2016-2021 Flamborough Head European Marine Site Management Plan







Flamborough Head Special Area of Conservation

&

Flamborough and Filey Coast Special Protection Area

Flamborough Head European Marine Site Management Scheme

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Flamborough Head
EUROPEAN
MARINE SITE
Management Scheme

Published September 2016.

This Management Plan has been developed by Heather Davison (Project Officer) on behalf of the Flamborough Head European Marine Site Management Scheme and has been approved for use by the Relevant Authorities' Group, which consists of the following partners:

Bridlington Harbour Commissioners
Trinity House
Flamborough North Landing Harbour Commissioners
North Eastern IFCA Inshore Fisheries and Conservation Authority
Marine Management Organisation
NATURAL ENGLAND
EAST RIDING OF YORKSHIRE COUNCIL
Whitby Scarborough Filey Borough of Scarborough
A great place to live, work & play
YorkshireWater
Environment Agency
North Yorkshire County Council

Implementation of this Management Plan is also supported by our key partners:

rspb giving nature a home
The Wildlife Trusts Yorkshire Wildlife Trust

Front Cover Images: Paula Lightfoot and Heather Davison

Preliminary Notes

UK Referendum on Leaving the European Union

On 23rd June 2016, the UK voted to leave the European Union (EU). Although the Flamborough Head European Marine Site is based on a number of European directives and national legislation, it is not yet clear how the decision will affect this, and many other, marine protected areas. However until the UK officially leaves the EU, and legislation is altered or amended accordingly, all current directives, regulations and commitments remain in place. Therefore, all Relevant Authorities must continue to execute their responsibilities and ensure that the site reaches, or is maintained in a, 'favourable' condition.

Executive Summary

This Management Plan sets out the existing and future management of the Flamborough Head European Marine Site (EMS) for the next five years. It has been developed in conjunction with Relevant Authorities and key partners in order to appropriately manage the activities and projects occurring within or adjacent to the protected area. The definitive aim of the Management Plan is to ensure that the conservation features of the EMS are not negatively affected by human disturbance or inappropriate management. This document should be used in conjunction with the Regulation 33/35 Conservation Advice packages and conservation objectives for the site.

Why does the EMS need a Management Plan?

The production of a Management Plan, in conjunction with an effective Management Scheme, demonstrates best value for money, as it assists Authorities in dispensing their duties to maintain or restore the EMS to 'favourable' condition status. The Habitats Regulations (as amended, 2010) advise that management plans be developed for EMSs as best-practice, to avoid deterioration of habitats and disturbance of species, whilst enabling a better understanding of the protection afforded to the site. Although this is not a statutory document, it details the legal responsibilities of Relevant Authorities and describes how these responsibilities will be administered in order to protect the conservation features of the site.

Who is the Management Plan for?

Primarily, this document has been produced to assist Relevant Authorities with management of the EMS and to demonstrate the protection afforded to the site. However, the Management Plan contains a wealth of information on the features of the EMS, therefore, this publicly available document may be used by a variety of individuals to inform a wide range of projects.

What is included in the Management Plan?

This document has been divided into four distinct chapters and additional appendices:

1. The European Marine Site - describes the designations and the conservation features of the EMS along with other protected areas inside the boundaries of the site.
2. Legislative Drivers and Sustainable Development Policies - details the legislation behind the designations and other policies which affect management.
3. The Management Scheme - details the organisations which are responsible for managing the EMS, and explains how the site is governed.
4. Site Management - describes the activities known to occur around the EMS and the management measures employed by the Management Scheme.

Appendix A: 2016-2021 Action Plan - details the active projects which are being undertaken around the EMS, along with Relevant Authority responsibilities and Management Scheme aims.

Appendix B: Activity-specific management measures and pressures on conservation features.

Appendix C: Case studies of best practice and successful projects (2007-2016).

Appendix D: Maps, references and Relevant Authority contact details.

Version Control

This document will be updated as necessary following changes in legislation, policy and guidance, site condition and management pressures. The table below will document any changes made to the Management Plan text. The appendices will be updated regularly, through the annual reporting system. Annual updates will *not* be recorded in the table below.

Date	Pages Changed	Summary of Changes
January 2017	Page 19, Table 3	Additional EMS specific byelaw added to Table 3.
January 2018	Page 3, Table 1	Size of SAC amended
January 2019	Page 4, Section 1.2.1	SAC sub feature names updated
	Page 5, Section 1.2.2	Seabird population counts, productivity figures and graphs updated
	Page 14, Section 2.1.2	Included link to Designated Sites System
	Page 21, Section 2.4.4	Included reference to the 25 Year Environment Plan
	Page 50, Section 4.5.2	Included reference to the development of an Environmental Incident Wildlife Response Plan
	Appendix B, Figure B3	Updated NEIFCA byelaws (berried lobsters)
	Appendix D, Figure D2	Updated North Sea MPA map

Review Timetable

A number of document reviews are scheduled for the duration of the Management Plan. The annual review process requests that Relevant Authorities and key partners update their specific projects as listed within the Action Plan and supply any new information as is necessary. Whilst this process will form the basis of most updates, new Conservation Advice (Regulation 35) for the EMS is expected to be published during the cycle of the Management Plan. The document will be changed to reflect this and any designation changes.

2017	Annual review process, including Action Plan update
2018	Annual review process, including Action Plan update
2019	Mid-term review following publication of Regulation 35 Conservation Advice
2020	Annual review process, including Action Plan update
2021	New five-year Management Plan (2021-2026) developed and published

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Chapter One:
The European Marine Site

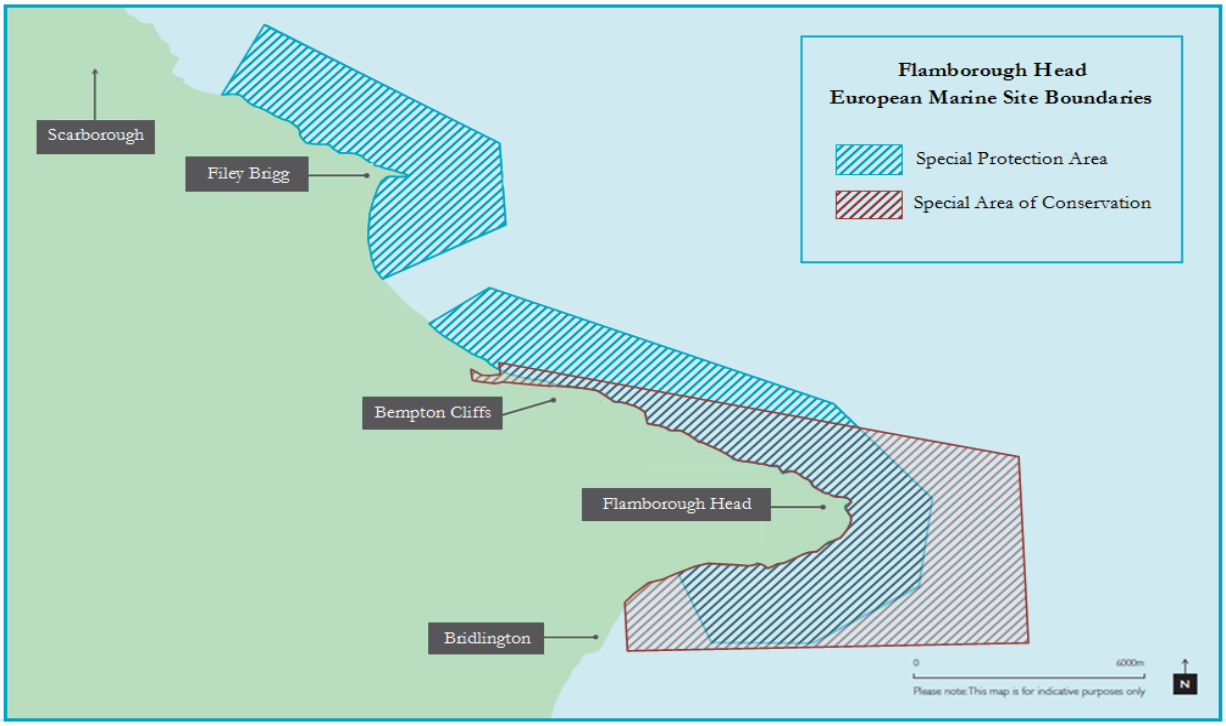
1.1 Introduction

Situated on the east coast of Yorkshire, Flamborough Head is the most northerly outcrop of coastal chalk in the UK, where white cliffs surge out of the sea to heights of more than 130 metres (m). Hundreds of sea caves have been forged from this rock by the ever-pounding waves of the North Sea, leaving smugglers' caverns and coves scattered around the shoreline. Thousands of seabirds squabble for space on the cliff face, and soar above the waves before diving below to fish for food to satisfy demanding chicks. Below the waves, on the murky chalk reef, lurk the lobsters and edible crabs which serve the UK's biggest shellfish port, Bridlington.

The high chalk cliffs of Flamborough give way northwards to the gently sloping clay cliffs of Speeton and Filey Bay, before rising again to form Filey Brigg. Although geologically very different from Flamborough Head, consisting of a mixture of sandstone and limestone, this 1.5 kilometre (km) narrow peninsula is also an important habitat for the breeding seabird colony. Rising to a modest 20m, the natural rock ledges on the harder, northern side of the peninsula enable kittiwakes, guillemots, razorbills and fulmars to breed throughout the summer months.

1.2 The European Marine Site

European Marine Site (EMS) is an umbrella term for two separate designations occurring together in tidal waters: the Special Area of Conservation (SAC) and the Special Protection Area (SPA) show in the map below. These designations form part of the Natura 2000 network of nature conservation areas, which are in place across the European Union (EU), whilst also contributing to the UK's network of Marine Protected Areas (MPAs). Currently, more than 17% of the UK's marine environment is covered by some form of conservation designation[1].



[1] Joint Nature Conservation Committee (2016)

Regular monitoring informs managers whether features are meeting conservation objectives, by achieving 'favourable' condition status, or if further management measures are needed (see Section 1.3). Conservation objectives and descriptions of 'favourable' condition can be found in the Regulation 35 (33) Conservation Advice for the site (a revised document is currently in development). Table 1 illustrates the conservation features and condition status of both the SAC and SPA, along with the parallel Site of Special Scientific Interest (SSSI) designations.

Table 1: Designations and Conservation Features of the European Marine Site

Designation	Conservation Features and Sub-features	Condition Status*
Flamborough Head Special Area of Conservation (6623 hectares)	1. Reef a. Rocky Shore Communities b. Kelp Forest Communities c. Subtidal Faunal Turf Communities 2. Submerged or Partially Submerged Sea Caves a. Microalgal and Lichen Communities b. Faunal Cushion and Crust Communities 3. Vegetated Sea Cliffs of the Atlantic and Baltic Coasts	All Features: Favourable (2010)
Flamborough and Filey Coast Special Protection Area (8039 hectares)	1. Black-Legged Kittiwake 2. Northern Gannet 3. Common Guillemot 4. Razorbill 5. Seabird Assemblage a. Northern Fulmar b. Non-listed Species (Atlantic puffin, herring gull, European shag & cormorant)	Black-Legged Kittiwake: Unfavourable All Other Features: Favourable (2016)
Site of Special Scientific Interest: Flamborough Head (315 hectares)	1. Geological Features (EC Aptian-Albian; EC Berriasian-Barremian; E Cenomanian-Maastrichtian; EC Kimmeridgian; EC Pelistocene Vertebrata; EC Quaternary of East England; IS Quaternary of East England; IA Coastal Geomorphology) 2. Biological Features a. Hard Maritime Cliff and Slope (maritime grassland [MC11 & MC8], maritime seabird cliff community [MC6]) b. Aggregations of Breeding Seabirds (Kittiwake, razorbill & guillemot; Assemblage of breeding seabirds including puffin and fulmar)	Favourable = 67%, Unfavourable Recovering = 4%, Unfavourable Declining = 29% (2015)
Site of Special Scientific Interest: Filey Brigg (28 hectares)	1. Geological Features a. EC Oxfordian 2. Aggregations of Non-Breeding Birds a. Purple Sandpiper	All Units: Favourable (2010)

* Further information about condition monitoring and current statuses can be found in sections 1.3 and 2.1.

1.2.1 Special Area of Conservation

The Flamborough Head SAC conserves the sea caves, vegetated sea cliffs, and the chalk reef around the headland, on which so many species depend. The unique geological features of the headland and the rich waters of the North Sea - nourished by the meeting of two currents, known as the Flamborough Front - draw seabirds and other marine species to the area each year.

Feature: Reef

The chalk bedrock and boulder reefs of Flamborough Head are one of the most extensive areas of sublittoral chalk in Europe, extending up to 6km offshore. Comprising of horizontal ledges, vertical walls and broken rock, the harder chalk on the north side of the headland has created a reef habitat which supports a different range of species from those on the slightly softer southern side of the headland. This diverse temperate ecosystem is home to a wide variety of animals including sponges, sea firs, sea squirts and molluscs. Mobile species including lobsters, crabs and starfish also contribute to this 'living turf'. The unique location of the chalk reef, between the colder northern current and the warmer waters from the south, means that many species are found to be at the limits of their normal distribution range. For these reasons, the reef habitats at Flamborough are considered to be one of the most diverse in the UK. There are three sub-features within the reef habitat around Flamborough Head:

***Sub Feature**: Intertidal Rock (Rocky Shore Communities)*

This intertidal area is a biologically-rich and complex environment. The exposed north-eastern shores of the headland, and the more sheltered southern shoreline, are home to a variety of species which are highly tolerant to the daily changes in temperature, salinity and wave action. Hardy seaweeds and algal species are common in this habitat, along with limpets, mussels and anemones.

***Sub Feature**: Infralittoral Rock (Kelp Forest Communities)*

The clarity of the relatively unpolluted sea water and the hard nature of the chalk have enabled extensive kelp forests to become established in the shallow waters around the base of the cliffs. Similar to terrestrial forests, this type of habitat is recognised as one of the most productive and dynamic ecosystems in the world, due to its ability to shelter and feed a variety of species. Small animals, such as worms and crustaceans, live amongst larger species like lumpsucker fish and sea urchins.

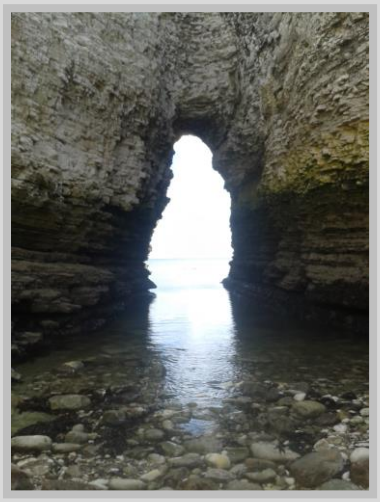
***Sub Feature**: Circalittoral Rock (Subtidal Faunal Turf Communities)*

Otherwise known as animal dominated submerged rock, this habitat is covered by colonial animals which can often be mistaken for seaweed species. These encrusting mats and plant-like organisms are commonly used by other animals as a substrate to live on, including crabs, molluscs and sea slugs. One hydroid species, which resembles a bottlebrush, is a northern species found at the southernmost limit of its range around Flamborough Head.

Chalk reef is exposed at low tide in many locations around the headland, including here at Thornwick Bay.

Feature: Submerged or Partially Submerged Sea Caves

Due to the continued wave action of the North Sea and the unique geology of the headland, Flamborough has a greater number and wider variety of cave habitats than any other chalk site in Britain. There are in excess of 300 caves around the site; some extend for more than 50 metres into the cliff itself, while others are partially submerged by seawater at all times.



This archway at Selwicks Bay is typical of the caves and arches at Flamborough.

***Sub Feature**: Microalgal and Lichen Communities*

The cave systems around Flamborough are important because of the algal communities which inhabit them. Species such as the deep red sommerfelt mix with green and brown algal species on the cave walls, creating a mosaic of colour. The caves are also home to chalk-boring sponges which create round holes in the rock of up to 5 centimetres in diameter.

***Sub Feature**: Faunal Cushion and Crust Communities*

The faunal communities found within the sea caves around Flamborough Head are an important structural component of the habitat. The varied extent to which the caves are immersed and scoured by the waves has led to a diverse community. Whilst limpets and periwinkles dominate most caves, some species are only found in a handful of locations. For instance, a type of sand-concreting tube worm has only been recorded in caves at North Landing and Thornwick Bay.

Feature: Vegetated Sea Cliffs of the Atlantic and Baltic Coasts

The hard chalk cliffs of Flamborough Head, which are more commonly found on the south coast of England, house an important example of calcareous cliff vegetation. Whereas most east coast cliff sites are less influenced by salt spray than those in the south, Flamborough is an exception due to its position and the underlying geology. This maritime influence allows sea cliff species, such as thrift and sea plantain, to grow alongside herbaceous species like kidney vetch. Towards the eastern end of the site, the glacial till deposits support acidic grassland communities.

1.2.2 Special Protection Area

The Flamborough Head and Bempton Cliffs SPA was originally designated in 1993 for its internationally-important colony of black-legged kittiwakes, which amounted to 2.6% of the international breeding population.

The designation has recently been extended and renamed as the Flamborough and Filey Coast SPA. This extension has provided specific protection for another three species, the overall seabird assemblage (defined as more than 20,000 breeding individuals) of approximately 298,054[2] breeding

[2] Aitken, D., Babcock, M., Barratt, A., Clarkson, C. Prettyman, S. (2017). *Flamborough and Filey Coast pSPA Seabird Monitoring Programme 2017 Report.* Natural England & Royal Society for the Protection of Birds.

adults, an area of inshore waters and the terrestrial cliff environment of Filey Brigg (see Table 1). The protection afforded to the inshore waters around the terrestrial designation, from mean low water to 2km offshore, helps to meet some of the essential ecological requirements of the breeding seabird populations; preening activities, breeding displays and local foraging occur in these waters.

Feature: Black-legged Kittiwake

The Flamborough and Filey Coast SPA represents the only English MPA supporting black-legged kittiwake numbers of international importance. This medium-sized gull nests throughout the protected area and can raise three chicks, although it is more common for two eggs to be laid. The intertidal wave-cut platforms are used as roosting sites by juveniles and large groups of seabirds loaf on the sea during the summer season. Kittiwakes have been recorded foraging more than 200km offshore where they feed on small fish gathered near the surface.

Kittiwakes can lay up to three eggs but it is common for only one or two chicks to fledge.

Recent counts have indicated a significant decrease in the kittiwake population within the SPA. In 1987, approximately 83,700 pairs of kittiwakes were nesting around Flamborough Head. After an extreme low of 37,617 pairs in 2008, the population was counted at 51,372 pairs in 2017[2]. This decrease is indicative of other North Sea kittiwake colonies, as the species is declining nationally. Reasons for this decline are currently unknown, however it has been linked to an increase in sea surface temperature reducing the availability of their main prey source (sandeels) (see Section 4.1.1). This change in population size has been reflected in the 'unfavourable declining' SSSI condition assessment for supralittoral rock (see Section 1.3). Figure 1 illustrates the decline in kittiwake productivity, reaching a low of 0.51 chicks per pair at Flamborough Head in 2013[2].

Productivity monitoring of the kittiwakes nesting along Filey Cliffs began in 2012. During this initial monitoring year, three plots were lost due to a landslip. As seen in Figure 1, productivity at Filey has steadily increased, however this is still below the national average (0.68 chicks per pair) and lower than the productivity records for the Flamborough and Bempton Cliffs colony[2].

Feature: Northern Gannet

The gannet colony along Bempton Cliffs is the only mainland gannetry in England and represents over 2% of the North Atlantic population. The colony has grown rapidly to over 27,000[2] individuals since the 1980s, when only a handful of pairs were present. Gannets can travel hundreds of kilometres in search of prey and can dive to a depth of around 20m, reaching speeds of up to 60 miles per hour. Gannets, which rear single chicks, have shown a slight drop in productivity in recent years, however this is believed to be in line with the overall trends of the general population, which is continuing to grow (Figure 2)[2].

Feature: Razorbill

The razorbill colony at Flamborough Head is one of the southernmost breeding groups on the east coast of England. Like guillemots, razorbills lay a single conical shaped egg on bare rock, only utilising the sheer cliffs of the northern side of the headland. This breeding method helps to prevent mammalian egg predation, though nest sites can be exposed to adverse weather conditions. The breeding colony around Flamborough has been steadily increasing since the late 1960s and now consists of around 20,252 pairs[2]. This is reflected in the strong productivity trends shown in Figure 3[2]. Preliminary studies around Flamborough Head and Bempton Cliffs have shown that razorbills feed on sandeels during the breeding season, but have also been recorded foraging for sprats and other small fish.

Feature: Common Guillemot

Guillemots are one of the most numerous seabirds within the breeding colony; approximately 60,887[2] pairs exploit the sheer cliffs and ledges to lay their single egg. Productivity has fluctuated recently (Figure 4[2]) although this remains in line with national trends. Guillemots are much less restrictive than kittiwakes and can feed successfully on sprats, sandeels and other small fish. Nesting bridled individuals have also been observed.

Feature: Seabird Assemblage

The seabird assemblage is of international importance due to the number of individual seabirds found within the site. While not a qualifying feature in their own right, northern fulmars are considered to be a main component of the assemblage, as over 2,000[2] individuals return to the cliffs to breed each summer. Found widely around the UK coast, fulmars are able to feed on a variety of prey species. The largest concentration of fulmars within the SPA is on the northern side of the headland at Speeton cliffs and around Filey Brigg.

Under the seabird assemblage, all migratory species are also afforded protection, despite not meeting the numbers of national importance (1% of national population). Therefore, Atlantic puffin, herring gull, European shag and great cormorant are also referenced as non-listed assemblage species.

Guillemots, razorbills and kittiwakes often nest close together around the protected site.

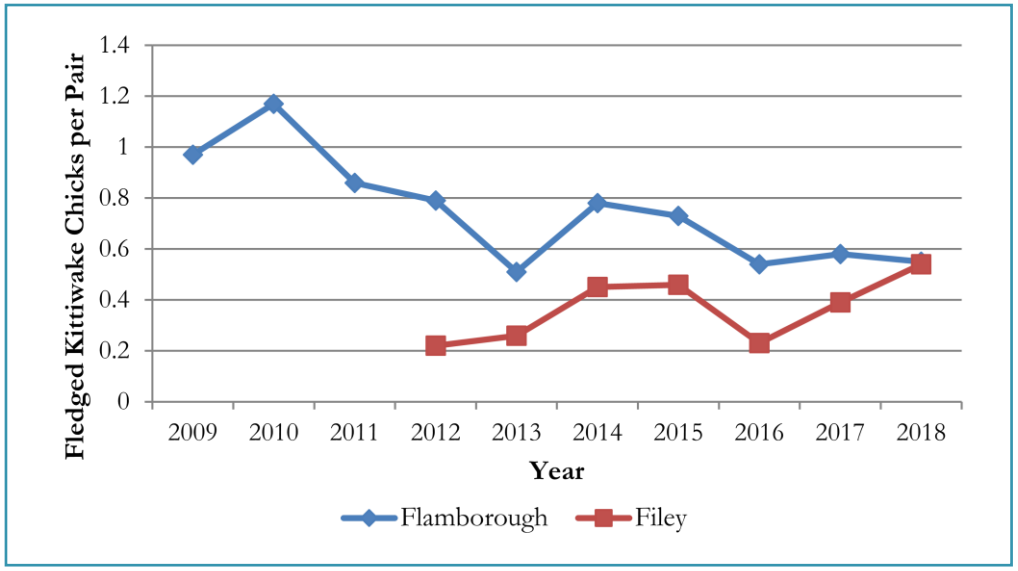


Figure 1: Kittiwake Productivity at Flamborough Head and Bempton Cliffs (2009-2018) and Filey Brigg (2012-2018)

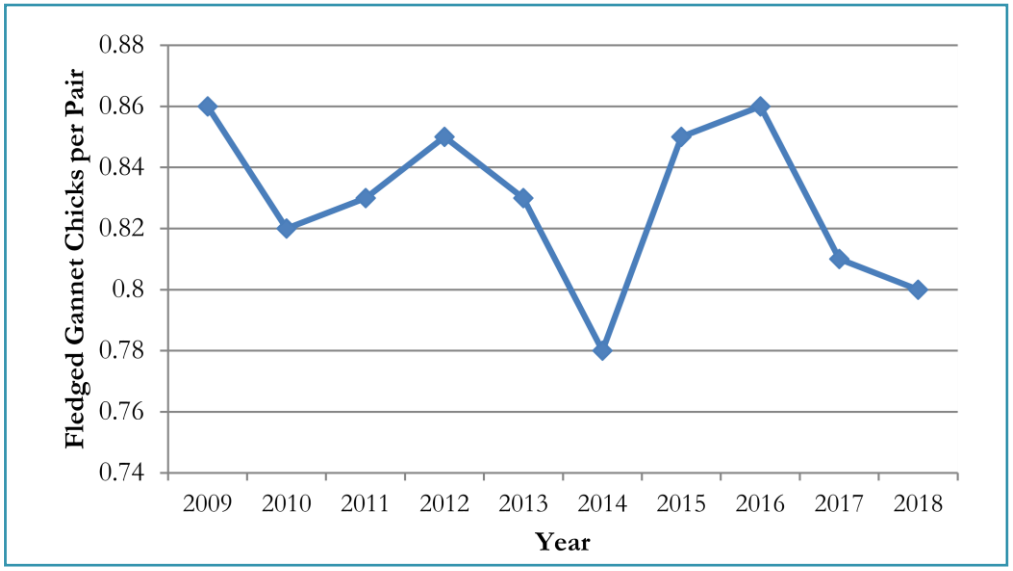


Figure 2: Gannet Productivity at Flamborough Head and Bempton Cliffs (2009-2018)

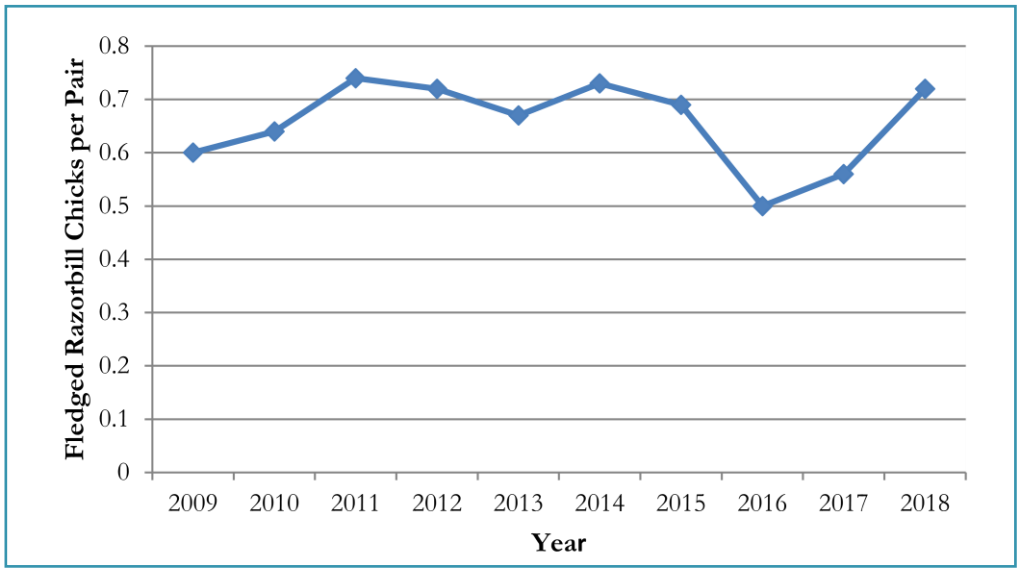


Figure 3: Razorbill Productivity at Flamborough Head and Bempton Cliffs (2009-2018)

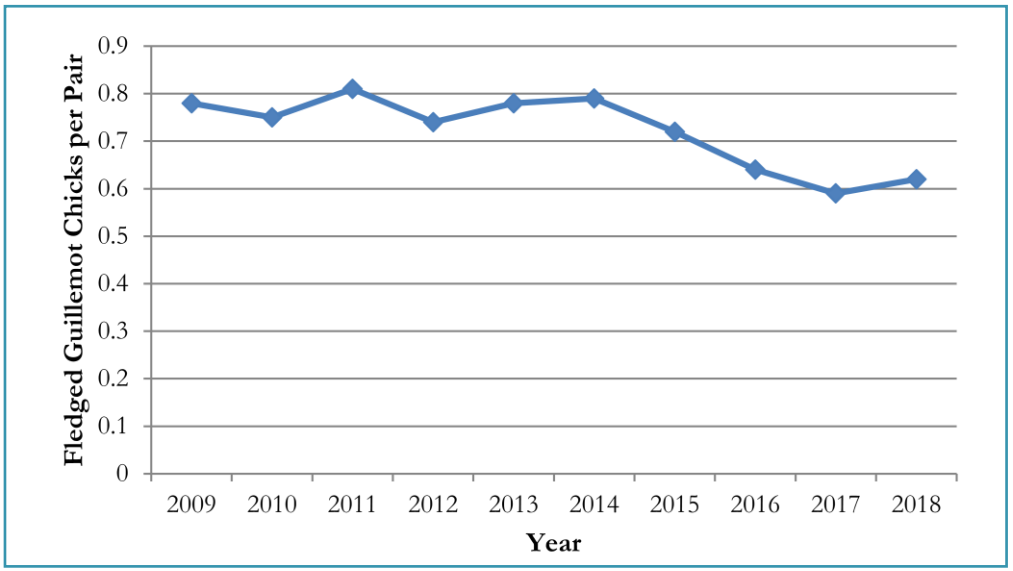


Figure 4: Guillemot Productivity at Flamborough Head and Bempton Cliffs (2009-2018)

1.2.3 Sites of Special Scientific Interest

Terrestrial SPAs in the UK are underpinned by a Site of Special Scientific Interest (SSSI), designated under the Wildlife and Countryside Act (1981). This national legislation provides the technical mechanisms for management of the European designations and allows regulatory authorities to ensure that there is no conflict between the site's features and any activities occurring within the protected area. Similarly, authorities also have a duty to investigate if an activity enacted outside of the SSSI boundaries has a negative effect on the features of the site.

Flamborough Head SSSI

First notified in 1952, this SSSI comprises the coastal cliffs of Flamborough Head between Reighton in the north and Sewerby in the south. The rock exposures provide the ledges, holes and stacks which are relied upon by the seabirds for their nesting sites and the vegetated cliff-top provides habitat for grassland species to grow alongside maritime-influenced plant varieties.

The chalk of Flamborough Head is part of an ancient cliff line which extends inland, to the west of Driffield and Beverley, and reaches southwards into the Lincolnshire Wolds. The chalk rock was formed at the bottom of an ancient sub-tropical, shallow sea through the decomposition of the remains of millions of tiny sea creatures. As such, this internationally-important geological site has numerous features of interest spanning the Upper Jurassic period (about 140 million years ago) to the top of the Cretaceous period (about 70 million years ago). The cliffs are capped by boulder clay, laid down over thousands of years during consecutive ice ages. Amongst this range of sediment deposit and rock, fossilised mammals from the Pleistocene era (between 2.5 million and 11,000 years ago) can be found.

The northern cliffs are relatively simple in comparison, consisting of the iconic chalk cliffs interspersed with flint deposits. The northern side of the headland holds the majority of sea caves and, where the overlaying clay till has collapsed into these recesses, a number of blowholes have developed. The largest quantities of breeding birds can be found on the north-facing cliffs, although a small number do nest around South Landing on the southern side of the headland. This aggregation of breeding birds is protected through the SSSI because it relies directly on the supralittoral rock (or rock influenced by its maritime location) of the headland.

Filey Brigg SSSI

Filey Brigg SSSI includes the peninsula and a small proportion of the land directly behind. Whilst very different geologically from Flamborough Head, the exposures of limestone from the Corallian period (157 million-163 million years ago) make this area an important geological site. The Brigg also provides one of the best locations for examining middle calcareous grit stones, which have been mined extensively in other areas to construct notable buildings such as Ampleforth College. In addition to these geological features, the intertidal habitat of the rocky shoreline is also protected. The littoral sediment, formed as the softer glacial clay material erodes, provides habitat for nationally important numbers of over-wintering purple sandpiper.

An extension to this existing SSSI, incorporating features from Filey Brigg to Scarborough South Bay, is currently under development.

1.3 Conservation Feature Monitoring

Regular monitoring of the conservation features and supporting habitats is an important management tool of the Management Scheme, enabling an effective decision making process based on the best available evidence. Activities which are controllable by the Relevant Authorities must be monitored to ensure that any negative effects on the features of the site are minimised and all stakeholders are aware of the protected area. Additionally, non-statutory monitoring can improve knowledge of the site and inform the decision-making process.

1.3.1 Condition Assessments

In order to inform site management, condition assessments must be regularly carried out by the Statutory Nature Conservation Body (Natural England). Assessments range from 'favourable', which all features should be targeted towards or maintained at, to three levels of 'unfavourable' condition. As the EMS is part of the wider Natura 2000 European network of nature conservation areas, the results of the SPA and SAC assessments are forwarded to the European Commission. The national SSSI designations overlap and underpin the European designations, giving many of the technical mechanisms for management. As such, the majority of the SAC and SPA features are assessed through regular SSSI monitoring, rather than individual assessments.

All conservation features of the EMS are currently classified as being in a 'favourable' condition, with the exception of kittiwake (see Table 1). This reflects the significant decline in the size of the breeding kittiwake colony since the classification of the SPA (see Section 4.1.1). The decline is also reflected in the units of the SSSI, because of the seabird's dependence on the geological features of Flamborough Head. Currently, 19 of the 28 supralittoral rock SSSI units are classed as 'unfavourable declining' to reflect the 53% reduction in the kittiwake population since notification of the SSSI. Table 2 summarises the differences in assessment procedures for each designation.

Table 2: Condition Assessment Procedure Summaries

Feature	Condition Assessment Details
SPA	SPA condition assessments are reported to the European Commission on a national, rather than site specific, scale. Data collected through SSSI monitoring of seabird populations is often used as a proxy for SPA assessments. The national decline in kittiwake numbers is also reflected in the SSSI supralittoral rock unit assessment, due to the species' dependence on this feature.
SAC	SAC condition assessments are reported to the European Commission on a national, rather than site specific, scale. The reef and sea cave features are individually assessed on a regular basis, at least every six years. The vegetated sea cliff feature is assessed as part of the SSSI monitoring.
SSSIs	SSSI assessments are reported to the UK Government on a national scale, with regional and site-specific breakdowns available from Natural England. Each SSSI unit is assessed, on average, every seven years. 29% of the Flamborough Head SSSI is currently classified as 'unfavourable declining' due to the reduction in the kittiwake population.

1.3.2 Non-Statutory Monitoring of the Conservation Features

There are many types of non-statutory monitoring which are undertaken around the EMS. It is most likely that this regular research will alert the Relevant Authorities to any on-site changes and any new management measures that may need to be implemented, at an early stage. For example, the annual shellfish stock assessment surveys which are undertaken by the Project Officer on behalf of the North Eastern Inshore Fisheries and Conservation Authority (NEIFCA) may alert fisheries managers to changes in the local marine environment before condition assessments are undertaken. Similarly, ad-hoc monitoring such as beach cleans carried out by Yorkshire Wildlife Trust, recreational disturbance reports (see Case Study Three), beached bird surveys, invasive species monitoring and citizen science projects like Seasearch, provide the Management Scheme with an ecosystem-wide view of the state of the local environment. Local organisations are encouraged to share data between stakeholders, in order to ensure effective management practices.

The RSPB, on behalf of Natural England, has carried out seabird population and productivity monitoring for a number of years around Flamborough Head and Filey Brigg (see Case Study Four). This monitoring gives a clear representation of the current health of the seabird colony and helps to inform the SSSI and SPA condition assessments; it fundamentally underpins the Management Scheme's knowledge of the protected seabird colony.

Seabird productivity fluctuates in reaction to changes in the weather, the availability of prey and the overall health of the colony. By understanding these changes, the Relevant Authorities can effectively identify areas where pressure can be reduced, for example in disturbances caused by recreational activities. As such, it is imperative that this baseline monitoring of the seabird colony continues on an annual basis. In recognition of the importance of this seasonal monitoring, the studies have been included in the 2016-2021 Action Plan.

1.4 Overlapping and Adjacent Designations

A number of other designations exist around Flamborough Head and Filey Brigg. Although not the primary focus of the Management Scheme, each of the designations below is within the EMS boundaries to some degree. Therefore, the Management Scheme recognises the importance of managing such sites appropriately.

1.4.1 No Take Zone

As one of only three in the UK, the No Take Zone (NTZ) prohibits the removal of sea fish by any method, including intertidal hand-gathering. Situated on the southern side of the headland, the NTZ is the only one in the North Sea and is unique in that it includes the intertidal area. After extensive consultation with local fishermen and other stakeholders, the NTZ was officially formed in 2010 and provides an area which can be monitored in the absence of human activity. Since its designation, lobster and crab stock assessments have been carried out each summer to assess any change in population, along with monitoring of the blue mussel bed within the intertidal zone. The NEIFCA enforce protection of the NTZ through a local byelaw (see Table 3).

1.4.2 Heritage Coast

The traditional Yorkshire coble fishing boats are still launched from North Landing.

Heritage coasts are 'defined' rather than designated, which means that there is no statutory process like that associated with Areas of Outstanding Natural Beauty or National Parks. Nevertheless, a Heritage Coast status ensures that planning authorities take the natural landscape and character into account during the development application process. The purpose of this status is to conserve the natural beauty of the coastline and the species which inhabit it, including any heritage features. Heritage Coast status can also encourage authorities to improve the health of the inshore waters, for example by applying environmental management measures which have been developed with due regard for possible economic and social impacts.

The Flamborough Headland Heritage Coast covers 19km of coastline, with an inland boundary which encloses 8067 acres. The original definition was based on landscape quality, although this was revised in 1992 to incorporate the flora and fauna of the headland. The most recent Heritage Coast Management Strategy was developed in 2002, however financial support on a national scale for such strategies has now been removed. This Management Plan recognises the importance of the Heritage Coast and will work with partners to maintain the landscape characteristics of the area, however this document is not intended as a Heritage Coast strategy.

1.4.3 Other Nature Reserves

There are three Local Nature Reserves (LNRs) around the headland and a Country Park exists at Filey Brigg. The LNRs have been designated for wildlife or geological features which are of interest to the public, whilst Filey Country Park consists of camping facilities and a children's play area in addition to the cliff-top landscape. The EMS protection extends into all of these locally designated areas, by some degree. All of the LNRs adjacent to the EMS are managed by East Riding of Yorkshire Council, whereas Filey Country Park is operated by Scarborough Borough Council.

Furthermore, there are two nature reserves on the headland which are managed by the RSPB and Yorkshire Wildlife Trust. Each reserve manages land in accordance with Countryside Stewardship schemes (previously Higher Level Stewardship schemes), which ensures that the cliff top habitats are appropriately managed (see Section 4.3.1). For example, Holmes Gut, on the northern side of the headland and managed by Yorkshire Wildlife Trust, is an important habitat for migrant birds and provides key shelter on the otherwise exposed headland for breeding farmland birds. Here, the scrub is being managed through grazing and mechanical intervention, both to restore the calcareous grassland and introduce more diversity into the age and structure of gorse in the small valley.

Chapter Two:
Legislative Drivers and Sustainable Development Policies

2.1 Legislative Drivers

European legislative drivers, national UK laws and regional policies affect and inform the management of the EMS and its components. The European and national pieces of legislation which affect the management of the site are illustrated in Figure 5. Local and regional legislation is summarised in Table 3.

It is widely understood that the ecosystem approach to management is the most suitable way to tackle declining species and vulnerable habitats. This approach uses a framework to make management decisions based on the ecosystem as a whole, rather than a single habitat or area. Whilst some of the legislation and policy which govern MPAs is geared towards this management tool, the legislative drivers behind the EMS designations afford protection to specific habitats and species.

2.1.1 The Habitats and Birds Directives

The European Union Birds Directive (1979) and the Habitats Directive (1992) are enacted into UK law by the Conservation of Habitats and Species Regulations (as amended) 2010, as can be seen in Figure 5. This national legislation enables the designation of SACs, the formation of Management Schemes and EMSs, and describes the authorities responsible for management of a protected area. The EU Birds Directive (1979) enables the designation of SPAs and works alongside the Wildlife and Countryside Act (1981) which allows authorities to designate SSSIs, (see Figure 5) and lists specific protection for wild birds. Generally, the EU Directives give the basic outline of protection and associated powers, whilst the national legislation details the controls in place to prevent damaging activities within a protected area and also lists habitats and species that are afforded specific protection. To this end, Natural England, as the Statutory Nature Conservation Body for the UK government, provides Conservation Advice for each designated site.

2.1.2 Conservation Advice (Regulation 33/35)

Under the Habitats Regulations (as amended, 2010), as soon as possible after the designation of an EMS, the appropriate nature conservation body (in this case Natural England) must provide advice to other Authorities as to the conservation features of the site and any activities which may damage those features. This is known as Regulation 35 (previously 33) Conservation Advice and is designed to help those Authorities which have responsibilities towards the site ensure that the features reach, or are maintained in a, 'favourable' condition. Furthermore, this advice sets standards against which the conservation features are assessed, both through regular monitoring and Habitats Regulation Assessments (HRAs). SSSI units are not included in the Conservation Advice; a separate Favourable Condition Table is produced for these designations, along with a list of operations requiring Natural England consent.

The Conservation Advice is not replaced by this Management Plan, but should be used in conjunction with this document when developing projects which may affect the EMS. Conservation Advice packages are available online on the Designated Sites System.

2.1.3 Habitats Regulations Assessments

The Habitats Regulations require Competent Authorities, which are those who are able to issue statutory consents, to consider the effects of plans or projects on European sites. By undertaking HRAs, Competent Authorities can ascertain whether a plan or project is likely to have a significant effect on a European site. If a Likely Significant Effect (LSE) is identified, the Competent Authorities must proceed to an Appropriate Assessment (AA). This part of the assessment considers whether a plan or project would have an adverse effect on the integrity of the European site (summarised in Figure 5). Other assessments, through the Strategic Environmental Assessment Directive, must be undertaken on a wider scale to ensure there are no adverse effects from other plans or programmes on the marine environment. These assessments can also take place inside an EMS, where a Habitat Regulations assessment is not appropriate (Figure 5).

Species such as the exotic-looking dahlia anemone can be found around the EMS.

There are many activities that can take place inside a protected area which are not plans or projects, therefore any impacts would not be considered under the HRA process. In order to capture any negative impacts of such activities, the Relevant Authorities (those with statutory management functions) are able to establish a management scheme. Working in partnership through a management scheme provides a framework for the Relevant Authorities to consider any impacts of un-regulated activities on the site.

2.1.4 The Precautionary Principle

In circumstances where there are reasonable grounds for concern that a development or project could cause harm, but where there is uncertainty about the degree of damage which could be caused, the precautionary principle should be applied. This principle is one of the key decision-making tools in terms of environmental protection and is internationally recognised as best practice. The European Commission directs that when the precautionary principle is triggered, the decision makers should take measures that are proportionate to the level of risk and can be easily altered in the event of more reliable scientific data coming to light. This tool can be especially useful when assessing the impact of recreational activities on conservation features, if there is a lack of evidence available to quantify any negative effects.

2.1.5 The Water Framework Directive

The EU Water Framework Directive recognises that rivers, lakes and coastal waters are important natural resources and must be protected and improved. The purpose of the Directive is to establish a framework of protection for inland surface waters, transitional waters (estuaries), coastal waters and groundwater. In the UK, this is being implemented through the Water Environment Regulations (2003) and involves creating a River Basin Management Plan for each river basin district (Figure 5). Each plan identifies any negative impacts on the water environment within a

specific district and sets out environmental objectives and monitoring, along with a programme of measures designed to achieve those objectives.

The Humber River Basin Management Plan (HRBMP) covers the Flamborough Head EMS out to one nautical mile and is led by the Environment Agency. The improvement of coastal waters is currently focused on reducing diffuse pollution and the negative effects of storm water overflows discharging into the sea.

The EU Bathing Water Directive ensures that waters most often used for recreation, and designated as bathing waters, are of a high quality and are safe for the public to use. This Directive requires Member States to monitor and assess their bathing waters for at least two types of bacteria, and inform the public of their findings. The latest information on bathing water quality and the HRBMP can be found on the Environment Agency's website.

2.2 Wider Marine Conservation Legislation

There are many other pieces of national and European legislation which can affect the management of the species and habitats protected by the EMS. These drivers may be used to manage activities appropriately and ensure that the site remains in a 'favourable' condition.

2.2.1 Marine Strategy Framework Directive (2008)

The Marine Strategy Framework Directive (MSFD) is a European initiative which outlines a legislative framework for an ecosystem-based approach to the management of human activities in the marine environment. The Directive supports the use of sustainable goods and services in order to reach 'Good Environmental Status' (GES). The MSFD establishes four European Marine Regions based on geographical and environmental criteria; UK waters are included in the Greater North Sea and Celtic Seas regions. Each member state is required by this Directive to develop a marine strategy for its waters, in coordination with other countries in the same marine region. For the UK, this coordinated strategy is known as the OSPAR Convention.

2.2.2 The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)

This convention was ratified by the UK in 1998 and replaced previous agreements which aimed to reduce marine pollution. By agreeing to comply with the convention, the UK adopted the measures and programmes within the Biodiversity Strategy, which includes:

- The identification of ecological quality objectives for the North Sea;
- The development of lists of species and habitats in need of protection;
- The identification and selection of marine protected areas;
- The prevention and control of adverse impacts from human activities.

The MSFD does not set out a specific programme of measures which should be undertaken in order to achieve these objectives, with the exception of stating that a network of MPAs must be established. In the UK, this network includes EMSs, SSSIs, Ramsar sites and Marine Conservation Zones (MCZs) which are enacted by the Marine and Coastal Access Act (2009).

2.2.3 Marine and Coastal Access Act (2009)

Specific to England and Wales, this legislation provides legal mechanisms for ensuring clean, healthy, safe, productive and biologically-diverse seas and was developed to assist with the implementation of the MSFD. The Marine Act established the Marine Management Organisation (MMO) to operate as the planning authority for the marine environment. As part of its operations, the MMO is developing a series of marine plans, and is responsible for implementing and enforcing marine licences and managing fisheries between six and twelve nautical miles offshore. The EMS is located on the boundaries of two marine planning areas; East and North East. The East Inshore and Offshore Marine Plans were published in 2014, whilst the North East plans are expected to be finalised by 2020.

The Marine Act also replaced the Sea Fisheries Committees with the Inshore Fisheries and Conservation Authorities. The NEIFCA has responsibility for conserving the marine ecosystem within tidal limits of the River Tyne down to the south bank of the Humber Estuary and out to six nautical miles, whilst enabling a profitable and sustainable fishing sector.

Powers in the Marine Act also enable the designation of MCZs, which aim to halt the deterioration of the UK's marine biodiversity. Newly designated MCZs, and other types of MPA as described above, will contribute to the UK's commitment to creating an 'ecologically coherent network' of MPAs under the OSPAR Convention.

Vegetated sea cliffs, sea caves and chalk reef are all accessible in Selwicks Bay at low tide.

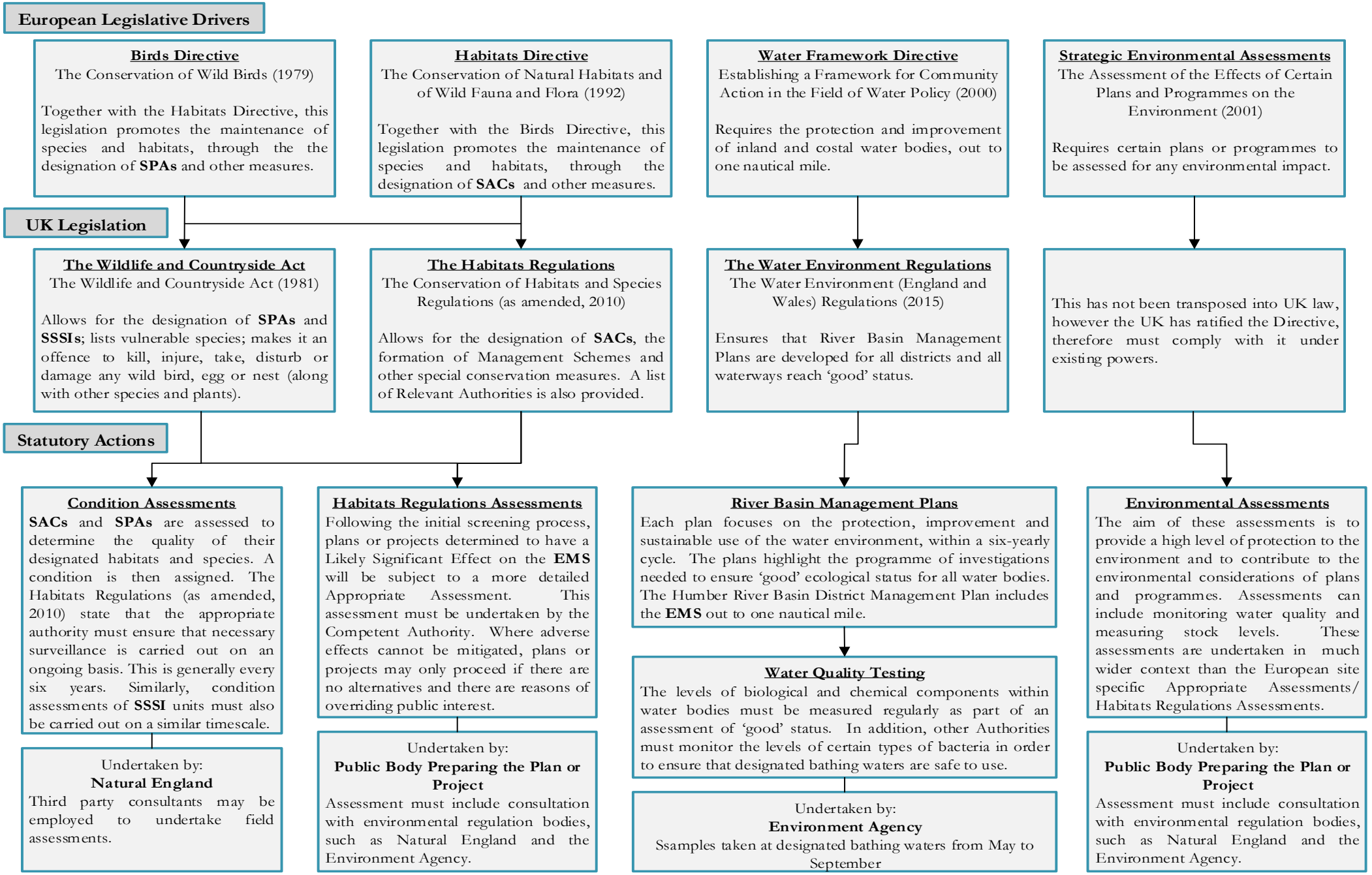


Figure 5: Statutory Management Actions Undertaken by Relevant Authorities, as Directed by European and National Legislation

2.3 Local Legislation Specific to the European Marine Site

Table 3 details the local byelaws which are implemented and enforced by Relevant Authorities in order to further enhance the protection of the EMS conservation features, through the legislative drivers detailed above. Please note that this is not an exhaustive list of all byelaws and conditions enforced by these Authorities and should not be used to determine the legality of activities. Contact the appropriate Authority for further details of each byelaw.

Table 3: Local Byelaws Specific to EMS Conservation Features and the Authority Responsible for Enforcement

Local Byelaws Specific to EMS Conservation Features	Relevant Authority
Filey Bay Fisheries Byelaw (2010) Those licensed to fish for salmon or migratory trout using a T or J net, within Filey Bay, must: - Take reasonable steps to ensure that the use of a net does not result in the death of seabirds; - Release any live seabird caught in the net as quickly as possible and with the least injury possible; - Keep a record of any seabird bycatch in an official logbook and provide a copy on request to the EA. During the month of June, all licence holders must also: - Ensure all nets are removed from the water during the hours of 9pm to 5am the following morning; - Ensure the tailpiece of the net is made of high visibility, multifilament nylon and is stitched directly to the headpiece; - Ensure that the headpiece does not exceed 70 metres in length if made of monofilament material; - Ensure that the net is not left unattended in the water at any time. * For more information, see Case Study Two in Appendix C*	Environment Agency (enforcement powers under the Environment Act, 1995)
Flamborough Head No Take Zone (2009) In an area south of Flamborough Headland, between Danes Dyke and Sewerby Steps, and 700m seaward from the cliff face, no persons shall: - Use any instrument or method of fishing, including hand gathering, for the removal or taking of sea-fish. * For more information, see Case Study One in Appendix C*	NEIFCA (enforcement powers under the Marine and Coastal Access Act, 2009)
Flamborough Head Fishing Byelaw (2013) Within the Flamborough Head Prohibited Trawling Area, no vessel shall: - Engage in any trawling activities unless a special permit is held; - Engage in beam and/or multi-rig trawling activities. Special permits will only be issued if the vessel already holds a permit to trawl within the EMS and until there is a formal change in ownership of the vessel. Permits are not transferable unless the new owner is the son or daughter of the original permit holder. Special permits may be suspended at any time; holders will be given a notice of ten working days.	
Method and Area of Fishing (Fixed Netting) Byelaw (2016) (Submitted, Awaiting Sign-off) Within the Flamborough and Filey Coast SPA: - A person must not fish or place fixed nets for the purposes of catching seafish between 1 March and 30 September.	

NB: Other byelaws apply across the NEIFCA district, including within the EMS. Contact NEIFCA for more details.

2.4 Sustainable Development Policies

The internationally-important species and habitats around the EMS are protected from unnecessary development through the various assessments which must be completed before construction begins (see Figure 5). Furthermore, national planning policies encourage the use of sustainable development practices in order to ensure the character of the landscape is not negatively affected by construction projects, and any management necessary to protect the coastline is not carried out in detriment to the features of the EMS.

2.4.1 Heritage Coast

Although the Flamborough Head Heritage Coast is a non-statutory designation, it does have planning implications for the local area and complements statutory planning policies. The Heritage Coast should conserve, protect and enhance the natural beauty of the area, including the wildlife, habitats and heritage features of the coastline. This also includes the maintenance and improvement of inshore waters, whilst taking account of the needs of agriculture, fisheries and tourism industries (additional information can be found in Section 1.4.2).

This protection is led by local authorities through their planning policies, as directed by the National Planning Policy Framework (NPPF), and presented in the area's Local Plans. Both the Scarborough Borough and the East Riding Local Plans reference the Heritage Coast and recognise the protection afforded to the landscape of Flamborough Head. Rather than preventing development automatically, Heritage Coast status compels local planning authorities to take into account the sensitive nature of a particular area. Whilst the Management Scheme recognises the importance of the Heritage Coast definition, and will work with partners to preserve the heritage of the area, this Plan is not intended as a strategy for the Heritage Coast.

2.4.2 Shoreline Management Plans

Shoreline Management Plans (SMPs) are non-statutory documents for managing coastal flood and erosion risk to particular stretches of shoreline in England and Wales over the next 100 years. SMPs aim to balance those risks with natural processes and the consequences of climate change. They take into account existing defences and the natural and built environments, and are compatible with adjacent coastal areas. It is important to note, however, that funding for schemes or other works required to ensure compliance with SMP policies, is not guaranteed.

The two SMPs which cover the area of the EMS are The Tyne to Flamborough Head led by Scarborough Borough Council (SMP2), and Flamborough Head to Gibraltar Point led by East Riding of Yorkshire Council (SMP3). The majority of the cliff line within the EMS has been recommended for 'no active intervention', signifying the intent of the relevant local authorities to allow coastal processes to continue naturally. This policy complements the features of the EMS by ensuring that the chalk feature is not subjected to smothering or coastal squeeze as a consequence of defence engineering. Exceptions to this rule include the sea wall which defends Filey town and the slipways at North and South Landings at Flamborough. All of these locations are recommended as 'hold the line' based on an assessment of economic, environmental and social factors.

2.4.3 Biodiversity Action Plans

On a national scale, the UK Biodiversity Action Plan (BAP) described management for the most threatened species and habitats in order to aid recovery. In 2012, this programme was superseded by the UK Post-2010 Biodiversity Framework which identifies how the UK will achieve the aims of the 2011-2020 EU Biodiversity Strategy. Regional BAPs are developed by local authorities in order to set out the management needed for the priority habitats and species on a site-level basis.

In order to prevent duplication, the Biodiversity Framework does not describe management measures for habitats and species already protected by SPA, SAC and SSSI designations. However, the littoral (including supralittoral and sub-littoral) rock of Flamborough Head is identified as a key habitat, along with calcareous grassland, which should be appropriately managed in locations where statutory designations do not exist. Furthermore, the East Riding of Yorkshire Biodiversity Action Plan specifically recommends that the effects of marine litter on the protected seabirds should be monitored. This is currently carried out by local non-governmental organisations (NGOs), which are encouraged to escalate any specific or significant issues to the Management Scheme for investigation.

2.4.4 25 Year Environment Plan

In 2018, the Government published the first 25 Year Environment Plan, which detailed how the Government aims to improve the natural environment. The Environment Plan focuses on securing clean, healthy, productive and biologically diverse seas through initiatives to reduce pollution, limit the spread of invasive species and, introduce a sustainable fisheries policy. It is acknowledged that working collaboratively across different regions and between partners, as already demonstrated by the Management Scheme, is a positive method of achieving these aims. An 'Environment Bill' is expected to be developed in 2019, which will build on the intentions of the 25 Year Environment Plan and provide further clarity on environmental issues, following the UK's exit from the European Union.

The southern clay cliffs of Filey Brigg and the adjacent Carr Naze, with the tip of Flamborough Head visible on the right of the horizon.

Chapter Three:
The Management Scheme

3.1 Governance of the European Marine Site

The EMS is managed by a partnership of organisations which ensure that the management responsibilities set out in the Habitat Regulations (as amended, 2010) are effectively dispensed. These organisations, known as Relevant Authorities, have a legal duty to ensure that the features of the EMS are protected from any adverse effects of management activities and unregulated actions, such as human disturbance. The wider Management Scheme comprises of key partner organisations and other stakeholders who have an interest in the management of the EMS and work with the Relevant Authorities to ensure its continued protection.

3.1.1 The Relevant Authorities' Group

Any statutory body or public office exercising legislative powers (on land or at sea) is known as a Competent Authority within the Habitats Regulations (as amended, 2010). Some of these authorities are also described as Relevant Authorities and, as such, are legally required to ensure the appropriate management of the EMS. The Habitat Regulations (as amended, 2010) contains a list of these organisations and defines Relevant Authorities as:

> 'Certain Competent Authorities with local powers or functions which have, or could have, an impact on the marine area within or adjacent to a European Marine Site.'

Should the 'favourable' condition status of the site be downgraded to 'unfavourable' due to inappropriate site management, the Relevant Authorities will be held accountable. As such, the Relevant Authorities' Group will jointly agree any management decisions which could affect the features of the site, with advice from stakeholders and key partners where appropriate. Every Relevant Authority is invited to the quarterly meetings. Authorities are also able to access advice and guidance from the Project Officer and are provided with a personalised 'Information Pack' which details the Authority's responsibilities towards the EMS designations. As key advisors to Natural England on seabird monitoring around the EMS, a representative of the RSPB is also invited to sit on the Relevant Authorities' Group in an advisory (non-voting) capacity.

A number of Relevant Authorities give financial support to the Scheme, although this is not a pre-requisite of group membership, and some key partners have also supported the Scheme in the past. The roles and responsibilities of each Relevant Authority for the EMS are described in Table A1 as part of Appendix A.

Information about each Relevant Authority can be found on the EMS website[3].

3.1.2 The Project Officer

The Management Scheme, through the Relevant Authorities, employs a Project Officer to undertake public engagement, facilitate the work of the Scheme and develop management projects. The position of Project Officer is hosted by one of the Relevant Authorities (currently East Riding of Yorkshire Council) in order to provide line-management and office facilities. Hosting of the Project Officer does not, however, give the organisation additional powers within the Management

[3] www.flamboroughheadsac.org.uk

Scheme; all Relevant Authorities have an equal vote. Furthermore, the Project Officer merely facilitates the decision-making process, acting as an impartial advisor during any management discussions, and is not entitled to a vote.

The Project Officer works closely with all Relevant Authorities to solve daily management issues, develop projects and identify funding opportunities. Any matters arising which affect the conservation features of the site, or need full stakeholder approval, are brought before the Relevant Authorities during a quarterly meeting. The Project Officer also liaises with key partners, such as the RSPB and Yorkshire Wildlife Trust, along with other stakeholders, in order to manage the site effectively.

3.1.3 The Role of the Management Plan

By developing and following a Management Plan, the Relevant Authorities are actively working to meet their statutory obligations towards the site. Although not a statutory document, the Management Plan records and measures all management undertaken within the EMS. As such, the document both directs the actions of the Relevant Authorities and is influenced by the management undertaken around the site. To maintain its relevance, sections of the Management Plan are regularly updated by the Relevant Authorities, using the annual reporting system (see Section A1.3 in Appendix A).

3.1.4 Project Delivery

In order to effectively develop and implement specific projects, new groups may be formed consisting of Relevant Authorities, key partners and stakeholders. These groups will only be in existence for the duration of the project and will report directly to the Relevant Authorities' Group, through the Project Officer. Once these 'task and finish groups' have completed their assigned project, small stakeholder-led groups may be formed to ensure the continued development of a specific task. Other projects can be delivered through annual or seasonal monitoring schemes, such as the recreational disturbance monitoring system. See Appendix C for a selection of successful projects delivered through, or with the assistance of, the Management Scheme, such as the seabird monitoring programme.

Razorbill productivity is recorded through the seabird monitoring programme.

Figure 6 shows the structure of the Management Scheme for the 2016–2021 reporting cycle. The figure will be updated throughout the reporting cycle, if it is deemed to be necessary.

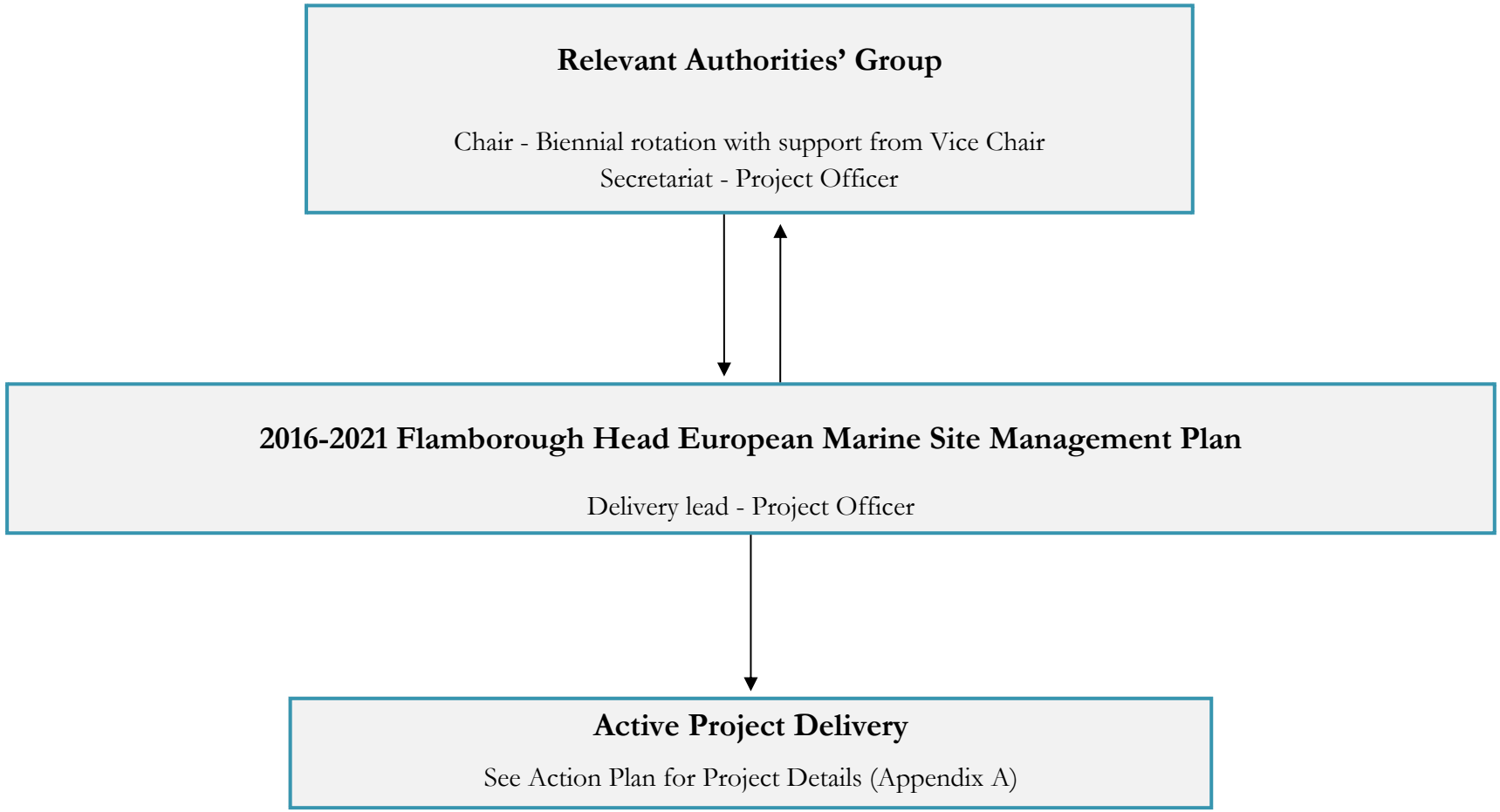


Figure 6: Structure of the Management Scheme (2016)

3.2 Aims and Objectives of the Management Scheme

Relevant Authorities, key partners and stakeholders will work together to ensure the conservation features, for which the site has been designated, are protected from any adverse impacts of management measures, pollution and environmental incidents, whilst promoting sustainable tourism and recreation, through the implementation of the Management Plan and the following aims:

A1: Ensure no management measures or unregulated activities adversely impact the conservation features, through regular condition assessments and implementation of Habitats Directive procedures.

Objective - Ensure that all development proposals within the EMS are referred to the appropriate Competent Authority for assessment against Habitat Regulations, and all activities are assessed and managed appropriately, in order to protect conservation features.

Objective - Working with key partners and other stakeholders, ensure that unregulated activities do not have a negative impact on the site. This may include implementing voluntary measures, the creation of new byelaws and designations, and the collation of appropriate activity information.

A2: Work to maintain and improve protection of the conservation features through the sharing of appropriate scientific research and site specific information.

Objective – Working in partnership, create a comprehensive dataset of activities undertaken around the EMS, which will help to inform any management measures necessary to reduce negative impacts.

Objective – Foster a working environment which supports the sharing of appropriate information and scientific data on a regular basis between both stakeholders and authorities.

A3: In order to support the work of the Management Scheme, raise public awareness about the site's importance and support sustainable recreation and tourism practices.

Objective - Through engagement events, targeted visitor communications, information displays, and partnerships with local NGOs, raise public awareness of the Flamborough Head EMS and wider marine conservation.

A4: Monitor both recreational and commercial fishing activities, ensure all relevant permits are observed and support sustainable practices, whilst engaging with the local fishing community to increase environmental awareness.

Objective - Support the use of sustainable fishing equipment and practices around the EMS, encouraging fishers to be more aware of the environmental impacts of their activities.

A5: Ensure that any non-fishing commercial activity within or adjacent to the EMS does not negatively affect the conservation features, and work to reduce the risk of marine pollution to the site.

Objective - Through the marine planning process, ensure that no offshore developments or other commercial activities negatively interact with the protected features of the site and work with partners to effectively prevent and respond to marine pollution incidents.

A6: Appropriately manage the marine environment through the monitoring of consented discharges, achieving water quality standards and ensuring all coastal environmental incidents are dealt with effectively, whilst creating a safe environment for recreational and commercial users.

Objective - Through regular water testing and assessment of discharges, including agricultural run-off, ensure that water quality is kept at a 'good' standard. Deal with any pollution incidents in an efficient and effective manner to reduce impacts on the EMS.

Objective - Ensure commercial operations are compatible with the conservation features of the EMS, including the provision of waste removal units and recording of dredge spoil disposal.

A7: Ensure that activities of the Management Scheme promote the conservation of seascape and landscape character in a way which is compatible with safe maritime practices and the values of sustainable development.

Objective - To create a safe area for maritime users of the EMS, ensure that all navigation aids are maintained and functioning correctly through regular assessments and equipment checks.

Objective - Through the planning application process and the Heritage Coast Strategy (2002), support the conservation of historic seascape character, including terrestrial and maritime heritage assets, and the aesthetic qualities of the seascape.

2016-2021 Flamborough Head European Marine Site Management Plan

Chapter Four:
Site Management

4.1 Managing Pressures on the Conservation Features

Whilst all activities undertaken within and immediately adjacent to the EMS must be compatible with the conservation objectives for the designated features (see Chapter One), it is acknowledged that some activities and pressures are beyond the control of the Management Scheme. Despite this, it is important that all partners are aware of the external pressures on the features of the EMS, in order to appropriately inform site management.

4.1.1 External Pressures on the SPA

The seabirds, for which the SPA is designated, are mobile species and, as such, may be subject to external pressures which are beyond the control of the Management Scheme. As mentioned in Chapter One, the kittiwake population around the EMS has declined substantially over the last few decades, in parallel with other North Sea colonies. Although the reasons for this decline are unclear, it has been suggested that rises in sea surface temperature, as a result of climate change, and pressures from international fisheries could be having a negative effect on the population.

Climate Change

The last few decades have seen an increase in sea surface temperatures around the North East Atlantic, with more rapid increases observed in the North Sea[4]. There is some evidence to suggest that higher sea surface temperatures during the winter months have a negative impact on the availability of year-one sandeels[4] (which kittiwakes almost exclusively feed on at the start of the breeding season, before switching to year-zero sandeels in order to feed their young[5]). A separate report suggests that this reduction in seabird productivity is linked to a lower abundance of planktonic species, which are a main prey species of sandeels[4], due to warmer seas.

Although the direct impacts of higher sea surface temperature on the marine ecosystem are unknown, throughout an 18-year monitoring period, one study found that seabird breeding productivity tended to improve following colder winters[4]. Additional studies have also concluded that the nutrient value of sandeels has lessened following a rise in sea surface temperatures in the North Sea[6]. Kittiwakes are specialist surface feeders, therefore should their preferred food source become unavailable, they are less likely to switch to an alternative prey. This may indicate why kittiwake colony

Sandeels are an important food source for many seabirds, including those nesting within the EMS.

[4] Frederiksen.M., Edwards, M., Mavor, R., Wanless, S. (2007). *Regional and annual variation in black-legged kittiwake breeding productivity is related to sea surface temperature.* Marine Ecology Progress Series. 350: 137 – 143.

[5] Frederiksen, M., Wanless, S., Harris, M.P., Rothery, P., Wilson, L.J. (2004). *The role of industrial fisheries and oceanographic change in the decline of North Sea black-legged kittiwakes.* Journal of Applied Ecology. 41: 1129 – 1139.

[6] Wanless, S., Frederiksen, M., Daunt, F., Scott, B.E., Harris, M.P. (2006). *Black-legged kittiwakes as indicators of environmental change in the North Sea: Evidence from long-term studies.* Progress in Oceanography. 72: 30-38.

counts have fallen within the EMS, whilst other seabirds that also feed on sandeels, but are not so specialist, are not experiencing the same declines.

International Commercial Sandeel Fishery

Although the UK does not have a large commercial sandeel fishery, international fleets are active around the Dogger Bank area of the North Sea, where the submerged sand banks provide ideal habitat for sandeels[7]. It has been suggested that the international sandeel fishery places undue strain on the seabird population, which may already be under pressure from reduced sandeel availability as described above. Evidence from the Isle of May in the Firth of Forth has indicated that the lowest period of kittiwake productivity coincided with the activity of a local sandeel fishery, however this does not explain a marked decline in productivity during 2004, when the fishery was not active[5]. Additionally, as the fishery primarily targets year-one/two sandeels during June and July when kittiwakes are feeding on year-zero sandeels, any conflict should be minimised. Nevertheless, by removing a proportion of the adult population, the fishery could be having a delayed effect on the availability of year-zero sandeels during the subsequent seabird breeding seasons[4].

These two factors, climate change and international commercial fisheries, are not within the powers of the Relevant Authorities to manage. The North Sea ecosystem is complex, therefore it is not known how these, and other, factors interact or what relationships (direct or otherwise) may affect the seabird populations. However, it is generally accepted that both place pressure on the success of breeding seabirds and may affect the overall condition status of the SPA conservation features. As such, it is important that Relevant Authorities and key partners work together to minimise any pressures on site which fall under their management remit.

4.1.2 External Pressures on the SAC

The conservation features of the SAC are habitat-based, therefore it can be more difficult to quantify changes caused by external factors. Nevertheless, differences in habitat composition can indicate wider environmental pressures.

Climate Change

Warming sea temperatures may already be having an effect on the immediate marine ecosystem of the EMS, albeit in a less-visible manner than the decline of the kittiwake population. There is evidence that two thirds of North Sea fisheries have shifted northwards as the seas in this area have warmed by 0.2-0.6·c per decade over the last 30 years[8]. Drawing similarities with the kittiwake population, it is thought that fluctuations in planktonic availability and distribution are having a direct effect on larval survival of demersal fish species, such as cod[9]. However, it is unclear whether these changes in the fishery are a direct result of climate change or a response to commercial

[7] Hawkins, T., Christie, J., Coull, K. (1998). *The Industrial Fishery for Sandeels*. The Atlantic Salmon Trust, Perthshire.

[8] Dulvy, N., Rogers, S., Jennings, S., Stelzenmuller, V., Dye, S., Skjoldal, H. (2008). *Climate change and deepening of the North Sea fish assemblage: a biotic indicator of warming seas*. Journal of Applied Ecology. 45. 1029-1039.

[9] Beaugrand, B., Brander, K., Lindley, J., Souissi, S., Reid, P. (2003). *Plankton effect on cod recruitment in the North Sea*. Nature. 426. 661-664.

fishing. It has been suggested that the fishing effort in the southern North Sea, particularly beam trawls targeting demersal species, has been greater than in the northern North Sea[8]. At present, it is unknown whether these changes are species specific or whether it signals a more systemic change in the ecosystem of the North Sea.

Further effects of climate change, such as rising sea levels and increased carbon dioxide levels[10], may lead to a higher number of sea-caves becoming submerged and an intensification of chalk erosion. Such changes will alter the composition of lichen communities within the cave systems and may reduce the extent of the chalk reef. Warmer, wetter winters and an earlier onset of spring could result in cliff recession through erosion and landslide, which may have an effect on the composition and extent of the vegetated sea cliff feature.

These natural processes, whether influenced by human actions or not, will cause changes to the SAC and SPA features over time. The Relevant Authorities should work together with key partners to ensure that management measures consider the impacts of climate change and act to reduce additional pressures wherever possible.

4.1.3 Overarching Management Measures

Further to any specific management required, as detailed in the Action Plan, Relevant Authorities will carry out and support the following overarching management measures which apply across the site and to all activities or projects:

- Enforce, and support the enforcement of, national and regional legislation, including those byelaws specific to the EMS (Table 3);
- Enforce and adhere to any permits or licences issued in relation to activities undertaken within the EMS or affecting the conservation features of the site;
- Ensure contractors are aware of the sensitivity of the EMS and that required consents are obtained before any commencement of works;
- Report on statutory actions and non-statutory projects affecting the EMS on a regular basis and through the annual reporting system;
- Report all significant incidents affecting the protected features of the EMS to the Management Scheme and work to reduce these incidents in the future, consulting with other Authorities and partners where necessary in order to rectify the issue;
- Promote sustainable tourism strategies which do not encourage intense levels of activity in sensitive locations within the EMS.

The following sections summarise current management measures for all activities and pressures known to be occurring around the EMS, in addition to the management described above.

[10] Harley, C., Hughes, A., Hultgren, K., Miner, B., Sorte, C., Thornber, C., Rodriquez, C., Tomanek, L., Williams, S. (2006). *The impacts of climate change in coastal marine systems.* Ecology Letters. 9. 228-241.

4.2 Activity-Specific Management Measures - Marine

All activities which occur around the site have the potential to place additional pressure on the conservation features; it is the Relevant Authorities' responsibility to identify these pressures and employ management measures to reduce any negative impacts. For the most part, this is undertaken using statutory powers, such as Habitats Regulations assessments and byelaws, however recreational activities are not regulated by one single authority. Therefore, all Relevant Authorities have a responsibility to manage any impacts caused by recreation.

There is substantial social and economic value attached to the fisheries within the SAC and the wider coastal area. In recent years, many fishing boats have also diversified to take advantage of the tourist season and offer visitors angling and nature-watching trips. The offshore energy industry has also grown rapidly and is one of the most important economic activities in the North Sea, which may present new challenges for the Management Scheme.

4.2.1 Commercial Fisheries within the EMS

The waters around the EMS, and the wider North Sea region, support a high level of commercial and recreational fishing activity. The unique position of the headland in the North Sea, at the meeting of two water bodies, results in a rich and productive marine ecosystem. Historic records and archaeological evidence clearly indicate that fishing has taken place along this stretch of coast for as long as humans have been present, with the headland providing shelter to boats which could be launched even in adverse weather. Flamborough Head SAC currently supports a mixed fishery which encompasses commercial potting, trawling, netting and lines.

Interaction with Conservation Features

Around Flamborough Head there is a potential for bottom-trawled gear, potting and anchoring to damage or remove the reef feature (and associated sub-features) for which the SAC is designated. Other types of fishing, such as netting which primarily takes place in Filey Bay, can result in seabirds (particularly guillemots and razorbills) becoming entangled and may be an additional pressure on the internationally-important seabird colony.

Existing Management

On a national scale, the MMO works with partner agencies, including the European Commission, to negotiate and set conservation reference sizes (previously known as minimum landing sizes) for many species of shellfish and seafish landed around the UK. Similarly, species quotas and discard policies are all negotiated on a national and international scale. The MMO is additionally responsible for closing certain areas at sea to commercially licensed fishing vessels and for managing fisheries 'effort' (the number of days a vessel can spend at sea).

Edible crabs are an important source of income for the shellfishery around Flamborough Head.

Locally, the NEIFCA is responsible for fisheries management within six nautical miles of the shoreline, which includes the EMS. Specifically, fisheries within the site are subject to a number of byelaws which restrict where fishing can take place (see Table 3 for EMS specific byelaws). These local regulations are in addition to regional management, which must also be adhered to within the EMS, such as the protection of 'V' notched lobsters and the stipulation that permits must be granted before any commercial activities commence.

The salmon and sea trout fishery, primarily active in this area within Filey Bay, is subject to a Net Limitation Order (NLO) which is set by the Environment Agency as the manager of migratory salmon and sea trout stocks. NLOs are designated under the Salmon and Freshwater Fisheries Act (1975) and are used to regulate the fishery around the country, in addition to any site-specific management such as the Filey Bay Fisheries Byelaw (see Table 3 and Case Study Two). The latest NLO was introduced in 2012 and is currently being reviewed.

The management of all fishing activities within the site is regularly reviewed to ensure there is no significant impact on the conservation features. For more details on fisheries management, please contact the appropriate organisation (contact details can be found in Appendix D).

2016 – 2021 Management Measures

Through effective communication and partnership working, the Management Scheme will be kept updated on the amount of bycatch recorded by the Filey Bay fishery and support the work to further reduce this number. Should any trigger levels be breached, the Management Scheme will work with partners to respond effectively and appropriately (see Case Study Two for more information). The Environment Agency now also requires the supervision of any nets which are actively fishing (i.e submerged in water), throughout the district. This may help to reduce seabird bycatch in other locations, although it is recognised that some longline nets (which are set from the beach adjacent to the EMS) are inaccessible when fishing. Furthermore, NEIFCA are currently consulting on a seasonal closure of netting activities under their jurisdiction (within the SPA) in order to remove any risk of seabird bycatch within the rest of the protected area.

The appropriate Relevant Authorities will continue to dispense their statutory duties to monitor the fisheries' effort within the SAC and assess any impacts on the features of the site, which will, in turn, be reported to the wider Management Scheme. NEIFCA are currently developing a byelaw which will require all commercial fishing boats to have an Automatic Identification System (AIS) on board. This will allow Authorities to gain a better understanding of the shellfishery within the EMS.

4.2.2 Shipping and Navigation

The only permanent moorings immediately adjacent to the EMS are within Bridlington Harbour, which is subject to navigational dredging on an annual basis. This dredge spoil has been disposed of at a site approximately 3km east of the harbour, within the boundaries of the SAC, for more than 25 years (see map in Appendix D). A small number of local boats launch from North and South Landings on the headland, whilst other local authority launch sites exist at Filey and south of Bridlington.

Trinity House maintains general aids to navigation. In the waters around Flamborough and Filey, these include the iconic lighthouse, the fog station and buoys marking submerged sand banks. In addition, Trinity House has overall superintendence and management duties for local aids to navigation maintained by local lighthouse authorities. Should there be a wreck within the EMS, Trinity House will be responsible for marking or removing the wrecked vessel, or both, in order to ensure safe navigation.

Interaction with Conservation Features

There is a risk that the dredge spoil deposits at Smithic Bank may cause increased sedimentation of the chalk reef, thereby degrading a conservation feature of the site (see Table 1). However, a report by the Centre for Environment, Fisheries and Aquaculture Science (Cefas) in 2010 found that the current level of disposal does not have a negative impact upon the integrity of the site.

A major risk to the EMS with regards to shipping may come from outside the boundaries of the site. The North Sea is a frequently utilised thoroughfare for merchant and passenger ships. If pollutants were released through the discharge of ballast water or otherwise, there could be negative impacts upon both the breeding seabirds and the chalk features.

Existing Site Management

In order to limit any impact on the conservation features, dredged material is disposed of in the lower section of the disposal site, and only at certain tide times. The suspended material is initially carried in an easterly direction, away from the key features of the SAC, whilst the sediment that settles on the seabed may be less mobile, moving only when currents exceed a certain threshold. To ensure that the dredge spoil from Bridlington Harbour does not create an adverse effect on the SAC, particular conditions are attached to the dredge licence which is issued by the MMO. These are:

- Specific parts of the harbour are designated as 'no dredge' areas, due to the amounts of contaminants bound within the sediment;
- Samples of dredge spoil must be periodically analysed for such contaminants;
- Although a three-year licence is issued which allows the disposal of 60,000 tonnes of spoil, the total annual quantity for disposal at the site is limited to 20,000 tonnes per year;
- The appropriate authorities must be notified of any changes to the method of disposal, and;
- The effects of the dredge disposal site within the SAC will continue to be monitored by Natural England.

The Bridlington Harbour Commissioners, North Landing Harbour Commissioners and the local authorities are responsible for ensuring that their launch sites have suitable waste reception facilities, including oil disposal where appropriate. Bridlington Harbour also operates a Waste Management Plan, a Port Marine Safety Plan and an Oil Spill Contingency Plan, which is a statutory requirement of all large harbour authorities.

The North Sea is recognised as a 'Special Area' under the international Marpol agreement, which aims to reduce pollution from ships by controlling the operational discharges from vessels. More

specifically, Flamborough Head has been identified as a Marine Environmental High Risk Area, which informs mariners of the high environmental sensitivity of the site.

2016 – 2021 Management Measures

The Management Scheme, in partnership with the appropriate authorities, will continue to monitor the dredge spoil disposal site at Smithic Bank and will receive regular updates about the amount of material deposited from the Bridlington Harbour Commissioners. Proposals to significantly redevelop Bridlington Harbour are currently being explored by the Harbour Commissioners and East Riding of Yorkshire Council. If the redevelopment goes ahead, additional dredging of the harbour will be required. Whilst it is not yet clear whether the disposal site at Smithic Bank will be used for this material, the Management Scheme is involved in the proposal discussions and Relevant Authorities will work to ensure there are no impacts upon the SAC.

All waste management procedures will continue to be followed and any incident of pollution will be dealt with by the appropriate authorities swiftly and effectively. The Management Scheme may be directly involved in this process (where resources allow utilising assistance from volunteers), although the Scheme's main remit will be to offer local advice and work with the authorities to ensure that any impact on the conservation features is minimised.

4.2.3 Offshore Renewable Energy Development

In recent years, the development of energy industries off the Yorkshire coast has rapidly increased. Historically the North Sea has been subject to hydrocarbon extraction, with some prospecting licences granted for the marine area adjacent to Flamborough Head. However, the potential for renewable energy created by offshore wind farms has now become the focus of development in the northern North Sea region.

Five wind farms are currently under construction in the seas adjacent to the EMS, as described in Table 4 below. Although not within the EMS boundaries, these development areas sit directly within the SPA's seabird foraging ranges. A number of other development areas are also active in the North Sea. Figure C6 in Case Study Four (see Appendix C) shows the entire Dogger Bank Offshore Development Zone Envelope.

Interaction with Conservation Features

The potential for renewable energy developments in the offshore environment is rapidly expanding, however due to the industry being relatively new, data is constantly being gathered to inform the environmental impacts of such developments.

The RSPB have carried out innovative research around Flamborough Head, and other UK locations, tracking the foraging flights of kittiwakes and gannets in order to discern the level of interaction between these internationally-important species and the proposed wind farm areas. Initial conclusions suggest that foraging flights range in direction and distance; whilst the highest density of birds is within a 50-150km range of the EMS, a significant number regularly frequent the Hornsea and Dogger Bank zones (see map in Case Study Four). In addition to a potential for collision, it is thought that the presence of wind farms in these locations could result in the birds

being displaced to areas which are perhaps less favourable for foraging[11]. Such displacement may also increase competition between species and cause the birds to be away from the nest for longer periods. If displacement does occur, the development of wind turbines in these important foraging areas could be a major pressure on the breeding seabird colonies of the EMS. Cumulative effects of offshore developments in close proximity to the seabird colony are quantified during the assessment stage, however it is difficult to fully calculate the impacts due to wide year-to-year variations in factors such as weather conditions and prey availability, which is then compounded when multiple projects are considered.

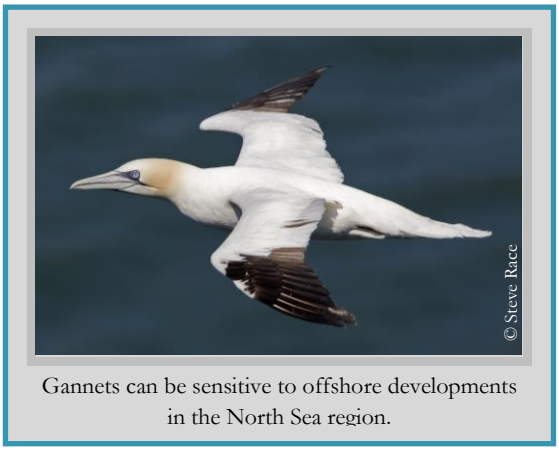
Table 4: Wind Farm Development Areas Adjacent to the Flamborough Head EMS

Development Name	Approximate Size	Expected Completion Date	Locality to EMS
Dogger Bank www.forewind.co.uk	8660km²/ 4.8GW capacity in four stages. Potential for 800 turbines spread across the site.	A development consent order was awarded in 2015, with the first sections expected to be operational from 2020.	The development area is situated between 125km and 190km off the Yorkshire coast. The first two developments (tranche A) will be 131km offshore and slightly north of Flamborough Head.
Hornsea Offshore www.dongenergy.co.uk (Projects One and Two have been approved)	4735km²/ 4GW capacity in a number of stages. The first two stages are in development and will consist of around 600 turbines.	Offshore construction of Project One is expected to begin in 2018, with a predicted operational date of 2020.	The development area begins just 31km off the east Yorkshire coast and stretches to the edge of the UK continental shelf. If the area becomes fully developed, part of the array will be directly adjacent to the Flamborough Head EMS.
Westermost Rough www.westermostrough.co.uk	35km²/ 210MW capacity with 35 turbines in total.	Construction was completed in May 2015.	Although only 8km from the shore, this wind farm is significantly south of the Flamborough Head EMS.
Humber Gateway www.eonenergy.com	24.8km²/ 219MW capacity with 73 turbines in total.	Construction was completed in April 2015.	Similar to the Westermost Rough, this development is considerably south of the EMS, though only 8km from the shore.
East Anglia www.eastangliawind.com	6000km²/ 7.2GW capacity with the potential for 1200 turbines over several stages.	Offshore construction of first 100 turbines is due to begin in 2018.	Although significantly south of the EMS, provisional seabird tracking data show some interaction with the large development zone.

The area of the North Sea directly adjacent to the SPA seabird colony is already very active in terms of commercial and recreational vessel movements. During all phases of offshore development, an increase in activity levels could create disturbance issues for rafting species, such as auks. Guillemots and razorbills begin a swimming migration in the late summer months, which can leave them vulnerable to boat traffic (see Section 4.4.1).

[11] Busch, M. & Garthe, S. (2016). *Approaching population thresholds in presence of uncertainty: Assessing displacement of seabirds from offshore wind farms.* Environmental Impact Assessment Review. 56.

Existing Management



Gannets can be sensitive to offshore developments in the North Sea region.

Prior to any type of development, the appropriate authorities must assess the potential for negative impacts on the environment. During this process, stakeholders must be given the opportunity to comment on the proposals and supply evidence to support any objections. In addition, the area which is proposed for development must have already been identified as a suitable location by the landowner (the Crown Estate, in the case of offshore developments) and the MMO as the marine planning authority. Locations earmarked for development are usually identified a number of years before proposals are made by energy companies, through the area's marine plan. However, it should be noted that the only active marine plans at present (East Inshore and East Offshore) do not include the entire EMS as they cover from Flamborough Head south to Felixstowe in Suffolk. The remaining marine plans, including the North East Inshore and Offshore areas, are being developed simultaneously (starting in spring 2016) with the full engagement of the Management Scheme.

An environmental statement should be developed by the energy company which ensures that any significant negative impacts on the environment are either mitigated against or removed from the plans. The final decision to approve a proposed development is made by the Secretary of State, where socio-economic needs are taken into account along with any environmental impacts. The Management Scheme can feed into this process through its Relevant Authorities, in particular the MMO and Natural England, however the Management Scheme itself cannot support, object to or prevent any development.

2016-2021 Management Measures

Where evidence suggests that any development would have an adverse effect on the conservation features of the site, the Management Scheme will work with the appropriate Authorities and key partners to resolve the issue. In order to maintain a positive working relationship, the Relevant Authorities will be expected to exchange appropriate information regarding offshore developments with other Authorities and key partners, such as the RSPB, through Management Scheme meetings. Similarly, key partners will be encouraged to share any research with the Management Scheme which may help to inform decisions.

4.2.4 Consented/Non-consented Discharges and Diffuse Pollution

The only industrial discharge directly inside the EMS comes from the Muntons plc. maltings factory, which is situated on the southern side of the headland. The factory is permitted to discharge waste water by the Environment Agency into the sea adjacent to Sewerby Steps, on the southern side of the headland. Additionally, there are two sewage outfall pipes within the EMS; these are located at Filey Brigg and Flamborough, South Landing. Both of these pipes discharge treated effluent into the North Sea from the nearby sewage treatment works and can also reduce

pressure on other systems by carrying excess storm water if necessary. Storm water may also be released into the North Sea through existing water courses such as Gypsy Race (into Bridlington harbour) and Hartendale Gutter at Flamborough. Further sewage outfall pipes exist in Bridlington Bay and off Filey Brigg, whilst the McCain's food processing factory near Scarborough discharges treated industrial waste water near to Cayton Bay, north of Filey.

Interaction with Conservation Features

Poor water quality, as a result of high levels of sewage or waste water being discharged into the marine environment, could alter the ecosystem structure of the protected site if permitted to continue for a significant length of time. For instance the black-legged kittiwake relies on shoals of sandeels as a main prey source; these small fish feed on planktonic species which are highly sensitive to changes in the marine environment[6]. As such, inferior water quality may place an additional burden on species already under pressure from other external sources.

Equally, discharges containing sediment or similar material may contribute to smothering of the chalk feature and an increase in turbidity, which could reduce the levels of light in the water. A number of species found within the EMS are at the farthest extent of their ranges, therefore slight changes in habitat could reduce the biodiversity of the chalk-reliant fauna.

The consented discharges positioned outside of the EMS are not thought to directly affect the water quality of the site due to the nature of the tidal currents, however in extreme circumstances such as significant weather events, these discharges could contribute to a cumulative effect.

Existing Management

Muntons plc. are permitted to discharge into the sea adjacent to Sewerby Hall by consent of the Environment Agency and are required to adhere to the conditions of the permit. The Environment Agency regularly monitors the bathing water quality adjacent to the outfall pipe and can perform spot checks on the waste discharged by the factory to ensure compliance with the environmental permit.

Yorkshire Water recently invested in upgrading the sewage treatment works along the Yorkshire Coast, in order to reduce the amount of untreated effluent released into the North Sea. This investment aimed to ensure that the bathing water beaches in the area reach the revised Bathing Water Directive standards as required from 2015 onwards. Further engagement with home-owners and businesses whose drains are misconnected, causing waste to be carried into storm water pipes rather than sewage treatment plants, is currently ongoing. Additionally, Yorkshire Water are working to replace the outfall pipe south of Scarborough, which discharges waste water from the McCain's food processing plant, in 2016. A new longer, high-density plastic pipe will replace the original structure, which has been subject to fractures in recent years.

2016-2021 Management Measures

Working with Relevant Authorities, such as the Environment Agency and Yorkshire Water, the Management Scheme will support plans to improve water quality and educate the public about their impact on coastal waters. The Management Scheme will explore the possibility of working

with the Environment Agency, and other partners, to achieve coastal water standards expected by the Water Framework Directive. Additionally, effective communication between key partners and the Management Scheme will provide the mechanisms for an efficient response if a pollution incident should occur. Such communication within the Scheme will also make certain that Relevant and Competent Authorities are aware of their responsibilities towards the EMS and will appropriately consider the impact any water quality issues may have on the conservation features.

Supplementary Information in Appendix - Marine

- Netting: T&J (salmon and sea trout fishery in Filey Bay) - Appendix B; page xvii
- Netting: Static/Passive/Intertidal/Subtidal - Appendix B; page xviii
- Shellfish Potting - Appendix B; page xix
- Trawling - Appendix B; page xx
- Discharges (at sea) - Appendix B; page xxi
- Harbour Waste - Appendix B; page xxii
- Navigational Dredging - Appendix B; page xxiii
- Offshore Energy Development - Appendix B; page xxiv
- Diffuse Pollution - Appendix B; page xxv
- Consented/Non-consented Discharges From Land - Appendix B; page xxvi

4.3 Activity-Specific Management Measures - Terrestrial

The EMS designations contain a number of terrestrial features (see Chapter One) which must also be managed in conjunction with the protection afforded to the marine environment. Poor land management may have a negative effect on the marine features, due to wrongly connected drains or inappropriate agricultural practices.

4.3.1 Agriculture

The land adjacent to the vegetated sea cliffs is primarily used as agricultural land for both arable crops and livestock. A large proportion of agricultural land within and immediately adjacent to the EMS is managed under a stewardship scheme, which was re-launched in 2015 as the Countryside Stewardship scheme (previously known as the Environmental Stewardship Scheme). In addition to individual landowners, the local authorities, RSPB and Yorkshire Wildlife Trust all manage land within the EMS and associated SSSI.

Interaction with Conservation Features

Intensive farming and run-off from the use of agricultural chemicals can alter the sea cliff vegetation and the littoral chalk plant communities. Changes to the levels of nitrogen and phosphates in the soil as a result of inappropriate chemical use may favour some species, whilst hindering the growth of others. This, in turn, could result in vegetation which is much less diverse. Additionally, changes to drainage patterns through the use of culverts or ditches on the headland could negatively affect the distribution of protected flora.

Existing Management

The 2015 Countryside Stewardship scheme encourages land managers to protect and enhance the natural environment and the biodiversity of wildlife through considerate farming and forestry practices. Much of the land under stewardship around the EMS is covered by Higher Level Environmental Stewardship (HLS) agreements focussed around maintaining the calcareous grassland habitat and supporting farmland birds.

In addition to stewardship schemes, any construction or maintenance work which needs to be carried out within the SSSI, and does not require a Habitats Regulation assessment, must be evaluated by Natural England. Permission will then be granted for the works to go ahead if there is no likelihood of damage to the notified features of the site.

2016-2021 Management Measures

Management measures agreed by the landowner and Natural England under a stewardship arrangement are specific to each site, therefore management will vary. Nevertheless, landowners will continue to be encouraged to take environmental considerations into account.

4.3.2 Collection of Materials and Intertidal Species

Historically, the areas around Flamborough headland have been utilised by the local community for the collection of both building materials and food resources. Until the 1950s, seabird eggs were regularly collected for trade or local consumption, and many buildings in the surrounding area have been constructed using Flamborough chalk. More recently, due to the protection now afforded to seabirds and to the chalk habitat on which they depend, collection activities around the headland on this scale have all but ceased.

However, intertidal hand gathering activities do take place along the rocky shore for both commercial and recreational purposes, on a small scale. Where commercial hand-gathering of shellfish is undertaken, it must be compliant with food safety regulations in addition to fisheries management legislation. Similarly, anecdotal evidence suggests that quantities of chalk have occasionally been removed from beaches around Flamborough Head. There are no known regular collection activities occurring around Filey Brigg, other than low-scale bait-digging on the adjacent beach.

Commercial collection of shellfish, such as mussels, must be compliant with food safety law.

Interaction with Conservation Features

Since the Protection of Birds Act (1954), the risk to the seabird population from egg collecting has diminished. This has been further strengthened by consequent legislation, including the EMS designations. The collection of chalk materials and fossils from both the cliff face and the beaches may, however, pose some threat to the geological conservation features of the SSSI and the SAC.

Furthermore, should intertidal hand-gathering activities reach an unsustainable level, this could negatively impact the sub-features of the site (detailed in Table 1).

Existing Management

Stringent legislation, enforced by Natural England and the police, is now in place which protects the seabirds from disturbance, injury or destruction. This includes the collection of eggs for any purpose. As such, the appropriate authorities can effectively deal with any issues as they arise.

The NEIFCA issues permits for the collection of shellfish on the shore (whether for recreational or commercial purposes) and has circulated best practice guidance. There are no intertidal shellfish beds around the EMS which are approved for commercial use, therefore the Management Scheme will work with the local authorities' environmental health services to identify any commercial intertidal hand-gathering activities. Additionally the collection of intertidal species is prohibited within the No Take Zone (see Section 1.4.1).

More widely around the headland and Filey Brigg, the extraction of chalk and limestone from the cliffs is listed in the operations requiring Natural England's consent. The clearance of boulders, stones and loose rock from the beach or shore is also listed, to prevent unregulated activities modifying the natural features of the site. Common rights exist which permit the local community to collect materials which are found loose on the shore for their own consumption, unless superseded by more recent legislation such as the No Take Zone. This type of collection must also be within reasonable limits; it cannot damage or destroy any feature of the EMS or SSSI designations, or be done without permission from the relevant landowner(s).

2016 – 2021 Management Measures

Current known levels of collection and hand-gathering do not seem to cause a significant effect on the conservation features of the site, however there is little information regarding the 'operational limits' or the amount of collection which may be unsustainable. Should a significant incident occur, or a request be made for permission to undertake a considerable project, Natural England will apply the 'precautionary principle' (see Section 2.1.4) in order to protect the conservation features. Where opportunities arise, the Management Scheme will attempt to understand the possible implications of high amounts of collection on the conservation features, in order to develop the evidence base.

4.3.3 Coastal Access

In accordance with the Marine and Coastal Access Act (2009), Natural England has a duty to develop and implement coastal access rights around the English coastline, in the form of the England Coast Path. Throughout the EMS, Public Rights of Way are already in existence, therefore relatively little footpath creation will be undertaken along this section of coast. All sections of the England Coast Path along the Yorkshire coast, as far as Easington, are expected to be fully open in the next few years.

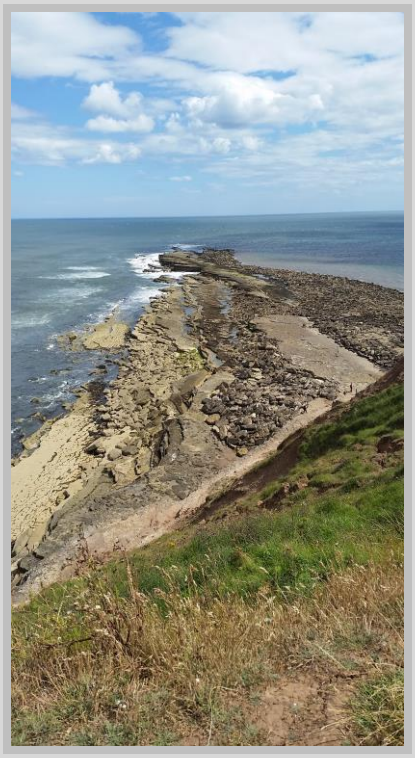
Interaction with Conservation Features

Although the existence of the England Coast Path is unlikely to have any direct impact on the conservation features, the designation of coastal access rights creates 'spreading room' which also designates the cliff face and land to mean low water as access land. This has the potential to result in members of the public traversing the cliff face which, during the breeding season, may disturb nesting birds and damage terrestrial features.

Although the England Coast Path has been assessed as a plan or project under the Habitats Regulations (as amended, 2010) and considered to have no likely significant effect after mitigation measures have been applied, the promotion of the England Coast Path may result in higher numbers of visitors to the protected area. Whilst Flamborough Head and Filey Brigg are already popular with tourists during the summer months, a significant increase in visitor numbers could have a negative effect on the conservation features through disturbance caused by recreational activities.

Existing Management

Natural England, the RSPB and the Management Scheme have agreed voluntary codes of conduct with the local angling clubs which regularly use Filey Brigg and Bempton Cliffs. In both locations an agreement has been made not to create any new access points down the cliff face. It should be noted, however, that these codes of conduct have been agreed by local user groups and may not be adhered to by other visitors. Additionally, these agreements only apply to specific areas and not the entire EMS. Similarly, the England Coast Path, although designated purely for walking, could allow easier access to land used for activities such as paragliding or the use of unmanned remote control aircraft (drones).



The rocky extension of Filey Brigg at low tide from Carr Naze.

Despite the designation of coastal access rights, the legal protection afforded to both the seabirds and the chalk habitat still applies. Therefore, any damage, disturbance, injury or destruction of any conservation feature may be investigated by Natural England or the police. If the potential for disturbance is significant, Natural England could implement a restriction on coastal access rights which would prevent individuals traversing the cliff face.

2016-2021 Management Measures

The Management Scheme will continue to work alongside Natural England as the England Coast Path comes to fruition. To aid this process, the Management Scheme and key partners will remain in close contact with local user groups and continue to review present agreements. Any significant incidents of damage or disturbance will be escalated to the appropriate authorities and communicated

to key partners and stakeholders, where necessary. In an effort to ensure that all visitors are fully aware of the site's sensitive nature prior to arriving, the Management Scheme will explore the feasibility of developing a more effective, interactive and informative web presence. An efficient, accessible and modern website to hold all voluntary codes of conduct, site-specific management information and visitor materials could reduce the frequency of recreational disturbance events.

4.3.4 Onshore Shale Gas and Oil Extraction

The extraction of shale gas and oil by hydraulic means – generally known as 'fracking' – has been common in the North Sea oil and gas fields for many years. Extracting energy from the earth in this way involves enlarging or creating fractures in the rock using hydraulic equipment and injecting water into the well at high pressure. Recently, this method of energy extraction has been proposed for use onshore in a variety of locations around the UK. The 14th round of onshore oil and gas licensing included large sections of the Yorkshire coast (see Figure D3 in Appendix D).

Interaction with Conservation Features

The protected areas around Flamborough Head and Filey Brigg are of international importance, therefore any new development in the vicinity of the site could have a detrimental impact on the conservation features, and must be assessed accordingly. The breeding seabirds may be affected by noise disturbances caused by any construction, and subsequent operation, of a facility. A development such as this within the Heritage Coast area may not be favourably received due to the effect on the overall landscape.

It is not clear whether this method of energy extraction would lead to any effect upon the chalk features directly; this would require suitable assessment during the development application stage. However, removal of shale oil and gas requires a significant water input. There may be an unknown risk that contaminated water (having been used in the process and returned to the surface) could enter groundwater and/or other water courses, eventually to be returned to the sea. There is a possibility that any pollutants contained in this water could alter the chemical composition of intertidal areas and impact the chalk reef and the dependent faunal turf.

Existing Management

Although many terrestrial areas around the EMS have been licensed for exploration, the licences themselves do not give consent for operations to begin. Prior to any drilling or hydraulic fracturing the operator is required to seek the landowner's agreement, appropriate planning permission (which may require an environmental impact assessment depending on the location of the exploration), permission from the Environment Agency, and consent for drilling from the Department for Business, Energy and Industrial Strategy (DBEIS). Furthermore, any plans for drilling must be examined by the Health and Safety Executive to ensure the public's wellbeing.

Management is also in place to minimise the risk of water contamination during any hydraulic fracking works. Industry standards state that extraction should take place below the level of drinking water aquifers and any fluid returning to the surface should be contained for treatment to remove any pollutants. Furthermore, in the UK, all operators must show the Environment

Agency that any chemicals added to water used for oil and gas extraction are non-hazardous in their intended application.

It is recognised that this method of oil and gas extraction can cause occasional earth tremors. Since 2012, operators have been required to assess any relevant faults during the planning stages of development and, during operation stages, to stop and investigate if any tremors are detected above a normal range. Similarly, there are strict controls on the release of gases into the atmosphere and natural gas can only be released where it is necessary to do so for safety purposes.

2016 – 2021 Management Measures

Where evidence suggests that any development would have an adverse effect on the conservation features of the site, the Management Scheme will work with the appropriate Authorities and key partners to resolve the issue. In order to maintain a positive working relationship, the Relevant Authorities will be expected to exchange appropriate information regarding the extraction of shale oil and gas with other Authorities and key partners through Management Scheme meetings. Similarly, key partners will be encouraged to share any research with the Management Scheme which may help to inform decisions.

Supplementary Information in Appendix - Terrestrial

- Agriculture - Appendix B page xxvii
- Intertidal Hand-gathering - Appendix B page xxviii
- Collection of Materials - Appendix B page xxix
- Coastal Access - Appendix B page xxx
- Onshore Shale Gas and Oil Extraction - Appendix B page xxxi

4.4 Activity-Specific Management Measures - Recreation

The tourist attractions of the Bempton Cliffs Seabird Centre (RSPB) and Living Seas Centre (Yorkshire Wildlife Trust), coupled with the iconic lighthouse and proximity of the seaside towns of Bridlington and Scarborough, bring thousands of tourists to Flamborough Head and Filey Brigg each year. Tourism on this scale is an important source of income for the local economy. However, irresponsible use of the area, by both the local community and visitors, can cause disturbance to the internationally-important breeding seabirds and damage to the terrestrial features of the site.

4.4.1 Marine-based Activities

The marine area surrounding the EMS is important both in terms of commercial and recreational activities. The recreational marine activities outweigh the commercial fishing sector during the summer months, with pleasure boat trips, charter boats, sea kayaking and the use of personal watercraft (otherwise known as jet-skis) regularly observed throughout the area.

Interaction with Conservation Features

Guillemots do not make nests, but lay eggs directly onto the bare rock.

Where marine vessels travel at high speeds within the marine maintenance area of the SPA, or travel near to the cliff face, they can have a damaging disturbance effect on breeding seabirds. Vessels travelling at speed through groups (rafts) of birds gathered on the sea risk colliding with these protected species (possibly resulting in injury or death) or causing them to expend energy by taking flight. If the disturbance is great, these flights can be some distance and may prevent the birds from returning to their nests, foraging or carrying out social activities within the flock. Additionally, guillemot, razorbill, puffin and gannet fledglings are flightless, making them especially vulnerable to collisions with fast moving vessels. Male guillemots and razorbills escort their chicks on a swimming migration, once the youngsters have left the cliff. At the same time, the adults undergo a moult which renders them also unable to fly for 45–50 days[12]. This leaves both adults and chicks vulnerable to fast moving vessels and, should the adults be separated from their young before they are independent, may reduce the likelihood of juvenile survival.

Marine craft which travel too close to the cliff may cause some birds to fly from the nest, leaving the contents vulnerable to predation and adverse weather. Birds leaving the nesting site at speed in order to avoid the disturbing activity could dislodge eggs or chicks. Similarly, chicks can be prompted to fledge prematurely, before they have acquired the appropriate body mass to survive. Due to external pressures on the seabird colony (see Section 4.1.1) it is important that disturbance events are limited, thereby allowing the seabirds to have the best chance of a successful breeding season.

Existing Management

Since 2013, the Management Scheme has gathered information on the frequency and significance of disturbance incidents around the EMS. The dataset is analysed annually to identify any trends or activities which may need specific attention in order to reduce their impact (see Case Study Three).

The Management Scheme is working with a number of user groups to reduce their impact on the breeding seabird colony. This includes creating voluntary agreements with specific groups, distributing information at strategic locations and speaking to individual users directly. In response to significant incidents of disturbance to the protected species, the Management Scheme will work with Natural England, the police and other key partners to ensure that the appropriate enforcement procedures are undertaken. Enforcement action can include warning letters, civil

[12] Isaken, K. & Bakken, V. (1995). *Breeding Populations of Seabirds in Svalbard.* Norwegian Polar Institute. Oslo.

sanctions or a criminal prosecution depending on the evidence available and the severity of the incident.

It should be noted that the Management Scheme's preferred method of managing disturbance to the breeding seabirds is to discuss the problem with the user group and develop a mutual agreement in order to reduce the impact of a certain activity. Enforcement action will only be implemented where it is appropriate to do so and all other management possibilities have been exhausted.

2016-2021 Management Measures

The Management Scheme will continue to work with the appropriate authorities, key partners and stakeholders in order to reduce any negative impact marine-based recreation may be having on the breeding seabird colony. After appropriate discussions have taken place, user group specific codes of conduct may be developed where necessary, which will be annually evaluated for effectiveness. Should Bridlington harbour be redeveloped, as per proposals in the Area Action Plan, this could significantly increase the pressure of motorised boats on the seabird colony, as the harbour's capacity increases. The Management Scheme is working closely with the Harbour Commissioners and East Riding of Yorkshire Council to ensure that all boat owners berthed in the harbour are aware of the sensitive area around Flamborough Head. Furthermore, data continues to be gathered on the frequency and significance of such activities in order to inform management measures and create a baseline of information. Where opportunities arise, the Management Scheme will explore partaking in research activities which may help to ground-truth baseline data.

4.4.2 Land-based Activities

The unique geology and wildlife of the EMS attracts visits from schools, universities, walking groups and adventure tourism companies throughout the year. Additionally, the high cliffs at Bempton and the rocky outcrop of Filey Brigg are known as some of the best cliff angling locations in the UK.

Sea thrift can be seen in numerous places around Flamborough Head.

Interaction with Conservation Features

Although a relatively low-impact activity, walking can result in the trampling of vegetation and rocky shore communities which are protected by the SSSI and SAC designations. At the present level of activity, there is no evidence to suggest a significant negative effect; however a few areas are subjected to seasonal trampling which has degraded the maritime grassland of the SSSI. Additionally, in some specific locations around Flamborough Head, members of the public have planted non-native flowers. Such actions can be detrimental to the biodiversity of the site and are not permitted within the designated area. Should other pressures on the vegetated sea cliffs arise, this could result in a negative cumulative impact.

Cliff and shore angling has the potential to result in bycatch and litter issues which may pose a danger to the breeding seabirds. Discarded fishing equipment can be a risk to the breeding colony and birds tangled in fishing line have been observed on the cliffs. Although it is not always clear where this line has originated from, such entanglement has been seen to result in serious injury or death to the seabirds. Furthermore, the loss of one parent bird will often result in nest failure as a single bird cannot protect youngsters on the nest and successfully forage simultaneously. Similarly, birds may be disturbed by anglers traversing down the cliff to access the shoreline, which could result in unnecessary flight as discussed previously (see Section 4.4.1).

Existing Management

A voluntary code of conduct has been developed with two local angling clubs which effectively closes the cliffs from Hoddy Cows Lane to Dyke End (the length of the RSPB's Bempton Cliffs reserve) to anglers from 1st March to 30th September. Additionally, the local angling clubs have agreed to use equipment and methods which would least impact the breeding colony and dispose of any litter they see discarded on the cliffs. This has removed much of the conflict between anglers and birds within the EMS, and the Management Scheme has seen a marked reduction in disturbance reports. More information can be found in Case Study Three.

When opportunities arise, the Management Scheme engages with walking and school groups in order to ensure that the area's sensitivities are recognised. A voluntary code of conduct was developed for walking groups in 2008, which is available on the Flamborough Head EMS website.

2016-2021 Management Measures

Working with landowners and key partners, the Management Scheme will assess the impact of trampling and invasive species on the SSSI and SAC vegetation features, and will explore the most appropriate solution. The Management Scheme will continue to encourage reports of any disturbance or damage caused in relation to these types of activities and may investigate the possibility of updating the 2008 code of conduct. The voluntary angling code of conduct will continue to be reviewed annually and communication with the user group will remain active. In order to inform any necessary management measures in the future, data will continue to be gathered on the frequency and possible impact of angling within the EMS.

4.4.3 Airborne Activities

Inappropriate use of low-flying aircraft, paragliders, paramotors, and unmanned aerial vehicles (drones) can cause disturbance to the breeding seabirds. Whilst the breeding bird colony is not currently marked on aeronautical maps, the high profile nature of the area means that most pilots are aware of the large colony. The recent increase in the popularity of drones for recreational and commercial photography may create new pressures on the breeding seabirds.

Interaction with Conservation Features

Low-flying airborne vehicles of any description have the potential to create a predation response in the breeding seabirds. As described above in relation to marine activities (Section 4.4.1), this

can result in unnecessary flight, eggs or chicks being exposed and young chicks being caused to leave the nest prematurely.

Existing Management

In order to maintain a safe height, the Rules of the Air Regulations (2007) state that all aircraft, including gliders, must stay 500ft above any structure or building (unless during an emergency, take-off or landing). The Ministry of Defence voluntarily avoids low-flying exercises over Bempton and Speeton Cliffs (up to 2000ft) in acknowledgement of the sensitive area. A similar agreement has been developed with the Humberside Search and Rescue helicopter crews to avoid disturbing nesting seabirds between North Landing and High Stacks, during training exercises. It should be noted that neither of these agreements affect emergency responses and, although any disturbance to the seabird colony is regrettable, the Management Scheme recognises this may be unavoidable in such circumstances. Full details of these agreements can be found in Appendix B.

The use of unmanned aircraft (drones) within the EMS or SSSIs is strictly controlled and subject to permissions being received from the Civil Aviation Authority (CAA), the landowner and Natural England, if for commercial purposes. Recreational flying of drones requires permission from the landowner, although, in turn, the landowner is required to have consent from Natural England to allow flights from their property before activities commence.

The Management Scheme is working with user groups in order to reduce the impact of airborne recreational activities around the EMS. The Relevant Authorities and key partners would prefer to develop mutual agreements with user groups in order to solve particular issues. However, Natural England and the police have a duty to investigate incidents of disturbance and may dispense their statutory powers in order to prevent incidents from reoccurring.

2016-2021 Management Measures

The Management Scheme will continue to work with stakeholders and key partners to develop voluntary codes of conduct for activities which cause disturbance to the breeding seabird colony. Management will also focus on raising awareness of the protected area to the aeronautical user group more generally, and highlight the permissions needed to fly unmanned craft in the area. Furthermore, data will continue to be gathered in order to create a baseline of information.

Supplementary Information in Appendix - Recreation

- Canoes & Kayaks - Appendix B page xxxii
- Personal Watercraft (PWC) - Appendix B page xxxiii
- Pleasure Boats (inc. recreational sea angling) - Appendix B page xxxiv
- Scuba Diving/Snorkelling - Appendix B page xxxv
- Angling (from cliff or shore) - Appendix B page xxxvi
- Group Visits (walking groups/school visits) - Appendix B page xxxvii
- Aircraft (low-flying, incl. paragliding) - Appendix B page xxxviii
- Unmanned Aircraft (drones) - Appendix B page xxxix

4.5 Awareness Raising

Thousands of tourists visit Flamborough Head and Filey Brigg each year. Utilising data from the three East Riding of Yorkshire Council car parks around Flamborough Head alone, an estimated 189,000 people visited the area during 2014-2015[13] (excluding visitors to North Landing, education groups and those who arrived by public transport). Visitors to Filey Brigg during the summer season exceeded 70,000 in the same period[14] and, following the opening of the RSPB's Seabird Centre, approximately 100,000[15] people visited the nature reserve. Although these calculations make some assumptions, a conservative estimate of visitors to the entire EMS in one year may be over 350,000. These considerable numbers indicate that the unique and internationally-important habitats and species of the EMS can be a significant educational resource, along with a popular recreational destination. Through public engagement opportunities, the importance of the EMS can be advertised to a wider audience and may encourage more responsible tourism. As an aim of the Management Scheme (see Section 3.2), awareness raising is key to many activities in the Action Plan (Appendix A) and the Project Officer will work to improve the profile of the protected area where opportunities arise.

Likewise, the Management Scheme must raise awareness of the protected area within the Relevant Authority and key partner organisations that manage the site, through regular meetings and contact with the Project Officer. This stream of awareness-raising is important to ensure that Authorities understand, and are able to appropriately act upon, their responsibilities towards the conservation features.

4.5.1 Educational Visits and Public Engagement

Education groups regularly visit Flamborough Head and Filey Brigg to explore the geology and wildlife of the area. It is because such visits educate young people about the natural environment and create a sense of ownership, that the Management Scheme actively encourages educational trips to the EMS.

In order to raise public awareness and encourage a better understanding of the protected area, the Management Scheme, through the Project Officer, will attend external events and engage with schools, where resources allow. Working with key partners, such as the RSPB and Yorkshire Wildlife Trust, the Management Scheme aims to inform the public of the importance of the local area and encourage active participation in its protection.

4.5.2 Raising Awareness through Citizen Science Projects

The Management Scheme carries out data-gathering exercises on the frequency and possible impact of recreational activities within the EMS. Information is collected throughout the year via the completion of recreational activity reporting forms by visitors and volunteers, which are held

[13] East Riding of Yorkshire Council. (2016). *Annual Parking Report 2014-2015*. East Riding of Yorkshire Council.
[14] Scarborough Borough Council. (2016). Pers Comms.
[15] Royal Society for the Protection of Birds. (2016). Pers Comms.
Figures based on the number of car parking tickets purchased multiplied by an assumption of 2.5 individuals per car.

by a variety of organisations around Flamborough Head and Filey Brigg, and a number of dedicated volunteers (see Case Study Three).

An Environmental Incident Wildlife Response Plan has also been developed by the Management Scheme, in close partnership with local organisations, to utilise volunteer resource during environmental incidents affecting the site's sensitive wildlife. Volunteers have been trained to assist in wildlife care, collect on-site details of any incidents and conduct wildlife surveys. This information will be shared with regulatory and response organisations to direct resources where they are most required.

Gathering ad-hoc data from students, visitors and staff who are regularly on-site helps the Management Scheme to create an overall picture of the type of activities undertaken around the EMS. These 'citizen science' projects are low-cost and can yield a high number of results. Although the information collected during this research may be subjective and of a limited sample size, it provides the Relevant Authorities with a basis on which to begin management discussions.

4.5.3 Raising Awareness with Local Stakeholders

The Management Scheme utilises information captured through the recreational disturbance citizen science project to inform discussions with local stakeholders and user groups. In the past, stakeholders have been invited to attend regular meetings with site managers in a large group setting. More recently, stakeholder engagement has taken place in small, activity specific meetings with user groups in order to resolve a particular problem. This method has resulted in effective management outcomes, despite the Management Scheme's limited resource availability.

Regular contact with specific user groups has enabled the Management Scheme to develop voluntary codes of conduct and improve stakeholder's knowledge of the internationally-important features. By working with the user groups in this way, the Management Scheme is able to address issues as they arise and encourage stakeholder's to be involved in site management.

The sheer cliffs on the north side of Flamborough Head rise to more than 130 metres.

2016-2021 Flamborough Head European Marine Site Management Plan

Appendix A:
2016–2021 Action Plan

A1. The Action Plan

The aim of this Action Plan is to provide a useful and comprehensive guide to the management of the Flamborough Head European Marine Site (EMS). The 2016-2021 Action Plan is focussed on projects and activities currently taking place within and adjacent to the EMS boundaries, including how these projects/activities interact with the conservation features of the site. This section can also be used as a standalone document, as it includes a copy of the aims and objectives of the Management Scheme and the roles and responsibilities of each Relevant Authority.

A1.1 Reading the Action Plan

Table A1 – Relevant Authority's responsibilities and how these are actioned on-site. Each responsibility relates to a key aim of the Management Scheme, indicated by the 'A code' in brackets. Full aims and objectives can be found in Section A1.4.

Table A2 – The 2016-2021 Action Plan, with four distinct sections:

- Statutory projects which are time-limited and are in response to a specific change in legislation or guidance;
- Relevant Authority projects which are non-statutory but interact with the conservation features of the site;
- Projects carried out by key partners which add value to the management of the features and;
- Projects being implemented by the Project Officer on behalf of the Management Scheme as a whole.

Each action is attributed to a Relevant Authority, key partner or the Management Scheme's Project Officer, with supporting organisations. Actions with Relevant Authority involvement display an 'R code' which relates to a specific responsibility (detailed in Table A1). Other projects are identified as added-value ('AV') in the table. Individual projects have a unique identification code, which are used throughout Appendix B.

A1.2 Statutory Duties

Statutory duties which are regularly performed without the prompt of an Action Plan, such as assessing projects against Habitats Regulations or enforcing byelaws, do not feature in the Action Plan table. These assessments are described in Chapter Two. However some statutory projects, which are time-limited, not regularly occurring and are in response to legislative changes, are referenced because of their potential impacts on, or the management of, conservation features.

A1.3 Progress Reporting

Table A2 is a live document and will be updated following the annual review process at the end of each calendar year. This process requests that all organisations referenced in the Action Plan report on the state of their listed projects or add any new actions they may be implementing. Furthermore, all projects carried out by the Project Officer, on behalf of the Management Scheme, will be reported on during the quarterly Relevant Authorities' Group meetings.

A1.4 Aims and Objectives of the Management Scheme

Relevant Authorities, key partners and stakeholders will work together to ensure the conservation features, for which the site has been designated, are protected from unnecessary development, poor management, pollution and environmental incidents, whilst promoting sustainable tourism and recreation, through the implementation of the Management Plan and the following aims:

A1: Ensure no management measures or unregulated activities adversely impact the conservation features, through regular condition assessments and implementation of Habitats Directive procedures.

Objective - Ensure that all development proposals within the EMS are referred to the appropriate Competent Authority for assessment against Habitat Regulations, and all activities are assessed and managed appropriately, in order to protect conservation features.

Objective - Working with key partners and other stakeholders, ensure that unregulated activities do not have a negative impact on the site. This may include implementing voluntary measures, the creation of new byelaws and designations, and the collation of appropriate activity information.

A2: Work to maintain and improve protection of the conservation features through the sharing of appropriate scientific research and site specific information.

Objective – Working in partnership, create a comprehensive dataset of activities undertaken around the EMS, which will help to inform any management measures necessary to reduce negative impacts.

Objective – Foster a working environment which supports the sharing of appropriate information and scientific data on a regular basis between both stakeholders and authorities.

A3: In order to support the work of the Management Scheme, raise public awareness about the site's importance and support sustainable recreation and tourism practices.

Objective - Through engagement events, targeted visitor communications, information displays, and partnerships with local NGOs, raise public awareness of the Flamborough Head EMS and wider marine conservation.

A4: Monitor both recreational and commercial fishing activities, ensure all relevant permits are observed and support sustainable practices, whilst engaging with the local fishing community to increase environmental awareness.

Objective - Support the use of sustainable fishing equipment and practices around the EMS, encouraging fishers to be more aware of the environmental impacts of their activities.

A5: Ensure that any non-fishing commercial activity within or adjacent to the EMS does not negatively affect the conservation features, and work to reduce the risk of marine pollution to the site.

Objective - Through the marine planning process, ensure that no offshore developments or other commercial activities negatively interact with the protected features of the site and work with partners to effectively prevent and respond to marine pollution incidents.

A6: Appropriately manage the marine environment through the monitoring of consented discharges, achieving water quality standards and ensuring all coastal environmental incidents are dealt with effectively, whilst creating a safe environment for recreational and commercial users.

Objective - Through regular water testing and assessment of discharges, including agricultural run-off, ensure that water quality is kept at a 'good' standard. Deal with any pollution incidents in an efficient and effective manner to reduce impacts on the EMS.

Objective - Ensure commercial operations are compatible with the conservation features of the EMS, including the provision of waste removal units and recording of dredge spoil disposal.

A7: Ensure that activities of the Management Scheme promote the conservation of seascape and landscape character in a way which is compatible with safe maritime practices and the values of sustainable development.

Objective - To create a safe area for maritime users of the EMS, ensure that all navigation aids are maintained and functioning correctly through regular assessments and equipment checks.

Objective - Through the planning application process and the Heritage Coast Strategy (2002), support the conservation of historic seascape character, including terrestrial and maritime heritage assets, and the aesthetic qualities of the seascape.

Table A1: Statutory Roles and Responsibilities of Relevant Authorities within the Flamborough Head EMS

Relevant Authority	Role in Management Scheme	Statutory Responsibilities to the European Marine Site and Related Statutory Actions		
R 1 Natural England (NE)	The statutory advisor to the Government on nature conservation in England and promotes the conservation of England's wildlife and natural features.	R 1.1 -	Monitor the condition of protected features and produce conservation objectives for each feature. (A1)	→ Carry out regular, comprehensive condition assessments of protected features and advise others on the objectives for each feature.
		R 1.2 -	Provide advice to planning authorities and act as the statutory conservation advisor to the Government for England. (A1)	→ Assess any planned projects against the Habitat Regulations and advise on environmental impact assessments.
		R 1.3 -	Advise the Government on the designation of new Marine Protected Areas in order to meet the U.K's statutory obligations. (A2)	→ Designate new protected areas, specify protected features and/or extend existing boundaries.
		R 1.4 -	Regulate activities affecting protected features, enforce national wildlife legislation and issue wildlife licences. (A2)	→ Take appropriate enforcement action in order to prevent protected features being damaged, disturbed or destroyed. Advise the police on offences relating to protected species.
R 2 Marine Management Organisation (MMO)	Contributes to sustainable development in the marine area and promotes the Government's vision for clean, healthy, safe, productive and biologically diverse seas. Established under the Marine and Coastal Access Act, 2009.	R 2.1 -	Manage fishing fleet sizes and quotas within the EMS and up to 12 nm. (A1, A3)	→ Monitor, prohibit or licence certain fishing activities to ensure protection of features.
		R 2.2 -	Approve activity licences and develop marine plans integrating the social requirements, economic potential and environmental priorities of the area. (A1, A5)	→ Ensure all offshore developments and activities do not negatively affect the features of the EMS and issue licences to protect features from specific actions, e.g. dredging.
		R 2.3 -	Enforce wildlife legislation, create new marine nature conservation byelaws and issue wildlife licences. (A2)	→ Implement existing and propose new byelaws in order to protect the designated features, including for unregulated activities within the MMO's jurisdiction.
		R 2.4 -	Reduce the impact of, and advise on the clean-up of, marine pollution incidents. (A1, A5)	→ Create and implement effective responses to marine pollution and approve the use of clean-up techniques.

Relevant Authority	Role in Management Scheme	Statutory Responsibilities to the European Marine Site and Related Statutory Actions		
R 3 Environment Agency (EA)	Protects and manages the environment by combining the regulation of land, air and water. Also provides high quality environmental protection and improvement of flood prevention.	R 3.1 -	Protect and enhance the quality of surface freshwater which flows into the EMS, including groundwater. (A6)	→ Regularly monitor coastal waters (to one mile from low-water) to ensure 'good' status defined by biological, chemical and physical standards.
		R 3.2 -	Review industrial activity consented discharges under the Habitat Regulations. (A1)	→ Regularly monitor consented discharges into and adjacent to the EMS, in order to mitigate against any negative impact on the designations.
		R 3.3 -	Manage migratory and fresh water fisheries. (A2, A4)	→ Manage the salmon and sea trout fisheries within and adjacent to the EMS, including enforcement of the Filey Bay Bycatch byelaw.
R 4 Local Authorities (LA) [East Riding of Yorkshire Council; Scarborough Borough Council; North Yorkshire County Council]	As landowners and local planning authorities, these organisations provide a range of local government services including countryside management, public protection, development control, environmental health and promotion of local tourism, within their respective boundaries. East Riding of Yorkshire Council currently hosts the Flamborough Project Officer post.	R 4.1 -	Ensure all projects and activities initiated or consented by the local authority do not have an adverse effect on the integrity of the EMS. (A1, A7)	→ Assess all planning applications against the Habitats Regulations to ensure designated features are protected.
		R 4.2 -	Plan for and be able to carry out an emergency contingency plan in the event of a coastal pollution incident. (A6)	→ Work with other Relevant Authorities to contain any pollution event and inform the Management Scheme of any incidents.
		R 4.3 -	Implement existing and create new byelaws to regulate activities within the EMS, including recreational activities. (A1, A2)	→ Work with the Management Scheme to identify and manage any activities which may negatively impact the EMS, within their jurisdiction.
R 5 Bridlington Harbour Commissioners (BHC)	Serve the Port of Bridlington and promote best practice amongst harbour users.	R 5.1 -	Ensure that activities carried out within Bridlington harbour do not negatively impact the EMS. (A1)	→ Ensure users are aware of the protected area and inform the Management Scheme of any incidents.
		R 5.2 -	Plan for and carry out an emergency contingency plan in the event of a pollution incident within the harbour. (A6)	→ Work with other Relevant Authorities to contain any pollution event and inform the Management Scheme of any incidents.
		R 5.3 -	Comply with any marine licences relating to the management of the harbour. (A1, A5)	→ Record and share with the Management Scheme, data relating to site usage and volumes of dredge spoil disposed of within and adjacent to the EMS.

Relevant Authority	Role in Management Scheme	Statutory Responsibilities to the European Marine Site and Related Statutory Actions		
R 6 Flamborough North Landing Harbour Commissioners	Serve the traditional fishing communities of Flamborough and North Landing through the promotion of the local fishing and tourism industries.	R 6.1 -	As a harbour authority, ensure that activities carried out within North Landing do not negatively impact the EMS. (A1)	→ Ensure users are aware of the protected area and inform the Management Scheme of any incidents.
		R 6.2 -	As far as jurisdiction allows, manage pollution and waste disposal from vessels to avoid negatively impacting the EMS. (A6)	→ Work with other Relevant Authorities to contain any pollution event and inform the Management Scheme of any incidents.
R 7 Trinity House	Activities include buoy maintenance, superintendence of and consent of local lights and the management of Flamborough lighthouse.	R 7.1 -	As the General Lighthouse Authority, supervise and maintain all lighthouse, buoys and beacons, within the Authority area. (A7)	→ Ensure the maintenance and proper functioning of maritime navigation aids including Flamborough Lighthouse and the marking, or removal of, wrecks in order to facilitate safe navigation.
R 8 North Eastern Inshore Fisheries and Conservation Authority (NEIFCA)	Previously the North Eastern Sea Fisheries Committee, it has responsibilities to both the commercial fishing industry and marine ecology management. NEIFCA aims to manage, regulate, develop and protect fisheries and ensure sustainability.	R 8.1 -	Provide a high level of protection to the marine environment and ensure the needs of the fishery are balanced with marine environmental protection. (A1, A4)	→ Carry out strategic environmental assessments to provide a high level of protection for the marine environment (0-6nm), to promote sustainable fisheries within the EMS and work within the ecosystem approach.
		R 8.2 -	Work with partners to revise, review and manage commercial fishing efforts in order to conserve designated features. (A1, A4)	→ Working with other Relevant Authorities, set minimum landing sizes, issue activity specific licences and restrict fishing areas, where necessary.
		R 8.3 -	Enforce existing fisheries and nature conservation legislation and create new byelaws to preserve designated features. (A1, A2, A4)	→ Patrol the waters within and adjacent to the EMS to ensure safe and legal fishing practices. → Work with the Management Scheme and other Relevant Authorities to identify and manage any activities which may negatively impact the EMS, within NEIFCA's jurisdiction.
R 9 Yorkshire Water (YW)	Provides household water services. Currently carrying out improvement activities in relation to the Water Framework Directive.	R 9.1 -	Working with partners, ensure the removal and safe disposal of waste water around the EMS, including groundwater where applicable. (A6)	→ Maintain outfall pipes and related equipment at a high standard to safeguard against undue pollution, within jurisdiction.

The A code, in brackets, shows how each responsibility relates to a specific aim of the Management Scheme. This list of Relevant Authorities is not prioritised or ordered in any way.

Table A2: 2016-2021 Action Plan - Projects and Actions Undertaken by Relevant Authorities, the Management Scheme and Key Partners Within and Adjacent to the Flamborough Head European Marine Site

Key

Indicator	Delivery Timescale
Completion Expected	Significant progress or completion expected during the next 12 months
Progressing	Moderate progress expected during the next 12 months
Ongoing	Ongoing or annual action which is dependent on available resources or subject to appropriate licences
Indicator	**Priority**
High	Action affects the conservation features, and/or influences the management of the site*
Medium	Action interacts with the conservation features but does not necessarily affect the conservation status or influence site management
Low	Action adds value to the work of the Management Scheme but does not interact with conservation features or influence site management

* A small number of high priority actions have a direct influence on the EMS but are unable to be progressed directly by the Management Scheme. Nevertheless, it has been agreed by the Relevant Authorities that these actions will remain as high priorities, in order to reflect the impact they could have on the site.

STATUTORY PROJECTS (STP)	Irregular and time-limited projects carried out by Relevant Authorities in response to changes in legislation or new legislative guidance, undertaken as part of their statutory duties towards the EMS.

Feature Interaction	Action	Outputs and Progress Indicators	Lead Authority and FHMS Responsibilities	Delivery Timescale	Priority
All SAC and SPA features	**STP 1: SSSI Designation –** Designation of SSSI underpinning areas of terrestrial SPA and including new components	**Outputs** - SSSI protection afforded to new components of site - Newly extended SPA and SAC underpinned by revised SSSI designation **Progress Indicators** - Consultation of new SSSI extension and components - Final designation of underpinning SSSI	NE R 1.1/R 1.3	Awaiting consultation date	High*
All SAC and SPA features	**STP 2: Conservation Advice Review** - Building on and improving the content and structure of advice packages relating to the conservation objectives of each	**Outputs** - Improved and updated Conservation Advice package specific to the EMS, reflecting changes in legislation and additional protected features - Improved accessibility to advice and conservation objectives for the EMS - Accurate maps of the EMS available online and as GIS files - Online advice, via the Natural England website, tailored to the user's requirements	NE R 1.1/R 1.2	Draft Conservation Advice packages published. Awaiting finalisation.	High*

	Marine Protected Area in England	**Progress Indicators** - Inclusion of new designations and related conservation objectives - Improved efficacy of Conservation Advice format and content - Commencement of public consultation for revised document - Publication of revised Conservation Advice for the EMS			
All SAC and SPA features	**STP 3: England Coast Path Development** – Establishment of coastal pathways around the entire English coastline, by 2020	**Outputs** - Sections of Public Rights of Way and permitted access land open to the general public as a continuous coastal path - Ancillary features to support this project, such as waymarkers and benches **Progress Indicators** - Consultation of the agreed route between Easington to Filey Brigg and Filey Brigg to Newport Bridge - Designation of routes by Secretary of State	NE R 1.1 LAs R 4.1	Filey Brigg to North Gare section complete, Easington to Filey Brigg expected to be complete by 2020.	Medium

RELEVANT AUTHORITY PROJECTS (RAP)	Long-term projects being carried out within or adjacent to the EMS by individual Relevant Authorities which are not statutory obligations but may have an impact on the site's features.

RAP 1. CONSTRUCTION/MAINTENANCE PROJECTS

Feature Interaction	Action	Outputs and Progress Indicators	Lead Authority and FHMS Responsibilities	Delivery Timescale	Priority
SAC - Chalk reef **SPA** - No specific feature interaction identified	**RAP 1a**: **Bridlington Harbour Dredging** - Continual dredging of the harbour to ensure sufficient access for vessels	**Outputs** - Navigational access into the harbour for commercial and recreational fishing boats **Progress Indicators** - No significant change in amount of dredged material deposited within SAC - No significant change in permit conditions applied to this activity - No adverse effect on condition of SAC features as a result of dredge disposals within the site boundaries.	BHC R 5.1/R 5.3 **Supporting** MMO R 2.2 ERYC R 4.1 NE R 1.1/R 1.2	Annual navigational dredging, dependent on licence conditions	High

RAP 2. NON-STATUTORY MONITORING PROJECTS					
Feature Interaction	**Action**	**Outputs and Progress Indicators**	**Lead Authority and FHMS Responsibilities**	**Delivery Timescale**	**Priority**
SAC - Reef feature **SPA** - No specific feature interaction identified	**RAP 2: Species Monitoring** - Monitoring of intertidal blue mussel beds (NTZ)	**Outputs** - Accurate dataset on intertidal blue mussel bed extent and density within NTZ **Progress Indicators** - Improved knowledge of local bivalve mollusc population including bed recovery and changes in distribution, post legislative protection	NEIFCA R 8.1/R 8.3	Annual monitoring programme	Medium
RAP 3. NON-STATUTORY POLICY/GUIDANCE IMPLEMENTATION AND DEVELOPMENT PROJECTS					
Feature Interaction	**Action**	**Outputs and Progress Indicators**	**Lead Authority and FHMS Responsibilities**	**Delivery Timescale**	**Priority**
SAC - Reef and Sea Cave features **SPA** - No specific feature interaction identified	**RAP 3a: Bathing Water Partnership Focus Groups** – The facilitation of focus groups along the Yorkshire Coast with the aim of improving water quality.	**Outputs** - Identification of problem areas and best practice resolutions - Agreements with partners and sea users to reduce pollution incidents **Progress Indicators** - Implementation of activities necessary to improve water quality within focus group areas - All bathing water beaches achieving 'Blue Flag' status	Yorkshire Water R 9.1 **Supporting** EA R 3.1 LAs AV	Annual meeting	Medium
SAC - Vegetated Sea Cliffs **SPA** - No specific feature interaction identified	**RAP 3b: Cell 1 and Cell 2a Regional Coastal Monitoring Programme** (Scottish Border - Flamborough Head & Flamborough Head - Humber Estuary).	**Outputs** - Monitor changes to the cliff line around Flamborough Head and Filey Brigg - Research report into transport sediment study along coast - Site specific information gathered from habitat monitoring programmes **Progress Indicators** - Maintenance or improvement of SAC feature condition	LAs R 4.1 **Supporting** EA AV (A1) NE R 1.1 <u>Other Orgs.</u> NECAG AV (A1) NT AV (A1	Annual monitoring (dependent on funding)	Medium

KEY PARTNER PROJECTS (KPP)	Projects not initiated by the Management Scheme and not led by Relevant Authorities but which relate directly to the protected features of the EMS and may be used to inform site management.				
Feature Interaction	**Action**	**Outputs and Progress Indicators**	**Lead Organisation(s) and FHMS Responsibilities**	**Delivery Timescale**	**Priority**
SAC - No specific feature interaction identified **SPA** - All features	**KPP 1**: **Seabird Monitoring Programme (SMP)** - Annual monitoring of breeding bird assemblage productivity and population numbers	**Outputs** - Accurate annual datasets depicting fluctuations in seabird productivity and population **Progress Indicators** - Continual development of population datasets to inform management of site - Utilisation of new technology to create more accurate datasets in a more efficient manner	RSPB AV (A2) **Supporting** JNCC AV (A2) NE R 1.1	Annual monitoring, dependent on funding	High

MANAGEMENT SCHEME PROJECTS (MSP)	Projects or activities initiated by the Management Scheme and led by the Project Officer, with support from Relevant Authorities and key partners. These projects are not statutory and do not directly affect the features of the site.				
MSP 1. MONITORING PROJECTS AND DATA ANALYSIS					
Feature Interaction	**Action**	**Outputs & Progress Indicators**	**Supporting Authorities and FHMS Responsibilities**	**Delivery Timescale**	**Priority**
All SAC and SPA features	**MSP 1a: Recreational Disturbance Monitoring** - Record, measure and manage recreational activities in order to reduce any disturbance/damage to the protected features	**Outputs** - Comprehensive record of recreational activities taking place around the site - Data to support the development of new focused voluntary codes of conducts with user groups **Progress Indicators** - Reduced recreational disturbance around EMS - Recruitment of volunteers to survey the site during the summer months and analyse data collected - Maintenance or improvement of SAC/SPA conservation features	NE R 1.1 MMO R 2.3 ERYC R 4.1/R 4.3 NEIFCA R 8.3 Other Orgs. RSPB AV (A2) YWT AV (A2)	Continual year-round monitoring	High
SAC - Reef feature	**MSP 1b: Stock Assessments** - Carry out stock assessments	**Outputs** - Comprehensive data relating to the populations of edible crab and lobster	FNLHC AV (A2) NEIFCA R 8.1/R 8.3		

SPA - No specific feature interaction identified	of crustacean populations within the NTZ and the SAC	**Progress Indicators** - Improved understanding of the SAC conservation features - Continual monitoring of the effectiveness of the NTZ		Annual monitoring (weather dependent)	Medium
MSP 2. COMMUNICATION AND STAKEHOLDER ENGAGEMENT					
Feature Interaction	**Action**	**Outputs and Progress Indicators**	**Supporting Authorities and FHMS Responsibilities**	**Delivery Timescale**	**Priority**
All SAC and SPA features	**MSP 2a: Develop an Environmental Incident Wildlife Response Plan** - Plan for and be able to effectively respond to an environmental incident	**Outputs** - Effective procedure for responding to an environmental incident including pollution and/or species wash-ups - Accurate data collection in the event of an incident **Progress Indicators** - Development of procedural guidelines - Approval and support of authorities with an interest in marine environmental incidents - Improved local response to environmental incidents	LAs EA NE <u>Other Orgs.</u> RSPB YWT RSPCA All AV (A4)	Ongoing (resource dependent)	Medium
SAC - No specific feature interaction identified **SPA** - All features	**MSP 2b: Continuously Review and Update Existing Voluntary Codes of Conduct and Agreements** - In order to ensure that the voluntary agreements remain effective and relevant, regularly meet with user group representatives to review the documents	**Outputs** - Voluntary codes of conduct and agreements which are up-to-date, effective and adhered to by user groups **Progress Indicators** - Continual reduction in recreational disturbance around the site - Existing voluntary codes of conduct regularly updated and promoted: Bempton Cliffs Angling Code of Conduct, Flamborough Head EMS Personal Watercraft Code of Conduct and the agreement with the Search and Rescue (Humberside) helicopter crews	NE R 1.1 LAs R 4.1 <u>Other Orgs.</u> RSPB AV (A2) YWT AV (A2)	Ongoing	Medium
All SAC and SPA features	**MSP 2c: Explore Possibilities for New Voluntary Agreements** - Assess the available evidence	**Outputs** - Timely and effective agreements created with user groups which can remove the risk of incidents of disturbance	NE R 1.1 LAs R 4.1 <u>Other Orgs.</u> RSPB AV (A2)	Ongoing	Medium

	to determine where new voluntary agreements may be necessary	**Progress Indicators** - Effective and positive communication with user groups - Development of agreements where necessary - Reduction in the risk of disturbance incidents	YWT AV (A2)		
MSP 3. COLLABORATIVE MARINE AND COASTAL MANAGEMENT					
All SAC and SPA features	**MSP 3a: Explore Options for Developing a Wider Management Partnership –** Develop proposals to secure sustainable management of all Yorkshire coast MPAs and inshore waters, whilst maintaining site-level actions and engagement with regional organisations and local communities.	**Outputs** - Full development plans for a Yorkshire coast partnership, which incorporates management of the MPAs and inshore waters, allows for wider engagement with stakeholders and user groups, provides capacity to engage with regional and national policy discussions and, supports site-level actions along the coast **Progress Indicators** - Positive engagement with, and support from, Relevant Authorities, Key Partners and wider stakeholders - Identification of necessary funds to support development - Plan of action for successful development, once funds have been identified	All RAs AV <u>Other Orgs.</u> RSPB AV YWT AV	Ongoing	Medium

Appendix B:
Activity-Specific Pressures and Associated Management Measures

NETTING - T&J
(Salmon and Sea Trout Fishery in Filey Bay)

Lead Organisation/s and Responsibilities
Environment Agency (R 3.3)
Supported By
Natural England (R 1.1), NEIFCA (R 8.1, R 8.2, R 8.3) & RSPB (AV)

SAC Interaction	SPA Interaction
- Possible abrasion impacts to reef feature	- Risk of seabird bycatch

Local Activity Specific Management Measures

Statutory	Voluntary
- Filey Bay Bycatch Byelaw	- Seasonal voluntary code of conduct (2010), see Appendix C - Change in fishing equipment to highly visible corline material throughout the year

Other Statutory Management Applicable to the Activity

Net Limitation Orders; Net Attendance Byelaw; Minimum Conservation Reference Sizes. If also landing sea fish – Submitted Automatic Identification System; Submitted Catch Returns Byelaw

Links to Action Plan Projects

STP1; KPP1; MSP1c

Knowledge Gaps/Remaining Issues

- It is unknown whether seabird bycatch occurs in significant numbers around Flamborough headland, though the proposed (2016) catch returns byelaw may provide additional data.

- Although bycatch numbers have been decreasing in Filey Bay, seasonal weather conditions and prey availability may drive more birds into the Bay, possibly increasing bycatch. There is currently no information available which could be used to predict these changes and highlight the possibility of increased bycatch to fishers.

- There is a lack of information about the possible impacts of anchoring on the reef feature.

Further details can be found in Chapter Four of the Management Plan, pg. 32

Figure B1: Pressures and Associated Management Measures - Netting (T&J)

NETTING – Static/Passive/Intertidal/Subtidal
(Excluding Salmon and Sea Trout Fishery)

Lead Organisation/s and Responsibilities
North Eastern Inshore Fisheries and Conservation Authority – R 8.1/R 8.2/R 8.3
Supported By
Natural England (R 1.1) & MMO (R 2.1/R 2.3)

SAC Interaction	SPA Interaction
- Possible abrasion impacts to reef feature	- Potential risk of seabird bycatch

Local Activity Specific Management Measures

Statutory	Voluntary
- No Take Zone Byelaw - Method and Area of Fishing (Fixed Netting) Byelaw (Submitted, Awaiting Sign-off))	- None identified

Other Statutory Management Applicable to the Activity

Fixed Engine Byelaw; Net Attendance Byelaw; Minimum Conservation Reference Sizes; Submitted Automatic Identification System; Submitted Catch Returns Byelaw; Prohibition on Catching and Landing Egg-Bearing Lobsters

Links to Action Plan Projects

KPP 1

Knowledge Gaps/Remaining Issues

- Bycatch of designated bird species is currently unquantified, however a proposed catch returns byelaw (2016) requires submission of bycatch information which may provide more data. Additionally, the proposed Method and Area of Fishing (Fixed Netting) Byelaw (2016) prohibits netting activities targeting sea fish within the Flamborough and Filey Coast SPA between 1 March and 30 September to prevent seabird bycatch.

- There is a lack of information about the possible impacts of abrasion on the chalk reef feature.

Further details can be found in Chapter Four of the Management Plan, pg. 32

Figure B2: Pressures and Associated Management Measures - Netting (Static/Passive/Intertidal/Subtidal)

SHELLFISH POTTING

Lead Organisation/s and Responsibilities

North Eastern Inshore Fisheries and Conservation Authority – R 8.1/R 8.2/R 8.3

Supported By

Natural England (R 1.1) & MMO (R 2.1/R 2.3)

SAC Interaction	SPA Interaction
- Possible abrasion impacts to reef feature	- No feature interaction identified

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- No Take Zone	- None identified

Other Statutory Management Applicable to the Activity
Shellfish Entitlement Holder Permit; Limited Shellfish Permit (Recreational); Protection of 'V' Notched Lobsters; Minimum Conservation Reference Sizes; Mandatory Escape Gaps; Prohibition on Catching and Landing Egg-Bearing Lobsters; Submitted Automatic Identification System; Submitted Catch Returns Byelaw

Links to Action Plan Projects
MSP 1b

Knowledge Gaps/Remaining Issues
- Monitoring of the shellfish stocks should continue in order to investigate whether the No Take Zone is having a positive effect on the crustacean population or the supporting habitats. - Where opportunities arise, undertaking a shellfish tagging project may help to yield information about how the shellfish are using the No Take Zone.

Further details can be found in Chapter Four of the Management Plan, pg. 32

Figure B3: Pressures and Associated Management Measures - Shellfish Potting

TRAWLING

Lead Organisation/s and Responsibilities

North Eastern Inshore Fisheries and Conservation Authority – R 8.1/R 8.2/R 8.3

Supported By

Natural England (R 1.1) & MMO (R 2.1/R 2.3)

SAC Interaction	SPA Interaction
- Possible abrasion impacts to reef feature through use of trawling gears	- No feature interaction identified

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- Flamborough Head Prohibited Trawl Area - Trawling Permit within open trawl zone	- None identified

Other Statutory Management Applicable to the Activity
NEIFCA trawl permit system; Minimum Conservation Reference Sizes; Species landing quotas; Fishing effort (days at sea); Offshore closed areas; Submitted Automatic Identification System; Submitted Catch Returns Byelaw.

Links to Action Plan Projects
No active projects

Knowledge Gaps/Remaining Issues
- Due to the nature of the mobile sediment around Flamborough, the chalk reef may be exposed or covered during different tides/seasons, therefore identifying the full extent of the exposed feature can be challenging.

Further details can be found in Chapter Four of the Management Plan, pg. 32

Figure B4: Pressures and Associated Management Measures - Trawling

DISCHARGES AT SEA
(Ballast Water Discharges)

Lead Organisation/s and Responsibilities
Maritime and Coastguard Agency - AV
Supported By
Natural England (R 1.1) & MMO (R 2.1/R 2.3)

SAC Interaction	SPA Interaction
- Negative indirect effects of poor water quality on composition of chalk feature and subtidal faunal turf communities - Introduction of non-native invasive species may damage reef features	- Negative changes in water quality, or the introduction of non-native invasive species, may alter availability of seabird prey species - The release of contaminants through ballast water exchange may be detrimental to the health of the SPA colony

Local Activity Specific Management Measures

Statutory	Voluntary
- None identified	- None identified

Other Statutory Management Applicable to the Activity

Various international legislation applies, including the International Maritime Organisation's Ballast Water Convention which specifies the volume of water to be replaced and acceptable levels of viable organisms left in the water after appropriate treatments. Other non-statutory guidelines include the development of a ballast water management plan, recording all ballast water exchanges and minimising the uptake of organisms and sediment.

Links to Action Plan Projects

No active projects

Knowledge Gaps/Remaining Issues

- As ships are required to undertake ballast exchanges at least 50 nautical miles from land and in waters of at least 200m depth, the effects of these practices on the marine environment within the EMS are unquantified. However, small amounts of contaminants have been known to result in seabird 'wash-ups', therefore the Management Scheme should remain vigilant to this pressure.

Further details can be found in Chapter Four of the Management Plan, pg. 34

Figure B5: Pressures and Associated Management Measures - Discharges at Sea

HARBOUR WASTE

Lead Organisation/s and Responsibilities

Bridlington Harbour Commissioners – R 5.1/R 5.2

Flamborough North Landing Harbour Commissioners – R 6.1/R6.2

Supported By

Natural England (R 1.1), NEIFCA (R 8.1), MCA (AV)

SAC Interaction	SPA Interaction
- Water quality may be negatively affected if pollutants are not managed appropriately, this may lead to changes in faunal turf composition	- Prolonged negative changes in water quality may alter populations of seabird prey species - Discarded plastic waste can be a danger to birds, through ingestion or entanglement

Local Activity Specific Management Measures

Statutory	Voluntary
- None Identified	- Port Marine Safety Code (Bridlington Harbour) - Local voluntary initiatives – e.g. YWT's Fishing for Litter campaign - Development of volunteer response group in case of any oil-related incident

Other Statutory Management Applicable to the Activity

Harbour Waste Contingency Plan (Bridlington Harbour); Oil Spill Contingency Plan (Bridlington Harbour)

Links to Action Plan Projects

MSP 2a

Knowledge Gaps/Remaining Issues

- The effects of harbour waste, and other sources of marine litter, on the environment are not wholly understood on an national/international scale.

- Although it is known that seabirds can become tangled in fishing wire/rope/netting when used as nesting material, the numbers of birds which suffer fatal injuries as a result is unknown.

Further details can be found in Chapter Four of the Management Plan, pg. 34

Figure B6: Pressures and Associated Management Measures - Harbour Waste

NAVIGATIONAL DREDGING

Lead Organisation/s and Responsibilities
Bridlington Harbour Commissioners – R 5.1/R 5.3
Supported By
Natural England (R 1.1) & MMO (R 2.2)

SAC Interaction	SPA Interaction
- Possible smothering of reef feature by disposal of dredged material	- No feature interaction identified

Local Activity Specific Management Measures

Statutory	Voluntary
- Dredging and Disposal permit (conditions apply)	- Dredged material only deposited in the section of the approved site which is outside the SAC boundaries - South Landing to Bridlington beaches are monitored annually by the Harbour Commissioners

Other Statutory Management Applicable to the Activity

None identified

Links to Action Plan Projects

RAP 1a; RAP 1b

Knowledge Gaps/Remaining Issues

- Navigational dredging may have to be increased as a result of any development of Bridlington Harbour. There is a risk that sediment, and/or contaminants within the sediment, could negatively impact the chalk feature.

Further details can be found in Chapter Four of the Management Plan, pg. 34

Figure B7: Pressures and Associated Management Measures - Navigational Dredging

OFFSHORE RENEWABLE ENERGY DEVELOPMENT

Lead Organisation/s and Responsibilities
Marine Management Organisation – R 2.2
Supported By
Natural England (R 1.1)

SAC Interaction	SPA Interaction
- No feature interaction identified	- Risk of seabird displacement from foraging grounds - Risk of seabird collision with rotating blades

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- None identified	- None identified

Other Statutory Management Applicable to the Activity
Eastern Inshore and Eastern Offshore Marine Plans; Appropriate Assessments / Habitat Regulations Assessments

Links to Action Plan Projects
KPP 1

Knowledge Gaps/Remaining Issues
- Although data gathering continues, the full effects of offshore developments on the breeding seabird colony are not known. It is unclear whether the seabirds will avoid the area (thereby losing important foraging grounds) or if collision rates will increase. This risk may become greater as more development areas are approved.

Further details can be found in Chapter Four of the Management Plan, pg. 35

Figure B8: Pressures and Associated Management Measures - Offshore Renewable Energy Development

DIFFUSE POLLUTION

Lead Organisation/s and Responsibilities
Environment Agency – R 2.2
Supported By
Natural England (R 1.1) & Yorkshire Water (R 9.1)

SAC Interaction	SPA Interaction
- Negative indirect effects of poor water quality on composition of chalk feature, subtidal faunal turf communities and vegetated sea cliffs.	- Negative changes in water quality may alter populations of seabird prey species and have an indirect effect on seabird breeding success

Local Activity Specific Management Measures

Statutory	Voluntary
- Humber District River Basin Management Plan	- Countryside Stewardship Schemes - Bathing Water Partnership Focus Groups

Other Statutory Management Applicable to the Activity

Catchment Sensitive Farming programme under the Water Framework Directive; Pollution and Waste Water Treatment Works compliance reported to EA by Yorkshire Water annually.

Links to Action Plan Projects

RAP 3a

Knowledge Gaps/Remaining Issues

- There are known issues with diffuse pollution in Filey and Staithes in North Yorkshire. It is unknown what effect this has on the water quality around the EMS, either directly or cumulatively.

- Where opportunities arise, Authorities should work to highlight the sources of diffuse pollution and utilise the Water Framework Directive in the coastal zone to reduce any impact on the EMS and wider marine environment.

Further details can be found in Chapter Four of the Management Plan, pg. 37

Figure B9: Pressures and Associated Management Measures - Diffuse Pollution

CONSENTED/UNCONSENTED DISCHARGES FROM LAND

Lead Organisation/s and Responsibilities
Environment Agency – R 2.2
Supported By
Natural England (R 1.1), Yorkshire Water (R 9.1), MMO (2.4)

SAC Interaction	SPA Interaction
- Negative indirect effects of poor water quality on composition of chalk feature and subtidal faunal turf communities	- Negative changes in water quality may alter populations of seabird prey species and have an indirect effect on seabird breeding success

Local Activity Specific Management Measures

Statutory	Voluntary
- Disposal licence for each consented discharge point	- None identified

Other Statutory Management Applicable to the Activity

Effluent released from discharge pipes must be regularly checked and the quantity discharged must be monitored to ensure no negative effect on the surrounding bathing waters and environment. Pollution and Waste Water Treatment Works compliance reported to EA by Yorkshire Water annually.

Links to Action Plan Projects

RAP 3a

Knowledge Gaps/Remaining Issues

- Where opportunities arise, Authorities should utilise the Water Framework Directive in the coastal zone to reduce any impact on the EMS and wider marine environment, caused by consented or unconsented discharges.

Further details can be found in Chapter Four of the Management Plan, pg. 37

Figure B10: Pressures and Associated Management Measures - Consented/Unconsented Discharges from Land

AGRICULTURE

Lead Organisation/s and Responsibilities
Natural England – R 1.1/R 1.4

SAC Interaction	SPA Interaction
- Possible changes to species composition within the vegetated sea cliffs as a result of agricultural run-off and/or inappropriate drainage	- No feature interaction identified

Local Activity Specific Management Measures

Statutory	Voluntary
- SSSI designation prohibits the modification of water courses	- Countryside Stewardship Schemes

Other Statutory Management Applicable to the Activity

None identified

Links to Action Plan Projects

No active projects

Knowledge Gaps/Remaining Issues

None identified

Further details can be found in Chapter Four of the Management Plan, pg. 39

Figure B11: Pressures and Associated Management Measures - Agriculture

INTERTIDAL HAND-GATHERING
(Including recreational/commercial bait digging)

Lead Organisation/s and Responsibilities
North Eastern Inshore Fisheries and Conservation Authority – R 8.1/R 8.2/R 8.3
Supported By
Natural England (R 1.1/R 1.4) & Local Authorities (R 4.1)

SAC Interaction	SPA Interaction
- Possible degradation of chalk reef feature in the intertidal zone and removal of faunal turf community if conducted on large scale	- No feature interaction identified

Local Activity Specific Management Measures

Statutory	Voluntary
- No Take Zone	- Code of Conduct (2008) available online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity

Limited Shellfish Permit; Molluscs gathered commercially for human consumption must be harvested from a classified production area, recognised by the Food Standards Agency; Submitted Catch Returns Byelaw

Links to Action Plan Projects

MSP1a

Knowledge Gaps/Remaining Issues

- The extent to which this activity occurs around the EMS is currently unquantified.

- There have been instances of large quantities of molluscs being removed from beaches, presumably for commercial purposes, although there are no records of this activity having a negative impact on the integrity of the site.

Further details can be found in Chapter Four of the Management Plan, pg. 40

Figure B12: Pressures and Associated Management Measures - Intertidal Hand-Gathering

COLLECTION OF MATERIALS

Lead Organisation/s and Responsibilities
Natural England - R 1.1 / R 1.4
Supported By
Local Authorities (R 4.1)

SAC Interaction	SPA Interaction
- Degradation and removal of chalk reef feature	- Possibility of reduction in habitat availability if significant quantities are removed

Local Activity Specific Management Measures

Statutory	Voluntary
- SSSI designation prohibits the alteration or clearance of natural features	- Code of Conduct (2008) available online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity

None identifed

Links to Action Plan Projects

MSP1a

Knowledge Gaps/Remaining Issues

- The extent to which this activity occurs around the EMS is currently unquantified.

- There have been instances of quantities of chalk being removed from beaches, for commercial and non-commercial purposes, although a lack of evidence has prevented investigation in most cases. Further awareness raising may be needed to prevent further occurences.

Further details can be found in Chapter Four of the Management Plan, pg. 40

Figure B13: Pressures and Associated Management Measures - Collection of Materials

COASTAL ACCESS

Lead Organisation/s and Responsibilities
Natural England - R 1.1 / R 1.4
Supported By
Local Authorities (R 4.1) & Land Owners (AV)

SAC Interaction	SPA Interaction
- Excessive trampling may degrade the vegetated sea cliffs	- Legal access to cliff face and/or easier access to land on which activities can be undertaken may disturb the breeding seabirds

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- None identified (route pending consideration)	- Code of Conduct with local angling clubs to prevent new access creation at Filey Brigg and Bempton Cliffs (2015)

Other Statutory Management Applicable to the Activity
None identified

Links to Action Plan Projects
STP 4; RAP 3b; MSP1a

Knowledge Gaps/Remaining Issues
- The extent to which the new coastal access rights could affect the EMS is currently unknown, however there is potential for increased recreational disturbance. - The England Coast Path allows users to traverse the cliff face down to mean high water. Although much of Flamborough headland is inaccessible due to the height of the cliffs, some areas may be accessed. During the breeding season, this could bring visitors in direct conflict with the protected seabirds.

Further details can be found in Chapter Four of the Management Plan, pg. 41

Figure B14: Pressures and Associated Management Measures - Coastal Access

ONSHORE OIL AND GAS EXTRACTION

Lead Organisation/s and Responsibilities

Natural England - R 1.1 / R 1.4; Environment Agency R 3.1 / R 3.2
Department for Energy and Climate Change (AV)

Supported By

Local Authorities (R 4.1) & Land Owners (AV)

SAC Interaction	SPA Interaction
- Any direct effects on the chalk feature are currently unknown - Changes in water quality due to inadvertent pollution may alter the chalk reef habitat	- Seabirds may be disturbed by noise and/ or vibrations from nearby construction and operation of a facility

Local Activity Specific Management Measures

Statutory	Voluntary
- None identified	- None identified

Other Statutory Management Applicable to the Activity

Industry guidance and various pieces of water quality and environmental health legislation, including the Habitats Regulations.

Links to Action Plan Projects

No active projects

Knowledge Gaps/Remaining Issues

- Although there are strict regulations in place, the effect of shale oil and gas extraction in close proximity to the chalk cliffs are unknown. Whereas bird disturbance will most likely relate to noise and vibrations (as with all developments), it is unclear whether existing fractures in the chalk will be exacerbated by any additional pressure.

- Although areas close to the EMS have been licensed, no developments have yet been approved for construction. The effects of such a development on the protected area will vary depending on the proximity to the site.

Further details can be found in Chapter Four of the Management Plan, pg. 43

Figure B15: Pressures and Associated Management Measures - Onshore Shale Oil and Gas Extraction

CANOES & KAYAKS

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
All Relevant Authorities (unregulated activity) & RSPB (AV)

SAC Interaction	SPA Interaction
- No interaction identified	- Paddlers travelling too close to the cliff face or between archways during the breeding season may disturb the SPA features

Local Activity Specific Management Measures

Statutory	Voluntary
- None identified	- Code of Conduct (2008) available online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity

None identified

Links to Action Plan Projects

MSP1a; MSP 2b

Knowledge Gaps/Remaining Issues

- The extent to which this activity affects the site is currently unquantified;

- Whilst the majority of paddlers are responsible and aware of local sensitivities, records of disturbance caused by canoes/kayaks suggest that more can be done to prevent further issues.

Further details can be found in Chapter Four of the Management Plan, pg. 44

Figure B16: Pressures and Associated Management Measures - Canoes & Kayaks

PERSONAL WATERCRAFT (PWC)

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
All Relevant Authorities (unregulated activity) & RSPB (AV)

SAC Interaction	SPA Interaction
- No interaction identified	- PWC riders travelling too close to the cliff face or between archways during the breeding season may disturb the SPA features - PWC riders travelling too fast within the EMS may collide with rafting birds or separate vulnerable youngsters from adults

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- None identified	- Code of Conduct (2016) includes a 'No-Wake Zone' between the cliff face and 300m offshore and an 'Awareness Zone' for the rest of the protected area. Full details can be found online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity
None identified

Links to Action Plan Projects
MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues
- The extent to which this activity affects the site is currently unquantified; - It is recognised that the majority of PWC (or Jet Ski) riders are responsible and are aware of the site's sensitive nature, however there are numerous records of riders disturbing the seabirds. Therefore, monitoring of this issue will continue and the effectiveness of a new voluntary agreement will be monitored.

Further details can be found in Chapter Four of the Management Plan, pg. 44

Figure B17: Pressures and Associated Management Measures - Personal Watercraft

MOTORISED BOATS

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
Natural England (R 1.1 / R 1.4), Local Authorities (R 4.1), Harbour Commissioners (R 5.1 & R 6.1), NEIFCA (R 8.1)

SAC Interaction	SPA Interaction
- Possible damage to reef through anchoring of boats	- Boats travelling too close to the cliff face during the breeding season may disturb the SPA features - Boats travelling too fast within the EMS may collide with rafting birds or separate vulnerable youngsters from adults

Local Activity Specific Management Measures

Statutory	Voluntary
- No Take Zone (sea angling)	- Code of Conduct (2008) available online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity

None identified

Links to Action Plan Projects

MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues

- The extent to which commercial/recreational use of motorised vessels affect the site is currently unquantified.

- There is a lack of information about the possible impacts of anchoring on the reef feature.

Further details can be found in Chapter Four of the Management Plan, pg. 44

Figure B18: Pressures and Associated Management Measures - Motorised Boats

SCUBA DIVING/SNORKELLING

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
All Relevant Authorities (unregulated activity)

SAC Interaction	SPA Interaction
- Possible damage or removal of reef/ subtidal faunal turf communities	- No feature interaction indentified

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- No Take Zone	- Code of Conduct (2008) available online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity
Limited Shellfish Permit

Links to Action Plan Projects
MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues
- The extent to which this activity affects the site is currently unquantified; there have been no recent records of damage to the site caused by scuba diving/snorkelling. However, the potential for damage/disturbance necessitates continual monitoring.

Further details can be found in Chapter Four of the Management Plan, pg. 44

Figure B19: Pressures and Associated Management Measures - Scuba Diving/Snorkelling

ANGLING
(Cliff or Shore)

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
All Relevant Authorities (unregulated activity), RSPB (AV)

SAC Interaction	SPA Interaction
- Possible degradation of feature due to trampling	- Risk of seabird entanglement in fishing line and discarded equipment

Local Activity Specific Management Measures

Statutory	Voluntary
- No Take Zone	- Code of Conduct (annually reviewed) states no fishing from the cliff top between Speeton Cliffs and North Dyke from 1st March to 30th September. Full details can be found at www.flamboroughheadsac.org.uk/downloads - Code of Conduct for Filey Brigg states no new access points should be created and climbing should not take place within 50m of an active nest

Other Statutory Management Applicable to the Activity

None identified

Links to Action Plan Projects

MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues

- Although a code of conduct exists for the Bempton Cliffs reserve, the agreement does not apply to the rest of the headland, where issues with litter and access have been reported.

Further details can be found in Chapter Four of the Management Plan, pg. 46

Figure B20: Pressures and Associated Management Measures - Cliff or Shore Angling

GROUP VISITS
(Education, walking groups etc.)

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
All Relevant Authorities (unregulated activity)

SAC Interaction	SPA Interaction
- Possible degradation of feature due to trampling - Removal or disturbance of chalk reef	- No interaction identified

Local Activity Specific Management Measures	
Statutory	**Voluntary**
- No Take Zone	- Code of Conduct (2008) available online at www.flamboroughheadsac.org.uk/downloads

Other Statutory Management Applicable to the Activity
None identified

Links to Action Plan Projects
MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues
- The number of annual group visits within the EMS is currently unknown. Similarly, the negative cumulative effects of group visits are unquantified.

Further details can be found in Chapter Four of the Management Plan, pg. 46

Figure B21: Pressures and Associated Management Measures - Group Visits

LOW-FLYING AIRCRAFT
(Including non-powered craft)

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
Natural England (R 1.1/R 1.4) & RSPB (AV)

SAC Interaction	SPA Interaction
- No interaction identified	- Possible audio and visual disturbance to all SPA features

Local Activity Specific Management Measures

Statutory	Voluntary
- None identified	- Ministry of Defence 'Environmental Avoidance Area' centred around Bempton Cliffs (TA200738) for 1.5 nautical miles maintains aircraft 2000ft above ground level, throughout the year - Search and Rescue (Humberside) avoid conducting training exercises between North Landing Car Park (TA238719) and High Stacks (TA258704) between 15th March and 15th August inclusive. Does not apply during an emergency response - Search and Rescue also voluntarily adhere to military avoid with allowances for training exercises to be conducted outside of the breeding season

Other Statutory Management Applicable to the Activity

All powered and non-powered aircraft, unless in an emergency or during landing, must stay at least 500 feet from any structure or building.

Links to Action Plan Projects

MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues

- The impact of this activity on the breeding seabirds is currently unquantified, although recording of incidents does continue.

Further details can be found in Chapter Four of the Management Plan, pg. 47

Figure B22: Pressures and Associated Management Measures - Low-Flying Aircraft

UNMANNED AIRCRAFT
(Drones)

Lead Organisation/s and Responsibilities
FHEMS Project Officer
Supported By
Natural England (R 1.1/R 1.4)

SAC Interaction	SPA Interaction
- No interaction identified	- Possible audio and visual disturbance to all SPA features

Local Activity Specific Management Measures

Statutory	Voluntary
- Permission must be granted by Natural England prior to the use of unmanned aircraft within the protected area	- None identified

Other Statutory Management Applicable to the Activity

Permission must be granted from the land owner prior to use. If for commercial purposes, permission must be granted from the Civil Aviation Authority.

Links to Action Plan Projects

MSP 1a; MSP 2b

Knowledge Gaps/Remaining Issues

- The use of unmanned aircraft within the EMS, for both commercial and recreational purposes, is becoming a more frequent occurrence. Despite the regulations around this activity, many drones are thought to be launched without the necessary permission.

Further details can be found in Chapter Four of the Management Plan, pg. 47

Figure B23: Pressures and Associated Management Measures - Unmanned Aircraft

2016-2021 Flamborough Head European Marine Site Management Plan

Appendix C:
Case Studies of Best Practice and Successful Projects (2007-2016)

Case Study One: The No Take Zone

What is the No Take Zone?

The No Take Zone (NTZ) is a small area on the southern side of Flamborough headland where the removal of any seafish, by any method, is not permitted from the beach or the sea. The NTZ protects around a kilometre of the shoreline (the only NTZ to include the intertidal zone) and extends about 700m offshore. Of the three NTZs in existence within the UK, this is the only one in the North Sea.

How was it created?

In 2008, Natural England and other members of the European Marine Site (EMS) Management Scheme held a number of workshops with the local fishing community and other stakeholders to discuss the proposal and identify a suitable location. The current site was eventually agreed upon as it was recognised that the designation would have minimal effect on the commercial fishing industry, whilst also protecting important blue mussel beds and shellfish habitat. The NTZ was officially created through a byelaw enacted by the North Eastern Inshore Fisheries and Conservation Authority (NEIFCA) in 2010.

How is it managed?

The NEIFCA is responsible for management of the site, including enforcement of the byelaw. The prohibition on fishing within the Zone also applies to the salmon and sea trout fishery as, whilst not covered by the byelaw, any net in the water is likely to catch seafish species. The boundaries of the NTZ are not marked by buoys, as sea-users are obliged to be aware of their location at all times and comply with any local byelaws.

Annual surveys are carried out by the NEIFCA to monitor any changes in species or habitat composition as a result of the reduced activity within the site. The Project Officer undertakes stock assessments of lobster and edible crab populations within, and immediately adjacent to, the NTZ on the NEIFCA's behalf. This data helps to inform management decisions and may indicate whether the designation is having a positive effect on the habitat or the shellfish population.

As one of the only NTZs in the country, local universities regularly study the area. Over the past few years, research has focussed on species composition within blue mussel beds, mapping of the intertidal habitat and the level of public knowledge about the NTZ.

Populations of lobsters and crabs are surveyed annually in the NTZ and compared with data from the wider SAC.

What next?

NEIFCA will continue to work with the Management Scheme and other stakeholders to manage the NTZ and maintain the protection afforded to the site. Where possible, resources will be prioritised to ensure that stock assessment data continues to be collected. Similarly, the Management Scheme will maintain the NTZ interpretation boards and inform the public of this unique designation during engagement events.

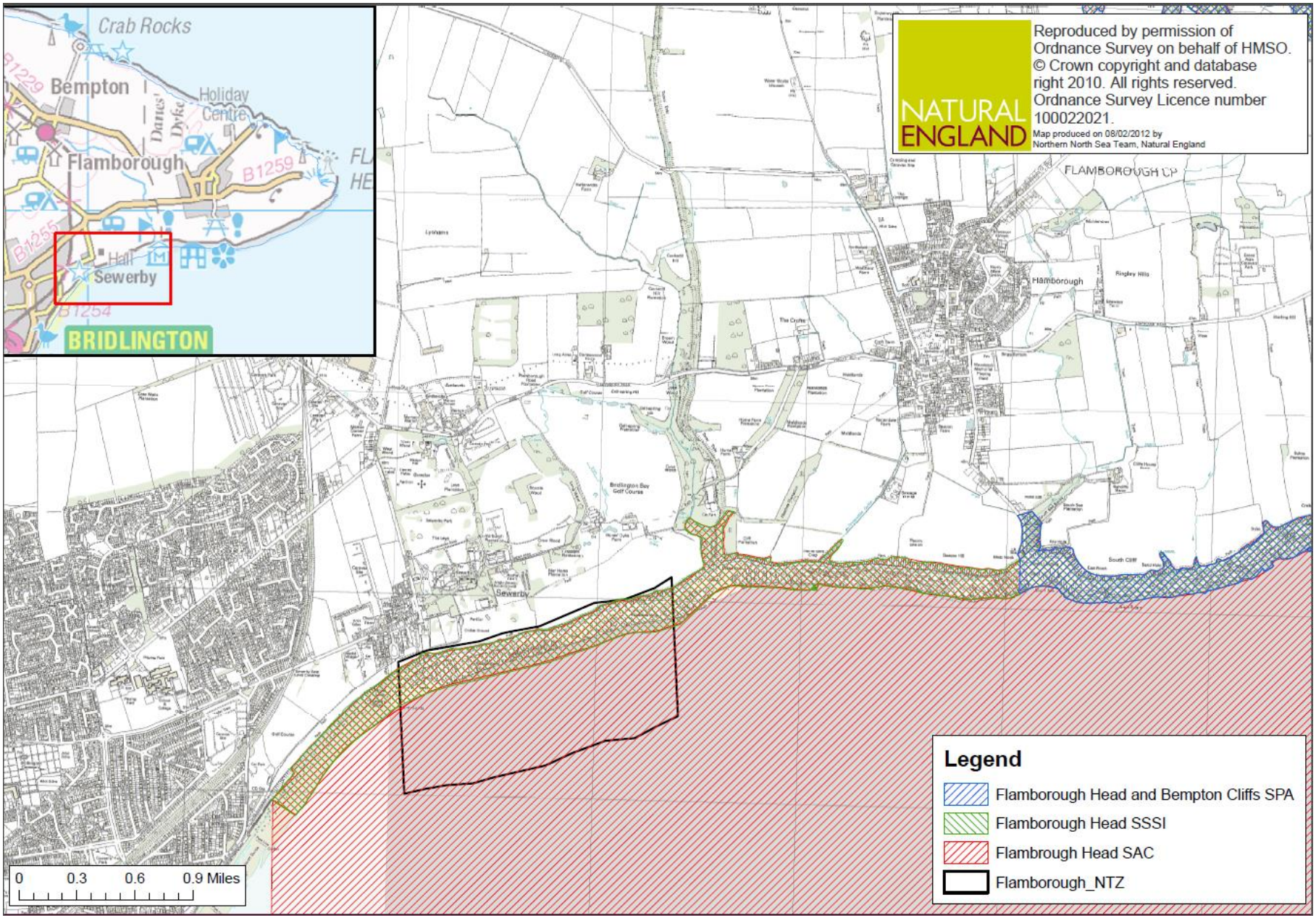


Figure C1: No Take Zone Boundaries

Case Study Two: Filey Bay Seabird Bycatch

What was the problem?

Over the summers of 2006 and 2007, a number of organisations reported that significant quantities of deceased seabirds were being recorded within the nets of the Filey fishing fleet. This small-scale fishery targets salmon and sea trout using drift netting within Filey Bay, where razorbills and guillemots feed and carry out social activities. After initial discussions with local fishermen and other stakeholders, managers of the European Marine Site (EMS) became concerned that the levels of bycatch could pose a risk to the overall health of the protected seabird colony, in addition to the clear animal welfare issue. Consequently, the Environment Agency, as the authority responsible for migratory fish management, was asked to investigate measures to reduce this level of bycatch.

How is it being managed?

Working with the local fishing community, the Environment Agency and its partners developed a byelaw which must be complied with throughout the month of June, to coincide with the highest amount of seabird activity within Filey Bay. Enacted in 2010, this byelaw ensures that a particular type of highly-visible netting material is used, and removed from the water overnight. Additionally, the net cannot be left unattended and all seabirds caught must be removed as quickly and efficiently as possible. In previous years, intensive, seasonal monitoring of Filey Bay has been undertaken to ensure compliance with the byelaw. Due to reductions in resources, and the success of the byelaw in lowering bycatch numbers, intensive monitoring ceased at the end of the 2015 season.

Nevertheless, fishers must record any seabird bycatch and report any incidents to the Environment Agency. Annual and weekly bycatch threshold limits have been set by Natural England and the Environment Agency, which are used to prompt any necessary changes in management. For instance, if 0.75% of the colony's auk population is captured over a five day period, fishing licences will be suspended for two weeks. Should 1.5% of the population be subject to bycatch at any point during the summer, the Environment Agency will revoke all netting licences and the fishing fleet will be grounded for the remainder of the season. Outside of this byelaw period, a code of conduct is in place (see Figure C3). Additionally, each spring, the fishermen meet with the Environment Agency, Natural England and the RSPB to discuss the efficacy of the byelaw and consider any issues.

Has seabird bycatch been reduced?

Since the introduction of the byelaw and code of conduct, seabird bycatch has reduced substantially[16] (see Figure C2 below). This is due, in part, to the proper enforcement of the byelaw and regular monitoring of the fishery. However, the most significant change has been within the fishing community itself. The highly-visible netting material which must be used during the byelaw period is now utilised year-round, many boat-owners attend the annual meetings to discuss the results of the previous season and some fishermen are actively investigating other ways to further reduce seabird bycatch. Without the buy-in of these local stakeholders, the project may not have been as successful as it has proven to be.

What next?

The Environment Agency will continue to enforce the byelaw and work with the fishing community to apply the code of conduct throughout the rest of the seabird breeding season. Additionally, the RSPB is working with individual fishers to reduce bycatch further and investigating ways in which the success of this project can be replicated in other areas. Daily monitoring of activities within the Bay will no longer continue, however licence-holders will still be required to record any bycatch.

It should also be noted that the number of seabirds present in the Bay during the breeding season can vary depending on weather and the availability of suitable food sources. Such fluctuations cannot be predicted or mitigated against, and may impact the levels of bycatch recorded each year.

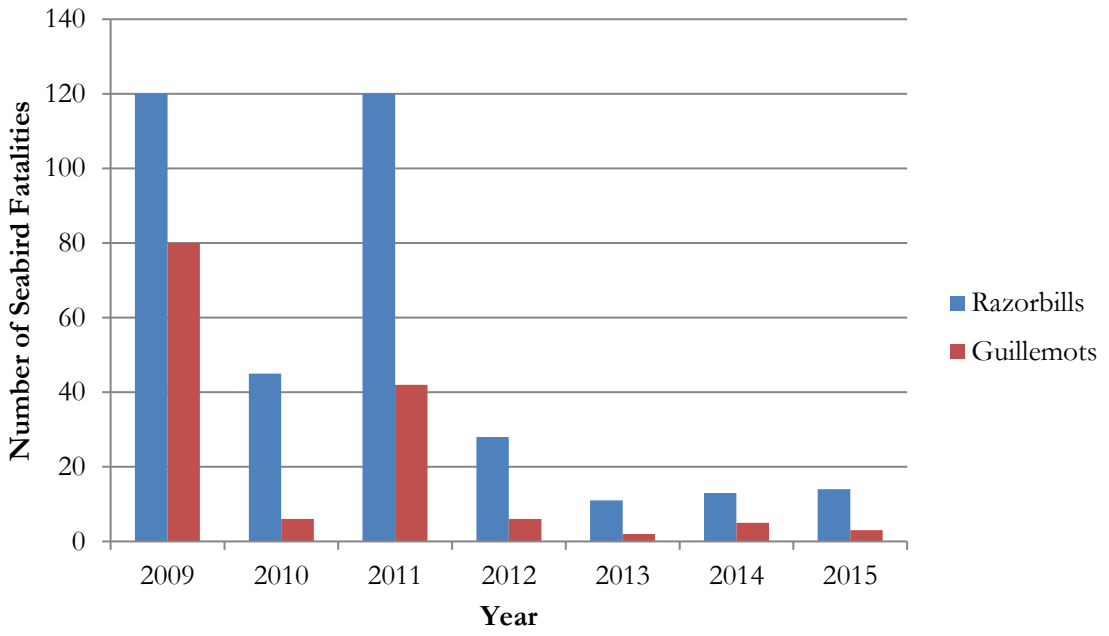


Figure C2: Levels of Seabird Bycatch Fatalities Recorded within Filey Bay 2009-2015[16]

[16] Baines, R., Pearson, M., Lombard, D. (2015). *Filey Bay Fishery Bycatch Monitoring*. Wold Ecology Ltd.

Environment Agency Code of Conduct 2010

Introduction

Filey Bay fishery is part of the North-East Coast T & J net fishery for Sea Trout and Salmon which is licensed and regulated by the Environment Agency

The Filey Bay Fisheries Byelaws (the Byelaws) require any person who is issued a T and J net licence to fish in Filey Bay to take certain measures to reduce the impact of net fishing on local seabird populations.

The aim of the Byelaws is to avoid damaging impacts on the Flamborough and Bempton Cliffs Special Protection Area (SPA), Flamborough Head Site of Special Scientific Interest (SSSI), and local seabird populations, whilst maintaining a viable, sustainable, local commercial salmon and sea trout net fishery. In the longer-term, the possibility of attaining accreditation to maximise the value of the fishery will be pursued.

It is recognised that if netting activities threaten the existence of the seabird populations in the SPA and SSSI, then further measures may be required.

Byelaw 3(1) of the Byelaws requires reasonable steps as detailed in a code of conduct (as revised and re-issued from time to time) to be taken to ensure the use of a T or J net does not result in the death of seabirds. This document is the relevant code of conduct for the purposes of the Byelaw.

Failure to comply with this code of conduct may constitute a breach of the Byelaws for which the Environment Agency may take enforcement action in accordance with its Enforcement and Prosecution Policy.

Steps to be taken

(1) The licence holder (or his registered endorsee) is expected to be in attendance at the net at all times when it is being used to fish and there are a significant number of birds in the vicinity.

(2)If it becomes apparent that significant numbers of birds are being caught in the net the licence holder (or his endorsee) should take whatever steps are necessary to reduce such captures. Such steps may include but are not limited to:

(a) Implementing the steps required by byelaw 3 (4) outside of the period 1 June to 30 June.
(b) Increasing the visibility of the net to birds
(c) Resetting the net in a different configuration
(d) Resetting the net in a different location which is less vulnerable to seabird entanglement
(e) Removing the net from that location for a temporary period
(f) Shooting and hauling the net

The licensee shall record any such changes in the fishing and shall note and report to the monitoring officer or the Environment Agency officer, the impact of such change on the capture of birds.

(3) Any birds caught in the net must be removed as quickly as possible and before any fish are extracted. Where practicable uninjured birds caught in the net should be allowed recovery time before release. All injured or dead birds should be handed over to the monitoring officer or the Environment Agency Officer as soon as practicable.

(4) All licensees and endorsees will undergo training in the safe removal of birds from the net as directed by the Environment Agency and put that training into practice when handling any birds.

If the licensee is prevented from taking any action described above they should contact the Environment Agency immediately using the free phone telephone number 0800 80 70 60 and shall take such further steps they are advised to take.

Monitoring and revision of the Code of Conduct

The Environment Agency will monitor the impacts of the effectiveness of this code of conduct in reducing bird by-catch. From time to time, working in conjunction with all interested parties, the Environment Agency may amend this code of conduct to ensure that it achieves its stated aims. Copies of the current Code of Conduct may be obtained from the Team Leader – Technical (Fisheries, Biodiversity and Recreation), Environment Agency, Coverdale House, Aviator Court, Amy Johnson Way, Clifton Moor, York, YO30 4GZ. Tel 08708 506506

Dated 6 May 2010-08-11
Environment Agency
Coverdale House
Aviator Court
Amy Johnson Way
Clifton Moor
York
YO30 4GZ

Figure C3: Filey Bay Fisheries Code of Conduct

Case Study Three: Recreational Disturbance Monitoring

What is recreational disturbance and why is it a problem?

Recreational disturbance is difficult to define, however it typically refers to any human activity which causes wildlife to change its behaviour. For example, kittiwakes incubating eggs would not normally leave the nest until their partner returned, however a fast-moving craft travelling close to the cliff face can cause adults to take flight suddenly. This sudden movement can knock eggs or small chicks out of the nest, the brood may also be exposed to adverse weather and predation. Furthermore, many seabird species cannot fly when they fledge from the nest (youngsters spend 2-3 weeks at sea building flight muscles and learning to fish), therefore disturbance later in the season can be equally damaging as chicks may leave the cliff before they have acquired the appropriate body mass to survive at sea. Once auk chicks have fledged (and are unable to fly) the male adult will chaperone them on a swimming migration into the North Sea. During this time, the male undergoes a moult, resulting in both the chick and accompanying adult being flightless and highly vulnerable.

Auks 'raft' in groups on the sea beneath the cliffs and for many miles into the North Sea.

Throughout the breeding season the seabirds regularly form 'rafts' offshore and below the cliffs, where they are particularly vulnerable to being struck by a fast moving craft. Although some birds may fly away from the disturbance, many are slow to take-off from the water due to their body shape and size. This can leave them at risk of injury or even death.

How is disturbance monitored within the European Marine Site (EMS)?

Since 2013, the Management Scheme has worked with key partners around the headland to record any incidences of disturbance. These reporting forms are completed by staff and volunteers from organisations which have a regular presence on the cliff-top, such as the RSPB and Yorkshire Wildlife Trust. Any completed forms are forwarded to the Project Officer for analysis and help to form a baseline of information about the various activities occurring within the site and whether they may be affecting the seabird colony.

Additionally, the Management Scheme also recruits volunteers over the summer months to carry out more intensive monitoring of the site. This enables the Management Scheme to develop a more complete picture of the types and frequencies of activities during the breeding season. Although this form of monitoring can be subjective and only concentrates on a limited number of locations around the European Marine Site (EMS), both data sets enable the Management Scheme to identify problem areas and investigate possible management measures.

What are the management options?

Should a problem occur with a specific user group, the Management Scheme's first priority would be to engage with the users and discuss the potential for the development of a voluntary code of conduct. These agreements can be very effective to reduce human/wildlife conflicts and may also encourage the user group to be more aware of the protection afforded to the site in general. The development of a Bempton Cliffs Angling Code of Conduct with two local angling clubs, the RSPB and Natural England has proven to be very successful in reducing disturbance to the seabirds within the RSPB reserve.

Although positive engagement with a user group would always be the Management Scheme's preferred option, as the conservation features of the site are legally protected, Natural England, the Marine Management Organisation (MMO) and the police are able to take action against any significant acts of disturbance if the appropriate evidence exists. Usually, this action will take the form of a letter to the individual, acknowledging the incident and describing any possible consequences. If this advice does not solve the problem, or further disturbances occur, a civil sanction may be issued or a criminal prosecution may be sought under the Wildlife and Countryside Act (1981). Furthermore in extreme cases, the MMO has powers to create new byelaws for restricting recreational activities within marine protected areas, if necessary.

The Management Scheme itself does not hold any statutory powers, although individual organisations within the partnership do enforce and uphold specific legislation relating to the EMS. Therefore, the Management Scheme will only be involved in the engagement of user groups and the development of voluntary agreements, rather than any formal investigation or enforcement process.

Will monitoring continue?

The Management Scheme is continuing to work with a number of user groups in order to reduce their impact on the conservation features of the EMS. By working in partnership with these groups and local conservation organisations, additional voluntary codes of conduct may be developed for the site to replicate the success of the Angling Code at Bempton.

There has been one high-profile case around Flamborough Head recently, which has attracted some press attention and highlighted the issue of recreational disturbance to the general public. This case resulted in civil sanctions being used by Natural England for the first time in the marine environment, in order to prohibit individuals from disturbing the breeding seabird colony. It is hoped that this increased focus on the protected area, coupled with the development of additional voluntary codes of conduct, will help to reduce recreational disturbance in the long-term.

Activities and disturbances around the EMS will continue to be monitored by partner organisations and volunteers in order to create a baseline of information and record any significant changes in the amount or type of activities conducted on site. The Management Scheme will also look to extend the reporting forms to other organisations around the headland and Filey Brigg, in an effort to cover the entire protected area.

Case Study Four: Seabird Productivity Monitoring

What is seabird monitoring?

The internationally-important seabirds around Flamborough Head and Filey Brigg are the subjects of annual non-invasive surveys which record population numbers and productivity of the colony. The concept for monitoring the seabirds in this way was first discussed within the Management Scheme's Environmental Assets Group (which has unfortunately since disbanded). The original two year study, a partnership between the RSPB and Natural England, was started in 2008 and has been successful in attracting funding to enable the continuation of this important research.

How is monitoring carried out?

Since 2013 a dedicated seabird research assistant has been employed by the RSPB (funded by the Heritage Lottery Fund) to coordinate volunteer researchers and assist in data analysis. During the 2015 season, volunteers and staff contributed over 1500 hours to the project and surveyed more than 2000 nests[17].

In order to monitor productivity, volunteers are allocated a 'plot' and asked to identify 50 nests within that area to survey each week for kittiwakes, gannets and herring gulls. To establish the levels of guillemot and razorbill productivity, monitoring 'plots' must be visited by the surveyor once every three days, as chicks can leave the cliffs 15 days after hatching. Productivity results of the four named Special Protection Area (SPA) species can be seen in Chapter One.

What is the information used for?

The Management Scheme uses this data to monitor the health of the protected species and determine any necessary management measures in response to any significant changes. This research has recently been used to inform the condition of the Flamborough Head Site of Special Scientific Interest (SSSI) and, due to the significant decline in the North Sea kittiwake population (see Section 4.1.1), the supralittoral rock units of the SSSI have been reclassified as being in 'unfavourable declining' condition. Although the rock itself has not degraded, the kittiwake population depends on this habitat, therefore the condition has been changed to reflect the seabird decline. Since a full Flamborough colony count first took place in 1986, the kittiwake population has declined from more than 83,700 individuals to around 37,617[17].

Fledgling kittiwakes have distinctive markings and usually leave the nest between late July and early August.

Although the reasons for this reduction are not yet fully understood, it is thought that it may be a result of the rise in sea surface temperature which has affected the kittiwake's main prey, the sandeel. As this is

[17] Aitken, D., Babcock, M., Clarkson, K. Jackson, S. (2015). *Flamborough Head and Filey Coast pSPA Seabird Monitoring Programme 2015 Report*. Natural England & Royal Society for the Protection of Birds.

an international issue, rather than a site-level problem, the Management Scheme is unable to reverse the trend, however it is important that Authorities are aware of the colony's health in order to appropriately manage activities within the site which may be placing additional pressure on the seabirds.

Furthermore, the data has been used to identify that the seabirds nesting around Filey Brigg are an extension of the Flamborough colony and are also present in nationally important numbers. This vital research allowed Natural England to develop the new Flamborough and Filey Cliffs SPA, extending the original Flamborough Head and Bempton Cliffs designation to incorporate Filey Brigg and 2km of inshore waters. The results of the seasonal population counts will continue to inform condition assessments and may help to improve, or extend, management in the future.

Will seabird monitoring continue?

Monitoring of seabird populations within the EMS is an important resource for the Management Scheme and helps to determine the health of not only the protected species, but also the wider marine environment. Due to climate change and other factors, many species are under significant pressure, therefore it would be prudent to maintain an accurate database of the seabird population in order to inform management of the site. Furthermore, new initiatives to understand the foraging ranges and wintering grounds of the birds may help to increase their protection in the long-term.

Although a vast amount of data is collected by volunteers, project coordination and surveying equipment requires recurrent funding. Therefore it is anticipated that the seabird monitoring programme will continue only if resources and financial support are secured, either from members of the Relevant Authorities' Group (i.e. Natural England) or from external funders.

Case Study Five: Kittiwake and Gannet Tagging Projects

Why tag kittiwakes and gannets?

In recent years, the RSPB has carried out satellite tracking of gannets and kittiwakes using small GPS locators, with the aim of understanding foraging behaviours. As can be seen from Figure C6, there are a number of development areas in the North Sea, many of which are within foraging range of the seabird colony.

This research has been able to determine that the majority of birds forage within 50-150km of the headland, with some kittiwakes undertaking 200km round trips to find food. The information gathered from this innovative project has helped to map the previously unknown foraging flights of these birds and enables a comparison with proposed offshore development areas (see Figures C4, C5 and C6). Understanding how seabirds may interact with these developments will help organisations within the Management Scheme to make informed contributions to the offshore planning process.

What are the results, so far?

In 2014, 33 kittiwakes were tagged from Bempton Cliffs and Filey Brigg. Figure C4 indicates that a large proportion foraged within the Hornsea Development Zone (see Figure C6 for development zone comparison), a smaller number frequented the area around Dogger Bank and one kittiwake flight extended into the East Anglia offshore development area[18]. This could indicate some interaction with offshore wind farms, if these proposed zones become fully developed. However, it should be noted that the tags generally recorded data for between three-four weeks of the chick-rearing period and the results only represent a small sample size, therefore foraging ranges may differ throughout the season and within the colony[18].

Figure C5 illustrates that gannets tagged at Bempton Cliffs undertake similar foraging ranges to kittiwakes. In total, 42 gannets were tagged over a three year period, with the majority utilising the Hornsea Zone and the areas immediately adjacent to Flamborough Head[18]. Again, a smaller number ventured into Dogger Bank and a few individuals travelled further south to East Anglia. Interestingly, a few tags continued to record data (for a few days to a few weeks) after the chick-rearing period and revealed one individual gannet travelled around the coast of Scotland and the west coast of Ireland, before reaching wintering grounds in western Spain[18]. Another gannet was tracked over the Bay of Biscay and the tag continued to return data as it flew on to north western Africa, where the gannet presumably spent the winter months[18]. A similar journey was tracked in 2011 and 2012. Other tags which continued to function after the breeding period indicated that gannets also remain in the North Sea, with most individuals clustered in a similar location, especially within the Hornsea and East Anglia Zones[18].

What do these results imply?

Both research projects, although limited in scale and time, indicate that breeding kittiwakes and gannets frequently visit the Hornsea offshore development zone, along with less-frequent trips to the Dogger Bank

[18] Langston, R., Teuten, E., Butler, A. (2013). *Foraging ranges of northern gannets Morus bassanus in relation to proposed offshore wind farms in the North Sea: 2010-2012.* Royal Society for the Protection of Birds.

and East Anglia areas. The proximity of this development zone to the breeding colony, should the entire area become active, may be concerning to the Management Scheme due to the possible impacts on the seabirds.

Highly developed offshore areas could have an impact on the seabird colony in two ways. Firstly, it is not known whether seabirds will be displaced from productive foraging areas into less favourable areas in an effort to avoid wind turbines[18]. Many seabird species, especially kittiwakes, are already under significant pressure. Although the cause is not fully understood, it is believed that climate change is having a detrimental impact on the availability of preferred prey species (see Section 4.1.1). Should displacement occur, the birds may be further limited in their ability to forage successfully and, in turn, have a successful breeding season.

Secondly, there is a risk that birds could collide with active wind turbines at sea, especially in a highly-productive foraging area. Gannets, in particular, may be vulnerable to collision as they have poor manoeuvrability with their long-narrow wings adapted more for gliding than for power[18]. The risk, however, is unclear and depends on the levels of flight activity and the extent of any avoidance behaviour.

How will the data be used?

On a national scale, this research can be used to support the development process for offshore investments and ensure that appropriate mitigation and research is carried out prior to a development being approved. Locally, the Management Scheme can utilise the data to highlight the pressures which could arise if a development is proposed close to the protected area.

Gannets, like this pair known as 'pair No. 33', return to the same nest site each year.

Although the Management Scheme cannot support or oppose a development, this data may be useful for individual Authorities who will be engaged in the planning process.

Furthermore, the results of the monitoring can be used to enthuse visitors about the importance of the EMS and encourage people to increase their understanding of the problems faced by the seabird colony. Such innovative tagging projects have revealed details about gannet and kittiwake foraging behaviour which had not been identified previously. By utilising this data appropriately, visitors may be encouraged to reduce any negative impacts they may have on the site i.e. disturbance through recreational activities.

Will this type of monitoring continue?

The programme of gannet tagging is now complete, after specific funding for the project was awarded to the RSPB from the Department of Energy and Climate Change. The kittiwake tagging programme has now also reached a conclusion; it is hoped that the data collected over the last five years will provide some insight into the pressures faced by kittiwakes away from the protection of the European Marine Site.

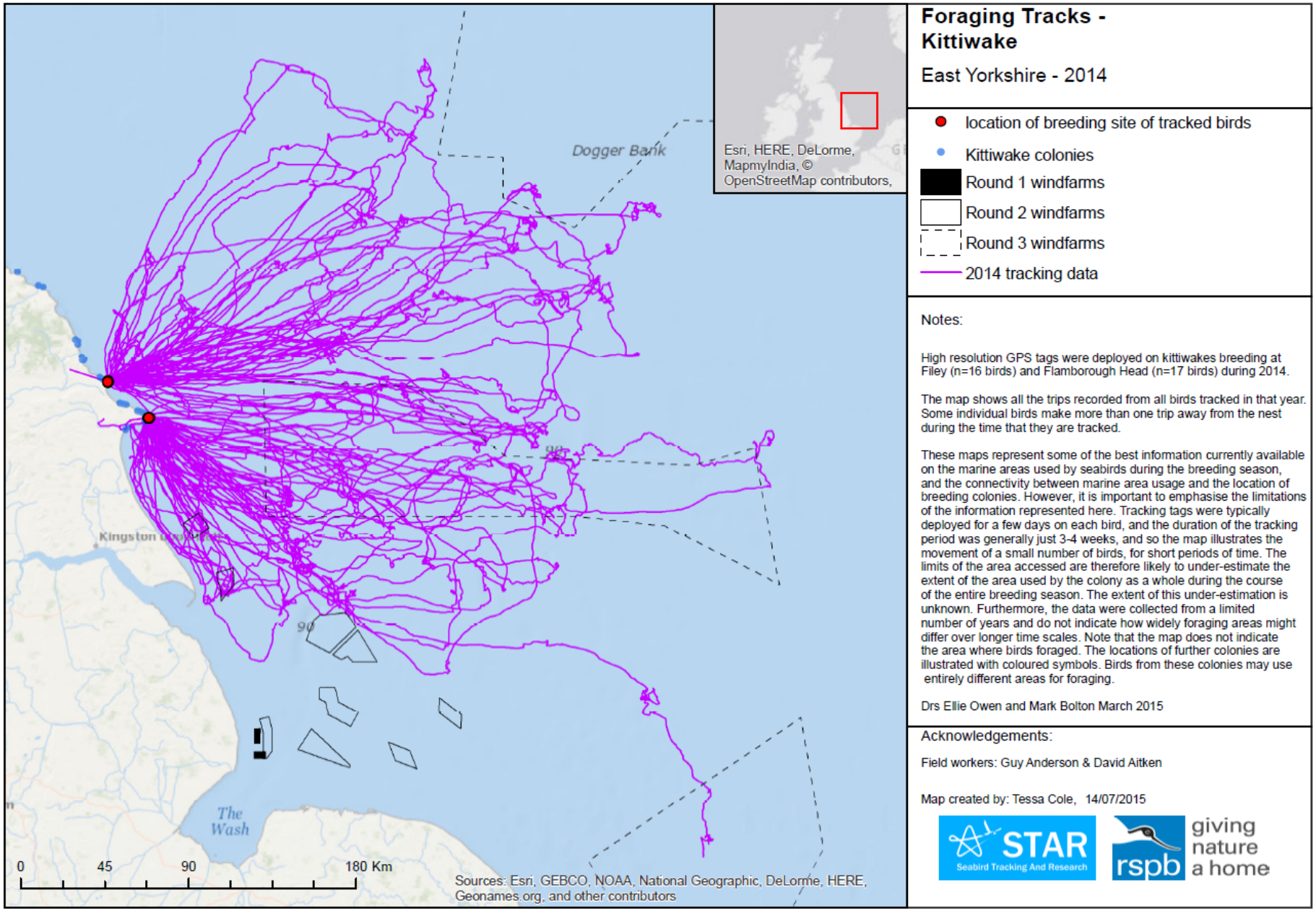
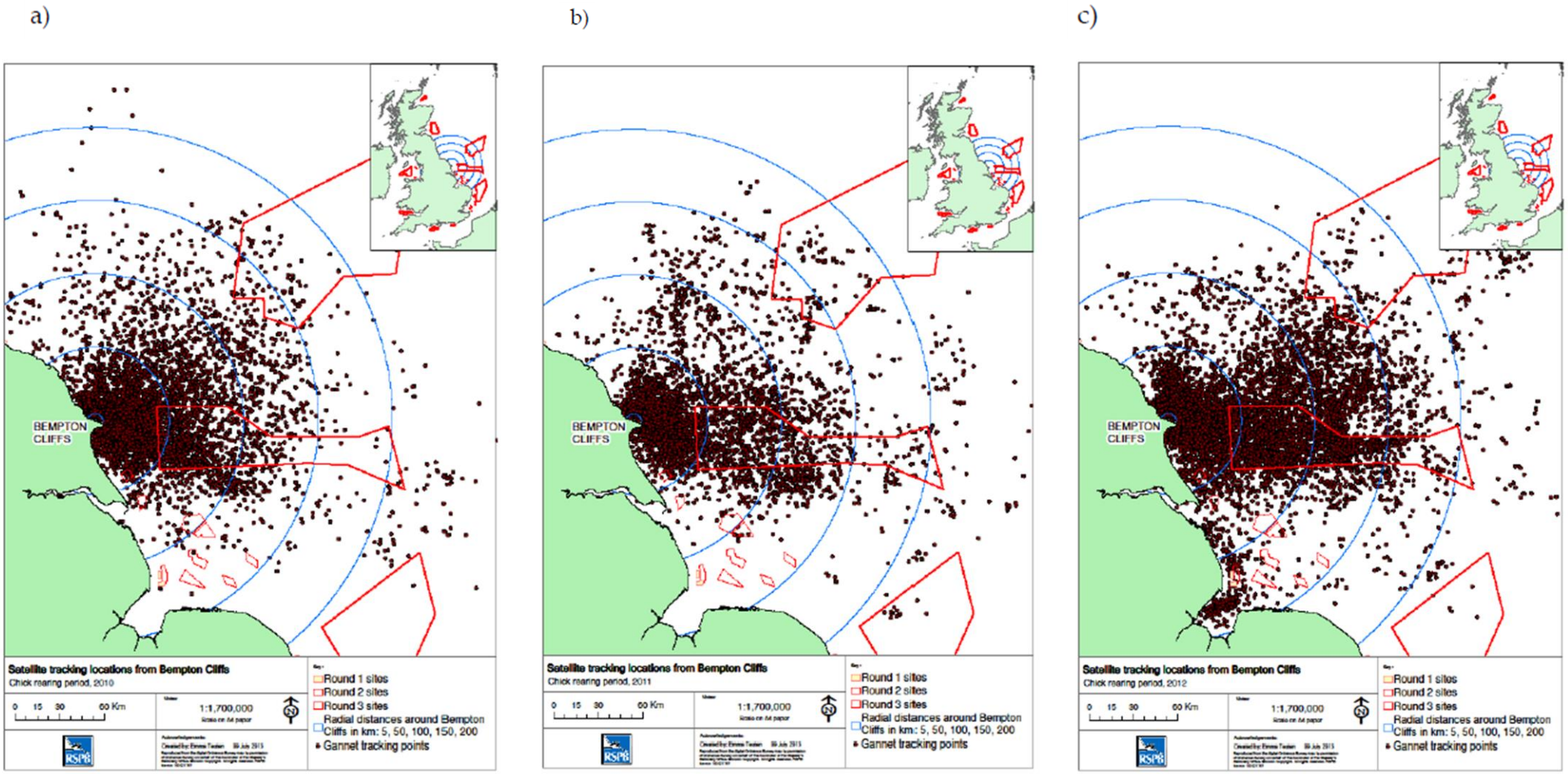


Figure C4: Tracking Locations of 33 Kittiwakes Tagged During 2014



Combined tracking locations for adult gannets from Bempton Cliffs, based on a) 6,272 at sea locations in 2010 (n = 14 birds), b) 4914 locations in 2011 (n =13 birds), and c) 8674 locations in 2012 (n = 15 birds) during the chick rearing period. The concentric blue rings are the 5km buffer around the central location of Bempton Cliffs, with added 50km, 100km, 150km and 200km buffers to aid interpretation of foraging distances. Inset shows the location of Bempton Cliffs. ARGOS location classes 3, 2, 1, 0, A, B.

Figure C5: Tracking Locations of 42 Gannets Tagged in 2011, 2012 and 2013

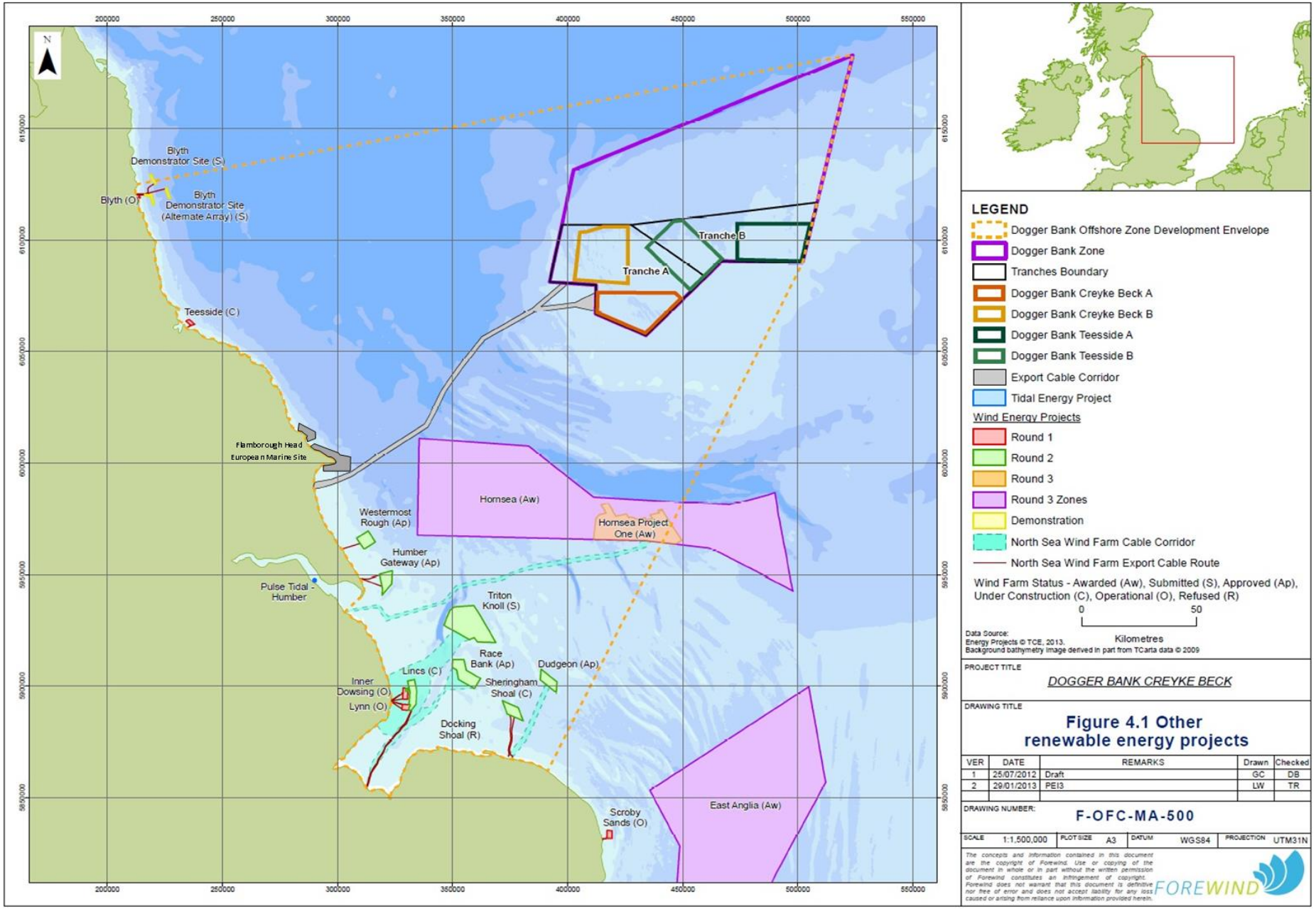


Figure C6: Dogger Bank Offshore Zone Development Envelope (2013) in Relation to Flamborough Head EMS

2016-2021 Flamborough Head European Marine Site Management Plan

Appendix D: Maps, References and Relevant Authority Contact Details

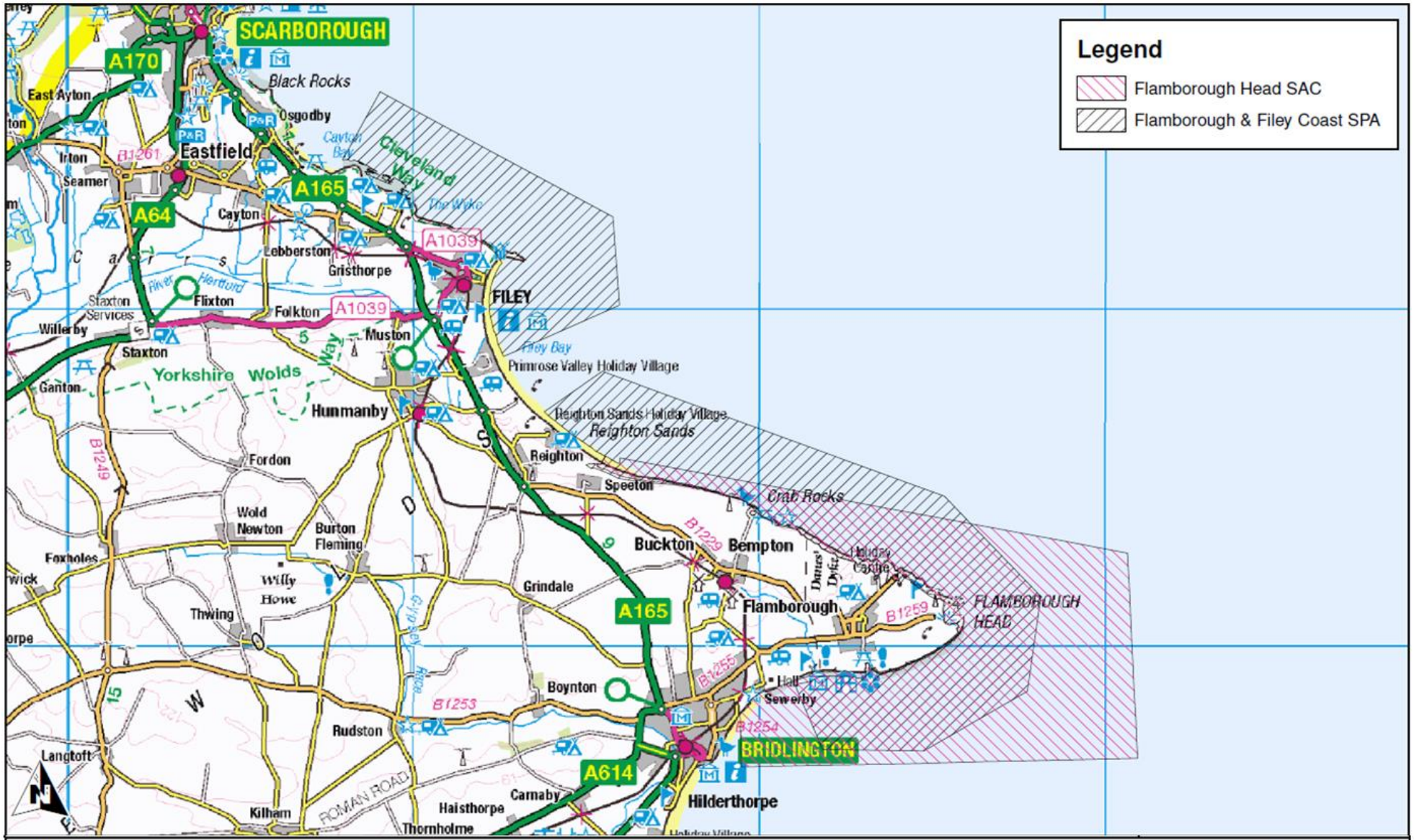


Figure D1: Boundaries of the European Marine Site

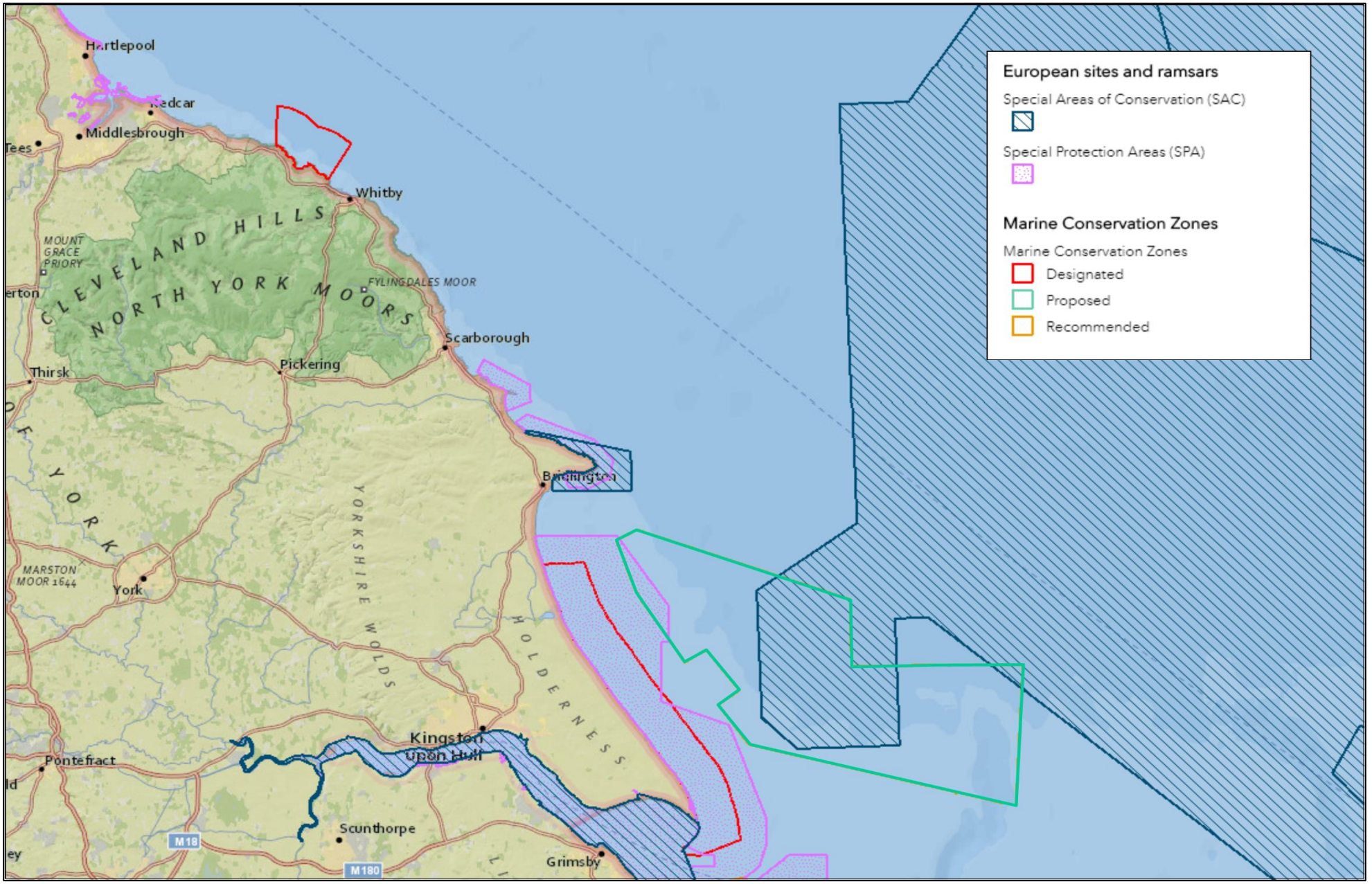


Figure D2: Designated and Proposed Marine Protected Areas: Hartlepool to the Humber Estuary (January 2019)

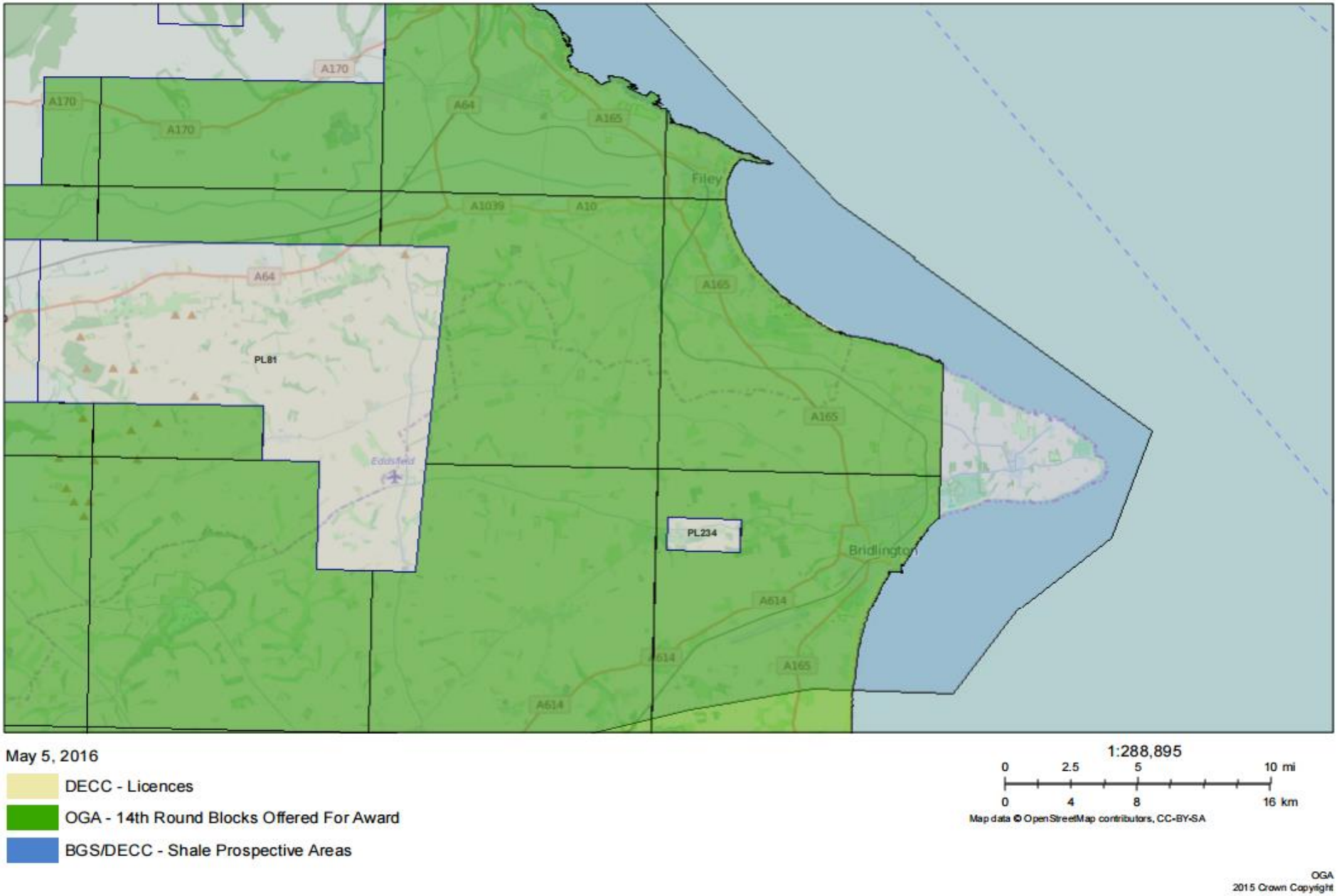


Figure D3: Onshore Oil and Gas Licensing Blocks as Offered to Successful Applicants in December 2015

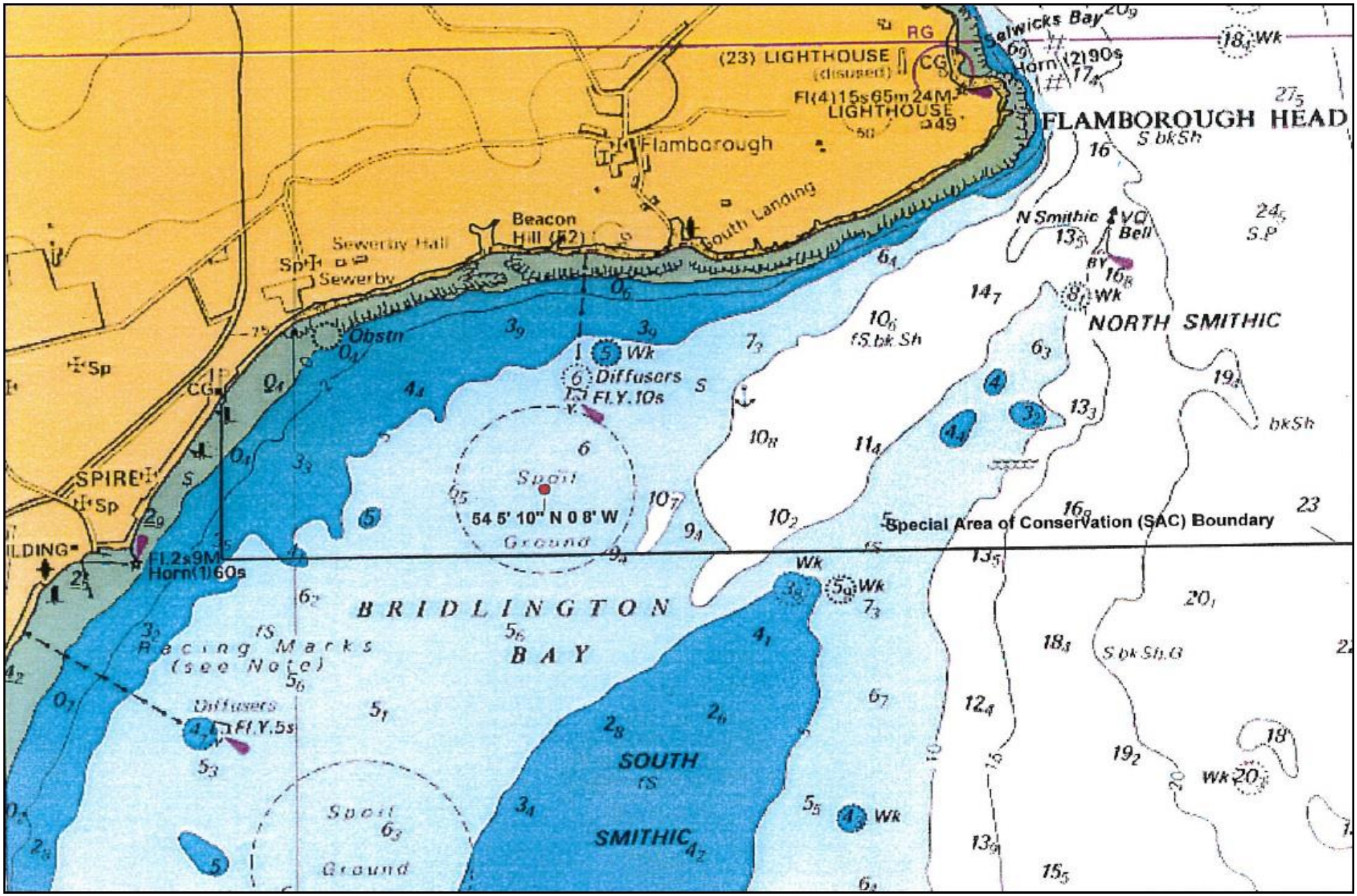


Figure D4: Location of Dredge Spoil Disposal Site in Relation to SAC Boundaries

D1 References, Legislation and Contact Details

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Table D1: Relevant Authority Contact Details

Authority	Address	Website
Bridlington Harbour Commissioners	Gummers Wharf West End, Bridlington YO15 3AN	www.bridlingtonharbour.com
East Riding of Yorkshire Council	Sustainable Development County Hall, Beverley HU17 9BA	www.eastriding.gov.uk
Environment Agency	Coverdale House, Aviator Court Amy Johnson Way Clifton Moor, York YO30 4GZ	www.gov.uk/government/organisations/environment-agency
Flamborough North Landing Harbour Commissioners	North Landing, Flamborough East Riding of Yorkshire YO15 1BJ	N/A
Marine Management Organisation	Unit 2a, Newchase Court Hopper Hill Road, Eastfield Scarborough YO11 3YS	www.gov.uk/government/organisations/marine-management-organisation
Natural England	Yorkshire and North Lincolnshire Area Marine and Sustainable Development Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX	www.gov.uk/government/organisations/natural-england
North Eastern Inshore Fisheries and Conservation Authority	Town Hall, Quay Road Bridlington YO16 4LP	www.ne-ifca.gov.uk
North Yorkshire County Council	Heritage Services, County Hall, Northallerton DL7 8AH	www.northyorks.gov.uk
Scarborough Borough Council	Town Hall, Scarborough YO11 2HG	www.scarborough.gov.uk
Trinity House	Tower Hill, London EC3N 4DH	www.trinityhouse.co.uk
Yorkshire Water	Waste Water East Naburn WWTW Naburn Lane, York YO19 4RN	www.yorkshirewater.co.uk