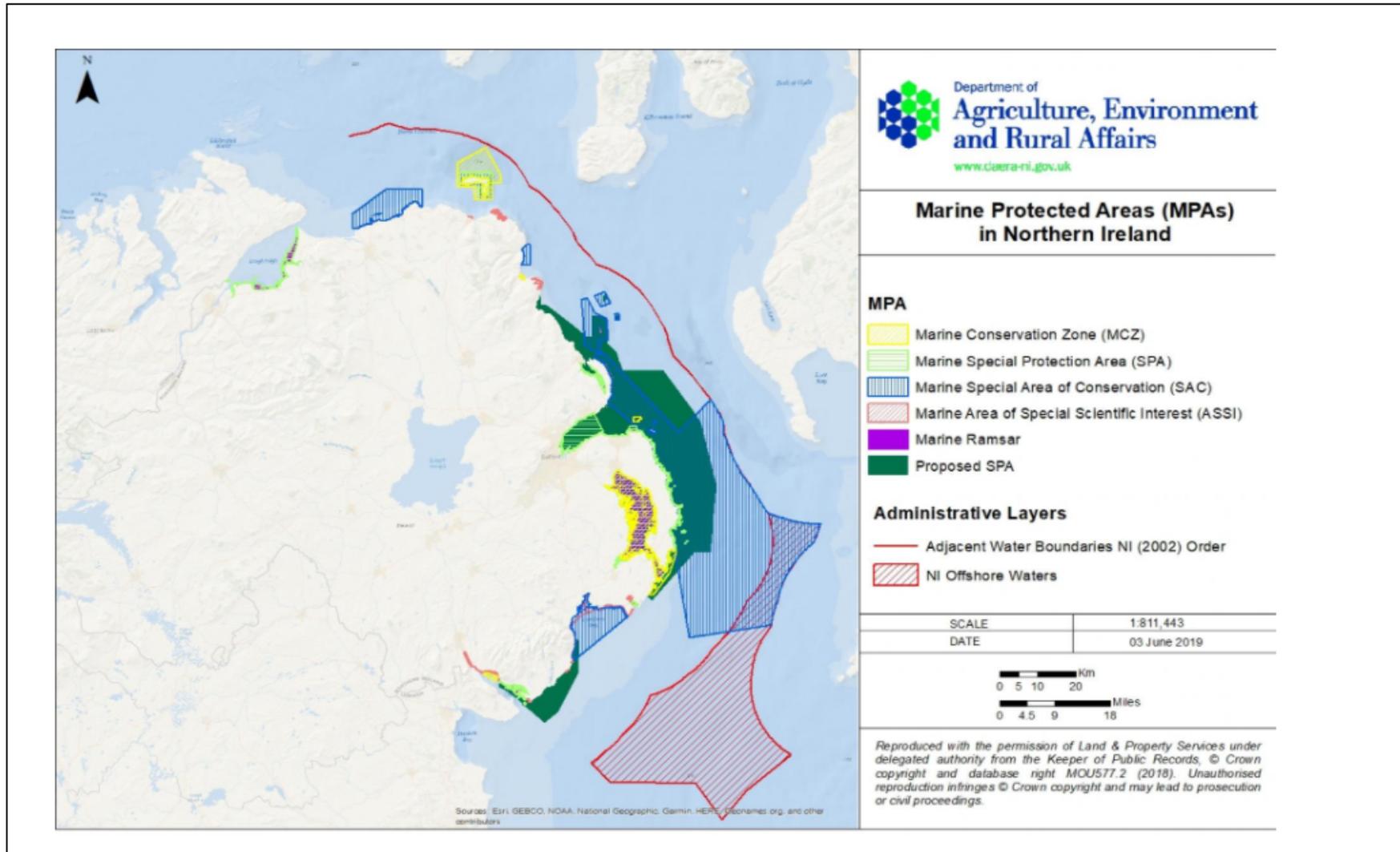
Carlingford Lough ASSI

The site supports a range of unusual and rich littoral communities, including sheltered sands, muddy sands, muds and boulder shores. It exhibits a good natural transition from lower shore communities, through upper shore saltmarsh to fen vegetation. Mill Bay supports the largest intact block of saltmarsh in Northern Ireland. The saltmarsh here exhibits an extremely clear and characteristic successional zonation from open mud flats to upper brackish marsh, while displaying a classic pattern of drainage channels (creeks), pools (saltpans) and hummocks.

Carlingford Lough is also significant for wintering and breeding birds. Internationally important numbers of wildfowl on this site, including Great Crested Grebes and Red-breasted Merganser. The Carlingford Lough ASSI covers an area of 1105 hectares.

Feature	MPA Type
Coastal Saltmarsh	ASSI
Mudflats	ASSI
Great Crested Grebe	ASSI
Red-breasted Merganser	ASSI

Appendix 1: Marine Protected Areas in Northern Ireland



Source: DAERA 2020.