Conservation and Management Advice

NORTH RONA AND SULA SGEIR SPA

UK SITE: 9001011

DECEMBER 2024

This document provides advice to Public Authorities and stakeholders about the activities that may affect the protected features of the North Rona and Sula Sgeir Special Protection Area (SPA). It provides advice from Scottish Natural Heritage (SNH) (operating under the name of and hereinafter referred to as NatureScot) under Regulation 33(2) of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) to other relevant authorities on the Conservation Objectives for the North Rona and Sula Sgeir SPA, and any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for which the site has been designated. It covers a range of different activities and developments but is not exhaustive. It focuses on where there is a risk to achieving the Conservation Objectives. The paper does not attempt to cover all possible future activities or eventualities (e.g. as a result of accidents), and does not consider cumulative effects.

Further information on marine protected areas and management is available at -

https://www.gov.scot/policies/marine-environment/marine-protected-areas/

For the full range of MPA site documents and more on the fascinating range of marine life to be found in Scotland's seas, please visit -

www.nature.scot/mpas or https://jncc.gov.uk/advice/marine-protected-areas/

Document version control			
Version	**Date**	**Author**	**Reason / Comments**
1	26 May 2022	Lucy Quinn	First draft
2	Feb 2023	Lucy Quinn	Second draft to address comments
3	Nov 2024	David Maclennan	Sign-off

Distribution list			
Format	**Version**	**Issue date**	**Issued to**
Electronic	1	19 Sept 2022	Colin MacFarlane
Electronic	2	July 2023	Emma Philip
Electronic	2	Oct 2024	David Maclennan

Contents

1 Overview of document

This document provides details of the Conservation and Management Advice for the North Rona and Sula Sgeir Special Protection Area (SPA) and it is divided into eight main sections. The introduction in section 2 gives an overview of the North Rona and Sula Sgeir SPA and its contribution in terms of conservation and wider benefits. Section 3 provides an overview of the roles of the various bodies involved with advising, regulating and managing the SPA. Section 4 describes the protected features and their condition, and section 5 introduces the Conservation Objectives for the site. Section 6 describes the threats and pressures to which the protected features are sensitive, and section 7 provides the management advice for these activities. Section 8 identifies what further research and surveys may be required to increase our understanding of how the protected features utilise the marine protected area.

Annex 1 sets out the North Rona and Sula Sgeir SPA Conservation Objectives. Annex 2 provides supporting information relating to the protected features.

Throughout this document the term Special Protection Area (SPA) is used in relation to the site name, e.g. North Rona and Sula Sgeir SPA or in discussion of the specific legislation relating to the site. Otherwise the term Marine Protected Area (MPA) is used when discussing the MPA network generally. The term *qualifying features* is used in the Conservation Objectives to refer to those Annex 1 and regularly occurring migratory bird species that the North Rona and Sula Sgeir SPA has specifically been designated to protect. Within the wider document text, the term *protected features* is used to refer both to these specific site features and more generally to species or habitats protected through MPA designations.

2 Introduction

2.1 Purpose statement

The North Rona and Sula Sgeir SPA has been designated to protect nine species of breeding seabirds, a breeding seabird assemblage, and their supporting habitats. By doing so it contributes to the Scottish, UK and OSPAR MPA networks, the conservation of the wider marine environment around Scotland, and progress towards Good Environmental Status within the North-East Atlantic marine region.

The main purpose of the North Rona and Sula Sgeir SPA is to contribute towards the Favourable Conservation Status of the protected features in the Marine Atlantic Biogeographic Region. The Conservation Objectives form the framework for establishing appropriate management measures and assessing all future plans and projects that have the potential to affect the protected features of the SPA.

2.2 Conservation benefits

The conservation benefits for the North Rona and Sula Sgeir SPA are:

- Protecting important populations of breeding European storm petrels and Leach's storm petrels (Annex 1 rare and vulnerable species), both representing more than 1% of the GB population.
- Protecting internationally important numbers of gannet (10,400 pairs; 4% of the North Atlantic biogeographic population) and guillemot (43,200 individuals; 1% of the biogeographic population).

- Protecting nationally important numbers of seabirds during the breeding season including fulmar (11, 500 pairs; 2% of the GB population); great black-backed gull (730 pairs; 4% of the GB population), which is one of the largest breeding colonies in the UK for this species; kittiwake (5000 pairs; 1% of the GB population), razorbill (2,300 individuals; 2% of the GB population) and puffin (5,300 nests; 1% of the GB population).
- Protecting important waters immediately surrounding the seabird breeding colony, which birds use for resting, preening, moulting, roosting, and other maintenance activities.
- Protecting waters with rich marine habitats, including important shelf waters with areas of high productivity, that support a diversity of pelagic and demersal fish, bivalve molluscs, gastropods and crustaceans where the seabirds and red-throated divers can feed.
- Protecting important cliff habitats where the protected features can nest.

2.3 Wider benefits

The protected features of the North Rona and Sula Sgeir SPA provide ecosystem services locally and to the wider marine ecosystem. We describe these ecosystem services in terms of their functions (the support or provision of something to the wider ecosystem e.g. habitat, nutrient cycling, sediment stabilisation) and natural resources (e.g. fish and shellfish, aggregates, wildlife), which in turn lead to benefits for people.

Figure 1 illustrates how the protected features of the North Rona and Sula Sgeir SPA contribute to benefits for people. There can be many complex interactions and dependencies amongst the protected features, their functions, associated natural resources and the benefits we gain from them.

The protected features, especially when taken within the context of the whole SPA and/or local ecosystem, contribute to certain functions more than others, e.g. biomass production and nutrient cycling and are fundamental to the continued supply of natural resources and benefits associated with this SPA, and to the long-term health of the protected features.

In terms of resources, the SPA encompasses the uninhabited and remote islands of North Rona and Sula Sgeir, together with several outlying rocky islets and adjacent waters, lying 65km north of Lewis. The coastlines of both islands consist mainly of cliffs except for two low-lying peninsulas on North Rona. North Rona is well covered by peat or soil, and vegetated by submaritime grassland. Sula Sgeir lies about 15 km west of North Rona. It is the smaller of the two islands and has little soil or vegetation. The islands offer a range of habitats for seabird and marine mammal species. The SPA extends around 2 km into the marine environment. The surrounding marine waters support a variety of natural resources, including molluscs, crustaceans, marine worms, pelagic and demersal fish species together with the birds and mammals that feed on them.

The rich and varied natural resources present within the SPA give rise to a wide range of benefits to people. The seascapes and wildlife within the SPA provide opportunities for tourists and wildlife watching, for those who would like to visit such remote islands, which encourage local jobs and businesses. There is also a cultural history to the islands, with ancient dwellings being present on North Rona, and a link between Sula Sgeir and the Men of Ness from Lewis, who harvest gannet chicks, or ‘Guga’ annually. The name ‘Rona’ may even derive from the Gaelic word for seal ‘*ron*’, giving another indication of the islands importance to wildlife. Indeed the population of grey seals which come to breed in the autumn has been the subject of important scientific study over several decades and is still studied by the Sea Mammal Research Unit (SMRU). Sula Sgeir comes from the Gaelic for gannet *sulaire* and *sgeir*, meeting rock or skerry. On North Rona, the grassland provides grazing for a small number of sheep. Further benefits relating to health and well-being, food and nutrition also arise from the site’s natural resources.

The benefits that arise from the functions and natural resources of the MPA are typically small in the context of the whole of Scotland, but some are of greater importance for this SPA and the people that use it. There is potential for benefits to be enhanced by improving the quantity or quality (health) of the protected features themselves.

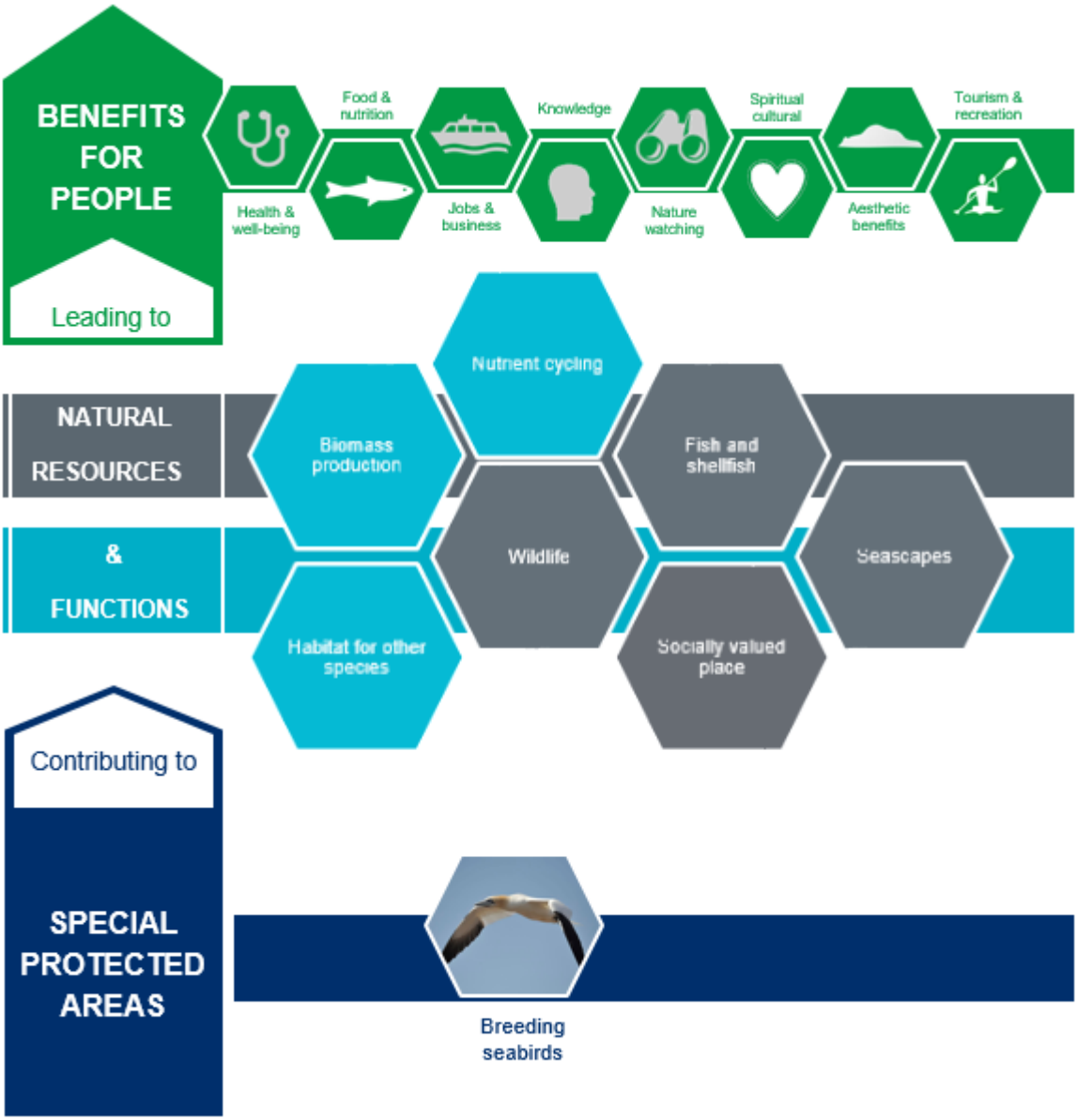

Figure 1. Benefits to people associated with protected features of the North Rona and Sula Sgeir SPA.

2.4 Contribution to policy commitments

Managing the North Rona and Sula Sgeir SPA to maintain the protected features in favourable condition, will ensure the continued provision of the benefits above as well as the SPA's contribution to:

- An ecologically coherent network of MPAs which are well managed under the OSPAR convention and national legislation.
- Achieving Favourable Conservation Status for the protected features in the Atlantic Biogeographic Region.

- Progress towards achieving Good Environmental Status in relation to maintaining biological diversity, and ensuring marine food web abundance and diversity.
- Making a significant contribution to the protection, enhancement and health of the marine area under the National Marine Plan.
- Restoring marine and coastal ecosystems and increasing the environmental status of our seas under the Scottish Biodiversity Strategy.
- Helping to adapt to climate change under The Scottish Climate Change Adaptation Programme.

3 Roles

This document provides advice for the North Rona and Sula Sgeir SPA in relation to activities that may affect the protected features. More detailed advice can be provided to public authorities to inform their decision making as required. In doing this, our aim is to ensure the Conservation Objectives for the protected features are met.

The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) (the "Habitats Regulations") under Regulation 33(2), make special provisions for the protection of European marine sites, requiring SNH (now referred to as NatureScot) to advise other relevant authorities of the Conservation Objectives for a site, and also of the operations which may cause deterioration of the habitats or species, or disturbance of species protected in the SPA.

It is the role of the relevant and competent authorities[1] to ensure that the activities they regulate, permit or license do not hinder the achievement of the Conservation Objectives of the North Rona and Sula Sgeir SPA. The management advice in this document is provided to assist authorities in managing the activities outlined in Table 2, section 7, and undertaking Habitats Regulations Appraisals of plans and projects.

Stakeholders can provide additional evidence to support the development of management including local knowledge of the environment and of activities. This will contribute to the development of well-designed and effective management measures.

4 Protected features and status

The North Rona and Sula Sgeir SPA has been selected to become part of the UK's SPA network, contributing to Scotland's MPA network, which in turn has been established to help conserve and recover a range of Scotland's important marine habitats, wildlife, geology and landforms.

The protected features of the North Rona and Sula Sgeir SPA are protected within the SPA throughout the year, irrespective of the season for which they qualified as a protected feature.

[1] A relevant authority is a body or authority that has a function in relation to land or waters within or adjacent to the site (Regulation 5) and include: a nature conservation body; a local authority; water undertakers; a navigation authority; a harbour authority; a lighthouse authority; a river purification board (SEPA); a district salmon fishery board; and a local fisheries committee. All relevant authorities are competent authorities. A competent authority is defined in Regulation 6 as "any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office". In the context of a plan or project, the competent authority is the authority with the power or duty to determine whether or not the proposal can proceed.

The North Rona and Sula Sgeir SPA has been selected to become part of the UK's SPA network, contributing to Scotland's MPA network, which in turn has been established to help conserve and recover a range of Scotland's important marine habitats, wildlife, geology and landforms.

Table 1 provides a summary of the protected features within the SPA, their condition within the site (where known), and the broader conservation status of the protected features. Condition assessment is based on the latest NatureScot Site Condition Monitoring. Current trends for relevant seabird colonies can be found in JNCC (2021) and is based on trends derived from the Seabird Monitoring Programme (SMP) including, where available, Seabird Counts census data (Burnell *et al.* 2023). Where the SMP data is more recent than the SCM data this has been used to inform the feature condition at the site.

Table 1. Protected features and status for the North Rona and Sula Sgeir SPA.
Feature condition refers to the condition of the protected feature at a site level. Broader conservation status is the overall conservation status of the feature within the UK and Europe. No assessment on the condition of the feature at the Marine Atlantic Biogeographic Region scale is available.

Protected Feature	Feature condition at site	Assessment year	Broader conservation status	
			UK[2]	European region[3]
Atlantic puffin (breeding)	Unfavourable, declining	2021	Red	Endangered
Black-legged kittiwake (breeding)	Unfavourable, declining	2021	Red	Vulnerable
Common guillemot (breeding)	Unfavourable, declining	2021	Amber	Least Concern
European storm petrel (breeding)	Favourable, maintained	2021	Amber	Least Concern
Great black-backed gull (breeding)	Unfavourable, declining	2021	Red	Least Concern
Leach's storm petrel (breeding)	Unfavourable, recovering	2021	Red	Near Threatened
Northern fulmar (breeding)	Unfavourable, recovering	2021	Amber	Vulnerable

[2] Based on Birds of Conservation Concern 5 (BoCC5), for further details on definitions see Stanbury *et al.* 2024.
[3] Based on BirdLife International, 2021

Protected Feature	Feature condition at site	Assessment year	Broader conservation status	
			UK[2]	European region[3]
Northern gannet (breeding)	Favourable, maintained	2023	Amber	Least Concern
Razorbill (breeding)	Unfavourable, recovering	2021	Amber	Least Concern

5 Setting Conservation Objectives

5.1 Background

Under Regulation 33(2) of the Habitats Regulations, NatureScot have responsibility for providing the Conservation Objectives for European marine sites in Scottish territorial waters. These site-level Conservation Objectives seek to define the contribution that each SPA should make to achieving Favourable Conservation Status for the protected features. They provide the framework for the setting of site conservation measures (management) and for the Habitats Regulations Appraisal of projects and plans.

Annex 1 sets out the Conservation Objectives for North Rona and Sula Sgeir SPA.

5.2 Relationship between feature condition and Conservation Objectives

The Conservation Objectives seek to *maintain* protected SPA features where evidence exists that a feature is in favourable condition in the site, or where there is uncertainty concerning the assessed condition of a feature (see section 4) but no reason to suspect deterioration in condition since designation. Where evidence exists that a feature is declining and/or damaged and therefore not in a favourable condition in the site, the Conservation Objectives will seek to *restore* the protected feature.

The following protected features are in favourable condition at the North Rona and Sula Sgeir SPA: European storm petrel and gannet. Therefore, the Conservation Objectives seek to *maintain* this condition.

The following protected features are in unfavourable condition at the North Rona and Sula Sgeir SPA: puffin, kittiwake, guillemot, great black-backed gull, Leach's storm petrel, fulmar and razorbill. Therefore, the Conservation Objectives seek to *restore* this condition.

Breeding puffin are in unfavourable condition at North Rona and Sula Sgeir SPA due to a decline from 5300 pairs (1986 citation) to around 2800 individuals combined with around 470 apparently occupied burrows (AOB) (2021). Some sub-colonies have shrunk in size or become defunct since designation. The reasons for declines of puffins at this SPA are not fully understood. During a 2012 survey it was noted there was no evidence of heavy predation from either gulls or skuas at the time, both species known to predate puffins. On both islands tourism traffic could be causing disturbance, although the implications of the level of tourists at these two islands are not understood at this time. Reasons for the decline in puffins at the North Rona and Sula Sgeir SPA are not known but likely to be related to changes in prey availability within the marine environment.

Breeding kittiwake are in unfavourable condition at the North Rona and Sula Sgeir SPA due to a decline of 86% from 5000 pairs at designation (1986 citation) to around 700 pairs at the latest count (2021). The reasons for declines of kittiwakes at this SPA are uncertain however reduction of prey in their foraging areas is considered a key contributing factor.

Kittiwake breeding success was found to be related to sandeel abundance and availability (e.g. Daunt *et al.* 2008; Poloczanska *et al.* 2004). Long-term diet studies on the Isle of May have also highlighted a long-term decline in the overall prevalence of sandeels in kittiwake chick diet, concomitant with an increase in the relative prevalence of clupeids in Scottish waters (Wanless *et al.* 2018), although diet differences between the east and west coasts of Scotland may exist. On both islands tourism traffic could be causing disturbance, although the implications of the level of tourists at these two islands are not understood at this time.

Breeding guillemot are in unfavourable condition at the North Rona and Sula Sgeir SPA due to a decline of 82% from 43,200 individuals at designation (1986) to around 7700 individuals (2021 count). The reasons for the decline are uncertain however factors such as reduction in prey in foraging areas may be contributing to the decline. On both islands tourism traffic could be causing disturbance, although the implications of the level of tourists at these two islands are not understood at this time.

Breeding great black-backed gull are in unfavourable condition at the North Rona and Sula Sgeir SPA due to a decline of 93% from 730 pairs at designation (1986) to 49 pairs (2021). The reasons for the decline are uncertain but are likely to be related to a reduction in prey. Great black-backed gulls rely on other seabird species for their prey items, so as other seabird qualifying features are in unfavourable condition at the colony, this will be having a subsequent effect on the great black-backed gulls.

Breeding Leach's storm petrel have shown a reduced number of pairs from playback surveys between from 234 apparently occupied sites (AOS) (2009) and 435 AOS (2021 count) at North Rona, both of which would be a decline since citation. No estimate of numbers from Sula Sgeir was possible. The reasons for the decline are uncertain but may be related to a reduction in prey. On both islands tourism traffic could be causing disturbance, although the implications of the level of tourists at these two islands are not understood at this time.

Breeding fulmar are in unfavourable condition at the North Rona and Sula Sgeir SPA due to a decline of 81% from 11,500 pairs at designation (1985-6 count) to around 2200 pairs (2021 count). The reasons for declines of fulmars at this SPA are uncertain however reduction of prey in their foraging areas is considered a key contributing factor. Fulmars are also known to be sensitive to disturbance, particularly during the incubation period. On both islands tourism traffic could be causing disturbance, although the implications of the level of tourists at these two islands are not understood at this time.

Breeding razorbill are in unfavourable condition at the North Rona and Sula Sgeir SPA due to a decline of 83% from 2,300 individuals at designation (1986) to around 400 individuals (2021 count). The reasons for declines of razorbills at this SPA are uncertain however reduction of prey in their foraging areas is considered a key contributing factor. On both islands tourism traffic could be causing disturbance, although the implications of the level of tourists at these two islands are not understood at this time.

5.3 Conservation priorities

On the rare occasion where the need to favour the management of one protected feature of a site over another, conservation priority will be given to the most important species/habitats to take action for and/or the most important or urgent measures to be taken.

For the North Rona and Sula Sgeir SPA, Leach's storm petrel and European storm petrel are Annex 1 species and considered rare and vulnerable. The conservation requirements for

Annex 1 species should take precedence over the regularly occurring migratory species (puffin, guillemot, kittiwake, gannet, great black-backed gull, fulmar and razorbill).

There are currently no apparent management conflicts between the protected features within the North Rona and Sula Sgeir SPA.

5.4 Overlapping Protected Areas

The following protected area boundaries overlap with, or are immediately adjacent to, the North Rona and Sula Sgeir SPA:

- North Rona and Sula Sgeir Site of Special Scientific Interest (SSSI)
- North Rona and Sula Sgeir Special Area of Conservation (SAC)

Conservation measures in the overlapping protected areas need to ensure the Conservation Objectives of all the sites are met. Conservation Objectives for the SPA and SAC would take precedence over the SSSI. Site information including the Conservation Objectives for the protected areas overlapping North Rona and Sula Sgeir SPA are available on SiteLink.

6 Feature sensitivity

The following section provides an overview of the pressures associated with human activities that are most relevant to the protected features. Further information on feature sensitivity, will be made available on Marine Scotland's Feature Activity Sensitivity Tool (FeAST)[4]. The information in FeAST will reflect our current understanding of the interactions between activities, pressures and features. It highlights that activities can give rise to a range of pressures, which the protected features may be sensitive to. Our assessment of sensitivity is based on a feature's tolerance (response to change) and its ability to recover.

6.1 Atlantic puffin, common guillemot and razorbill (breeding)

Auks (guillemot, razorbill and puffins) may be prone to accidental bycatch in fishing nets particularly in surface gears (Zydelis *et al.* 2013). Depletion of prey resources either due to climate change or industry can also have effects on their populations (Mendel *et al.* 2008). These species are also susceptible to large scale mortality in major oil spills (Mendel *et al.* 2008), particularly during their flightless moult period. There is potential for impacts on auk species due to collision with artificial structures under water (Furness *et al.* 2012). Auks may also be susceptible to disease, including avian flu (APHA). These species may be displaced as a result of marine developments (Furness *et al.* 2013) and associated vessel activities (Furness, 2016). Guillemots and razorbills show sensitivity to visual disturbance associated with vessels (Cook & Burton, 2010) and for guillemots, noise disturbance due to marine industry may also occur (Leopold & Camphuysen, 2009). As these are species that feed in the water column, they can be potentially affected by any increase in turbidity that would affect their ability to successfully forage for their prey (Cook & Burton, 2010). (*See also Sandeel sensitivity assessment in FeAST).*

6.2 Black-legged kittiwake (breeding)

Kittiwakes may be susceptible to collision (Furness *et al.* 2013) and displacement (Peschko *et al.* 2020) from marine developments. They may also be vulnerable to oil spills (Mendel *et al.* 2008) and organochlorine pollution (Tartu *et al.* 2015), which can lead to lower adult survival and reduced breeding performance (Tartu *et al.* 2013; Svendsen *et al.* 2018). Kittiwakes are identified as potentially sensitive to accidental bycatch in fishing nets particularly in surface gears in UK waters (Bradbury *et al.* 2017). Kittiwakes may also be

[4] http://www.marine.scotland.gov.uk/feast/

susceptible to disease (OSPAR Commission, 2009), including avian flu (APHA). Any reduction in prey items will also have an effect on kittiwake populations (Tasker *et al.* 2000), whether due to climate change (Sandvik *et al.* 2014) or industry (Bicknell *et al.* 2013). (*See also Sandeel sensitivity assessment in FeAST*).

6.3 European storm petrel (breeding)

European storm-petrels are highly vulnerable to depredation by introduced mammalian predators (e.g. rats, cats, mink) at their breeding colonies (Mitchell & Newton 2004; Ruffino *et al.* 2009). There are recorded incidences of storm-petrel entanglement in fishing gear, most likely during hauling and setting of gillnet fishing gear (Žydelis *et al.* 2013) but sensitivity of European storm-petrel to potential bycatch in fisheries operating in UK waters is judged to be low (Bradbury *et al*. 2017). Human disturbance by trampling has reduced suitable breeding habitat for storm petrels which have caused a shift of habitat from burrows to rocky sites (Cadiou *et al.* 2011). Nestling mortality of storm petrels was significantly higher in areas exposed to high visitor pressure reducing colony productivity by <16% (Watson *et al.* 2014). There is a lack of information on pressures and threat in relation to storm petrel prey items, however should there be a pressure that would affect prey distribution or abundance this could have a consequential effect on the storm petrels ability to successfully breed or survive.

6.4 Great black-backed gull (breeding)

Gulls may be susceptible to disease (including avian flu (APHA)), persecution and licensed control (Mitchell *et al.* 2004). Gulls are vulnerable to collision with marine development above water (Furness *et al.* 2013). Other pressures include: accidental bycatch in fishing nets (Žydelis *et al.* 2013), oil pollution (Mendel *et al.* 2008) and organochlorine pollution (Camphuysen *et al.* 2010). Great black-backed gulls are also vulnerable to breeding failures due to invasive mammals such as mink (Mitchell *et al.* 2004). Gulls may also be displaced by marine development. Great black-backed gulls are sensitive to large-scale changes in prey availability (e.g. Bicknell *et al.* 2013).

6.5 Leach's storm petrel (breeding)

Leach's petrels are highly vulnerable to depredation by introduced mammalian predators (e.g. rats, cats, foxes and mice) at their breeding colonies (Phillips *et al.* 1999; BirdLife International, 2022). Attraction to lights and flares and subsequent collisions with oil rigs pose a risk for this species (Hedd *et al.* 2018). Large oil spills represent a relatively unlikely but potentially very severe threat, although due to this bird's large range, it would be likely to affect only a small portion of the population. Human intrusions and disturbance of the nest site has shown that nest desertion can occur, particularly if disturbance is repeated and during the sensitive egg incubation period (BirdLife International, 2022).

6.6 Northern fulmar (breeding)

Fulmars are one of the main seabird species taken as accidental bycatch in long-line fisheries in the northern hemisphere (Tasker *et al.* 2000; ICES, 2013) and are identified as among the species most sensitive to bycatch in surface gears in UK waters (Bradbury *et al.* 2017). Examination of corpses indicates high levels of plastic ingestion in fulmars, but there is currently a lack of published information on the population level impacts of this (Franeker *et al.* 2011). Fulmars are also vulnerable to diseases such as avian flu (APHA). Human intrusions and disturbance of fulmars at their nest site can cause nest desertion if they are approached too closely, particularly if there is repeated disturbance during the sensitive egg incubation period. Fulmars are vulnerable to changes in their prey resource, whether due to changes in fisheries practices (Bicknell *et al.* 2013) or to large-scale climatic factors (Thompson & Ollason, 2001).

6.7 Northern gannet (breeding)

Gannets are sensitive to collision with marine developments (Furness *et al.* 2013; ICES, 2015). Gannets are also identified as among the most vulnerable species to bycatch in both surface and pelagic gears in UK waters (Bradbury *et al.* 2017). They are also sensitive to entanglement in discarded fishing nets and other plastic waste (Rodriguez *et al.* 2013). Displacement as a result of marine development may also occur for gannets. This species may also be susceptible to marine litter ingestion or entrapment at their breeding colony (O'Hanlon *et al.* 2017). Gannets are also vulnerable to diseases such as avian flu (APHA). As these are a species that feed in the water column, they can be potentially affected by any increase in turbidity that would affect their ability to successfully forage for their prey (Cook & Burton, 2010).

7 Management

7.1 Conservation Measures

The following conservation measures are currently in place for the North Rona and Sula Sgeir SPA:

- The Habitats Regulations require all plans or projects that may have an effect on the protected features of a SPA to be assessed against the Conservation Objectives for that site. This process is known as a Habitats Regulations Appraisal (HRA). An HRA is a statutory procedure that ensures the integrity of the site is maintained. It also provides an opportunity to consider appropriate mitigation that can reduce impacts, avoid adverse effects and permit plans or projects to proceed having taken full account of the protected features of an SPA.

Other relevant measures include:

- The SPA overlaps with North Rona and Sula Sgeir SSSI and management changes described on their lists of Operations Requiring Consent must have prior consent from NatureScot. These include:
  - No introduction or release into the site of any wild, feral or domestic animal, plant or seed.
  - No use of vehicles or craft that are likely to damage or disturb features of interest (includes breeding seabirds).
  - No recreational activities, other than those carried out responsibly in keeping with the Scottish Outdoor Access Code, or other activities which may disturb nesting birds.
- The SPA overlaps with a designated seal haul out site under the Protection of Seals (Designation of Haul-out sites) (Scotland) Amendment Order 2017. Harassing a seal (intentionally or recklessly) at a haul-out site is an offence. Reduced disturbance around seal haul-out sites may also benefit the North Rona and Sula Sgeir SPA protected features.
- The annual guga hunt at Sula Sgeir is subject to limits under license (currently a 2000 chick limit, unless exceptional circumstances arise such as an avian flu outbreak).
- Agreement in place for the Northern Lighthouse Board visits, required for lighthouse maintenance.
- The 'Biosecurity for Scotland's seabird islands' project (2023 – 2026) funded by NRF and led by RSPB Scotland, builds on the Biosecurity for LIFE project (2018 – 2023), and aims to permanently remove the threat of introduction and establishment of invasive predators on seabird islands. The project will work with stakeholders to implement and maintain sustainable biosecurity measures including awareness raising, prevention, surveillance, and incursion response. North Rona and Sula Sgeir are on the list of islands this project is focusing work on.

Further information relevant to management of this SPA will be available in the Outer Hebrides Regional MPA Management Plan to be developed with stakeholders through the MarPAMM project, and added to this document as required.

7.2 Advice to support management

Table 2 provides NatureScot's advice on management for activities where we consider this may be necessary to achieve the Conservation Objectives for the protected features. The advice is focused on the activities that cause an effect (a pressure) that a feature is sensitive to. Pressures can be physical (e.g. abrasion of the seabed), chemical (e.g. introduction of pollutants) or biological (e.g. removal of prey resources). Different activities may cause the same pressure, e.g. fishing using bottom gears and aggregate dredging both cause abrasion which can damage the surface of the seabed.

Our advice takes a risk-based approach, i.e. we are focusing on providing advice where we believe there is a risk to achieving the Conservation Objectives. We have identified risks to achieving the Conservation Objectives where there is an overlap between protected features and activities associated with pressures that the features are sensitive to. We have provided management advice to support public authorities and others in managing these risks. Our advice is based on existing data and information on protected features and relevant activities, and our understanding of the relationships between the features and activities. We have identified a range of management advice:

- management to remove or avoid pressures;
- management to reduce or limit pressures; or
- no additional management required.

For our advice on fisheries management we have also stated where we think this should be 'considered.' This term is included to highlight that an issue exists, but circumstances mean that a specific recommendation for action cannot / or need not be made at this point. However, there is sufficient cause to make fishery managers aware of the issue and for them to consider if a fishery management measure may be helpful in achieving Conservation Objectives – particularly where there may be a synergy between the benefits of management actions for the fishery and the Conservation Objectives for the feature. The term 'recommended' highlights that an issue of fishery-feature interaction exists, there is a reasonable evidence base and a specific recommendation can be made/ justified.

New or other activities not identified within the table would need to be considered on a case-by-case basis.

We recognise that stakeholders can provide local environmental knowledge and more detailed information on activities, including in relation to intensity, frequency and methods. This additional information will help public authorities and others develop more specific management, focussed on the interaction between features and activities. If new information becomes available our management advice may be revised.

Table 2 describes the activities that are considered capable of affecting the protected features. Spatial data relating to the location and extent of the activities listed can be accessed on Marine Scotland's National Marine Plan Interactive[5] (where available). Activities that are considered not likely to affect the protected features (other than insignificantly) are listed in Table 3.

[5] https://marinescotland.atkinsgeospatial.com/nmpi/

7.3 Best Practice

In our management advice for activities in Table 2 we refer to the development, adoption or use of ‘best practice’ as a way of managing interactions between activities and the features. Best practice is taken to mean approaches or procedures that are developed and accepted by regulators and relevant stakeholders as being an effective way of dealing with an interaction between a habitat or species and the pressures created by an activity. Much of this best practice is already being implemented by sectors and regulators, e.g. pre-application discussions between developers and regulators, the Scottish Marine Wildlife Watching Code, Scottish Outdoor Access Code, and Technical Standards for Scottish Finfish Aquaculture.

Table 2. NatureScot's advice to support management for the North Rona and Sula Sgeir SPA for activities which are considered capable of affecting the protected features.
The text under the 'Advice to support management' columns provides NatureScot's management advice for the features in relation to the activities (further details about the terminology used are provided in section 7.2). Where a cell is coloured grey this indicates that management is already in place, this includes where there are existing regulatory requirements for new proposals. Cells are also coloured grey where it is considered there is no additional management required to achieve the Conservation Objectives. An * has been used to highlight those activities to which the advice under '*Boat use associated with both commercial and recreational activities'* also applies. For some activities, the pressures associated with new proposals are considered unlikely to affect some the features either because these activities do not occur in the same locations as the features or the pressure is unlikely to be at levels that can affect the features (see also Table 3). In these cases, we have not provided advice however, where regulated; this does not exempt new plans or projects related to these activities undergoing a Habitats Regulations Appraisal (HRA).

Activities considered capable of affecting the protected features	**Advice to support management**	
	Kittiwake, gannet, guillemot, puffin, razorbill, fulmar, European storm petrel, Leach's storm petrel.	**Great black-backed gull**
Aircraft (helicopter and unmanned aerial vehicles (UAV))	**Reduce or limit pressures** (disturbance) associated with UAVs within the SPA through effective mitigation such as: • following the Good Practice Advice for drones and wildlife • seasonal restrictions to avoid sensitive time periods for those protected features most susceptible to disturbance and/or; • spatial restrictions.	
Boat use associated with both commercial (includes ship to ship) and recreational activities	**Reduce or limit pressures** (disturbance) associated with boat use during commercial and recreational activities through effective mitigation such as: • following the Scottish Marine Wildlife Watching Code (SMWWC); • seasonal restrictions to avoid sensitive time periods for those protected features most susceptible to disturbance and/or; • production of vessel management plans associated with activities that require a marine licence. This may include agreed routes and for boats, potential seasonal speed restrictions.	
Fishing – static gear (drift nets and bottom set nets inc. fyke nets)*	**Remove or avoid pressures** (entanglement) associated with the use of all static nets. Spatial exclusion of all static nets in areas identified as being important for auks and gannet (as identified from habitat and dive depth preferences) **is recommended**.	*Pressures unlikely to affect this feature.*

Activities considered capable of affecting the protected features	Advice to support management	
	Kittiwake, gannet, guillemot, puffin, razorbill, fulmar, European storm petrel, Leach's storm petrel.	**Great black-backed gull**
Fishing - demersal mobile/active gear (inc. mechanical trawls and benthic trawls)*	Whilst we have limited understanding about the extent of interactions between benthic fisheries and prey supporting habitat within the site, a principal objective of the management of the relevant fisheries should be to ensure that the fishing activity does not cause such disturbance to the benthic habitats that it adversely affects the abundance and availability of prey. **Reduce or limit pressures** (removal of prey species and abrasion of prey-supporting habitat) associated with fishing that has the potential to damage seabed habitat (in particular, sandeel habitat and herring spawning grounds) **should be considered**.	
Fishing – hydraulic dredge*	Hydraulic dredging has the potential to cause significant disturbance to the sediment habitats that support the prey species of the protected features, particularly for sandeel and herring. A principal objective of the management of the relevant fisheries should be to ensure that the fishing activity does not cause such disturbance to the benthic habitats that it adversely affects the abundance and availability of prey. **Remove or avoid pressures** (removal of prey species and disturbance of prey-supporting habitat) associated with hydraulic fishing that has the potential to damage seabed habitat (in particular, sandeel habitat and herring spawning grounds) **is recommended.**	
Fishing – pelagic*	**Remove or avoid pressures** (removal of key prey species) associated with fishing for sandeels. There is no current targeted sandeel fishery within the SPA, this position should be retained. Pelagic fishing for herring/sprat may occur within or around the SPA. We **recommend** that a principal objective of the management of the fishery should be ensuring that the fishing activity does not prevent or disrupt the availability of prey species i.e. it should be considered as part of a broader ecosystem-based approach to management of this fishery.	
Fishing – long-lining (not including jigging)	Our current understanding is that long-line fisheries are largely restricted to offshore waters. Site-specific measures for long-lining are not currently considered appropriate due to the scale of the fishery, and the wide-spread interaction with seabirds. However, there is evidence of seabird bycatch in long-line (not jigging) fisheries which **we recommend** require wider seas management measures.	

Activities considered capable of affecting the protected features	Advice to support management	
	Kittiwake, gannet, guillemot, puffin, razorbill, fulmar, European storm petrel, Leach's storm petrel.	**Great black-backed gull**
Hunting (gannets)	*For gannets* **Reduce or limit pressures** (mortality and disturbance) associated with the annual guga hunt – *existing management in place*.	*Pressures unlikely to affect these features.*
Infrastructure – lighthouse maintenance	**No additional management** for existing activities associated with lighthouse maintenance – *existing management in place for seasonal restrictions on arrival times and use of helicopters.*	
Renewable energy (inc. wind)	There are new marine renewable development proposals within connectivity to the North Rona and Sula Sgeir SPA. Mitigation should focus on **reducing or limiting pressures** (disturbance, displacement, collision) on the protected features.	
Tourism & recreation (inc. cruise ships, angling, boating, diving)	**No additional management** for existing recreational activities (includes angling, diving) providing the Scottish Marine Wildlife Watching Code (SMWWC) is followed by water-borne recreational users. The SMWWC highlights why birds are sensitive to disturbance and offers practical advice on how to avoid disturbance. **Reduce or limit pressures** (disturbance) of protected features from cruise ship and boat trip passengers landing on North Rona. Scottish Outdoor Access Code should be followed. **Remove or avoid pressures** (disturbance) of protected features from cruise ship and boat trip passengers landing on Sula Sgeir during the seabird breeding season (April-September). **Reduce or limit pressures** (disturbance) associated with an increase in recreational activities if in the future there is evidence of impacts at particular locations and/or if there is an increase in intensity of these pursuits within the SPA. There would be potential for some zonation of measures across the site given that some protected features exhibit behavioural sensitivity to disturbance.	
Scientific survey/research	**Reduce or limit (disturbance)** for scientific survey or research. Appropriate mitigations to minimise disturbance in the seabird breeding season is required.	
Wildlife tour operators*	**No additional management** for existing wildlife tours providing the Scottish Marine Wildlife Watching Code is followed by Wildlife tour operators. The Scottish Marine Wildlife Watching Code (SMWWC) should be followed by water-borne	

Activities considered capable of affecting the protected features	Advice to support management	
	Kittiwake, gannet, guillemot, puffin, razorbill, fulmar, European storm petrel, Leach's storm petrel.	**Great black-backed gull**
	recreational users. The SMWWC highlights why birds are sensitive to disturbance and offers practical advice on how to avoid disturbance. **Reduce or limit pressures** (disturbance) associated with an increase in wildlife tour operators if in the future there is evidence of impacts at particular locations and/or if there is an increase in intensity of these pursuits within the SPA. There would be potential for some zonation of measures across the site given that some protected features exhibit behavioural sensitivity to disturbance.	

Table 3. Activities that are considered not likely to affect the protected features (other than insignificantly) [6]

Activity	Comments
Anchorages & moorings	Beyond pressures associated with the vessel traffic (covered in Table 2), we are not aware of any further pressures that have the potential to cause an adverse effect on the protected features.
Fishing – static gear – Creels (including lobster, crabs and *Nephrops*)	These islands are remote so fishing using creels is most likely uncommon. Whilst there is the potential for entanglement for all the protected features, the occurrence is thought to be rare and therefore we consider this method poses a low risk to the protected features.
Fishing – line fishing (jigging)	Beyond pressures associated with the vessel movement (covered in Table 2), this activity is not expected to have the potential to cause an adverse effect on the protected features.

[6] Only the specific examples of activities listed in the table have been excluded, rather than the broad activity types. New plans or projects will still need to be considered by the relevant competent authority (see Annex 1 for further details).

8 Research and survey

We recognise that there are still important gaps in our understanding and knowledge of the features of this site. We will identify research and survey projects to inform our understanding of these aspects. The knowledge gaps identified below are not a commitment to undertake this work. However, by highlighting these gaps we hope to inform future discussions with parties interested in undertaking research in this site and/or on these features, to help direct research and improve understanding of monitoring needs. The following list of research and survey needs is not prioritised and is not exhaustive.

- Establish adequate baseline information for supporting habitats and prey species and gain an understanding of which prey items are the most important at a local scale within the SPA for all protected features.
- Establish a marine bird monitoring programme that informs changes in species populations and distributions at a site and SPA network level, and which may include monitoring of the supporting prey, habitats and processes within the SPA.
- Further understanding required on the reasons behind the protected features' decline at the SPA. Productivity estimates at the SPA would be beneficial to help understand this decline.
- Further ecological studies of all protected features habitat preferences and use, and movements within the SPA.
- Better understanding on the implications of new offshore developments around the site on the protected features.
- Oceanographic studies, such as sea temperature and acidity levels, how these might change in future, and the effects of such changes on prey availability for birds.
- Studies of food availability and competition for food between different fish predators (e.g., birds, seals, dolphins, porpoises, whales) in relation to fisheries policy.
- Improved understanding of what supporting processes the key prey species are reliant upon within the SPA.
- Additional research is required to better understand the relationships between the impact of dredging and benthic trawling on supporting habitats, their ability to support suitable prey and any consequential effect this may have on protected features.
- Investigation is required to assess the potential impact of highly pathogenic avian flu on the protected features both within the SPA and at a wider scale, in particular for gannet.
- Research required on the evolution of the HPAI virus, exposure and survival rates in affected seabird species following the 2021-2023 HPAI outbreak.
- Evaluate the potential mitigations that could be put into place to limit disease spread should another outbreak of HPAI occur at this, or any other SPAs.
- Better understanding of temporal foraging strategies of fulmar and whether there are any differences between daytime and night-time attraction of these species to fishing.
- An up-to-date systematic survey is required for the petrel protected features.
- Research is required on understanding the connectivity between the SPA and inland sites used by gull species.
- Research is required on understanding the connectivity between the SPA and inland sites used by gull species and whether gulls from this SPA are at risk of collision with wind turbines.

- Research is required on understanding the potential population level impact of licensed control on great black-backed gulls which use this SPA.
- Research is required on the potential impact of the annual guga hunt at Sula Sgeir on the gannet population and whether limits require review.
- Engagement required with the cruise ship companies who visit the islands to better inform them on what constitutes a disturbance at this SPA.

Annex 1. North Rona and Sula Sgeir SPA Conservation Objectives

The box below provides the high-level Conservation Objective statements for the North Rona and Sula Sgeir SPA.

The full Conservation Objectives, which includes site-specific advice and information on the qualifying features that form part of this SPA, are provided in the tables that follow. The site-specific advice and information provides more detail in relation to each of the high level Conservation Objective statements for each feature, e.g. detail on the seasonal timings and what the supporting habitats and prey are for the qualifying features.

Information is also provided below on how minor changes to features should be considered and the influence of environmental change on features, particular in relation to climate change. Temporary impacts on the qualifying features resulting from plans or projects can only be permitted where there is certainty that the features will be able to quickly recover. Further details on the potential for each qualifying feature to recover are described in more detail in Annex 2 '*Factors determining the potential of features to recover'*.

A definition of the terms used is in the Glossary (Annex 3).

The * denotes a qualifying feature that is an assemblage feature only.

North Rona and Sula Sgeir SPA
Qualifying features: • Atlantic puffin* (*Fratercula arctica*) • Black-legged kittiwake* (*Rissa tridactyla*) • Common guillemot (*Uria aalge*) • Great black-backed gull* *(Larus marinus)* • European storm petrel (*Hydrobates pelagicus)* • Leach's storm petrel (Oceanodroma leucorhoa) • Northern gannet (*Morus bassanus*) • Northern fulmar* (*Fulmarus glacialis*) • Razorbill* (*Alca torda*)
The North Rona and Sula Sgeir SPA also supports: • Breeding seabird assemblage (includes all qualifying features)
1. To ensure that the qualifying features of the North Rona and Sula Sgeir SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status. 2. To ensure that the integrity of North Rona and Sula Sgeir SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature: 2a The populations of the qualifying features are viable components of the North Rona and Sula Sgeir SPA. 2b. The distribution of the qualifying features is maintained, or where appropriate restored, throughout the site by avoiding significant disturbance of the species. 2c. The supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored, at North Rona and Sula Sgeir SPA.

1. To ensure that the qualifying features of North Rona and Sula Sgeir SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
Achieving FCS is defined in terms of the natural range and population of the species and the extent of habitat necessary for long-term maintenance of populations. There is an important role for all protected sites in the UK in defining, achieving and maintaining FCS for any habitat or species. Achieving FCS requires that each parameter is either stable or increasing, exceeds the relevant reference value and has good prospects of continuing to do so in the foreseeable future (JNCC, 2018). Favourable Conservation Status (FCS) is assessed across the Marine Atlantic Biogeographic Region with individual SPAs and SPA networks contributing to FCS. The conservation status will be taken as 'favourable' when: • population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; • the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; • there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis; When carrying out appraisals of plans and projects against these Conservation Objectives, it is not necessary to understand the status of the qualifying features within each individual SPA in this Biogeographic Region. The focus of the appraisal should be to understand whether the integrity of the North Rona and Sula Sgeir SPA would be maintained. If this is the case, then its contribution to FCS across the qualifying features' biogeographic range will be met. Similarly, when determining whether management measures may be required to ensure that the Conservation Objectives for this SPA are achieved, the focus should be on maintaining the contribution that it makes to FCS. Further advice on how these appraisals should be focussed in relation to maintaining site integrity is provided by Conservation Objective 2 (including parts a, b and c). If broader information (status, trends) on the qualifying features is available, it should be used to provide context to the site-based appraisal. Note '*Appropriate'* within this part of the Conservation Objectives is included to indicate that the contribution to FCS varies from site to site, and feature to feature.

2. To ensure that the integrity of North Rona and Sula Sgeir SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

This objective recognises that puffin, kittiwake, guillemot, fulmar, Leach's storm petrel, great black-backed gull, and razorbill are in unfavourable condition at the North Rona and Sula Sgeir SPA and consequently site integrity is compromised.

For the North Rona and Sula Sgeir SPA, when carrying out appraisals of plans or projects, the focus of the appraisal should be to understand the impact of the plan or project on site integrity. For qualifying features that are favourable condition this means maintaining that condition. For those features in unfavourable condition, it means ensuring that the plan or project does not prevent or reduce the potential for recovery. The expectation is not for the plan or project to restore site integrity. Should the plan or project compromise the ability of the qualifying features to recover (e.g. result in a further decline or accelerate the rate of decline, or prevent a recovery from occurring), then the North Rona and Sula Sgeir SPA will not make an appropriate contribution to achieving FCS across the Atlantic Biogeographic Region. Similarly, when determining whether management measures are required to meet the Conservation Objectives, the focus is on ensuring the conditions are appropriate to support recovery and subsequently restore site integrity. Further advice on how these appraisals should be focussed in relation to site integrity is provided in 2a, b and c.

The breeding seabird assemblage is not considered further in the Conservation Objectives as each qualifying feature and 'named qualifier' of the assemblage are addressed individually.

Temporary impacts on these objectives resulting from plans or projects can only be permitted where there is a high degree of certainty that the features will be able to quickly recover from the impact and that impacts do not prevent the ability of unfavourable features to fully recover in the long-term.

Environmental changes

This Conservation Objective recognises that the qualifying features are part of a complex, dynamic and multi-dimensional marine environment. Marine birds depend on environmental conditions (for example water movement, up-wellings and prevailing weather) which vary over time and space. Consequently, marine bird species are exposed to a wide range of drivers of change. 'Environmental changes' for the purpose of these Conservation Objectives means any change to the qualifying features reflecting both natural population dynamics and also broader environmental changes (i.e. those related to climate change and environmental variability, management of which is beyond the scope of the SPA). The impact of human activities on the SPA that can be managed will not be considered as part of the broader context of environmental change (i.e. where required they should be managed).

Some site-level changes are natural and are not a direct result of human influences (e.g. population fluctuations arising from factors such as variable breeding success or weather conditions across the wintering range / shifts or changes in prey availability resulting from variability in environmental factors processes such as water temperature and movements). Changes in the qualifying features' distribution and use of the site, which are brought about by entirely natural drivers, directly or indirectly, are normally considered compatible with the SPA's Conservation Objectives.

There may also be historical human influences that have now ceased but have modified and continue to drive change within the site. It is also recognised that climate change pressures could affect the qualifying features within the site. These changes cannot be prevented, so the Conservation Objectives seek at a site level to take account of them and where possible, improve the qualifying species' resilience to environmental change when considering future plans or projects. The magnitude of the future impacts will depend on the nature, scale, duration and intensity of the activity and the qualifying features tolerance and ability to recover from such an impact.

Additionally, management of human activities at a wider scale (i.e. regional, Scotland or the area covered by an international agreement such as the OSPAR convention) may also affect the qualifying features associated with this site (either by making a positive contribution or having a negative impact). Wider scale impacts may affect the ability of the qualifying features to recover from site level changes, and therefore additional precaution over the impacts of any future human activities may be necessary.

An assessment of whether a change is natural or anthropogenic, or a combination of both, will need to be looked at on a case-by-case basis.

In relation to North Rona and Sula Sgeir SPA and its qualifying features, the following effects of environmental change (climate change) are relevant. These effects should be taken into account when considering plans and projects as additional pressures may reduce the protected features' resilience to climate change, and conversely climate change impacts may start to hinder the their ability to recover from human activities.

- ***All qualifying features -*** Under climate change, sea temperatures are predicted to increase, sea levels will rise and there could be increases in the frequency of stormy conditions. Increased levels of atmospheric CO_2 will also result in ocean acidification. Any of these factors could cause changes in bird abundance and distribution at the SPA due to changes in prey (species, availability and distribution).
- ***For breeding seabirds -*** climate change may result in effects at wintering grounds or in other parts of the overall breeding range which could have subsequent effects on their breeding population and distributions. For any burrow or hole nesting species (puffin and Leach's storm petrel) an increase in rainfall due to climate change could also have adverse effects during the incubation period which may result in increased mortality of eggs or chicks due to a flooded burrow or hole. Climatic changes may also result in colonies being more prone to soil erosion which would in turn mean reduced habitat availability for burrowing species. In coastal breeding sites, increased flooding associated with storm tides may also cause nest site failures in breeding seabirds (Mendel *et al.* 2008). Increased storminess could also affect cliff-nesting seabirds, as eggs or chicks are more likely to be dislodged by waves, wind or rain. Parent birds may also find foraging more difficult during storms, reducing their ability to maintain their own body condition whilst also incubating or feeding chicks.

- ***Auks (puffin, guillemot, and razorbill):*** Auks may be vulnerable to extreme weather events, particularly winter storms, which have been linked to adult mortality and winter 'wreck' events (BirdLife International, 2022). Decreased survival rates in these species have been linked to increased sea temperatures and stronger winds (Votier *et al.* 2005; 2008; Sandvik *et al.* 2005).
- ***Kittiwake:*** Breeding phenology is affected by climate change, with a trend in later breeding being seen in kittiwakes (Wanless *et al.* 2009). Kittiwake breeding populations are highly vulnerable to the impacts of climate change on the population dynamics and distribution of their preferred prey (e.g. Sandvik *et al.* 2014).
- ***European storm petrel, Leach's storm petrel:*** Studies on Leach's storm petrels demonstrated that breeding success was lower in years of higher global mean temperature (Mauck *et al.* 2018). The potential impacts of climate change on European storm-petrel in the UK are unclear (Pearce-Higgins *et al.* 2011). Other storm petrel species have shown timing of breeding is associated with food supply, which in turn is associated with climate conditions (Drummond & Leonard, 2009; Bedolla-Guzmán et al. 2017).
- ***Great-black-backed gull:*** predicted to decrease in number of breeding pairs across GB and Ireland as a result of climate change, with temperature, precipitation and potential energy anomaly all variables playing a role in predicted population changes (Davies *et al.* 2021). However within the MarPAMM region (within which the North Rona and Sula Sgeir SPA sits) climate change projected (with poor confidence) to have a low impact on this species (Davies *et al.* 2021).
- ***Fulmar:*** a species which has been identified as sensitive to climate change. Studies have demonstrated a link between a large-scale climatic factor, the North Atlantic Oscillation (NAO) on both survival and reproduction. Survival in fulmars, particularly of females, has been shown to be influenced by the NAO (Grosbois & Thompson, 2005). Reproductive success at this colony has also been linked to winter NAO and lagged winter NAO, with year to year variation in breeding success strongly related to oscillations in the NAO (Thompson & Ollason, 2001; Lewis *et al.* 2009).
- ***Gannet:*** Gannets can travel great distances from their nest site to forage and are able to exploit a wide range of prey. Hence, they may have greater potential than some other seabird species to adapt to climate change. However, in the North West Atlantic, a century-long population trend of northern gannets correlated with warming surface water conditions and increased mackerel availability on a decadal scale, indicating that climate change effects on diet is likely for this species (Montevecchi & Myers, 1997).

2a. The populations of the qualifying features are viable components of the North Rona and Sula Sgeir SPA.

This objective seeks to specifically protect the qualifying features from ***significant*** mortality, injury or removal that can lead to a long-term decline of the feature(s) within the site. It protects the features from significant risk of incidental killing and injury from activities both within and outwith the site. Impacts and effects are considered 'significant' where they could result in a permanent reduction or continued decline in the population and consequently, reduction in the contribution the North Rona and Sula Sgeir SPA makes to the maintenance of the qualifying features in their natural range in the UK. It should be ensured that the qualifying features are protected from anthropogenic pressures that could lead to a significant long-term decline in numbers using the site, such that recovery cannot be expected. Ensuring the capacity of the North Rona and Sula Sgeir SPA to support all the essential behaviours and activities required to support viable populations of the qualifying features in the relevant season(s) are addressed by Conservation Objectives 2b and 2c.

At a site level, the population is considered to be viable if the species can carry out their life cycle functions relevant to the season(s) they are present, irrespective of dependencies such as immigration. For the qualifying features, the viability of the species within the North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use foraging habitat in areas of functionally linked sea, within foraging range, outwith the site, in addition to the ability of the site to support breeding adult survival and chick-rearing.

When assessing the effects of any plan or project consideration should also be given to whether impacts outwith the SPA could affect achievement of this Conservation Objective. This Conservation Objective is considered to be met if the conditions to support all the species' essential behaviours and activities are in place. This includes:

- avoiding effects within and outwith the site that could prevent or reduce the ability of the populations of qualifying features to recover.
- avoiding effects within and outwith the site that could lead to a permanent reduction in the populations of qualifying features through mortality, injury, or impacts caused by disturbance, displacement, barrier effects or reduction in mobile prey resources.
- maintaining the species' ability to use all areas of importance within the site (to be considered under Conservation Objective 2b)
- maintaining access to, and availability of, supporting habitats and prey within the site (to be considered under Conservation Objective 2c).

Where known, the populations of the qualifying features should be maintained at or above site reference populations, as detailed below. The site reference population may be revised from the baseline at designation where a) there is evidence to show that a population's size has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period (generally equivalent to at least one generation length for the given species) and/or b) to reflect any wider strategic objectives for the species (e.g. national or international species action plan). Where there is evidence to show that a qualifying feature has historically been more abundant than the stated minimum target and current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account.

All qualifying features are protected throughout the whole site, throughout the year. This means that irrespective of the season for which they are designated, the qualifying features are protected during both their breeding and non-breeding seasons when using the SPA.

Temporary short-term changes in the populations due to human activity may be considered not to compromise the Conservation Objectives within the site provided it can be demonstrated that the populations of any affected qualifying features can fully recover. Factors limiting the recovery of the qualifying features include: the average generation times, population growth rates, availability of prey and the timing and duration of the activity around vulnerable stages of their life cycles such as during moulting or chick-rearing period.

Direct mortality can arise from: collision (above and underwater); entanglement (incidental bycatch); predation, disease, flooding events, and pollution. Indirect mortality can arise from loss of or damage to prey or prey-supporting habitats (e.g. through harvesting; physical removal of or damage to seabed; nutrient enrichment; changes to water temperature, salinity, or flows; introduction of invasive non-native species (INNS);

pollution). Indirect mortality can arise from reduced ability to capture or access prey arising from e.g. increased water turbidity or displacement from foraging areas.

The site-specific information includes a site reference population that is considered the most appropriate for assessments of plans and projects. Where this is based on the citation population at classification or recent surveys, the site reference population is rounded using standard procedures (Stroud *et al.* 2001).

Feature	Site-specific advice	Site-specific information
Atlantic puffin	Ensure the breeding population of puffins have the ability to recover to the site reference population. ***and*** Ensure puffin are not at significant risk from injury or mortality. ***and*** Ensure puffins can move safely between the site and important areas of functionally linked sea outwith the site.	The site reference population for puffins at the North Rona and Sula Sgeir SPA is 5,300 pairs (1986 count). The last site visit showed no sign of the colony expanding, with some sub- colonies shrinking (for example Stoc a Phrisain and Poll Heallair) or no longer in existence (e.g. Cladich Cro Iain Dheirg, and at south side of Toa Rona). The latest count (2021) is around 2800 individuals combined with around 470 pairs. Puffin populations have been generally increasing within the UK (long-term trend between 1969-2000) (Harris & Wanless, 2004). However, recent trends show that puffins have decreased by 15% since Seabird 2000 (1998-2002), and in Scotland they have decreased by 21% (Burnell *et al.,* 2023). The decline at the North Rona and Sula Sgeir SPA, when the UK trend is for puffins to have increased, is not known. It is likely changes in prey availability within the marine environment will be a contributing factor. There is no current evidence that suggests puffins are suffering heavy predation from either gulls or skuas on the islands. The long-term recovery of puffins at the North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Black-legged kittiwake	Ensure the breeding population of kittiwakes have the ability to recover to	The site reference population for kittiwakes at the North Rona and Sula Sgeir SPA is 5000 pairs (1986 count). The latest count data available for kittiwakes was around 700 pairs (2021). This means there has been an approximate decrease of 86% in the kittiwake population between these two islands. Kittiwake populations have declined in both Scotland and the UK, with decreases of

	the site reference population. ***and*** Ensure kittiwake are not at significant risk from injury or mortality. ***and*** Ensure kittiwakes can move safely between the site and important areas of functionally linked sea outwith the site.	42% in their UK population since Seabird 2000 (1998-2002) and 57% in Scotland (Burnell *et al.,* 2023). It is acknowledged that due to the steep national decline in kittiwakes it will be difficult to recover the kittiwake population to the site reference population. Reasons for the decline in kittiwakes at the North Rona and Sula Sgeir SPA, are not fully understood but are likely to be related to off-colony factors affecting their food supply. Wider pressures on kittiwakes, such as climate change or disease, may limit the potential for kittiwakes to achieve Favourable Conservation Status. Therefore, when assessing the effects of any plan or project, consideration should be given to ensuring that the plan or project will not hinder the ability to recover. This will help ensure resilience within the wider kittiwake population. Plans or projects should also ensure that kittiwakes are not at significant risk from injury or mortality either within or outwith the SPA. The long-term recovery of kittiwakes at North Rona and Sula Sgeir SPA is also intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Common guillemot	Ensure the breeding population of guillemots have the ability to recover to the site reference population. ***and*** Ensure guillemots are not at significant	The site reference population for guillemots at the North Rona and Sula Sgeir SPA is 43,200 individuals. The latest count data available for North Rona and Sula Sgeir SPA combined shows this number has decreased to around 7,700 individuals. Combined, this means there has been an approximate decrease of 82% in the guillemot population between these two islands. It is noted that surveying both these islands is extremely difficult in terms of access and vantage points so these counts can be seen as approximate numbers rather than an exact count. Guillemot populations in the UK decreased by 8% since Seabird 2000 (1998-2002) and 31% in Scotland (Burnell *et al.,* 2023).

	risk from injury or mortality. ***and*** Ensure guillemots can move safely between the site and important areas of functionally linked sea outwith the site.	Reasons for the decline in guillemots at North Rona and Sula Sgeir SPA are unclear. However, it seems likely that changes in prey availability within the marine environment is a major contributing factor. The long-term recovery of guillemot in North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
European storm petrel	Ensure European storm petrels are not at significant risk from injury or mortality. ***and*** Ensure European storm petrels can move safely between the site and important areas of functionally linked sea outwith the site.	There is no site reference population for European storm petrels at North Rona and Sula Sgeir SPA due to the uncertainty in the population estimate and no citation population value given. At the time of site designation Seabird 2000 count used a baseline estimate of 1000 pairs which exceeded what was required for site selection. There are logistical difficulties in monitoring this nocturnal and burrow-nesting species. However, a site visit in 2009 concluded there had been no change in the population since Seabird 2000. Seabirds Count visit (2015-2021) estimated around 1000 AOS. There is insufficient information on European storm petrels to assess a long-term UK trend, though there is a suggestion from limited information that between 1999-2011 their populations may have increased (Bolton *et al.* 2010; JNCC, 2021). From the limited data available, trends suggest that European storm petrels in the UK have increased by 41% since Seabird 2000 (1998-2002) and 48% in Scotland (Burnell *et al.,* 2023) The long-term maintenance of European storm petrel in North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Leach's storm petrel	Ensure breeding Leach's storm petrels are not at significant risk from injury or mortality.	There is no site reference population for Leach's storm petrels at the North Rona and Sula Sgeir SPA due to no citation population value given. At the time of site designation Seabird 2000 count used a baseline estimate of 1000 pairs which exceeded what was required for site selection. A survey carried out at North Rona indicated that Leach's Petrel appear to be in decline from the numbers counted in Seabird 2000 and from 2009 (234 pairs). The latest estimated count is 435

	and Ensure Leach's storm petrels can move safely between the site and important areas of functionally linked sea outwith the site.	AOS (2015-2021) calculated from a tape playback survey recording. There is insufficient information on Leach's storm petrels to assess a long-term UK trend, but from those colonies were data is available it suggests that their populations are in decline (JNCC, 2021). From the limited data available, trends suggest that Leach's storm petrel has decreased by 79% in the UK and Scotland since Seabird 2000 (1998-2002) (Burnell *et al.,* 2023). Reasons for the decline in Leach's petrels at the North Rona and Sula Sgeir SPA are unclear. However, it seems likely that changes in prey availability within the marine environment is a major contributing factor. Predation at the colony by gulls or skuas is another possible reason for decline, although this is not fully understood or quantified. The long-term recovery of Leach's petrels in North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Great black-backed gull	Ensure the breeding population of great black-backed gulls have the ability to recover to the site reference population. ***and*** Ensure great black-backed gull are not at significant risk from injury or mortality. ***and***	The site reference population for great black-backed gulls at the North Rona and Sula Sgeir SPA is 730 pairs. The latest assessment of site condition noted a steep decrease of around 93% to 49 pairs (2021). Great black-backed gulls in the UK have decreased by around 43% since Seabird 2000 (1998-2002). The trend in Scotland is even more pronounced with a decrease of 63% (Burnell *et al.,* 2023). Monitoring in 2023 indicated a further decline of 19% in Scotland due to avian flu (Tremlett *et al.,* 2024). Reasons for the decline in great black-backed gulls at North Rona and Sula Sgeir SPA are unclear. However, it seems likely that changes in prey availability is a major contributing factor. Great black-backed gulls rely on other seabird species for their prey items, so as other seabird qualifying features have decreased at the colony, this will be having a subsequent effect on the great black-backed gulls. More research is required to fully understand the reasons for their decline at the SPA. The long-term recovery of great black-backed gulls in North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked land or sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given

	Ensure great black-backed gull can move safely between the site and important areas of functionally linked land or sea outwith the site.	to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Northern gannet	Maintain the breeding population of gannets at a stable or increasing trend relative to the current site reference population. ***and*** Ensure gannets are not at significant risk from injury or mortality. ***and*** Ensure gannets can move safely between the site and important areas of functionally linked sea outwith the site.	The site reference population for gannets at the North Rona and Sula Sgeir SPA is 10,400 pairs. The latest assessment of site condition noted a slight decrease in population to around 9,500 pairs (2023 count). Gannets in the UK have increased by 38% since the last gannet census (2003-2005) and have increased by 40% in Scotland in the same period. Monitoring in 2023 indicated a further decline of 22% in Scotland due to avian flu (Tremlett *et al.,* 2024). The long-term maintenance of gannets at the North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Northern fulmar	Ensure the breeding population of fulmars have the ability to	The site reference population for fulmars at the North Rona and Sula Sgeir SPA is 11,500 pairs (1986 citation). The latest count data showed this number has declined by 81% to around 2200

	recover to the site reference population. ***and*** Ensure fulmars are not at significant risk from injury or mortality. ***and*** Ensure fulmars can move safely between the site and important areas of functionally linked sea outwith the site.	pairs (2021 count). Fulmar populations in the UK have decreased by 35% since Seabird 2000 (1998-2002). In Scotland fulmar have decreased by 37% (Burnell *et al.,* 2023). The reasons for declines of fulmars at this SPA are uncertain however reduction of prey in their marine foraging areas is considered a key contributing factor. Fulmars are also known to be sensitive to disturbance, particularly during the incubation period. It is not known if this could be a contributing factor at this SPA. The long-term recovery of fulmars at the North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.
Razorbill	Ensure the breeding population of razorbills have the ability to recover to the site reference population. ***and*** Ensure razorbills are not at significant risk from injury or mortality. ***and***	The site reference population for razorbills at the North Rona and Sula Sgeir SPA is 2,300 individuals (1986 citation). The latest count data showed this number has decreased to around 400 individuals (2021 count). Razorbill populations in the UK have increased by 18% since Seabird 2000 (1998 – 2000). However, in Scotland the opposite trend is emerging with razorbill populations having decreased by 2% in the same period (Burnell *et al.,* 2023). Reasons for the decline in razorbills at the North Rona and Sula Sgeir SPA, when nationally they are increasing, are most likely to relate to changes in prey availability within the marine environment. However, further research is required to see if any on-site factors, such as disturbance, could be a contributing factor in their decline. The long-term recovery of razorbills at the North Rona and Sula Sgeir SPA is intrinsically linked to their ability to access and use habitats in areas of functionally linked sea outwith the SPA. When assessing the effects of any plan or project consideration should therefore also be given to whether impacts on the population whilst outwith the SPA could affect achievement of this Conservation Objective.

	Ensure razorbills can move safely between the site and important areas of functionally linked sea outwith the site.	

2b. The distribution of the qualifying features is maintained, or where appropriate restored, throughout the site by avoiding significant disturbance of the species.

This objective seeks to ensure that the qualifying features can continue to use and access all areas within the North Rona and Sula Sgeir SPA used for feeding, moulting, roosting, loafing, shelter and other maintenance activities. This objective also recognises however, that the populations of puffin, guillemot, razorbill, Leach's petrel, fulmar, kittiwake and great black-backed gull using the SPA are in unfavourable condition and that this may, in part, be due to disturbance at the site causing declines.

Changes in the distribution of the qualifying features are most likely to be brought about through disturbance, therefore this objective relates to avoiding significant disturbance. Changes in distribution may also result from shifts in prey distributions; this is considered under objective 2c. Disturbance associated with human activity may take a variety of forms including: noise, light, sound, vibration, trampling, presence of people, animals and structures, as well as displacement and barrier effects on the species. The type of disturbance, its duration and the area over which the qualifying features are likely to be affected are important considerations in any appraisal of disturbance.

Disturbance can, for example, result in changes to feeding or roosting behaviour, increased energy expenditure due to increased time spent moving to avoid stressors, abandonment of nest sites and desertion of supporting habitat (both within or outside the protected area where appropriate). This may affect successful chick rearing in the breeding season, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts.

'Significant disturbance' should be interpreted to mean disturbance that affects the integrity of the site through alteration of the distribution of the qualifying features such that recovery cannot be expected or effects can be considered long term. It is expected that significant disturbance will lead to more than a transient effect on the distribution of the qualifying features. It may result in the following types of effect:

- Contributes to the long-term decline in the use of the site by the qualifying features.
- Changes to the distribution of the qualifying features on a continuing or sustained basis.
- Changes to the qualifying features behaviour such that it reduces the ability of the species to survive, breed or rear their young.

There are two main ways in which the qualifying features' continued access to suitable resources could be restricted and distribution affected and this is where assessments should be focussed:

1. Large scale physical barriers, or;
2. Significant disturbance which alters their distribution within the site or disrupts important behaviours.

Temporary short-term disturbances due to human activity may be considered not to compromise the Conservation Objectives within the site provided it can be demonstrated that the population can fully recover with a high degree of certainty. Factors limiting the recovery of the qualifying features include the timing, frequency and duration of the activity around vulnerable stages of their life cycle such as during moulting or chick-feeding period.

All qualifying features are protected throughout the whole site, throughout the year. We anticipate that some locations within the North Rona and Sula Sgeir SPA will be more, or less, important than others for individual species. Distributions within the site may also change over time in response to a range of abiotic and biotic factors (e.g. changes in abundance or quality of prey resources at particular locations, numbers of each qualifying feature within the site as a whole, seasonal fluctuations or trends in prevailing weather conditions etc.). In some cases detailed bespoke surveys of bird numbers and distributions, to determine qualifying features' current usage of particular locations within a proposals area of influence, may be required to complete the necessary assessments.

Direct displacement/redistribution of the qualifying features can arise from: barriers to movement to and between foraging and roosting locations; and visual disturbance (e.g. associated with vessel movements or human prescence). Indirect displacement/redistribution can arise from loss of or damage to prey or prey-supporting habitats (e.g. through harvesting; physical removal of or damage to seabed; nutrient enrichment; changes to water temperature, salinity, or flows; introduction of INNS; pollution (e.g. light, noise, chemical)).

For all qualifying features: Disturbance to foraging birds may reduce the time spent feeding or cause them to move to different areas that are less energetically profitable. Disturbance that creates an avoidance response or disrupts/reduces incubation, chick-rearing, foraging or resting behaviour can also put increased energetic demands on birds during an already energetically expensive season. Ensuring safe movement within and between the breeding colony and those areas used for foraging, roosting and other maintenance behaviours (see also 2c) is important to meet the energetic demands required to achieve or maintain body condition needed to support migration and successful breeding and for subsequent winter survival. Barriers to movement may reduce access to preferred foraging habitat and cause sub-optimal foraging.

Feature	**Site-specific advice**	**Site-specific information**
Atlantic puffin	Ensure puffins continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site.	Puffins are migratory species which remain offshore during the non-breeding period and move from their breeding grounds such as the North Rona and Sula Sgeir SPA and wintering grounds potentially near the Azores, Canary Islands, north-west Africa and the western Mediterranean. They are present at the North Rona and Sula Sgeir SPA from mid-March until end of August. In some exceptional years adults may still be feeding chicks in September. Puffins have their flightless moult period from the beginning of February to mid-March.

	and Avoid significant disturbance to puffins and ensure individuals can move safely between these areas within the site.	Puffins have their highest densities on North Rona on the main Toa Rona colony. Small sub-colonies away from these cliffs do exist and include areas within Stoc a Phriosain and Poll Heallair. Little is known about the distribution or numbers of puffin on Sula Sgeir. At North Rona and Sula Sgeir SPA puffins will nest underground in burrows, often dug into grassy maritime slopes or will nest amongst boulder screes or cracks in sea cliffs where grassy habitat is sparse. During the fledgling period young will leave their burrow at night and make their way to the sea. Puffins will use the inshore waters of the SPA to roost, forage and for other maintenance activities. Foraging is largely restricted to dive depths of up to 70m, although their average dive depth is around 35m (Harris & Wanless 2011; Ropert-Coudert *et al.* 2018). Their mean maximum foraging range in the breeding period is 137.1 +/- 128.3km, though they can range up to 383km (Woodward *et al.* 2019). However, when feeding chicks birds generally forage within 10km of their colony. In spring, puffins assemble close inshore in large rafts on the water pre-breeding, where courtship takes place (Snow & Perrins, 1998). Puffins will often roost on the sea at night and will forage early in the morning, returning to their chicks for provisioning (Boag & Alexander, 1998).
Black-legged kittiwake	Ensure kittiwakes continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to kittiwakes and ensure individuals can move safely between these areas within the site.	Kittiwakes are migratory species with the vast majority of adults from North Atlantic colonies such as North Rona and Sula Sgeir SPA appearing to winter in the west Atlantic between Newfoundland and the mid-Atlantic ridge with relatively small numbers wintering in the North Sea and west of the British Isles. Kittiwakes are present at the North Rona and Sula Sgeir SPA during their breeding period from mid-April to end of August. However feeding aggregations may still be seen around the Scottish coast until late October/early November. They will therefore be present during both the breeding and non-breeding seasons. In the North Rona and Sula Sgeir SPA kittiwakes will nest on steep, coastal cliffs, geos, and offshore stacks. Kittiwakes also require access to areas of freshwater which they require for bathing. For roosting, they may use shorelines or manmade buildings. Kittiwakes at the North Rona and Sula Sgeir SPA will use both inshore waters within 1km of their colony for loafing, preening, bathing and other important maintenance behaviours, and further offshore waters and shelf waters for foraging. In the breeding period, the mean maximum foraging range for kittiwakes is 156.1+/- 144.5km, though they will forage further, with a maximum range of 770km (Woodward *et al.* 2019). After breeding, kittiwakes will also use beaches near their breeding grounds to moult in large flocks of individuals.
Common guillemot	Ensure guillemots continue to have access	Guillemots are present in the North Rona and Sula Sgeir SPA throughout the year. Guillemots' breeding season is from April until mid-August. From the beginning of August to mid-October they will

	to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to guillemots and ensure individuals can move safely between these areas within the site.	remain on the waters by the North Rona and Sula Sgeir SPA, where adults will undergo a flightless moult period. Guillemots will attend their breeding sites surrounding the North Rona and Sula Sgeir SPA frequently during the non-breeding period, particularly from February onwards. Guillemots will nest on bare cliff ledges, geos, and flat boulders at the North Rona and Sula Sgeir SPA in dense colonies. The majority of the guillemots at this SPA are found at Sula Sgeir. They use areas close to the coast as well as offshore waters in which to forage, rest, and carry out other maintenance activities. In the breeding period, the foraging range of common guillemot has a mean maximum of 73.2 ± 80.5 km, with a maximum range of 338km (Woodward *et al.* 2019). Guillemots forage both at the seabed (demersal) and within the water column (pelagic), primarily during daylight hours (Wakefield *et al.* 2017). They have an average dive depth of 42m, though can forage up to 200m depth (Ropert-Coudert *et al.* 2018). Guillemots may fly in small groups and will often form large rafts on the sea close in the colony before heading out on a foraging trip. When ready to fledge the chick will leave the nest site and joins the male of the pair on the sea, where they travel further out to sea together and remain close for around two months (Harris & Wanless, 2003).
European storm petrel	Ensure European storm petrels continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to European storm petrels and ensure individuals can move safely between these areas within the site.	Storm petrels are a migratory species which migrate from their Scottish breeding colonies to more southerly locations for their winter especially off west Africa, South Africa. They are present at North Rona and Sula Sgeir SPA from mid-May to end of October. Outside of the breeding season they are strictly oceanic. Storm petrels nest mainly in burrows or crevices in the North Rona and Sula Sgeir SPA, and they will generally only return to their burrow during darkness. From previous surveys it is suspected that the majority of the European storm petrels are on North Rona, as opposed to Sula Sgeir, but there are difficulties associated with surveying this burrow nesting species. The foraging range of European storm-petrel is estimated as being around 336km (Woodward *et al.* 2019). Storm petrels forage during the day over deep waters but are also present in shallower water over the shelf. They may also move closer inshore to their breeding colonies at night time.

Great black-backed gull	Ensure great black-backed gulls continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to great black-backed gulls and ensure individuals can move safely between these areas within the site.	Great black-backed gulls will be present at the North Rona and Sula Sgeir SPA throughout the year. Their breeding season is from March to the end of August, and their non-breeding period from September to end of February. Great black-backed gulls at the North Rona and Sula Sgeir SPA nest predominantly on North Rona and its associated sea stacks. As with other gull species, great black-backed gulls nest on flat ground, sometimes on top of cliffs or stacks, with a shallow nest made from grass, moss and sometimes seaweed. Great black-backed gulls are predators and opportunistic scavengers, which will also kleptoparasitise other seabirds for fish such as sandeel. In the breeding period, great black-backed gulls have a mean maximum foraging range of 73km (Woodward *et al.* 2019). As well as using the SPA for breeding and foraging, the great black-backed gulls will also use the SPA for roosting. It is not currently known if they have preferred roost locations within the SPA.
Leach's storm petrel	Ensure Leach's storm petrel continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to Leach's storm petrel and ensure individuals can move safely between these areas within the site.	Leach's storm petrel are a migratory species which migrate from their Scottish breeding colonies to more tropical waters, especially off west Africa, South Africa and some reaching the Indian Ocean. They are present at North Rona and Sula Sgeir SPA from May-mid-October. Leach's storm petrels at the North Rona and Sula Sgeir SPA nest in burrows or amongst crevices in rock, boulders or walls and will only return to land during the night. From previous surveys it is suspected that the majority of the Leach's petrels are on North Rona, as opposed to Sule Sgeir, but there are difficulties associated with surveying this burrow nesting species. Leach's petrels are highly pelagic and forage during the day in deep (more than 1,950m) and relatively unproductive waters over and beyond continental slopes, on average 400-830km from their colonies (Pollet *et al.* 2014; Hedd *et al.* 2018). This species has a mean foraging range of 657km (Woodward *et al.* 2019).

Northern fulmar	Ensure fulmar continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to fulmar and ensure individuals can move safely between these areas within the site.	Fulmars have their main breeding period at the North Rona and Sula Sgeir SPA from April to mid-September. Despite dispersing large distances during the non-breeding period, fulmars will regularly visit their colonies over the non-breeding period and thus will be present at North Rona and Sula Sgeir SPA at some stage throughout the yearly cycle. Fulmars at North Rona and Sula Sgeir SPA will nest on grassy ledges by cliffs, around buildlings on North Rona, or on the ground, with a small scrapping and pieces of vegetation on the ground. They use areas close to the coast as well as offshore waters in which to forage, rest, and carry out other maintenance activities. Fulmars have a large foraging range of 542.3 ±657.9km during the breeding period, though distances of 2890km have been recorded (Woodward *et al.* 2019). Fulmars forage both during the day and at night. They are surface feeding predators and scavengers, able to dive usually less than 5m (Edwards *et al.* 2013).
Northern gannet	Ensure gannets continue to have access to and can utilise all optimal habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to gannets and ensure individuals can move safely between these areas within the site.	Gannets breeding at the North Rona and Sula Sgeir SPA will be present from mid-February until the end of September. After their breeding period they will then depart for their wintering areas in the North Sea or off West Africa. Gannets nest in dense colonies on the cliffs within the North Rona and Sula Sgeir SPA and will construct nests from seaweed, plants, earth and debris from the sea (Nelson, 2010). The gannet colony within this SPA is concentrated on Sula Sgeir, where breeding habitat is still available for them. Gannets use areas close to the coast as well as offshore waters in which to forage, rest, and carry out other maintenance activities. Gannets will plunge dive to around 11m, but can then carry out wing-propelled pursuit to deeper depths of around 24m. Gannets have a mean maximum foraging range of 315.2+/- 194.2 km during the breeding period, but the maximum foraging distance recorded can be over 700km (Woodward *et al.* 2019).
Razorbill	Ensure razorbill continue to have access to and can utilise all optimal	Razorbills will be present during their breeding period at the North Rona and Sula Sgeir SPA from March to September. They will then undergo a flightless moult period from mid-August to end of

	habitats suitable for all relevant aspects of their life cycle associated with the site. ***and*** Avoid significant disturbance to razorbill and ensure individuals can move safely between these areas within the site.	October and may winter in UK waters or move further east to Norway or Denmark (Furness, 2015). It is not known where razorbills from the North Rona and Sula Sgeir SPA winter. Razorbills at the North Rona and Sula Sgeir SPA will nest in crevices in cliffs, often mixing with common guillemots on the same ledges. They may also nest amongst boulders and rocks on grassy slopes or rocky beaches. From the last count made (2012) it appears the majority of razorbills rests on North Rona. Razorbills use areas close to the coast as well as offshore waters in which to forage, rest, and carry out other maintenance activities. In the breeding period, razorbills have a mean maximum foraging range of 88.7 ± 75.9km (Woodward *et al*. 2019). Razorbills are pursuit divers which make frequent dives of up to 140m, though average dive depth is around 15m (Ropert-Coudert *et al.* 2018). Most dives are under one minute. Razorbills will regularly roost on the sea overnight and may drift with the tide during their rest (Cooper *et al.* 2018).

2c. The supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored at the North Rona and Sula Sgeir SPA.
This objective seeks to maintain the current extent, quality and distribution of supporting habitats within the site as well as ensure a sufficient food supply within the site. It also recognises however, that the populations of breeding puffin, guillemot, razorbill, Leach's petrel, fulmar, kittiwake and great black-backed gull using the North Rona and Sula Sgeir SPA are in unfavourable condition and that this may, in part, be due factors within the colony SPA extension waters. The qualifying features require suitable habitat for breeding, shelter, roosting, foraging, loafing, moulting and other maintenance activities. The variety, quality, abundance and availability of food resources on which the qualifying features depend is important for ensuring adult fitness, survival and breeding success. The supply of food resources is supported by environmental processes. In the terrestrial environment, supporting habitats refer to the characteristics of the cliffs, relevant to their use by the qualifying features. Supporting processes relates to wider processes such as factors affecting coastal erosion, factors affecting vegetation formation, which will influence the habitat types available for the qualifying features. In the marine environment, supporting habitats refer to the characteristics of the seabed and water column relevant to their use by the qualifying features. Supporting processes relates to wider oceanographic processes such as up-wellings, tidal flows, hydrological movements which may be necessary for the habitat, and thus affects nutrient cycling and prey distribution.

Temporary short-term changes in supporting habitat and/or food resources due to human activity may be considered not to compromise the Conservation Objectives within the site provided it can be demonstrated with a high degree of certainty that the populations of any affected qualifying features can fully recover. The species-specific information includes a summary of available information on food resources and where known, the distribution of the key supporting habitats and associated processes within the North Rona and Sula Sgeir SPA.

The overall water body condition status relevant to the North Rona and Sula Sgeir SPA was assessed as "Good" in 2020[7]. This assessment includes consideration of water chemistry, pollutants, the physical condition of the water body, plant and animal communities, including plankton, and the risk from invasive non-native species.

There is currently insufficient information to support quantitative advice on the environmental processes associated with the supporting habitats and prey of the qualifying features at the North Rona and Sula Sgeir SPA.

Feature	**Site-specific advice**	**Site-specific information**
Atlantic puffin	Maintain or enhance the extent and distribution of the supporting habitats for puffins within the site. ***and*** Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover. ***and*** Existing water quality should be maintained any increase in nutrients,	Puffins use grassy maritime slopes, boulder scree or cracks in sea cliffs and rocky slopes for nesting. Feathers, grass, other vegetation, or seaweed may be taken into the burrow as burrow lining (Harris & Wanless, 2011). Puffins will use both inshore and offshore pelagic and shelf-waters in which to forage, roost and for other maintenance activities. Foraging is largely restricted to dive depths of up to 70m (Harris & Wanless, 2011). Puffins' diet will consist of a number of different pelagic and demersal fish, including: sandeels, clupeids, gadoids, sprat, whiting, saithe, haddock, with typical fish sizes being up to 20cm (Harris & Wanless, 2011). Within UK waters, puffins rely heavily on sandeels as prey with between 60 and 90% of their diet reported to be sandeel throughout the North Sea (Furness, 2002). Breeding success of puffins has been shown to correlate with availability of sandeels (Macdonald *et al.* 2015). Puffins can also prey on planktonic crustaceans, including *Calanus* copepods, euphausids amphipods such as *Parathemisto libellula*; pteropod molluscs; the squid *Illex illecebrosus*; and polychaete worms (Harris & Wanless, 2011). Key prey supporting marine habitats are those suitable for supporting sandeels. Sandeel, spend much of their life buried in sand on the seabed, typically in medium or course sands, but they also occur in

[7] https://www.sepa.org.uk/data-visualisation/water-classification-hub/

	turbidity or contaminants where this could reduce supporting habitats and/or prey, should be avoided.	large shoals in the water, typically 30-50m deep, where the sandeels feed on plankton (Harris & Wanless, 2011). The key supporting terrestrial habitats within the North Rona and Sula Sgeir SPA for puffins may relate to the availability of and formation of grassy slopes and suitable soil for their burrows. As they are a species that feeds in the water column, they may also be affected by any increase in water turbidity that would affect their ability to successfully forage for their prey (Cook & Burton, 2010).
Common guillemot	Maintain or enhance the extent and distribution of the supporting habitats for guillemots within the site. ***and*** Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover. ***and*** Existing water quality should be maintained any increase in nutrients, turbidity or contaminants where this could reduce supporting habitats and/or prey, should be avoided.	Guillemots at the North Rona and Sula Sgeir SPA require suitable habitat for breeding, foraging, resting, and other maintenance activities. They will use cliff ledges as their nesting habitat. Guillemots use areas close to the coast as well as offshore waters in which to forage and rest. Guillemots forage both at the seabed (demersal) and within the water column (pelagic) up to 200m, primarily during daylight hours (Wakefield *et al.* 2017). Breeding guillemot feed on small schooling fish including sandeels, clupeids, capelin, sprats and juvenile herring and cod (Wakefield *et al.* 2017). They may also consume molluscs, marine worms, squid, crustaceans and amphipods. The key supporting habitats for guillemots at North Rona and Sula Sgeir SPA will relate to the availability of suitable cliff-nesting habitat. As they are a species that feeds in the water column, they can be potentially affected by any increase in turbidity that would affect their ability to successfully forage for their prey (Cook & Burton, 2010). Guillemots have been shown to show a weak preference for frontal regions and for substrate containing a relatively low proportion of gravel (Wakefield *et al.* 2017). Guillemots have also been observed to forage in riptides (Wanless *et al.* 1990). Studies have also demonstrated guillemots foraging in areas at fronts between thermally distinct bodies of water (BirdLife International, 2022).

European storm petrel	Maintain the extent and distribution of the supporting habitats for European storm petrels within the sites. ***and*** Maintain the variety and abundance of food resources and the condition of supporting habitats and associated processes. ***and*** Existing water quality should be maintained any increase in nutrients, turbidity or contaminants where this could reduce supporting habitats and/or prey, should be avoided.	Storm petrels require suitable habitat for nesting in burrows or crevices in the North Rona and Sula Sgeir SPA. Their nest will usually be in a tunnel with little or no vegetation, though occasionally grass, bracken or seaweed may be used to form a nest within the burrow or crevice (Snow & Perrins, 1998). Storm petrels will use deep waters as well as shallower water over the shelf for foraging. Whilst most foraging takes place in pelagic and offshore areas, evidence exists that storm petrels may also forage in inshore marine waters. They have been recorded moving close inshore at night to exploit intertidal benthic organisms that migrate into the water column at high tides (Mitchell & Newton, 2004). Storm petrels will feed predominantly during the day, mainly on the wing by pattering, hovering and snatching, though they can rest on the water (Snow & Perrins, 1998) and may dive for food to a depth of not more than 0.5m (Flood *et al.* 2009). They will occasionally follow ships and attend trawlers (Bird Life International, 2022). Their diet will consist of mainly small fish (including from families Gadidae, Ammodytidae, Myctophidae, herring *Clupea harengus* and sprats *Sprattus sprattus*) as well as taking squid, surface crustaceans, zooplankton (including Ichthyoplankton) and medusa (including Copepoda, Euphausiacea, Chaetognatha, Anthomedusae). They will also feed on offal and carrion may be scavenged where available (Snow & Perrins, 1998). Whilst they are more generally known as being pelagic foragers of oceantic and neretic organisms, they have also been found to forage on littorial (Gobiidae) and suprabenthic intertidal organisms (mainly isopods Cirolanidae) (D'Elbee & Hemery, 1998). The key supporting habitats in the terrestrial environment within the North Rona and Sula Sgeir SPA for storm petrels may be availability and formation of grassy slopes and suitable soil for their burrows. In the marine environment, the key supporting processes for storm petrels at the North Rona and Sula Sgeir SPA are not well known but in the breeding season they are usually found in the intermediate offshore and suboceanic zones between littoral and deep ocean, from 10^{o}C isotherm to 25^{o}C isotherm (Snow & Perrins, 1998). Stone *et al.* (1995) found storm petrels were present in deep waters, out to the shelf edge and into the deep sea, primarily in waters >50m, with a peak in the outer shelf area (100-200m).
Great black-backed gull	Maintain or enhance the extent and distribution of the supporting habitats for great black-backed gull within the site. ***and***	Great black-backed gulls require suitable habitat for nesting, roosting, loafing, foraging, and maintenance activities within this SPA. Their nest will usually be shallow and madee from grass, moss and sometimes seaweed. Great black-backed gulls are predators and opportunistic scavengers, which will also kleptoparasitise other seabirds for fish such as sandeel. They will also predate other seabirds (both adults, young and eggs), including species such as puffin on North Rona and Sule Sgeir SPA. Prey is normally eaten on

	Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover. ***and*** Existing water quality should be maintained any increase in nutrients, turbidity or contaminants where this could reduce supporting habitats and/or prey, should be avoided.	the water or on low-tide rocks and pulled apart (Cramp & Simmons, 2004). Seabird prey may be killed in the air, on the water, or as they emerge from their burrows. Other food sources may include fish (such as herring, whiting, sandeels, and capelin), mammals, marine invertebrates (e.g. molluscs), carrion and human refuse (Birdlife International, 2022). On North Rona diet analysis of great black-backed gulls revealed they were predominantly feeding on fish (most likely from trawlers or from kleptoparasiting other birds), especially herring, mackerel and sandeels. Of the prey items found in the study, around 42% of avian prey recorded were puffins (references within Cramp & Simmons, 2004). However, a more recent study has not been carried out so it is not known how the proportions of dietary items have changed. In autumn this species have also been recorded feeding on the afterbirth of the breeding population of grey seals on the island (Cramp & Simmons, 2004). Chicks are fed similar items than those taken by adults but some studies have demonstrated that chick diets have a higher proportion of fish and marine invertebrate prey items. Information is lacking on the supporting habitats and processes for great black-backed gulls at North Rona and Sula Sgeir SPA, but may indirectly relate to processes that are important for their seabird prey.
Black-legged kittiwake	Maintain or enhance the extent and distribution of the supporting habitats for kittiwakes within the site. ***and*** Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover.	Kittiwakes at the North Rona and Sula Sgeir SPA will use steep, coastal cliffs and offshore stacks for nesting. Their nest is made of compacted mud, grass, feathers and occasionally seaweed (Snow & Perrins, 1998). Kittiwakes require access to areas of freshwater for bathing and for roosting they may use manmade walls and sandy shores. Kittiwakes at the North Rona and Sula Sgeir SPA will use both inshore waters within 1km of their colony for loafing, preening, bathing and other important maintenance behaviours, and further offshore waters and shelf waters for foraging. Kittiwakes may also use sandy beaches to moult in flocks of individuals. Kittiwakes are omnivorous, with a diet consisting predominantly of shoaling marine fish and invertebrates (e.g. squid and shrimps) obtained just below or under (up to 4m) the sea surface. During the breeding season they may also feed on intertidal molluscs, crustaceans (e.g. crayfish), earthworms and plant matter (del Hoyo *et al.* 1996) and may use seaweed for foraging due to the association of seaweed with benthic infauna (Goodship & Furness, 2019). Sandeel are a particularly

	and Existing water quality should be maintained any increase in nutrients, turbidity or contaminants where this could reduce supporting habitats and/or prey, should be avoided.	important prey item, as well as sprat, rockling and gadoids. When fishing, they will often feed in small flocks. Information is lacking on the supporting habitats for kittiwakes at North Rona and Sula Sgeir SPA, but may relate to the availability of cliff nesting habitat and the prey-supporting habitats in the marine environment. In the marine environment the supporting processes may relate to water quality (nutrients and turbidity) and water flow.
Leach's storm petrel	Maintain or enhance the extent and distribution of the supporting habitats for Leach's petrels within the site. ***and*** Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover. ***and*** Existing water quality should be maintained and any increase in eutrophication or water turbidity, where this could reduce supporting	Leach's petrel at the North Rona and Sula Sgeir SPA require grass for burrows, or crevices, rock, boulders or walls for nesting habitat. They will forage in pelagic waters over shelf break and continental slope deep waters. They feed during the day and return to their burrows at night. They may use deeper waters to rest in large flocks, often tightly packed together (Camphuysen, 2007). Leach's petrels feed by dipping and pattering, with a smaller proportion of birds feeding by surface seizing (Camphuysen, 2007). Their diet comprises mainly of small fish, squid, planktonic crustaceans and offal from fishing vessels (BirdLife International, 2019). They may also follow marine mammals, feeding on leftovers or faeces. The supporting habitats for Leach petrels at the North Rona and Sula Sgeir SPA may relate to the availability of suitable grass, rocks and boulders for nesting. In marine waters, they are more commonly recorded foraging in areas with steep salinity and sea surface temperature gradients as well as in areas of strong currents in continental shelf waters, in deep waters (Camphuysen, 2007) and in areas of convergence (BirdLife International, 2022).

	habitats and/or prey, should be avoided.	
Northern fulmar	Maintain or enhance the extent and distribution of the supporting habitats for fulmars within the site. ***and*** Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover. ***and*** Existing water quality should be maintained and any increase in eutrophication or water turbidity, where this could reduce supporting habitats and/or prey, should be avoided.	Fulmars require suitable habitat for breeding, foraging, loafing, and other maintenance activities within the North Rona and Sula Sgeir SPA. Fulmars at North Rona and Sula Sgeir SPA will use grassy ledges by cliffs for nesting habitat as well as man-made walls. Fulmars will forage in the offshore waters, often over shelf break waters, feeding within 5m of the surface. Fulmars forage both during the day and at night. They have a wide ranging prey base, with their main prey items being: small fish, zooplankton (especially copepods and amphipods), shrimp, squid, jellyfish, crustaceans, offal from fisheries, carrion (BirdLife International, 2022). The key supporting habitats for fulmars at the North Rona and Sula Sgeir SPA may relate to the availability of suitable grass and ledges for nesting. In the marine environment the presence of shelf breaks are often important, where there are areas of high biological productivity due to the oceanic thermal fronts (Edwards *et al.* 2013).
Northern gannet	Maintain the extent and distribution of the supporting habitats for northern gannet within the site. ***and***	Gannets require suitable habitat for breeding, foraging, loafing, and other maintenance activities within the North Rona and Sula Sgeir SPA. Gannets forage over shelf waters, and in water closer to shore. Gannets will plunge dive to around 11m, but can then carry out wing-propelled pursuit to deeper depths of around 24m within the water column. At breeding grounds they will use cliff habitat to nest colonially.

	Maintain the variety and abundance of food resources and the condition of supporting habitats and associated processes. ***and*** Existing water quality should be maintained any increase in nutrients, turbidity or contaminants where this could reduce supporting habitats and/or prey, should be avoided.	Gannets have a flexible diet and are capable of exploiting a wide variety of pelagic fish prey, including: sandeel, haddock, whiting, blue whiting, cod, saithe, mackerel, sprat, herring and red gurnard. Gannets may also take advantage of fishery discards, though the level of this will differ depending on the individual (Votier *et al.* 2010). Prey taken may differ markedly in size from 0-group sandeels (mean = 7.8 cm) to haddock (29.1 cm) and trout (34.0 cm) (Hamer *et al.* 2000). Information is lacking on the supporting habitats and processes for gannets at the North Rona and Sula Sgeir SPA, but may relate to availability of nesting habitat, water quality (nutrients) and water flow.
Razorbill	Maintain or enhance the extent and distribution of the supporting habitats for razorbills within the site. ***and*** Ensure the variety and abundance of food resources and the condition of supporting habitats and associated processes have the ability to recover. ***and***	Razorbills at the North Rona and Sula Sgeir SPA require suitable habitat for breeding, foraging, resting, and other maintenance activities. They may use crevices and ledges on cliffs, boulders, rocks on grassy slopes, or rocky beaches for their nesting habitat. They will use inshore waters for foraging, but may also feed further offshore in deeper pelagic waters, particularly preferring to feed at shelf waters due to their productivity (Linnebjerg *et al.* 2013). Razorbills will also use the marine waters for roosting overnight and will drift with the tide during their rest (Cooper *et al.* 2018). Razorbills are a pursuit diver which make frequent, shallow dives in the pelagic zone (Thaxter *et al.* 2010; Linnebjerg *et al.* 2013). They have a foraging depth of up to 140m (Jury 1986) though average dive depth is 15m (Ropert-Coudert *et al.* 2018) and most dives are under 1 minute (Ropert-Coudert *et al.* 2018). Razorbills will feed on small fish (e.g. sandeels, clupeids, capelin, sprat, juvenile herring and cod), crustaceans and polychaetes (Wakefield *et al.* 2017). They may also steal fish from puffins at certain colonies (Snow & Perrins, 1998). Razorbill distribution has been linked to substrate type, relating to their main prey item, the sandeel (Wakefield *et al.* 2017). The key supporting habitats for razorbill at the North Rona and Sula Sgeir SPA in the terrestrial environment may relate to suitable cliff-nesting habitat. In the surrounding waters by North Rona and

	Existing water quality should be maintained and any increase in eutrophication or water turbidity, where this could reduce supporting habitats and/or prey, should be avoided.	Sula Sgeir SPA supporting processes may include water quality (nutrients and turbidity), tidal cycles, water temperature and water flow. As they are a species that feeds in the water column, they can be potentially affected by any increase in turbidity that would affect their ability to successfully forage for their prey (Cook & Burton, 2010). Razorbills tend to use areas where mixing of cool and higher sea surface temperatures exist (Wakefield *et al.* 2017).

Annex 2. Supporting information

Factors determining the potential for feature recovery.

Feature	Factors determining the potential for feature recovery
Atlantic puffin	The estimated generation length for puffins is 14.2 years (Bird *et al.* 2020). Puffins can live up to around 40 years old (Fransson *et al.* 2010), though more commonly to less than 30 years (Harris & Wanless, 2011). Most birds do not visit their breeding colony until 2-3 years old (Snow & Perrins, 1998) and age at first breeding is usually 6 years old (Bird *et al.* 2020). Puffins have one clutch per year with a single egg (Snow & Perrins, 1998), meaning they have a low reproductive rate. This means any effect which causes a decline in numbers could limit the ability for the population to recover. Young leave their burrow at night and make their way to the sea when ready to fledge (Snow & Perrins, 1998), which can be a vulnerable time for the fledged puffins. Adult survival rates have been estimated at 0.913 (Bird *et al.* 2020) and average productivity rate is 0.617 (Horwsill & Robinson, 2015). Any effect on adult mortality can potentially have serious effects on breeding numbers. As with other long-lived seabird species, the adult will balance parental investment into their current breeding attempt with their own need to survive, and future reproductive attempts. In winter, puffins use marine waters outwith their breeding colony waters with some individuals reaching the Azores, Canary Islands, north-west Africa, the western Mediterranean, and the west Atlantic, though many remain within the North Sea (Harris & Wanless, 2011). Pressures at their wintering grounds or during their flightless moult period between February and mid-March may have subsequent consequences for their breeding period. In spring, birds will assemble in large rafts on the water pre-breeding, where courtship takes place, close inshore near their breeding areas (Snow & Perrins, 1998). Disturbance during this time may have consequences for the breeding season. Puffins display a high degree of nest site fidelity and will often use the same burrows across different years (Harris & Wanless, 2011), which may limit individual ability to adapt to changes within these areas and hence potential for population recovery from perturbations. Puffins are pursuit divers and are dependent on high quality fish, such as juvenile sandeels or herring, for successful chick rearing (Wanless *et al.* 2005; Harris *et al.* 2007; Miles *et al.* 2015). Their specialised tongue enables them to capture several fish in one dive and if intended for young can be stacked across the beak (Snow & Perrins, 1998). In years of poor sandeel availability they have demonstrated an ability to forage for alternative prey resources (Harris *et al.* 2007; Wanless *et al.* 2005), however this switch of prey resource may have a consequence on productivity or adult survival. Puffins, as with other auk species, have a high wing loading, meaning that there is a high energetic cost of flight (as seen in guillemots and razorbills, see Thaxter *et al.* 2010). This may mean if they have to travel further to find food they may suffer energetically (Masden *et al.* 2010).
Common guillemot	Guillemot estimated generation length is 14.8 years and age of first breeding is 4 years (Bird *et al.* 2020). Guillemots can live in excess of 40 years (Fransson *et al.* 2010), though the average lifespan is likely to be less than 25 years. Guillemots lay a single egg and will not relay if the egg is lost (Snow & Perrins, 1998), meaning they have a slow reproductive rate. As with many species, productivity of first time breeders is relatively low, and for guillemots

	stabilises from the fifth breeding attempt (Crespin *et al.* 2006). When ready to fledge the chick will leave the nest site and joins the male of the pair on the sea, where they then travel further out to sea together and remain close for around two months (Harris & Wanless, 2004). In this post-fledgling period, the chicks will be vulnerable to predation at this lifestage being less able to escape predators (from late July-end of August during fledging). Adult survival is estimated as being 0.935 (Bird *et al.* 2020) and average productivity 0.672 (Horswill & Robinson, 2015). Any effect on adult mortality can potentially have serious effects on breeding numbers. As with other long-lived seabird species, the adult will balance parental investment into their current breeding attempt with their own need to survive, and future reproductive attempts. The majority of guillemots in UK waters during the non-breeding season are likely to be from UK colonies (Furness, 2015). Few adults move beyond UK waters, although immatures range more widely during the non-breeding season (Furness, 2015). Non-breeding adults tend to remain near their breeding colonies throughout the year and attend their nest ledges, except during their flightless moult period from beginning of August to mid-October. Pressures during this moult period, where adults will be flightless for 1-2 months, could have a subsequent effect on reproduction or survival. Guillemots are not particularly agile in the air and they find take-off from water difficult (Bédard, 1985), which may limit their ability to avoid e.g. fast moving vessels. A guillemot's foraging technique means that they only carry one fish back to their chick at a time, whereas other auk species can carry multiple fish. This limits the quantity of prey they can bring back to their chick each day. As guillemots can dive deeply, they can feed both at the seabed (on demersal prey) and in the water column (on pelagic prey) (Wakefield *et al.* 2017), meaning they may have more flexibility in the prey items they can forage on, depending on their availability. Guillemots, as with other auk species, have a high wing loading, meaning that there is a high energetic cost of flight (Thaxter *et al.* 2010). This may mean if they have to travel further to find food they may suffer energetically (Masden *et al.* 2010).
Black-legged kittiwake	Kittiwake estimated generation length is 9.8 years and age of first breeding is 4 years old (Bird *et al.* 2020). Maximum age recorded is around 29 years (Fransson *et al.* 2010). Kittiwake clutch size is 2 (1-3) (Snow & Perrins, 1998). Fledglings typically depart colonies between late July and mid-August, dispersing rapidly from colonies, leaving the area about 10 days on average after their first flight (Coulson, 2011). Adult survival rates vary with period and colony but range from 0.8-0.93, with an average survival of 0.854 (Coulson, 2011; Horswill & Robinson, 2015). Any effect on adult mortality can potentially have serious effects on breeding numbers. As a long-lived seabird species, the adult will balance parental investment into their current breeding attempt with their own need to survive, and future reproductive attempts. A wide-scale tracking study found that the vast majority of adults from North Atlantic colonies appear to winter in the west Atlantic between Newfoundland and the mid-Atlantic ridge with the relatively small numbers wintering in the North Sea and west of the British Isles coming mostly from colonies in the British Isles or in the Barents Sea (Furness, 2015). Feeding aggregations may be seen around the Scottish coast until late October/early November (Forrester *et al.* 2007). Numbers of kittiwakes passing through UK waters in spring and autumn vary strongly from year to year apparently in relation to weather conditions (Furness, 2015). Pressures in these wintering or passage

	grounds could limit potential for populations to recover from impacts arising in breeding areas. Adult moult may begin during the breeding season but in general will occur after breeding. This species will often moult in large flocks of several thousand individuals on sandy beaches between the breeding grounds and the open sea (BirdLife International, 2022). Any pressure (e.g. disturbance) to these moulting flocks may have subsequent effects on their energy expenditure and hence their survival. Kittiwakes are surface feeders and are therefore limited to those prey found in the upper 1m of the sea (Snow & Perrins, 1998). Kittiwakes have a high reliance on sandeel as their main prey (Daunt *et al.* 2008), and as such are judged to be one of the most vulnerable species in terms of breeding success in relation to sandeel abundance (Furness & Tasker, 2000). This means they may be less resilient to a loss of sandeel prey resource, and thus their recovery would be compromised.
European storm petrel	European storm petrels estimated generation length is 13.8 years (Bird *et al.* 2020). The maximum recorded age for storm petrel is 38 years, though the average lifespan is around 11 years old (BTO, 2019). They first breed in their 4th or 5th year (Snow & Perrins, 1998). Similar to other procelliforms, storm petrels lay a single egg with only one clutch per year, meaning they have a very low reproductive rate. Their incubation (38-50 days) and chick rearing (56-86 days) periods (Snow & Perrins, 1998) are also long, even in comparison to other seabird species. Feeding visits by parents may be daily for the chick but will drop off closer to fledging period (Snow & Perrins, 1998). Adult survival rates have been estimated as 0.88 (Bird *et al.* 2020). No data on productivity has been produced for UK colonies (Mitchell & Newton, 2004). Any effect on adult mortality can potentially have serious effects on breeding numbers. European storm petrels are a migratory species which will migrate to more southerly locations for their winter, especially off west Africa and South Africa (Snow & Perrins, 1998). Pressures in their wintering grounds and on migration could limit potential for populations to recover from impacts arising in breeding areas. Unusual for migratory petrels, storm petrel wing moult begins whilst still at the breeding grounds (Arroyo *et al.* 2004) and they continue their whole moult slowly over a 7-8 month period (Bolton & Thomas, 2001). Primary wing moult may occur as early as June for non-breeders or failed breeders (Warham, 1996; Arroyo *et al.* 2004), and typically in September for current breeders (Bolton & Thomas, 2001). Storm petrels are highly site faithful to their burrow (Mainwood, 1976). High site fidelity may limit individual ability to adapt to changes within breeding areas and hence potential for population recovery from perturbations. At their breeding sites, storm petrels rely on being able to hear their mate or chick calling in the burrow to know which burrow is theirs, in combination with their burrow's smell (Snow & Perrins, 1998). Any disruptions to them being able to hear their mate or chick calling could have implications for their breeding attempt. The physiology of storm petrels with their legs being placed so far back along their body means they are unable to walk on land (RSPB, 2019), instead having to shuffle on their tarsi. This means they are particularly vulnerable to predation from mammalian or large gull predators when on land.

Great black-backed gull	Estimated generation length is 12 years, which is longer than most other gull species, with a maximum known longevity of around 30 years (Bird *et al.* 2020). Age of first breeding is around 4-5 years old (Bird *et al.* 2020). Clutch size is generally 2-3 (range of 1-5) eggs (Cramp & Simmons, 2004). Great black-backed gulls have the ability to lay more than one clutch if the first one has been destroyed, but it depends on the female's physiological condition and replacement clutches will often have smaller or fewer eggs than the first clutch. Incubation takes 27-28 days and fledgling period takes around 7-8 weeks (Cramp & Simmons, 2004). Productivity is estimated as being around 1.1 (Horswill & Robinson, 2015). Adult survival rates have been estimated to be between 0.89-0.93 (Bird *et al.* 2020; Horswill & Robinson, 2015). Any effect on adult mortality can potentially have serious effects on breeding numbers. As a long-lived seabird species, the adult will balance parental investment into their current breeding attempt with their own need to survive, and future reproductive attempts. Great black-backed gulls show high site fidelity to their breeding sites. Such high site fidelity may limit individual ability to adapt to changes and hence potential for population recovery from perturbations. Great black-backed gulls are predatory and opportunistic foragers but unlike other gulls such as herring gulls and lesser black-backed gulls, do not appear to readily adapt to feeding in more man-made or urban environments. They have the ability to switch prey depending on what is available, meaning they may be more resilient to change if a particularly prey item decreases but this may depend on the breeding colony. Due to their large size, this may make them able to out-compete other gull species when scavenging, particularly in relation to scavenging from fishing vessels.
Leach's storm petrel	Estimated generation length of Leach's petrel is 14.8 years with age at first breeding being 5 years old (Bird *et al.* 2020). Their maximum age recorded is 36 years old (Bird *et al.* 2020). Similar to other procelliforms, Leach's petrels lay a single egg with only one clutch per year possible, which means they have a very low reproductive rate. Their incubation (41-42 days) and chick rearing (63-70 days) periods are also long in comparison to other seabird species (Snow & Perrins, 1998). Adult survival rates have been estimated to be 0.84 (Bird *et al.* 2020), though lower rates have been noted (0.78-0.79) (Fife *et al.* 2015; Morse & Buchheister, 1977). Any effect on adult mortality can potentially have serious effects on breeding numbers. As a long-lived seabird species, the adult will balance parental investment into their current breeding attempt with their own need to survive, and future reproductive attempts. 94% of the UK breeding population breed on four islands in the St Kilda archipelago. This means that should anything affect this breeding population, it could have a detrimental effect on the UK population as a whole. As a burrow-nesting species, should anything affect the nesting habitat/substrate or should the habitat be trampled/disrupted, this could have a detrimental effect and limit the potential for the petrels to breed and thus recover.
Northern gannet	Estimated generation length of gannets is 15.0 years and the maximum longevity recorded is 37.4 years (Bird *et al.* 2020). Age of first breeding is 5 years old (Horswill & Robinson, 2015). Northern gannets lay a single egg; incubation is 42-46 days and chick rearing 84-97 days (Snow & Perrins,

	1998), one of the longest chick rearing periods of any seabird species. Chicks fledge with large fat stores and begin migration by swimming, independent from their parents (Wanless, 2002) until their fat load is reduced. Their productivity is estimated at 0.700 (Horswill & Robinson, 2015). Local productivity rates have been linked to parental experience and increase sequentially between the first and the fourth breeding attempt (Nelson, 2010). Adult survival is estimated as being 0.940 (Bird *et al.* 2020), one of the highest of all seabirds. Wanless *et al.* (2006) found that about 30% of young survive to an age of four years with annual survival over the first four years of life increasing gradually from 0.424 to 0.895 before reaching this adult value. Any effect on adult mortality can potentially have serious effects on breeding numbers. Gannets leave their colonies mainly between August-October, with their subsequent migration taking up to four weeks to complete, as birds spend time sitting on the water or foraging locally rather than travelling consistently towards their goal (Kubetzki *et al.* 2009). Gannets from Bass Rock, Scotland have been tracked to their wintering grounds further south in the southern North Sea and English Channel, the Bay of Biscay and Celtic Sea, in the Mediterranean Sea and off West Africa (Kubetzki *et al.* 2009) Pressures in wintering grounds (e.g. entanglement in fishing gears) could limit potential for populations to recover from impacts arising in summer foraging areas. Gannets have the ability to forage large distances during the breeding period (Woodward *et al.* 2019) and have a wide prey base, meaning they may be more resilient to changes in prey abundances close to their breeding colonies. Spatial partitioning of foraging grounds among breeding adults from different colonies, as revealed by tracking data, (Wakefield *et al*. 2013) may mean that there is some limitation in where they will forage. Newly fledged gannets may be potentially vulnerable (e.g. to collision or pollution) when initially moving away from their natal colonies by swimming. However, given high natural mortality rate among juveniles, it is changes in adult survival rates that are most likely to drive population change (Wanless *et al*. 2006).
Northern fulmar	Estimated generation length is 25.3 years (Bird *et al.* 2020), one of the longest in any bird species, meaning they may be less resilient to any negative effects on their population. Fulmars generally begin breeding ~10 years old (Dunnet, 1991) and can continue to breed into old age; some individuals still recorded as breeding in their late 40s (P.Thompson, unpub.data). Maximum longevity is recorded as being 51 years (Bird *et al.* 2020). Reproduction rates in fulmars are slow with clutch size being 1 egg, one clutch per year. Fulmars may not breed every year (Ollason & Dunnet, 1988), deferring by at least a year if poor food conditions exist such that the adult cannot reach good body condition to breed, or if the bird's partner has not returned and a new partnership may need to establish. Adult survival rates have been estimated at 0.971 (Bird *et al.* 2020), one of the highest of all seabird species, and average productivity as 0.419 (Horswill & Robinson, 2015). Changes in adult survival rates are most likely to drive population change. The fulmar non-breeding population will be mixed individuals across many differing colonies. Tracked birds from Scotland disperse during the non-breeding period to the West Atlantic, to the Labrador Sea, across to the Barents Sea and northern Norway, to the west of Ireland, and some may remain within North Sea waters (Quinn, 2014). There are sex differences in

	foraging such that female fulmars tracked from Scotland travelled further on average and towards the West Atlantic, compared to males which on average remained closer to the colony over the non-breeding period (Quinn, 2014). There therefore may be different pressures in the wintering grounds for females and males. Despite dispersing large distances in the non-breeding period, from November onwards fulmars will regularly visit their breeding colonies; from January onwards numbers will increase at the colony (Quinn, 2014). In April, breeding fulmars undertake a pre-laying exodus, an important period of foraging to ensure body condition is ready for the energetically expensive egg laying period. Fulmars may be particularly sensitive to disturbance during their egg laying period, and may abandon their nest if disturbed, leaving the egg vulnerable to predation. During chick-rearing it is common for both pair members to forage away from the nest (Mallory *et al.* 2008), leaving the chick to defend itself with its ability to expel oil and vomit. Fulmars are highly site faithful, which may limit individual ability to adapt to changes within these areas and hence potential for population recovery from perturbations. The majority of the fulmar's primary moult is usually post-breeding during September and October (Quinn, 2016). It is thought that individuals undergoing wing moult may remain largely flightless for the period of wing moult (Warham, 1996), thus making them more vulnerable to pressures during this time. In a typical year, a full wing and tail moult should be completed by the end of February (Ginn & Melville, 2000). In unusual years (e.g. 2004, during a winter wreck event), 60% of birds examined from a wreck were still in primary moult in February, compared to 8% in a normal year (van Franeker, 2004), indicating in years of poor food supply the energetically expensive period of moult may be delayed or arrested. Fulmars have a wide prey base (BirdLife International, 2022), so they should be more resilient to changes in prey abundance. However, in the past, population increases and decreases have been linked to changes in anthropogenic food sources such as offal discharges (Tasker, 2004). Fulmars are surface feeders which scavenge on anything that looks like prey. Thus, can be more susceptible to ingesting non-prey items, such as marine litter. Fulmars have the ability to forage widely across large distances (Woodward *et al.* 2019) which means they may be more resilient to changes in prey abundances closer to their breeding colonies.
Razorbill	Estimated generation length of razorbills is 16.4 and they are a long-lived species, having been recorded to live up to 42 years old (Bird *et al.* 2020). Razorbills first breed around 5 years old (Horswill & Robinson, 2015) and, as with other auks, only lay 1 egg (Snow & Perrins, 1998). Razorbills may defer breeding for a year when conditions are not favourable. Adult survival rates have been estimated at 0.906 (Bird *et al.* 2020) and productivity as 0.570 (Horswill & Robinson, 2015). As with other long-lived seabird species, the adult will balance parental investment into their current breeding attempt with their own need to survive, and future reproductive attempts. Razorbills breed around the north Atlantic in eastern North America, Greenland, the White Sea, Norway, Denmark, Iceland, Faroe Islands, GB, Germany and France (BirdLife International, 2022; Furness, 2015). Razorbills wintering in UK waters are thought to derive mainly from breeding populations in the UK, Iceland, Faroe Islands and Norway (Furness, 2015). Scottish breeding razorbills are thought to move east to southwest Norway and Denmark, or the southern North Sea to winter (Furness, 2015). Pressures in

	these wintering grounds, especially during their vulnerable flightless moult period (from mid-August-end of October), could limit potential for populations to recover from impacts arising in breeding areas. Nest site fidelity has been shown to be high in razorbills (Harris & Wanless, 1989), which may limit individual ability to adapt to changes within their breeding areas, and hence potential for population recovery from perturbations. Razorbills are pursuit divers which tend to make frequent, shallow dives in the pelagic zone (Thaxter *et al.* 2010; Linnebjerg *et al.* 2013). Razorbills will regularly roost on the sea overnight and will drift with the tide during their rest (Cooper *et al.* 2018), which may make them more vulnerable to pressures that occur during the night. Highest rates of feeding for chicks have been recorded at dawn (Condor, 1950), suggesting this is a particularly important time for them to commute between foraging grounds and their breeding colony. Razorbills, as with other auk species, have a high wing loading, meaning that there is a high energetic cost of flight (Thaxter *et al.* 2010). This may mean if they have to travel further to find food they may suffer energetically (Masden *et al.* 2010).

Annex 3: Glossary for Conservation Objectives and References

Glossary

Conservation Objective term	Definition
Distribution	The “distribution” is how the qualifying feature is spread out within the site.
Favourable condition	This refers to the assessed condition of a feature through Site Condition Monitoring. Features considered to be in favourable condition for the purposes of these Conservation Objectives are those that have an assessed condition of either: • Favourable declining - The attribute targets set for the natural feature have been met, but evidence suggests that its condition will worsen unless remedial action is taken. • Favourable Maintained - the attribute targets set for the natural features have been met, and the natural feature is likely to be secure on the site under present conditions. • Favourable Recovered - the condition of the natural feature has recovered from a previous unfavourable condition, and attribute targets are now being met.
Generation length	Generation length is “the average age of parents of the current cohort”. Generation length therefore reflects the turnover rate of breeding individuals in a population (IUCN, 2019).
Maintain	Where a qualifying feature of the SPA is assessed as being in favourable condition the conservation objective is ‘maintain’. This means that the various attributes of the feature should be kept at that favourable level. This can include increasing/improving condition as well, but not a permanent decline.
Marine birds	This term encompasses true seabirds and waterfowl (seaducks, divers, and grebes).
Metapopulation	A group of connected populations of a species within a defined area, where the individual populations may interact with one another.
Restore	Where a qualifying feature of the SPA is assessed as being in unfavourable condition the conservation objective is ‘restore’. This means that the various attributes of the feature should be returned to the favourable level by increasing/improving condition.
Site integrity	The integrity of a site is defined in general terms as the coherence of its ecological structures and function, across its whole area, which enables it to sustain the habitat, complex of habitats and and/or the levels of populations of the species for which it was designated.
Site reference population	This refers to the estimated population figure for the site and should be used to form the basis of carrying out HRAs. In most cases, the site reference population will be the baseline population (figure at designation). However, where recent surveys show a population to have increased or stayed stable, the current population is considered the most appropriate population figure to use for HRA’s.

Conservation Objective term	Definition
Supporting habitats and processes	This includes the following environmental conditions (but is not limited to) which are important for maintaining/restoring the protected features, e.g. hydrography and supporting water currents, chemical water quality parameters, suspended sediment levels, radionuclide levels.
Unfavourable condition	This refers to the assessed condition of a feature through Site Condition Monitoring. Features considered to be in unfavourable condition for the purposes of these Conservation Objectives are those that have an assessed condition of either: • Unfavourable recovering - One or more of the attribute targets have not been met on the site, but management measures are in place to improve the condition. • Unfavourable no change - One or more of the attribute targets have not been met, and recovery is unlikely under the present management and activity on the site. • Unfavourable declining - One or more of the attribute targets have not been met, evidence suggests that condition will worsen unless remedial action is taken.
Waterfowl	Encompasses seaducks, grebes and divers.

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