NPWS

Helvick Head SAC
(site code: 000665)

Conservation objectives supporting document- Coastal habitats

Version 1

November 2016

Contents

Please note that this document should be read in conjunction with the following report: NPWS (2016) Conservation Objectives: Helvick Head SAC 000665. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

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 (European Commission, 2013). 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.

Helvick Head is located at the tip of a promontory on the southern side of Dungarvan Harbour, Co. Waterford. Helvick Head SAC extends from Helvick Head south-westward to include Muggort's Bay. The SAC comprises sea cliffs, cliff top vegetation and an area of marine water off Helvick Head. It forms the eastern extremity of an Old Red Sandstone ridge which extends as far west as Cork City (NPWS, 2013).

The SAC supports typical examples of vegetated sea cliffs and dry heath, with a south to south-east facing aspect. In addition to dry heath and sea cliffs, the SAC comprises dry grassland, rocky shore and some shingle (NPWS, 2013).

There are two main types of sea cliff present at Helvick Head SAC; to the east, the cliffs, which rise to about 60m, are formed of a series of semi-vertical ribs with small gullies between them. Further west the cliffs have broader bands of rock and correspondingly few nesting ledges for seabirds (NPWS, 2013).

Sea cliffs are particularly well-developed at the eastern end of the SAC and are well-vegetated with thrift (*Armeria maritima*), ivy (*Hedera helix*), common scurvygrass (*Cochlearia officinalis*), sea campion (*Silene vulgaris* subsp. *maritima*), rock sea-spurrey (*Spergularia rupicola*), buck's-horn plantain (*Plantago coronopus*), lichens and a variety of other species (NPWS, 2013).

Helvick Head SAC has important breeding seabird populations. Nationally important populations of cormorant (*Phalacrocorax carbo*), herring gull (*Larus argentatus*), and kittiwake (*Rissa tridactyla*) occur, as well as smaller populations of other breeding seabirds: razorbill (*Alca torda*), fulmar (*Fulmarus glacialis*), shag (*Phalacrocorax aristotelis*), guillemot (*Uria aalge*), great black-backed gull (*Larus marinus*), and black guillemot (*Cepphus grylle*). The site also supports chough (*Pyrrhocorax pyrrhocorax*), a species listed on Annex I of the EU Birds Directive. The low heath and agricultural farmland on the cliff tops provides good foraging habitat for chough. Another Annex I species, peregrine (*Falco peregrinus*), also occurs at the site. Raven (*Corvus corax*) breed on the cliffs and there is a cliff-nesting colony of house martins (*Delichon urbica*) (NPWS, 2013).

Helvick Head SAC (site code: 000665) is selected for vegetated sea cliffs and European dry heaths. The following coastal habitat is one of the two Qualifying Interests for the SAC:

1230 Vegetated sea cliffs of the Atlantic and Baltic coasts

2 Conservation Objectives

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

This supporting document sets out the conservation objectives for vegetated sea cliffs in Helvick Head 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 last of which is broken down into a number of attributes, including physical structure, vegetation structure and vegetation composition.

The targets set for vegetated sea cliffs are based primarily on the findings of the Irish Sea Cliff Survey (ISCS) (Barron *et al*., 2011) and this document should be read in conjunction with that report. The ISCS identified sites and carried out a detailed assessment as per the methodology outlined in Barron *et al.* (2011). This included dividing the cliff length into a series of sections to reflect the variation within the site and to give a more accurate measurement for area. The following sub-site not surveyed in the field, but was assessed as part of a desk study:

Ballyquin to Helvick Head (ISCS site ID: 10003)

The conservation objective for the vegetated sea cliff habitat within the SAC is extrapolated from Barron *et al*. (2011) and the sea cliff database, which was produced as part of that project. It is thought that the sub-site surveyed by the ISCS represents the total extent of vegetated sea cliffs within Helvick Head SAC.

3 Vegetated sea cliffs

Sea cliffs can be broadly divided into two categories: hard (or rocky) cliffs and soft (or sedimentary) cliffs, both of which are covered by the Annex I habitat 'vegetated sea cliffs of the Atlantic and Baltic coasts'. Hard cliffs are composed of rocks such as limestone, sandstone, granite or quartzite which are hard and relatively resistant to erosion. Soft cliffs are composed of softer rock such as shale or unconsolidated material such as glacial till. Vegetation of hard sea cliffs in exposed situations exhibits a strong maritime influence and is relatively stable. Soft cliff habitats are more prone to slope failure which results in the presence of fast-colonising pioneer species.

Defining the limits of what constitutes a sea cliff is problematic and a number of different interpretations have been used in the past (Fossitt, 2000; JNCC, 2004; Browne, 2005; European Commission, 2013). In order to address any inconsistencies, the following definition for sea cliffs was developed and used during the Irish Sea Cliff Survey (Barron *et al*., 2011):

"A sea cliff is a steep or vertical slope located on the coast, the base of which is in either the intertidal (littoral) or subtidal (sublittoral) zone. The cliff may be composed of hard rock such as basalt, or of softer substrate such as shale or boulder clay. Hard cliffs are at least 5m high, while soft cliffs are at least 3m high. The cliff top is generally defined by a change to an obvious less steep gradient. In some cases the cliff may grade into the slopes of a hillside located close to the coast. In these cases the cliff is defined as that part of the slope which was formed by processes of coastal erosion, while the cliff top is where there is the distinct break in slope. Both the cliff and the cliff top may be subject to maritime influence in the form of salt spray and exposure to coastal winds. A cliff can ascend in steps with ledges, and the top of the cliff is taken to occur where erosion from wave action is no longer considered to have been a factor in the development of the landform. The cliff base may be marked by a change in gradient at the bottom of the cliff. Where the base is exposed it

can be characterised by scree, boulders, a wave-cut platform or sand, among other substrates. During this survey where cliffs occur within the subtidal zone the base was considered to be the high water mark. A cliff is considered to have reached its end point where it is no longer over 5m high (hard cliffs) of 3m high (soft cliffs), or no longer has a steep slope. To be considered in this study, a cliff had to be a minimum of 100m in length. Sea cliffs may support a range of plant communities such as grassland, heath, scrub and bare rock communities, among others."

Helvick Head SAC extends south-westward from Helvick Head to include Muggort's Bay. The SAC comprises hard sea cliffs, cliff top vegetation and an area of marine waters off Helvick Head. The SAC supports typical examples of vegetated sea cliffs with a south to south-east facing aspect that have good structures and are functioning well. Sea cliffs are particularly well-developed at the eastern end of the SAC, rising to about 60m and are well-vegetated (NPWS, 2013).

3.1 Overall Objective

The overall objective for 'Vegetated sea cliffs of the Atlantic and Baltic coasts' in Helvick Head SAC is to '*maintain favourable conservation condition*'.

The objective is based on an assessment of the recorded condition 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.

3.2 Area

3.2.1 Habitat length

Habitat extent is a basic attribute to be assessed when determining the condition of a particular habitat. The target is that there is no decrease 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.

As cliffs are linear features on maps, their extent is measured in kilometres rather than hectares, as for other habitats. During the ISCS (Barron *et al*., 2011), each cliff was divided into sections based on physical characteristics and vegetation cover. Breaks (i.e. non-cliff areas) of between 80m and 500m along the length of cliff were discounted from the calculations.

The total length of cliff within the sub-site Ballyquin to Helvick Head (site ID: 10003) was estimated to be 22.52km. Discounting breaks, the total area/length of cliff sections in the sub-site is presented in the following table. The area/length of cliff sections that is located within the SAC boundary is also presented.

Site Name	Total area/length (km) of sea cliff sections from ISCS	Total area/length (km) of sea cliff sections within SAC boundary
Ballyquin to Helvick Head	22.3	4.97

The difference in the two figures above is explained by the fact that the ISCS mapped the total sea cliff resource at the site and not all of the sea cliff mapped is contained within the SAC boundary. In addition, the OSi six inch county boundary line was used to draw the line for the ISCS, while a different mapping dataset was used to draw the SAC boundary. As a result, the length of cliff inside the SAC boundary may be underestimated. The total length of cliff sections at the sub-site Ballyquin to Helvick Head was 22.3km. When this dataset was clipped to the SAC boundary, 4.97km was included within the SAC boundary. However, in reality this figure is likely to be higher as a result of these mapping anomalies.

The target is that the area is stable, subject to natural processes, including erosion.

3.3 Range

3.3.1 Habitat Distribution

The distribution of vegetated sea cliffs in the SAC, as identified during the Irish Sea Cliff Survey (ISCS) (Barron *et al*., 2011), is presented on a map in Appendix I.

The ISCS recorded a number of sections of hard and soft cliff ranging from 10m to 70m in height between Ballyquin and Helvick Head (Barron *et al*., 2011).

The target is that there is no decline in distribution, subject to natural processes.

3.4 Structure and Functions

A fundamental aim of sea cliff conservation is to facilitate some degree of natural mobility through slumping. Sea cliffs can be of geomorphological interest as well as ecological interest and also erosion can expose geological features of interest.

3.4.1 Physical structure: functionality and hydrological regime

Coastal protection works can disrupt the natural integrity of a sea cliff. The health and on-going development of vegetated sea cliffs relies on natural processes, such as erosion, continuing without any impingement. This is generally a bigger issue for soft cliffs which require a degree of slumping and erosion to expose bare soil for pioneer species to colonise; otherwise the vegetation is replaced by hardy grasses and scrub of little conservation value can develop. In addition, cliff erosion provides an important sediment source to sites further along the coast (e.g. sand dunes). Preventing erosion at a cliff site can lead to beach starvation at another site.

Flushes can be associated with cliffs in areas where the groundwater seeps out onto the cliff face. This is more usually associated with soft cliffs where these flushes contribute to the natural instability of the ground and provide patches of wetland habitat.

The ISCS did not record any coastal development at Ballyquin to Helvick Head or any information on the hydrological regime within Helvick Head SAC (Barron *et al*., 2011).

The target is to maintain, or where necessary restore, the natural geomorphological processes without any physical obstructions, and the local hydrological regime including groundwater quality.

3.4.2 Vegetation structure: zonation

Ecological variation in this habitat type depends on a number of physical and biological factors, in particular climate, degree of exposure to sea-spray, geology and soil type, as well as the level of grazing and seabird activity. The rocky cliff flora often grades naturally into coastal heath vegetation and maritime grassland.

Sea cliffs are particularly well-developed at the eastern end of the SAC and are well-vegetated. The cliff top supports dry heath of a type characteristic of shallow soils on acid rocks. Coastal grassland also occurs in places on the cliff top (NPWS, 2013)

The target is to maintain the range of sea cliff habitat zonations, as well as transitional zones, including those to terrestrial communities, subject to natural processes.

3.4.3 Vegetation structure: vegetation height

A varied vegetation structure is important for maintaining species diversity and is particularly important for invertebrates and birds. Grazing increases the species diversity and is particularly important for maritime grasslands and coastal heath, which are often associated with sea cliffs.

As this site was only assessed as part of the ISCS desk study, there is no information on grazing densities at Helvick Head SAC. However, it has been noted that low heath vegetation on the cliff tops provides good foraging habitat for chough (NPWS, 2013).

The target is to maintain the structural variation in the sward height.

3.4.4 Vegetation composition: typical species and sub-communities

Different sea cliff communities develop in a number of habitat zones related to the degree of maritime influence (exposure to wind and sea spray), geology and soil type. In general, Irish sea cliffs display a range of zones running in a series of horizontal bands up the cliff face, each of which has its own distinct sub-communities including:

- Splash zone
- Pioneer zone
- Rock crevice/cliff ledge zone
- Maritime grassland zone
- Maritime heath zone
- Maritime slope flush zone

There is considerable variation, but the general pattern would be that the maritime influence is strongest near the base of the cliff and becomes gradually less dominant towards the cliff top. At the cliff base, vegetation is naturally very open and the species present have a high tolerance to salinity. The splash zone generally has a well-developed lichen flora dominated by species such as *Verrucaria maura*, *Ramalina* spp. and *Xanthoria* spp. These plant communities are dependent on rock crevices for rooting. Moving up the cliff, between the splash zone and the cliff top, vegetation on the cliff ledges is less open and can support some species which are not exclusively associated with coastal

conditions. Closer to the cliff top maritime grasslands can occur. The plant communities and physical characteristics of maritime grasslands vary depending on the degree of exposure and whether or not grazing is a factor. Plant communities typical of seabird cliffs and maritime therophyte communities are exceptions to this horizontal zonation and can occur as a mosaic with the other plant communities. The following tables present lists of species that are considered typical of the different zones associated with soft cliffs and hard cliffs by Barron *et al*. (2011).

Vegetation of soft cliffs:

Typical pioneer slope species on soft cliffs		
Agrostis stolonifera	*Equisetum* spp.	*Tussilago farfara*
Daucus carota	*Lotus corniculatus*	
Flush on soft cliffs		
Equisetum spp.	*Orchid* species	*Schoenus nigricans*
Coastal heath		
Calluna vulgaris	*Erica cinerea*	*Ulex gallii*
Daboecia cantabrica	*Erica tetralix*	*Vaccinium myrtillus*
Empetrum nigrum	*Scilla verna*	
Coastal grassland on soft cliffs		
Agrostis stolonifera	*Dactylis glomerata*	*Festuca rubra*
Anthyllis vulneraria	*Daucus carota*	*Lotus corniculatus*
Arrhenatherum elatius	*Elytrigia repens*	*Tussilago farfara*

Vegetation of hard cliffs:

Typical splash zone species on hard cliffs		
Ramalina spp.	*Verrucaria maura*	*Xanthoria* spp.
Typical crevice and ledge species on hard cliffs		
Anthyllis vulneraria	*Asplenium marinum*	*Armeria maritima*
Aster tripolium	*Atriplex prostrata*	*Beta vulgaris* ssp. *maritima*
Catapodium marinum	*Cerastium diffusum*	*Crithmum maritimum*
Festuca rubra	*Inula crithmoides*	*Lavatera arborea*
Ligusticum scoticum	*Limonium* spp.	*Plantago coronopus*
Plantago maritima	*Sedum anglicum*	*Sedum rosea*
Silene uniflora	*Spergularia rupicola*	
Typical coastal heath species		
Calluna vulgaris	*Daboecia cantabrica*	*Empetrum nigrum*
Erica cinerea	*Erica tetralix*	*Scilla verna*
Ulex gallii	*Vaccinium myrtillus*	
Typical maritime grassland species on hard cliffs		
Anthyllis vulneraria	*Armeria maritima*	*Crithmum maritimum*
Daucus carota	*Festuca rubra*	*Hyacinthoides non-scripta*
Plantago coronopus	*Plantago maritima*	*Scilla verna*
Sedum anglicum	*Silene uniflora*	*Spergularia rupicola*

Sea cliffs are particularly well-vegetated at the eastern end of the SAC with thrift (*Armeria maritima*), ivy (*Hedera helix*), common scurvygrass (*Cochlearia officinalis*), sea campion (*Silene vulgaris* subsp. *maritima*), rock sea-spurrey (*Spergularia rupicola*), buck's-horn plantain (*Plantago coronopus*), lichens and a variety of other species (NPWS, 2013). This vegetation contains crevice and ledge species along with maritime grassland species of hard cliffs (Barron *et al*., 2011).

The cliff top supports dry heath of a type characteristic of shallow soils on acid rocks. Western gorse (*Ulex gallii*), bell heather (*Erica cinerea*) and ling (*Calluna vulgaris*) are the most common species. Associated species include wood sage (*Teucrium scorodonia*), sheep's-bit (*Jasione montana*), devil's-bit scabious (*Succisa pratensis*), slender St. John's-wort (*Hypericum pulchrum*), mouse-ear hawkweed (*Hieracium pilosella*), heath bedstraw (*Galium saxatile*), English stonecrop (*Sedum anglicum*), common dog-violet (*Viola riviniana*), goldenrod (*Solidago virgaurea*), burnet rose (*Rosa pimpinellifolia*) and a variety of bryophyte and lichen species. The presence of wild madder (*Rubia peregrina*) is indicative of the southern location of the SAC (NPWS, 2013).

Coastal grassland with red fescue (*Festuca rubra*), common bent (*Agrostis capillaris*), creeping bent (*A. stolonifera*) and sweet vernal-grass (*Anthoxanthum odoratum*) also occurs in places on the cliff top. Associated species include yarrow (*Achillea millifolium*), buck's-horn plantain, daisy (*Bellis perennis*), sea mayweed (*Matricaria maritima*), common sorrel (*Rumex acetosa*), wild carrot (*Daucus carota*), thrift and kidney vetch (*Anthyllis vulneraria*) (NPWS, 2013).

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

3.4.5 Vegetation composition: negative indicator species

Negative indicator species can include non-native species (e.g. *Hebe* spp*., Carpobrotus edulis, Gunnera tinctoria*), 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.

3.4.6 Vegetation composition: bracken and woody species

Encroachment of bracken (*Pteridium aquilinum*) and woody/scrub species on cliffs, particularly on maritime grasslands and coastal heath, leads to a reduction in species diversity.

At Helvick Head SAC, where heath has reclaimed formerly improved fields, gorse (*Ulex europaeus*), bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosus* agg.) are common (NPWS, 2013).

The target for this attribute is that in the case of maritime grassland and/or heath, bracken should make up less than 10% of the vegetation cover, while woody species should make up no more than 20% of the vegetation cover.

4 References

Barron, S., Delaney, A., Perrin, P., Martin, J. and O'Neill, F. (2011) National survey and assessment of the conservation status of Irish sea cliffs. Irish Wildlife Manuals, No. 53. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Browne, A. (2005) National inventory of sea cliffs and coastal heaths. Unpublished report to the National Parks and Wildlife Service, Dublin.

European Commission (2013) Interpretation Manual of European Union Habitats - EUR 28. DG Environment - Nature and Biodiversity, Brussels.

Fossitt, J.A. (2000) A guide to habitats in Ireland. The Heritage Council, Kilkenny.

JNCC (2004) Common standards and monitoring guidance for maritime cliff and slope habitats. Joint Nature Conservation Committee, Peterborough, UK.

NPWS (2013) Site Synopsis Helvick Head SAC (000665)
https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000665.pdf

Appendix I – Distribution map of Vegetated Sea Cliffs within Helvick Head SAC