

**Carlingford Shore SAC (site code 2306)
Conservation objectives supporting document
-coastal habitats**

NPWS

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Please note that this document should be read in conjunction with the following report: NPWS (2013). Conservation Objectives: Carlingford Shore SAC 002306. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

1 Introduction

Achieving Favourable Conservation Status (FCS) is the overall objective to be reached for all Annex I habitat types and Annex II species of European Community interest listed in the Habitats Directive 92/43/EEC (Commission of the European Communities, 2007). It is defined in positive terms, such that a habitat type or species must be prospering and have good prospects of continuing to do so.

Carlingford Shore SAC stretches for approximately 15km along the shoreline to the low water mark (LWM) of Carlingford Lough, which is also the estuary of the Newry River. It is flanked by glacial moraines and mountains - the Mourne Mountains to the north and Carlingford Mountain to the south-west. The underlying rock within the SAC is mainly carboniferous limestone. This outcrops over sections of the SAC in the form of bedrock shore or reefs. Granite boulders are occasionally found. Intertidal mudflats and sand/gravel banks also occur.

Carlingford Shore SAC (site code: 2306) is designated for the following two coastal habitats:

- Perennial vegetation of stony banks (1220)
- Annual vegetation of drift lines (1210)

The first of these habitats is associated with shingle beaches. The second habitat is often associated with sand dune systems. However, as there are no dunes present anywhere at Carlingford, it is assumed that these two habitats occur in close association with each other.

Small areas of potential saltmarsh were identified within the SAC during the Saltmarsh Monitoring Project (SMP) (McCorry, 2007) but there are no saltmarsh habitats listed as qualifying interests for this SAC.

This backing document sets out the conservation objectives for the two coastal habitats listed above in Carlingford Shore SAC, which is defined by a list of parameters, attributes and targets. The main parameters are (a) Range (b) Area and (c) Structure and Functions, the latter of which is broken down into a number of attributes, including physical structure, vegetation structure and vegetation composition.

The targets set for the **shingle** is based primarily on the findings of the National Shingle Beach Survey (NSBS), which was carried out in 1999 on behalf of the National Parks and Wildlife Service (NPWS) (Moore & Wilson, 1999).

The distribution of known shingle sites within Carlingford Shore SAC as identified during the NSBS is presented in Appendix I.

The NSBS visited and assessed the following 3 sub-sites within Carlingford Shore SAC:

1. Greenore
2. Ballagan Point
3. Whitestown to Cooley Point

These three sub-sites are contiguous, forming a continuous band of shingle extending from Greenore southwards to just beyond Cooley Point.

Profiles and transects were recorded from each shingle beach and each site was assigned a High/Medium/Low interest ranking. A 'high interest' ranking denotes a site that is of high conservation value. The site may be of interest botanically or geomorphologically. A 'medium interest' ranking implies the site may be extensive but not of particular interest either botanically or geomorphologically. A 'low interest' ranking is reserved for small sites, highly damaged sites or sites that are of a very common classification. At Carlingford Shore, all three sub-sites were rated 'medium' interest. The habitat was not mapped but the vegetation was recorded, as were the human impacts and alterations at the site, which are useful tools for assessing the Structure & Functions of the site.

The Greenore sub-site consists of a strip of supratidal shingle mixed with sand running south of Greenore Point. This narrow shingle bar supports a diverse flora. Near Greenore Point a promenade has been constructed with rock armouring protection. The coastal defences at this site run for approximately 200m (Moore & Wilson, 1999).

The Ballagan sub-site consists of a vegetated fringe beach running north and south of Ballagan Point. The area of shingle south of the point is more developed and stable. There the supratidal region is wider and a lichen encrusted stable plateau of mixed cobbles is found. It is noted by Moore & Wilson (1999) that this southern section probably merits a rating of 'high interest' Rock armouring is present along a section of this sub-site (Moore & Wilson, 1999).

The Whitestown to Cooley Point sub-site is an area of supratidal shingle which narrows in places to only 1m and lacks significant amounts of stable perennial vegetation. The most developed section of shingle occurs near Cooley Point; however, this has been impacted somewhat by the development of a car park (Moore & Wilson, 1999).

The targets set for the **annual vegetation of drift lines** are based in part on the findings of the Coastal Monitoring Project (CMP) (Ryle *et al.*, 2009) and this document should be read in conjunction with that report. However, as the CMP did not visit this particular site, the conservation objective for the entire SAC is quite generic and may be adjusted in the future in light of new information.

2 Conservation Objectives

The conservation objective aims to define the favourable conservation condition of a habitat or species at a particular site. Implementation of these objectives will help to ensure that the habitat or species achieves favourable conservation status at a national level.

3 Perennial vegetation of stony banks

Perennial vegetation of stony banks is vegetation that is found at or above the mean high water spring tide mark on shingle beaches (i.e., beaches comprised of cobbles and pebbles). It is dominated by perennial species (i.e. plants that continue to grow from year to year). The first species to colonise are annuals or short-lived perennials that are tolerant of periodic displacement or overtopping by high tides and storms. Level, or gently-sloping, high-level mobile beaches, with limited human disturbance, support the best examples of this vegetation. More permanent ridges are formed by storm waves. Several of these storm beaches may be piled against each other to form extensive structures.

3.1 Overall Objective

The overall objective for 'perennial vegetation of stony banks' in Carlingford Shore SAC is to 'maintain the favourable conservation condition'.

This objective is based on an assessment of the current condition of the habitat under a range of attributes and targets. The assessment is divided into three main headings (a) Range, (b) Area and (c) Structure and Functions.

3.2 Area

3.2.1 Habitat extent

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The target for favourable condition is '*no decrease in extent from the established baseline*'. Bearing in mind that coastal systems are naturally dynamic and subject to change even within a season, this target is assessed subject to natural processes, including erosion and succession.

The exact current extent of this habitat in Carlingford Shore SAC is unknown. The National Shingle Beach Survey recorded vegetated shingle ridge from three sub-sites: Cooley Point to Whitestown, Ballagan Point and Greenore, but did not map the extent (Moore & Wilson, 1999). However, there may be additional areas of shingle within the SAC.

These three sub-sites identified by the NSBS appear to be more or less continuous, extending along an area of approximately 3.5kms. They can vary in width from less than a metre to approximately 50m south of Ballagan Point. Based on an average width of 75m the area of shingle is estimated to cover 262.5ha of which 50% is likely to be vegetated, giving an estimated area of approximately 130ha.

The target is that the area should be stable or increasing, subject to natural processes, including erosion and succession.

3.3 Range

3.3.1 Habitat distribution

The known distribution of vegetated shingle in Carlingford Shore SAC is presented in a map in Appendix I. It occurs along a 3.5km stretch of coastline extending from Greenore in the north to Cooley Point in the south (Moore & Wilson, 1999). There may be additional areas of the habitat elsewhere within the SAC.

The target is that there should be no decline or change in the distribution of this habitat, unless it is the result of natural processes, including erosion and succession.

3.4 Structure and Functions

A fundamental aim of shingle conservation is to facilitate natural mobility. Shingle beaches are naturally dynamic systems, making them of geomorphological interest as well as ecological interest. They are constantly changing and shingle features are rarely stable in the long term.

3.4.1 Functionality and sediment supply

The health and on-going development of this habitat relies on a continuing supply of shingle sediment. This may occur sporadically as a response to storm events rather than continuously. Interference with the natural coastal processes, through offshore extraction or coastal defence structures in particular, can interrupt the supply of sediment and lead to beach starvation.

West of Cooley Point there has been a lot of development at Templetown beach, including the installation of a car park. The NSBS noted two areas of coastal defences (rock armour) in this SAC, one in an area south of Ballagan Point and another in an area south of Greenore (approx. 200m in length). A number of tourism related developments, including a promenade protected with rock armour, have been constructed at Greenore. Much of the area at Ballagan is isolated and relatively undisturbed (Moore & Wilson, 1999).

The target is to maintain, or where necessary restore, the natural circulation of sediment and organic matter, without any physical obstructions.

3.4.2 Vegetation structure: zonation

Ecological variation in this habitat type depends on stability; the amount of fine material accumulating between the pebbles; climatic conditions; width of the foreshore and past management of the site. The ridges and lows also influence the vegetation patterns, resulting in characteristic zonations of vegetated and bare shingle. In the less stable frontal areas of shingle, the vegetation tends to be dominated by annuals and short-lived salt-tolerant perennials. Where the shingle is more stable the vegetation becomes more perennial in nature and may include grassland, heathland and scrub, depending on the exact nature of the site. The presence of lichens indicates long term stability of the shingle structure.

At Ballagan Point, the classic shingle vegetation is backed by cobble-based grassland with ribwort plantain (*Plantago lanceolata*), wild carrot (*Daucus carota*) and yarrow (*Achillea millefolium*). Elsewhere along the Carlingford shore, transitions to inland habitats are mostly disrupted by a road (Moore & Wilson, 1999).

The target is to maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.

3.4.3 Vegetation composition: typical species & sub-communities

The degree of exposure, as well as the coarseness and stability of the substrate determines species diversity. The shingle in Carlingford Shore SAC is known to support a typical flora for this habitat type including sea sandwort (*Honckenya peploides*), sea spurge (*Euphorbia paralias*), sea mayweed (*Tripleurospermum maritimum*) and oraches (*Atriplex* spp.).

The Irish Red Data Book species oysterplant (*Mertensia maritima*) has been recorded within this SAC. This plant is protected under the Flora Protection Order 1999.

At the Greenore sub-site, the NSBS recorded knotweeds (*Polygonum* spp.), spear-leaved orache (*Atriplex prostrata*), grass-leaved orache (*Atriplex littoralis*), sea beet (*Beta maritima*), sea spurge (*Euphorbia paralias*), field bindweed (*Convolvulus arvensis*), sea-milkwort (*Glaux maritima*) and scarlet pimpernel (*Anagallis arvensis*) (Moore & Wilson, 1999).

At the Ballagan Point sub-site, the NSBS recorded spear-leaved orache (*Atriplex prostrata*), sea beet (*Beta maritima*), wild carrot (*Daucus carota*), sea-milkwort (*Glaux maritima*), ribwort plantain (*Plantago lanceolata*) and wild radish (*Raphanus raphanistrum*) (Moore & Wilson, 1999).

At the Whitestown to Cooley Point sub-site, species recorded in the well vegetated shingle by the NSBS include glabrous orache (*Atriplex glabriuscula*), spear-leaved orache (*Atriplex prostrata*), sea beet (*Beta maritima*), common cleavers (*Galium aparine*), wild radish (*Raphanus raphanistrum*) and curled dock (*Rumex crispus*). Lichens are absent (Moore & Wilson, 1999).

The target for this attribute is to ensure that the typical flora of vegetated shingle is maintained, as are the range of sub-communities within the different zones.

3.4.4 Vegetation composition: negative indicator species

Where the shingle becomes more stabilised negative indicator species can become an issue. Negative indicator species can include non-native species (e.g. *Centranthus ruber*, *Lupinus arboreus*); species indicative of changes in nutrient status (e.g. *Urtica dioica*) and species not considered to be typical of the habitat (e.g. *Pteridium aquilinum*).

The target for this attribute is that negative indicator species (including non-native species) should make up less than 5% of the vegetation cover.

4 Annual vegetation of drift lines

Annual vegetation of drift lines, or strandline vegetation, is found on beaches along the high tide mark, where tidal litter accumulates. It is dominated by a small number of annual species (i.e. plants that complete their life-cycle within a single season). Tidal litter contains the remains of marine algal and faunal material, as well as a quantity of seeds. Decaying detritus in the tidal litter releases nutrients into what would otherwise be a nutrient-poor environment. The habitat is often represented as patchy, fragmented stands of vegetation that are short-lived and subject to frequent re-working of the sediment. The vegetation is limited to a small number of highly specialised species that are capable of coping with salinity, wind exposure, an unstable substrate and lack of soil moisture. Typical species include spear-leaved orache (*Atriplex prostrata*), frosted orache (*A. laciniata*), sea rocket (*Cakile maritima*), sea sandwort (*Honckenya peploides*) and prickly saltwort (*Salsola kali*).

4.1 Overall objectives

The overall objective for 'Annual vegetation of drift lines' in Carlingford Shore SAC is to 'maintain the favourable conservation condition'.

This objective is based on a generic assessment of the habitat under a range of attributes and targets. The assessment is divided into three main headings (a) Area (b) Range and (c) Structure and Functions.

4.2 Area

4.2.1 Habitat extent

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The exact current extent of this habitat in Carlingford Shore is unknown. As there are no dunes at the site, it was not surveyed during the Coastal Monitoring Project (CMP) (Ryle *et al.*, 2009).

The general target for annual drift line vegetation is that it should be stable or increasing. Bearing in mind that coastal systems are naturally dynamic and subject to change, this target is always assessed subject to natural processes, including erosion and succession.

4.3 Range

4.3.1 Habitat distribution

The exact current distribution of this habitat is unknown but it is thought to coincide with that of 'perennial vegetation of stony banks' with which it is likely to occur in a mosaic. The distribution is likely to correspond to the map in Appendix I.

The target is that there should be no decline or change in the distribution of this habitat, unless it is the result of natural processes, including erosion, accretion and succession.

4.4 Structure and Functions

Maintaining the favourable conservation condition of the strandline habitat along Carlingford Shore SAC in terms of structure and functions depends on a range of attributes for which targets have been set as outlined below.

4.4.1 Physical structure: functionality and sediment supply

Coastlines naturally undergo a constant cycle of erosion and accretion. There are two main causes of erosion: (a) those resulting from natural causes and (b) those resulting from human interference. Natural causes include the continual tendency towards a state of equilibrium between coasts and environmental forces, climatic change (particularly an increase in the frequency of storms or a shift

in storm tracks), relative sea level rise and natural changes in the sediment supply. Human interference is usually associated with changes in the sediment budget, either directly, through the removal of beach or inshore sediment, or indirectly, by impeding or altering sediment movement. It is important to recognise that the process of coastal erosion is part of a natural tendency towards equilibrium. Natural shorelines attempt to absorb the energy entering the coastal zone by redistributing sediment.

Sediment supply is especially important in the strandline communities where accumulation of organic matter in tidal litter is essential for trapping sand. The construction of physical barriers such as sea defences can interrupt longshore drift, leading to beach starvation and increased rates of erosion.

West of Cooley Point there has been a lot of development at Templetown beach, including the installation of a car park. The NSBS noted two areas of coastal defences (rock armour) in this SAC, one in an area south of Ballagan Point and another in an area south of Greenore (approx. 200m in length). A number of tourism related developments, including a promenade protected with rock armour, have been constructed at Greenore. Much of the area at Ballagan is isolated and relatively undisturbed (Moore & Wilson, 1999).

The target for this attribute is to maintain the natural circulation of sediment and organic matter throughout the site, without any physical obstructions.

4.4.2 Vegetation structure: zonation

The annual drift line vegetation along Carlingford Shore is thought to occur in a mosaic with 'perennial vegetation of stony banks'.

The target is to maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.

4.4.3 Vegetation composition: typical species & sub-communities

Species diversity and plant distribution in dunes is strongly controlled by a range of factors, including mobility of the substrate, grazing intensities, moisture gradients, nutrient gradients and human disturbance.

The annual vegetation of drift lines is thought to occur interspersed with the perennial vegetation of stony banks, occupying accumulations of drift material and gravels rich in nitrogenous organic matter. The typically sparse vegetation consists of saltwort (*Salsola kali*), sea rocket (*Cakile maritima*), sea sandwort (*Honckenya peploides*), sea spurge (*Euphorbia paralias*) and oraches (*Atriplex* species). The Red Data Book and Flora Protection Order species, oysterplant (*Mertensia*

maritima) is also found in this habitat. While this species is listed in the EU manual as a diagnostic species of drift line vegetation, in Ireland it is generally more associated with shingle and cobble beaches (Curtis & McGough, 1988; Farrell & Randall, 1992).

The target for this attribute is to maintain a typical flora for the strandline habitat.

4.4.4 Vegetation composition: negative indicator species

Negative indicators include non-native species, species indicative of changes in nutrient status (e.g. *Urtica dioica*) and species not considered characteristic of the habitat.

The target is that negative indicators (including non-native species) should represent less than 5% of the vegetation cover.

5 References

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Appendix I: Distribution map of known shingle sites within Carlingford Shore SAC, as identified during the National Shingle Beach Survey (Moore & Wilson, 1999)

