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Proposed Non-Quota Shellfish Fisheries Management Plan

Strategic Environmental Assessment Environmental Report

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Non-technical Summary

The Non-Quota Shellfish Fisheries Management Plan (FMP) for Northern Ireland has been prepared to meet the requirements of the Fisheries Act 2020. It sets out the policy goals and proposed actions the relevant fisheries policy authority, Department of Agriculture, Environment and Rural Affairs (DAERA), will use to manage brown crab (*Cancer pagurus*), velvet crab (*Necora puber)*, lobster (*Homarus gammarus)*, king scallop (*Pecten maximus*) and queen scallop (*Aequipecten opercularis*) fishing activity, so stocks are harvested within sustainable levels. Alongside these actions, the Non-Quota Shellfish FMP also sets out management to help support wider social, economic and environmental aspects of the fishery.

This environmental report (ER) has been produced in accordance with the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (SEA Regulations 2004 (Northern Ireland)). The following issues (from Schedule 2, paragraph 6 of the SEA Regulations 2004) were scoped into the assessment:

- Biodiversity, fauna and flora
- Geology and sediments (soil)
- Water
- Climatic factors
- Cultural heritage
- Landscape and seascape

This assessment focuses on how the policy goals and actions in the Non-Quota Shellfish FMP are likely to give rise to both significant positive and negative environmental effects. The findings of this assessment have been used to inform the development of the FMP.

The assessment was conducted against a baseline that primarily used existing evidence on the state of the marine environment set out in the updated UK Marine Strategy (UK MS) Part 1, published in 2019. Additional sources of evidence were used to establish the status of the environment in relation to issues not covered by the UK Marine Strategy (UK MS), such as climatic factors and cultural heritage. The historical impact of fishing activity on the marine environment has been considered part of the baseline. Our assessment used the best available evidence to reach a suitable judgement on the environmental effects of the Non-Quota Shellfish FMP.

This report sets out those plans, programmes and environmental protection objectives, both international and domestic that the fisheries policy authorities consider relevant to the Non-Quota Shellfish FMP.

This report considers and acknowledges the existing environmental effects of fishing for brown crab, velvet crab, lobster, king scallop and queen scallop using pots, dredges

and demersal trawls on those issues scoped into this assessment, in relation to Marine Protected Areas (MPAs), the UK MS descriptors and the wider environment. Dredges are not often used by Northern Ireland registered vessels to fish queen scallops in the fishery on the North Coast, where gear types such as otter trawls are preferred. The potential positive and negative environmental effects of the Non-Quota Shellfish FMP's policy goals and proposed actions alone and in-combination have also been assessed.

This Strategic Environmental Assessment (SEA) has concluded that beyond the direct impact on targeted stocks, the fishery has an impact on the wider marine environment primarily through seabed disturbance (from demersal trawls and dredges) and bycatch of unwanted/protected species (from pots and demersal trawls). Actions have been proposed to investigate these impacts and use this evidence to develop robust mitigation strategies. The contribution of non-quota shellfish fishing to climate change related issues and its interactions with cultural heritage, through structural damage for example, were also identified as potential impacts.

The Non-Quota Shellfish FMP has considered these impacts and sets out proposals to monitor, and where required, introduce mitigation to address these impacts.

The assessment of the likely negative effects did not identify any negative effects that posed a significant risk to the environment. The policy goals and actions will, where appropriate, be developed to avoid any potential negative effects identified by the assessment progress. The environmental effects of implementing the Non-Quota Shellfish FMP's policy goals and actions will also be monitored to identify unforeseen adverse effects at an early stage, so appropriate remedial action can be undertaken.

This assessment recommends the Non-Quota Shellfish FMP should consider the following additional points:

- Future iterations of the Non-Quota Shellfish FMP should consider how to develop the cultural heritage of each fishery.
- The Non-Quota Shellfish FMP would benefit from providing more specific detail on national and UK programmes to reduce marine litter and how this FMP contributes to those programmes.
- The Non-Quota Shellfish FMP would benefit from providing more specific detail on how the FMP will interact with Marine Plans. Noting how the FMP could positively or negatively interact with this programme, would improve the in-combination assessment.

1. Introduction

Fisheries Management Plans – context and background

Marine fish stocks are a public resource, a valuable natural asset, and important components of marine ecosystems. Managing fishing activity so that we harvest our stocks within sustainable limits will ensure our fishing communities, the seafood supply chain and wider society continue to benefit from our natural assets, now and into the future.

The Fisheries Act 2020 requires the fisheries policy authorities[1] in the UK to publish Fisheries Management Plans (FMPs) as set out in the Joint Fisheries Statement (JFS), to manage fishing activity so the harvesting of fish stocks remains within sustainable levels.

Sustainable fisheries protect stocks and the wider environment whilst delivering social and economic benefits for present and future generations. Delivering sustainable fisheries will involve balancing the environmental, social, and economic aspects of fisheries. Both the short-term and the long-term impacts of decisions to manage fishing activity to protect stocks, the marine environment and on the fishing industry will be considered. Any short-term decisions to favour social or economic benefit should not significantly compromise the long-term health of the stocks and marine environment that underpin these societal and cultural benefits of fishing. These decisions should recognise the cultural importance of fishing through maintaining and, where possible, strengthening coastal communities and livelihoods alongside the requirement for fish stocks to reach and maintain sustainable levels.

UK fisheries policy authorities identified 43 FMPs in the JFS. A timetable for the preparation and publication of the FMPs can be found in Annex A of the JFS and summarised on Gov.UK: please read the List of FMPs. Following consultation, an updated version of Annex A of the JFS was published in December 2024, introducing changes to the publication dates and technical details of several FMPs.

All FMPs must contain the information set out in Section 6 of the Fisheries Act 2020. In summary, an FMP must specify the relevant authority; stock or stocks, type of fishing and geographical area to which the plan relates; the status of the stocks; policies and

1 **Fisheries policy authorities**: As defined by section 52 of the Fisheries Act 2020, “fisheries policy authorities” means (a) the Secretary of State, (b) the Scottish Ministers, (c) the Welsh Ministers, and (d) the Northern Ireland department.

actions to harvest within sustainable limits; and the indicators to be used to monitor the effectiveness of the plan.

FMPs must specify whether there is sufficient evidence to assess a stock's Maximum Sustainable Yield (MSY). Where there is insufficient evidence, the FMP must specify policies for maintaining or increasing levels of the stock, and the steps (if any) that the relevant authority or authorities propose to take to obtain the scientific evidence necessary to enable an assessment of a stock's MSY. If no steps are proposed, the FMP will explain the reasons for that, and how the precautionary approach to fisheries management will be applied so fish are harvested within sustainable limits.

Through managing fishing activity within sustainable limits, FMPs will contribute to the fisheries objectives set out in section 1 of the Fisheries Act 2020. The scope of an FMP may be extended to consider wider fisheries management issues related to environmental, social or economic matters. How FMPs consider wider fisheries management issues will be determined at the individual FMP level, appropriate to the stock(s), fishery and geographic area within the remit of the FMP.

The Fisheries Act 2020 requires that the effectiveness of FMPs is reported every three years and that the FMPs are reviewed at least every six years. FMPs will evolve as our understanding and evidence base develops through their implementation. Some FMPs will progressively address a wider range of fisheries management issues as they evolve through an iterative approach over time.

FMPs will contain a range of policies and fisheries management measures/ interventions whose detail will vary depending on the evidence available to support their implementation. Some policies and actions may only indicate future action and will develop over time as the plan's evidence progresses through each iteration.

FMPs will adopt an ecosystem-based approach to fisheries management to help deliver environmental, social, and economic benefits beyond those accrued from just achieving the sustainable harvesting of stocks. The policies and actions proposed by an FMP will apply to all vessels (UK and non-UK vessels) fishing in the area covered by the plan.

Delivering Sustainable Management of Fisheries and FMPs

Fisheries rely on the ecosystems in which they operate to support healthy stocks. These ecosystems can be compromised by human-induced pressures, including pollution, marine litter and unsustainable exploitation of marine resources. This pressure includes the impact of fish population levels on the processes and functioning of the wider ecosystem - for example, the removal of prey species impacts the status of top predators.

Long-term, sustainable, and profitable fisheries require active management to avoid, reduce or mitigate any adverse impacts of fishing activity on ecosystem functioning, ecosystem resilience, or environmental threats such as climate change.

Available fishery data and advice will help determine the targets and catch limits applied to each stock. Where possible, these limits would include the MSY for data-rich stocks where biomass fluctuations can be tracked. Alternative proxies for harvest limits, the precautionary approach, or a combination of both are required for more data-limited stocks, where it is only possible to detect biomass fluctuations.

Not all stocks currently have sufficient evidence to establish MSY, reference points and limits. It is not scientifically feasible or economically viable to collect such evidence for some species. In these cases, FMPs must include the steps, or reasons for not taking steps, national fisheries authorities will take to ensure stocks are harvested within sustainable limits.

FMPs will recognise the importance of the sustainable use and conservation of our marine natural assets and the ecosystem services they provide when setting out policies to manage fishing activity. FMPs will make use of the best available scientific advice, be subject to scientific evaluation, and consider the environmental risks associated with the fishing activity. The plans will use a risk-based approach to identifying appropriate and proportionate mitigation for its environmental impact.

FMPs will contribute to achieving Good Environmental Status (GES) under the UK Marine Strategy (UK MS). In addition to improving or maintaining the status of commercial stocks, plans can include actions focused on reducing the risks and/or pressures from fishing activity to other ecosystem components that may prevent achieving GES.

Managing fishing activity within sustainable limits through FMPs will directly contribute to securing the continued availability of seafood products as an important food source within the UK food supply chain.

Scope of the FMP

The Non-Quota Shellfish FMP applies to brown crab (*Cancer pagurus*), velvet crab (*Necora puber)*, lobster (*Homarus gammarus)*, king scallop (*Pecten maximus*) and queen scallop (*Aequipecten opercularis*) fisheries in Northern Ireland[2] waters, covering inshore and offshore areas where fishing activity for the above species takes place. The above list of fisheries will be referred to as non-quota shellfish fisheries in this document.

[2] Northern Ireland waters refer to the Northern Ireland inshore and Northern Ireland offshore regions as set out in Section 322 of the Marine and Coastal Access Act 2009.

Non-Quota Shellfish FMP Policy Goals and Actions

The overall vision for this FMP is that the non-quota shellfish fisheries in Northern Ireland waters are managed sustainably, to help ensure that stocks are maintained above levels capable of producing MSY.

The policy goals and actions set out in this FMP suggest how this could be achieved in a way that is consistent with, and supportive of, the wider achievement of the fisheries objectives set out in the 2020 Act, and the policies contained within the JFS.

To ensure effective management of the non-quota shellfish fisheries in Northern Ireland waters, the FMP identifies 5 policy goals focused on domestic and international management priorities (Table 1). These goals are subject to the consideration of the consultation and will be prioritised appropriately to ensure realistic and measurable outputs. They were drafted to meet the requirements of section 6(3) of the 2020 Act (goals 1, 2) and policies set out in the Joint Fisheries Statement (goals 3, 4 and 5). For each goal, the plan sets out:

- a rationale;
- ongoing, short and longer term actions;
- how the actions support delivery of the fisheries objectives.

Table 1. The draft Non-Quota Shellfish FMP policy goals.

Policy goal theme	Policy goal
Sustainable fisheries	Harvest non-quota shellfish stocks in Northern Ireland waters sustainably, with biomasses maintained above the level capable of producing MSY (or a proxy of MSY).
Evidence	Recognise and address gaps in evidence necessary to enhance stock assessment.
Management approach	Identify ecosystem-based fisheries management methods applicable to non-quota shellfish fisheries.
Social and economic	Deliver a framework to support the role of the FMP in realising sustainable fisheries and marine economies.
Climate change	Develop strategies to adapt to the impact of climate change on non-quota shellfish fisheries.

The draft FMP's goals and proposed actions may change following the public consultation. Any changes will be subject to assessment and reflected in the final ER.

Goal 1: Harvest non-quota shellfish stocks in Northern Ireland waters sustainably, with biomasses maintained above the level capable of producing MSY (or a proxy of MSY).

Rationale: The main objective of FMPs, as outlined in the Act and JFS and represented in this FMP's vision, is to support sustainable harvesting of the relevant stocks. This is intended to maintain the long-term sustainability of both the stocks and the fisheries that depend on them. Some stocks within scope of this FMP are sustainably fished at present, while others need intervention. The goal is to maintain or achieve sustainable fisheries as appropriate.

How to maintain this:

- The management of the non-quota shellfish fisheries will be informed based on the best available scientific advice.

Using the scientific advice and other appropriate data sources, DAERA will continue to work with relevant stakeholders through the Inshore Fisheries Partnership Group to develop evidence-based proposals for sustainable shellfish fisheries within scope of this FMP.

Goal 2: Recognise and address gaps in evidence necessary to enhance stock assessment.

Rationale: While current stock assessments are considered sufficiently robust to inform management decisions, improvements in the understanding of biology, ecology and stock structure will lead to more accurate assessments and advice.

Assessing the impact of recreational pot fishing could provide useful data for stock assessments and support current management practices in non-quota shellfish fisheries, contributing to the goals outlined in the FMP.

How this could be achieved: short term

- Identify the key drivers and main sources of uncertainty in current non-quota shellfish stock assessments.

How this could be achieved: medium-long term

- Develop a research plan to address data gaps for better stock assessments, focusing on stock structure and the distribution of non-quota shellfish in Northern Ireland waters.
- Implementation of the agreed policy on vessel monitoring devices for the under 12 metre fishing fleet

Goal 3: Identify ecosystem-based fisheries management methods applicable to non-quota shellfish fisheries.

Rationale: A robust fishing industry relies on the health and productivity of marine ecosystems. In accordance with the JFS and the Act, UK fisheries policy authorities are dedicated to implementing an ecosystem-based approach to fisheries management, aiming to consider and minimise impacts on non-commercial species as well as the broader marine environment. This is also aligned with established initiatives, including the Bycatch Mitigation Initiative and Clean Catch UK.

How this could be achieved: short-term

- Compile available data into a report on the ecosystem role of non-quota shellfish fisheries.
- Promote fishery-science partnerships to fill knowledge gaps using industry expertise.

How this could be achieved: medium-long term

- Consider how to undertake additional targeted evidence collection (including self-reporting and the potential for remote electronic monitoring (REM) programmes) to improve estimates of bycatch of marine mammals, seabirds and designated fish for gear types used to target non-quota shellfish.
- Consider research into how an ecosystem-based approach could be incorporated into future iterations of the Non Quota Shellfish FMP and where these might align with comparable approaches for other species.
- Consider development of policy aiming to minimise or eliminate any impact of the non-quota shellfish fisheries in relation to the designated features of MPAs and wider seas to progress contribution towards achieving GES in the Northern Ireland zone, compatible with targets set by the UK Marine Strategy (UKMS).

Goal 4: Deliver a framework to support the role of the FMP in realising sustainable fisheries and marine economies.

Rationale: As set out in the JFS and the Act, the UK holds an ambition to support a modern, resilient, and environmentally responsible fishing industry. This includes managing our fisheries sustainably by balancing environmental, economic, and social considerations, so that the capacity of fleets is such that they are economically viable, but do not overexploit marine stocks.

The JFS notes that the scope of an FMP may be extended as appropriate, to consider wider fisheries management issues covering environmental, social, and economic concerns.

How this could be achieved: short-term

- Consider an economic assessment of the fisheries to identify any barriers to the realisation of economic viability to the coastal communities within the FMP area.
- Explore funding opportunities to encourage industry-led development of strategies aimed at maximizing the efficiency of fishing vessels, whilst maintaining sustainable practices. This includes investigating the potential for automation, assessing circular economy benefits (such as total catch valorisation and utilisation of by-products).
- Consider a review of current technical measures affecting the non-quota shellfish fisheries, to include a consideration of the impact of potential modifications to these measures on both the shellfish fisheries (in scope of this FMP) and other species.

How this could be achieved: medium-long term

- Consider how to adapt the FMP to reflect relevant findings from an economic assessment and when new or improved measures are developed as appropriate.

Goal 5: Develop strategies to adapt to the impact of climate change on non-quota shellfish fisheries.

Rationale: The climate change objective of the Act requires that adverse effects of fisheries on climate change are minimised and that fishery activities should adapt to climate change.

As stated in the climate change section of this FMP, climate change is likely to impact non-quota shellfish stocks with a potential to affect factors such as production, distribution, and predation.

The nature and extent of any possible changes and the ability for intervention is unknown. The development of adaptive management strategies will require the filling of evidence gaps therefore this goal considers what evidence might support adaptation.

How this could be achieved: short term

- Ensure that the non-quota shellfish fisheries are considered within wider research to identify the likely impacts of climate change on fisheries, their links within the wider ecosystem.
- Consider how best to maintain collaboration and involvement across government, industry, and academic sectors in initiatives to reduce environmental impacts of the non-quota shellfish fisheries (including CO2 emissions).

How this could be achieved: medium-long term

- Consider identifying the impacts that the non-quota shellfish fisheries have on the marine environment (including CO2 emissions) through collaborative studies.
- Consider how ecosystem-based fisheries management approaches can be used for managing fishing for these non-quota shellfish, that are robust to the effects of climate variability.

2. Approach to Strategic Environmental Assessment

Screening

SEA Regulations 2004 (Northern Ireland) requires that qualifying public plans, programmes, and strategies undergo screening for SEA during their preparation and prior to adoption. Fisheries Management Plans are plans that fall within the definition in regulation 2.

DAERA considers that Regulation 3 of the SEA Regulations 2004 (Northern Ireland) applies to the Non-Quota Shellfish FMP as the plan relates to Northern Ireland.

In accordance with the SEA Regulations 2004 (Northern Ireland) DAERA carried out a screening exercise which determined that the proposed policy goals and actions in the Non-Quota Shellfish FMP may have likely significant effect (either positive or negative) on a European site or a European offshore marine site and they are not directly connected with or necessary to the management of such sites. Therefore, DAERA has carried out an SEA of the Non-Quota Shellfish FMP.

The screening exercise used DAERA's Northern Ireland Marine Map Viewer to identify whether the geographical scope of the FMP overlaps with any Special Areas of Conservation or Special Protection Areas. Table 3, page 35 of The updated UK Marine Strategy Part 1 sets out the pressures on the marine environment resulting from anthropogenic activity, which includes fishing. This information was used to identify whether fishing activity for non-quota shellfish has the potential to impact these sites and interest features. For example, use of bottom towed gear has the potential to result in the extraction of, or mortality/injury to, wild species and cause physical disturbance of benthic habitats.

The screening also judged that the proposed policy goals and actions in the Non-Quota Shellfish FMP have the potential to affect multiple European marine sites and the wider marine environment. Based on the outcome of the screening, DAERA concluded the FMP falls within the description of a plan in regulation 5(3) of the SEA

Regulations 2004 (Northern Ireland), and so as a result of regulation 5(1) must be subject to SEA in accordance with Part 3 of the SEA Regulations 2004 (Northern Ireland) during its preparation and prior to its adoption (publication).

Completing this SEA does not remove any other statutory obligation on competent authorities to assess the possible environment impact of a policy goal or measure ahead of its implementation.

Scoping

DAERA carried out a scoping exercise to identify the scope and level of detail of the assessment that will be documented in the Environmental Report. Regulation 11(5) requires that when deciding on the scope and level of detail of the information in the Environmental Report, the responsible authorities must seek the views of the Consultation Bodies.

A Scoping Report identifying the scope and level of detail of the assessment of the Non-Quota Shellfish FMP was provided to the following Consultation Bodies:

- Northern Ireland Environment Agency
- Historic Environment Division

See Appendix F for Consultation Body responses on the Scoping Report and how consideration was given to the points raised in each response.

Regulation 11(3) of the SEA Regulations 2004 (Northern Ireland) requires that the Environmental Report shall include the information referred to in Schedule 2, in so far as it is reasonably required. Table 2 sets out which section of this report corresponds to the relevant paragraphs of Schedule 2.

Table 2. Environmental report section and the corresponding paragraph of Schedule 2 of the SEA Regulations 2004 (Northern Ireland).

Section(s) of this Report	Corresponding Paragraph in Schedule 2
Sections: 1 and 4	Paragraph 1: An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.
Section: 3 and 7	Paragraph 2: The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.
Section: 3	Paragraph 3: The environmental characteristics of areas likely to be significantly affected.
Section: 3	Paragraph 4: Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular

	environmental importance, [such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive].
Section: 4	Paragraph 5: The environmental protection objectives, established at international level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.
Section: 5	Paragraph 6: The likely significant effects on the environment, including short, medium and long term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as– (a) biodiversity; (b) population; (c) human health; (d) fauna; (e) flora; (f) soil; (g) water; (h) air; (i) climatic factors; (j) material assets; (k) cultural heritage, including architectural and archaeological heritage; (l) landscape; and (m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).
Section: 6	Paragraph 7: The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.
Section: 7	Paragraph 8: An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.
Section: 8	Paragraph 9: A description of the measures envisaged concerning monitoring in accordance with regulation 16.
Non-technical summary	Paragraph 10: A non-technical summary of the information provided under paragraphs 1 to 9.

Scope of the Assessment

Schedule 2 paragraph 6 to the SEA Regulations 2004 (Northern Ireland) lists the issues that must be considered for an assessment of likely significant effect in relation to the FMP. Based on its initial evaluation of likely significant effects and taking into account the results of the scoping consultation carried out (see scoping above and Appendix F), the following conclusions were reached regarding the content of the Environmental Report.

DAERA propose that the Environmental Report will address the effects on the following issues:

- Biodiversity, fauna and flora including the following sub-sections: cetaceans, seals, birds, fish, benthic habitats, commercially exploited fish and shellfish, food webs.
- Geology and sediments (soil) including the following sub-section: benthic habitats.
- Water including the following sub-sections: marine litter and underwater noise.
- Climatic factors including the following sub-sections: vessel emission, blue carbon.
- Cultural Heritage including the following sub-section: interactions between fishing gear and marine heritage assets.
- Landscape/seascape including the following sub-section: interactions between fishing gear and seabed formations, benthic habitats.

DAERA scoped the following issues out of the assessment, and therefore they will not be covered in the Environmental Report:

- Population (Human)
- Human health
- Air
- Material assets

Fishing activity being managed through the FMP has the potential to have some level of interaction with all the issues from Schedule 2 paragraph 6, however the scoping exercise considered and scoped in those environmental issues that may be significantly affected by the Non-Quota Shellfish FMP. Issues such as Population, Human Health, Air and Material Assets were scoped out of this assessment as it was considered that they would not be significantly affected by the FMP. Table 3 provides the justification behind this decision. Additional rationale behind why sub-sections were considered is set out below:

- To link the issues (from Schedule 2 paragraph 6) that will be addressed by this Environmental Report with the environmental baseline (see section 3), we have attributed a UK Marine Strategy (UK MS) descriptor of Good Environmental Status (GES) to the appropriate corresponding issue(s); see Appendix A for the list of the 11 UK MS descriptors. Achieving GES is about protecting the natural marine environment, preventing its deterioration and restoring it where practical, while allowing sustainable use of marine resources.
- Assessing the status of these descriptors identifies where improvements are required to achieve GES. Knowing the current status will help direct efforts to reduce the impacts of certain human activities. The UK Marine Strategy assessment tool provides further information.
- Under the UK MS, Descriptor 1 – Biodiversity has been split into the following sub-sections, cetaceans, seals, birds, fish, benthic habitats. These sub-sections

are all relevant to the biodiversity issue from Schedule 2 paragraph 6 and therefore have been included in this assessment.

- Marine Litter and Underwater Noise have been included as the most relevant sub-sections assessed by UK MS under the Water issue heading. Fishing activity was considered not to contribute on Eutrophication, Changes in Hydrographical Conditions and Contaminants; therefore, these sub-sections have not been included.
- Climatic factors are not considered under the UK MS assessment process; therefore, no predetermined sub-sections are available. Vessel emissions and blue carbon were identified as the two most relevant issues related to fishing activity that are associated with climate change.
- Cultural heritage is also not considered under the UK MS assessment process; therefore, no predetermined sub-sections are available. The interaction between fishing gear and marine heritage assets was identified as the most relevant impact related to fishing activity that is associated this issue heading. This was scoped in based on feedback from consultation responses and was advised based on the cultural heritage of fishing itself e.g., vessel wrecks, and any potential positive interactions between FMPs and heritage.
- Landscapes and seascapes are not considered under the UK MS; therefore, no predetermined sub-sections are available. The interaction between fishing gear and seabed formations was identified as the most relevant impact related to fishing activity that is associated this issue heading. The assessment of benthic habitats will also be relevant when considering the impact of mobile demersal gear fishing on seabed formations. Where specific impacts are known they will also be considered.

Table 3 shows the results of the scoping exercise on the Non-Quota Shellfish FMP.

Table 3. Results of the scoping exercise to determine those environmental issues likely to be significantly affected by the Non-Quota Shellfish FMP and thus scoped into the SEA[3]

Issue	Potential to cause impacts	Justification
Biodiversity, fauna and flora (UK MS descriptors D1, D3, D4, D6)	Yes	Fishing activity for non-quota shellfish has the potential to result in: • Physical disturbance to the seabed; • The extraction of, or mortality of/injury to/disturbance to, both target and non-target wild species;

[3] Where relevant, the relationship between the issue and the UK MS descriptor of GES is shown as 'D#' where # represents the number of the descriptor, as shown in Appendix A.

Issue	Potential to cause impacts	Justification
		• Changes in predator/prey behaviour/availability due to direct and indirect effects of fishing in an area, and removal of species.
Population (Human)	No	The FMP would not result in significant increases, decreases or both in human population numbers, or changes to in-migration or out-migration. This issue is beyond the scope of this SEA.
Human health (UK MS descriptor D9)	No	The FMP would not result in any significant human health issues. Whilst fishing remains a dangerous vocation and the FMP will promote safe operations, the regulation of the safety of fishing operations falls elsewhere. This issue is beyond the scope of this SEA.
Geology and sediments (soil) (UK MS descriptor D6)	Yes	The FMP aims to reduce the harmful effects of fishing on the marine environment by adopting an ecosystem-based approach to fisheries management. This issue is within the scope of this SEA.
Water (UK MS descriptors D5, D7, D8, D10, D11)	Yes	Fishing activity has the potential to input litter (solid waste matter, including micro-sized litter) and anthropogenic sound into the marine environment. Activities included in this FMP are not thought to significantly contribute to eutrophication, hydrological changes or marine contaminants. Only UK MS descriptors D10 and D11 are relevant for this assessment. The FMP aims to make fishing practices more environmentally sustainable so there is scope to reduce the impact of fisheries on water quality. This issue is within the scope of this SEA.
Air	No	The FMP is unlikely to result in significant additional vessel emissions and associated air pollution. Reducing vessel emissions from a carbon footprint perspective will be considered by the Climatic factors issue. This issue is beyond the scope of this SEA.

Issue	Potential to cause impacts	Justification
Climatic factors	Yes	The FMP will contribute to the climate change objective of Fisheries Act, seeking to ensure it develops relevant policies to both mitigate impact on and adapt to climate change. For example, by reducing the carbon footprint of the fishery, and seeking a positive impact on blue carbon habitats. This issue is within the scope of this SEA.
Material assets	No	The FMP will not intrinsically impact material assets related to; ports and shipping; fisheries and aquaculture; leisure or recreation; tourism; marine manufacturing; defence; aggregate extraction; energy generation and infrastructure development; seabed assets. This issue is beyond the scope of this SEA.
Cultural heritage	Yes	Fishing activity for non-quota shellfish has the potential to interact with marine heritage assets. While the FMP is not intended to focus on mitigating the impacts of fishing on the marine historic environment, there is potential for fisheries management to have a positive effect on safeguarding cultural heritage features. This issue is within the scope of this SEA.
Landscape and Seascape	Yes	Mobile demersal fishing through physical disturbance of the seabed has the potential to affect seascape features. This issue is within the scope of this SEA.

Assessment Methodology

This SEA reflects the geographical scope (section 1) and type of fishing covered by the FMP. It considers the policy goals of the Non-Quota Shellfish FMP and the actions (section 1) it sets out to achieve these goals. The assessment reviewed existing evidence on the current state of the marine environment, which included the impact of fishing within the baseline state (section 3).

It assessed the nature and extent of likely effects of the Non-Quota Shellfish FMP (including its policy goals and actions) on those environmental issues scoped into the

assessment and where applicable their associated UK MS descriptors identified in Table 3.

As the FMP is a strategic programme of work, the SEA will consider the potential positive and negative environmental effects of management options in the context of the UK MS descriptors. This SEA will also consider the in-combination effects and interactions of this FMP with other plans and projects, including Marine Plans and other FMPs.

More detailed fisheries assessments which consider current activity are already in progress or have been completed. These assessments may be used to inform the FMP actions as they are delivered, and include:

- Assessments required to prepare the Marine Protected Areas (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022 came into operation on 1 January 2023. Further fisheries measures are being drafted for 3 offshore MPAs and will be consulted on later this year.
- The wider marine environment (UK MS) assessments.

Future delivery of the policy goals, actions and measures specified in the FMP programme may give rise to management changes such as new legislation to regulate non-quota shellfish fishing. Such changes may have the potential to impact MPAs and their features and will be subject to more detailed assessment before being implemented.

Nevertheless, this ER acknowledges the likely significant effects associated with fishing activity being managed through the Non-Quota Shellfish FMP and sets out in broad terms how the FMP will seek to avoid, reduce, or at least mitigate significant negative effects.

During the development of the Non-Quota Shellfish FMP, advice from Statutory Nature Conservation Bodies (SNCBs) (DAERA and JNCC) on the impacts of fishing activity in relation to MPAs, Priority Features (Northern Ireland) and UK MS descriptors was considered. This ER reviews how this advice has been reflected in the FMP, and how the proposed policy goals and actions could change the baseline.

It is important to note the Non-Quota Shellfish FMP contains a range of policy goals and actions that vary in their stage of development depending upon the evidence available to support their implementation. The level of detail possible for our environmental assessment depends upon the stage of development of the goals and actions of the FMP at the present time.

This assessment acknowledges the Non-Quota Shellfish FMP sets out actions to develop the evidence base around non-quota shellfish fisheries. Our assessment used

the best available evidence at the present time to reach a judgement on the environmental effects of the Non-Quota Shellfish FMP.

The detail of the environmental assessment is covered in section 5.

3. Environmental Baseline

Summary of the Current State of the UK Marine Environment

Section 3 provides a summary of the current state of the UK marine environment for each of the environmental issues screened into this SEA, and where applicable their associated UK MS descriptors (Table 3). The SEA has been conducted against the environmental baseline set out in these sources of existing information. We acknowledge that there are some uncertainties and evidence gaps in the environmental baseline. However, we consider that this environmental baseline provides a comprehensive level of information to undertake an effective assessment and provide informed evidence-based recommendations. Where required, further detailed assessments using additional evidence will be completed ahead of the implementation of FMP actions.

It is likely that without the FMP, those issues which are contributing to the current state of the marine environment will likely continue to have an influence. The FMP seeks to promote the management of non-quota shellfish fisheries in a more coherent and coordinated manner that considers wider environmental issues. The FMP has the potential to improve the current state of the environment set out below, both where no improvement has been observed, and where positive trends have been identified. Section 6 and 7 considers how the implementation of the FMP's proposed policy goals and actions could change the baseline.

Biodiversity, Flora, Fauna and Geodiversity[4] (Geology and sediments)[5]

The primary source of information on the current state of the UK marine environment came from the UK MS descriptor status assessments, The updated UK Marine Strategy Part 1, published in 2019. The impact of fishing has been considered as part of the assessment on the UK MS descriptors, therefore information on the impact of fishing activity on the marine environment has been included in the sections below as

[4] Geodiversity is defined as the natural range of rocks, minerals, fossils, landforms, topography, sediments and soils together with the natural processes which form and alter them.
[5] Geodiversity (Geology and sediments) issue has been combined with the Biodiversity, Flora, and Fauna section as benthic habitats is relevant to these issues.

part of the baseline. For further information on the baseline related to UK MS descriptors see Appendix B.

D1 and D4 – Cetaceans

Cetaceans (whales and dolphins) are an important marine ecosystem component that contributes to overall levels of biodiversity (D1). In addition, as top predators, the abundance of cetaceans can also provide some understanding on how the food web is functioning (D4).

The current status of cetaceans for both the North Sea and Celtic Sea is mixed. While there are some aspects that are in line with the achievement of GES, much of the picture is unclear. The impact of various net fisheries is leading to bycatch that, in places, might be impacting long term population viability of harbour porpoise.

Other than for a limited number of coastal bottlenose dolphin populations, it is unclear whether the abundance and range of most cetacean species can be considered in line with GES. Fisheries and the removal of prey species is one of several activities/ pressures that have the potential to result in changes in cetacean abundance and distribution.

D1 and D4 – Seals

Seals are an important marine ecosystem component that contributes to overall levels of biodiversity (D1). In addition, as top predators, seal productivity can also provide some understanding and insight as to how the food web is functioning (D4).

Grey seals populations and productivity continues to increase, and targets are being met. Bycatch (largely in tangle/ trammel nets) is occurring but not at levels that threaten population viability. For harbour seals, the status is not in line with GES where population declines have occurred in some areas. The cause is unknown. It is not thought to be linked to bycatch as occurrences are rare and there is no indication that it is linked to other pressures associated with fishing.

D1 and D4 – Birds

Seabirds are well monitored species that are an important marine ecosystem component that contributes to overall biodiversity (D1). In addition, as top predators, the abundance of birds can also provide some understanding and insight as to how the wider food web is functioning (D4).

Seabird populations are currently below the level that is considered to meet GES and the situation is deteriorating. Some declines in breeding success have been linked to prey availability caused by climate change and/ or past and present fisheries. Invasive predatory mammals are also known to impact breeding success on island colonies. The impact of bycatch will be included in future assessments and current evidence

suggests that some longline and static net fisheries could be having possible population level impacts on certain species.

D1 and D4 – Fish and D3 – Commercially exploited fish and shellfish

Fish are an important ecosystem component that contributes to overall levels of biodiversity (D1). In addition, fish of different species have a significant role in marine food webs (D4), acting as both predators and prey. Some fish species are commercially exploited, and only a proportion of these have managed quotas. Over exploitation can lead to a decline in stocks (D3) which can reduce both future commercial opportunities and have wider ecological impacts.

The current status of fish communities in the UK is primarily shaped by historical over-exploitation by fisheries, while ongoing over-exploitation continues to be a notable contributing factor. Improved fisheries management since the 1990s has resulted in more stocks being fished at or below MSY levels so, although the target is not yet met, there is a positive trend. Improved fisheries management has also resulted in some positive trends in fish communities beyond the targeted stocks.

D1 & D6 – Benthic Habitats

Benthic habitats are an important ecosystem component that contributes to overall levels of biodiversity (D1). It is also important to ensure the structure and function of the benthic ecosystems is adequately safeguarded by considering seafloor integrity (D6).

There is widespread disturbance of seabed habitats by demersal towed gear and other marine activities, and this is preventing the achievement of GES. Other impacts from non-fisheries activities may also be having an influence, but to a much lesser degree.

D4 – Food webs

Food webs (D4) are the network of predator-prey relationships that occur in the marine environment, from phytoplankton to top predators such as birds or seals. Fish communities are a key component of food webs. Knowledge of food webs allow understanding of how changes at one trophic level can impact those above and below it.

Historic fishing activity which has contributed to the current environmental baseline, has had a large impact on fish community structure which is a key component of marine food webs. With improved fisheries management focusing on stocks, some recovery is occurring. However, the management of fish stocks solely to safeguard future fisheries will not necessarily lead to all food web targets being met. Changes in plankton are likely driven by prevailing environmental conditions, but other impacts cannot be ruled out.

Water Quality

D10 – Marine Litter

Marine litter, including from fishing activities, is a significant pressure on marine ecosystems and water quality. The UK has not yet achieved its aim of GES for litter. Beach litter levels in the Celtic Seas have remained largely stable since the assessment in 2012, whilst beach litter levels in the Greater North Sea have slightly increased. Waste fishing material is a component of beach litter. Both floating litter and seafloor litter remain an issue, with plastic the predominant material. Achieving GES for marine litter requires improved waste management practices, the reduction of lost or discarded fishing gear, and increased awareness and monitoring of the issue.

D11 – Underwater noise

Underwater noise from fisheries, while not the primary source, can still contribute to the overall noise pollution in the marine environment. Fishing vessels will contribute to underwater noise through sonar, engine noise, gear interacting with seabed and deploying and retrieving gear.

The achievement of GES for underwater noise in the UK is uncertain. Research and monitoring programmes established since 2012 have provided an improved understanding of the impacts of sound on marine ecosystems. However, achieving GES for underwater noise will require better understanding and monitoring of the issue, as well as the development and implementation of strategies to manage noise pollution from various sources.

Climatic Factors

Climate change impacts are not part of the UK MS, therefore evidence from other sources were used to provide baseline information in relation to this issue. Statistics from the Department for Business, Energy & Industrial Strategy (BEIS), Department for Transport (DFT) and Engelhard et al (2022) report on Carbon emissions in UK fisheries, were used to identify the contribution UK fishing fleets have to the total carbon emissions at sea each year.

Vessel Emissions

Emissions from ships are an important source of air pollutants, including sulphur dioxide (SO_2) and nitrogen oxides (NOx) which have the significant health and environmental impacts.

For 2019, estimated emissions by the UK fishing fleet (802 kt CO_2e) would have represented 0.18% of the UK's total territorial emissions (455 Mt CO_2e)[6], or 0.66% of the UK's domestic transport emissions (122 Mt CO_2e)[7]. To put this into context, estimated emissions by the UK fishing fleet would have been equivalent to 1.7% of total agricultural emissions in 2019 (46.3 Mt CO_2e).

Recent analysis has shown that, annually across the UK's fishing fleet, the total UK pot and trap fishing fleet segment (which comprises of 1,542 vessels) produced 12.5% (101kt CO2e) of the total at sea carbon emissions; the total UK scallop dredge fishing fleet segment (which comprises of 209 vessels) produced 10.2% (85kt CO2e) of the total at sea carbon emissions; and, the total UK fishing fleet segment using demersal trawls and seines (which comprises of 402 vessels) produced approximately 30% (249kt CO2e) of the total at sea carbon emissions at sea[8].

Whilst passive gears are generally less emission-intensive than mobile gears, quantification of carbon emissions across the fishing fleet supply chain (for example, preharvest through to postharvest) is required to truly understand the fisheries carbon footprint.

Blue Carbon

Certain marine habitats including seagrass, kelp, and muddy sediments, are able to capture and store carbon, and are known as blue carbon habitats. Currently there is no comprehensive assessment of the impact of non-quota shellfish fishing on organic carbon stocks. A new cross-Administration UK Blue Carbon Evidence Partnership has been formed to improve the evidence base on blue carbon habitats in UK waters, advancing our commitment to protecting and restoring blue carbon habitats as a nature-based solution. Through the partnership, announced at Conference of the Parties 26 (COP26), UK Administrations will work together to address key research questions related to blue carbon.

Climate change impacts on non-quota shellfish stocks and fisheries

Climate change and warming oceans are changing the distribution of commercially important shellfish species[9]. Crustaceans (such as crabs and lobsters) are considered to be more tolerant to the changes in ocean acidification than molluscs (such as

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[6] BEIS (Department for Business, Energy & Industrial Strategy) (2021b) 2019 UK Greenhouse Gas Emissions: Final Figures – Statistical Summary.
[7] DfT (Department for Transport) (2021) Statistical Release: Transport and Environment Statistics 2021 Annual Report, 11 May 2021.
[8] Engelhard, G.H., Harrod, O.L., Pinnegar, J.K. (2022) Carbon emissions in UK fisheries: recent trends, current levels, and pathways to Net Zero Final report for Defra project C8118. Centre for Environment, Fisheries & Aquaculture Science (Cefas), Lowestoft, UK.
[9] Mieszkowska, N., Burrows, M. and Sugden, H. (2020) Impacts of climate change on intertidal habitats relevant to the coastal and marine environment around the UK. MCCIP Science Review 2020, 256–271. doi: 10.14465/2020.arc12.ith

scallops)[10]. However, there is variation in the tolerance between crab species, with recent studies highlighting the vulnerability of the brown crab to conditions expected by 2100[11]. Scallop larvae are particularly sensitive to the changes in ocean acidification, with experiments of predicted ocean acidification levels demonstrating deformity in larval shell formation and increased mortality[12,13]. These impacts can have significant economic implications to the scallop and crustacean fisheries.

Cultural Heritage

The definition of the 'marine and aquatic environment' in the Fisheries Act 2020 (section 52) includes features of 'archaeological or historic interest in marine or coastal areas. These features should be regarded as part of the wider marine environment.

Cultural heritage impacts are not part of the UK MS, therefore evidence from other sources were used to provide baseline information in relation to this issue.

The Fishing and the Historic Environment report produced by Historic England was used as the primary source of information on the interactions between commercial fishing and the marine historic environment. The report identifies that positive and negative interactions can arise when archaeological material present on the foreshore and seabed, is encountered during commercial fishing.

The following interactions between fishing gear and marine heritage assets can occur:

- Interactions with pots and traps may have a low-to-moderate significance resulting from flattening, snagging, and anchoring impacts.
- Demersal trawl and dredge gears are widely used and are most likely to interact with marine heritage assets. Direct interactions with heavy bottom gears, are likely to be significant.

While these interactions may result in negative impacts to heritage assets, some archaeological resources may not be discovered without interactions with fishing gear. Given the anecdotal nature of many of these interactions a comprehensive assessment of the extent of interactions and their impacts, is currently not available for Northern Ireland waters.

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[10] Kroeker, KL., Kordas, RL., Crim, RN., Singh, GG. (2010). Meta-analysis reveals negative yet variable effects of ocean acidification on marine organisms. Ecology letters 13:1419-1434
[11] Whiteley, N. M., Suckling, C. C., Ciotti, B. J., Brown, J., McCarthy, I. D., Gimenez, L., & Hauton, C. (2018). Sensitivity to near-future CO_2 conditions in marine crabs depends on their compensatory capacities for salinity change. Scientific Reports, 8(1), 1-13.
[12] Andersen S, Grefsrud ES, Harboe T. Effect of increased $pCO(_2)$ level on early shell development in great scallop (*Pecten maximus Lamarck*) larvae. Biogeosciences. 2013;10: 6161–6184.
[13] White M. M., Mullineaux L. S., McCorkle D. C., and Cohen A. L. (2014) Elevated pCO_2 exposure during fertilization of the bay scallop *Argopecten irradians* reduces larval survival but not subsequent shell size. MEPS 498: 173–186.

The historic environment map viewer for Northern Ireland provides an overview of historic sites and landscapes Historic Environment Map Viewer | Department for Communities (communities-ni.gov.uk).

Landscape and Seascape

There is no legal definition for seascape in the UK, but the European Landscape Convention (ELC) defines landscape as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" and includes land, inland water and marine areas. In the context of the Marine Policy Statement (MPS) a seascape has been set out to mean landscapes with views of the coast or seas, and coasts and the adjacent marine environment, (including the underwater environment), with cultural, historical and archaeological links with each other.

The 'value' of many of the UK's seascapes is reflected in the range of designations which relate in whole or in part to the scenic character of a particular area, (e.g. Area of Outstanding Beauty (AONB), Heritage Coast, National Scenic Area), however the ELC and MPS (and most recently seascape assessments covering the English Marine Plan regions) define landscape and how they are to be considered in more general terms, acknowledging the value of all landscapes whether or not they are subject to designation[14].

The seascape constitutes of a suite of different characteristics that include natural factors, cultural and social factors and cultural associations. Under these character headings exists a number of subheadings that include Geology, Seabed, Tides and Coastal processes (natural factors), Surface water features, Sunken and Buried Features and Use of Coast and Sea (cultural and social factors) Media, People and Writers (cultural associations)[15].

Fishing and commercial fishing vessels are considered as seascape features and activities. Fishing ports and related fishing infrastructure are considered as landscape features[16]. Fishing therefore is an important component of the overall landscape and seascape character.

Fishing activity using demersal towed gear has been identified as causing damage to submerged peaty deposits known as moorlog[17]. However, a comprehensive assessment of the extent of interactions and their impacts is currently not available.

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[14] UK Offshore Energy Strategic Environmental Assessment - scoping (publishing.service.gov.uk)
[15] Figure 1, Page 9. seascape-character-assessment.pdf (publishing.service.gov.uk)
[16] Figure 2, Page 10. seascape-character-assessment.pdf (publishing.service.gov.uk)
[17] Ward, Ingrid, and Piers Larcombe. "Determining the preservation rating of submerged archaeology in the post-glacial southern North Sea: a first-order geomorphological approach." Environmental Archaeology 13.1 (2008): 59-83.

Conserving moorlog as potential blue carbon habitats might contribute to climate change mitigation and adaptation.

Existing Environmental Effects of Non-Quota Shellfish Fishing

The Non-Quota Shellfish FMP focuses on achieving the sustainable harvesting of non-quota shellfish stocks. This focus seeks to reduce the environmental risks linked to over-fishing these stocks, thereby giving positive benefits to environmental status.

Nevertheless, fishing within sustainable limits for the target stocks (MSY or appropriate proxies) may reduce but will not eliminate the negative impacts of that fishing activity on the wider marine environment. These impacts are identified in the sections below.

As described in Section 2, this Environmental Report focuses on assessing how the policy goals and actions in the Non-Quota Shellfish FMP are likely to give rise to both significant positive and negative environmental effects. More detailed fisheries assessments which consider current activity are already in progress or have been completed. These assessments may be used to inform the FMP actions as they are delivered, and include:

- Assessments required to prepare the Marine Protected Areas (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022 which came into operation on 1 January 2023. Further fisheries measures are being drafted for 3 offshore MPAs and will be consulted on later this year.

Nevertheless, this ER acknowledges the potential significant effects associated with fishing activity being managed through the Non-Quota Shellfish FMP and sets out in broad terms how the FMP will seek to avoid, reduce, or at least mitigate significant negative effects.

Biodiversity, Flora, Fauna and Geodiversity, Water quality

Environmental Effects Associated with MPAs

Advice provided to fisheries policy authorities by Statutory Nature Conservation Bodies (SNCBs) gives more detail on the risks associated with non-quota shellfish fishing in relation to the designated features of MPAs in Northern Ireland waters. Joint advice from JNCC and DAERA (Conservation) was commissioned by DAERA's Sea Fisheries Policy Branch covering impacts in Northern Ireland waters.

Inside the boundaries of Northern Ireland MPAs, DAERA assesses human activities that could interact with the designated features of MPAs, seeks the advice of SNCBs and introduces management where required. The impact of non-quota fisheries inside Northern Ireland MPAs has been assessed and stakeholders have worked closely with

regulators to help develop measures to mitigate these. In territorial waters (0-12nm) appropriate management is already in place to ensure any fishing within MPAs is compatible with the MPA's conservation objectives, as outlined in the Marine Protected Areas (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022. Subject to the proposed consultation, management of MPAs in Northern Irelands offshore waters (12-200nm) may follow a similar approach.

Whilst existing MPA site management considers fishing activity that occurs within the site's boundaries, there remains the potential for fishing activity outside MPAs to have impacts on the features protected within the MPA. These impacts can occur when either the pressure exerted by the fishery impacts protected features beyond the spatial footprint of a particular fishing activity (e.g. noise) or when the feature of an MPA is mobile and travels outside the site.

The main impacts of fisheries contained within the Non-Quota Shellfish FMP on the designated features of MPAs arising from fishing activity outside MPA site boundaries, with an indication of their risk level, are summarised here:

- While the risk to the conservation status of mobile species that are designated features of MPAs through bycatch from demersal trawls is generally considered low, there are significant gaps in the available evidence, and this fishing activity occurs at a scale which has the potential for population level effects if bycatch rates are higher than expected. Therefore, **the risk rating for bycatch in demersal trawls is assessed as moderate.**
- **Bycatch in dredges and pots/traps is assumed to be low,** based on expert knowledge of the operational conditions of these fisheries, and limited exposure to sensitive MPA designated mobile species in Northern Ireland waters.
- Similarly, prey depletion is not thought to be a concern for MPA designated species in Northern Ireland waters. The target species of this FMP are not key prey species for mobile species features of the Northern Ireland MPA network. While there is the potential for some bycatch of other species such as juvenile gadoids, which are considered key forage fish species for many marine predators, bycatch of gadoids in the Non-Quota Shellfish fisheries is not thought to be at a level of concern. Given that primary marine mammal and seabird predators feeding on forage fish tend to have varied generalist diets, the direct impacts of reducing one species' numbers might be relatively low. **Thus, the direct risk to mobile features of MPAs from reduced food availability due to bycatch in the inshore fisheries is considered low**.

Risks to Northern Ireland Priority Features

The Wildlife and Natural Environment Act (Northern Ireland) 2011 (hereafter referred to as WANE) is the primary tool for the conservation and protection of Northern Ireland's threatened or endangered wildlife. The Act requires the publication of biodiversity lists

which are considered to be of conservation importance in Northern Ireland and outlines where public bodies must take steps as far as reasonably practicable to further their conservation. “Priority Features” is the collective term for those features listed within the Northern Ireland Habitats and Species lists protected under WANE, however DAERA created the Priority Marine Feature (PMF) List[18], which is the collective term for marine features (habitats, limited/low mobility species, highly mobile species, geological / geomorphological features) of nature conservation importance in the Northern Ireland inshore region.

The following sets out the main risks to Priority Features in Northern Ireland waters arising from the Non-Quota Shellfish FMP:

- In addition to the bycatch risks outlined for MPA designated species above, pots/traps present a risk of entanglement for certain large mobile species listed as Priority Features under WANE, such as minke whales and basking shark. Demersal trawls present a further bycatch risk for many fish and elasmobranch species listed as Priority Features, including several long-lived species and threatened species with an increased vulnerability to bycatch mortality. For listed fish which are also commercial stocks, risks of bycatch may be mitigated through their own stock management processes, but significant gaps in the available evidence remain. Risks for marine mammals and seabirds listed as Priority Features from demersal trawls are likely to echo the risks outlined above for MPA features. **The risk rating for bycatch in demersal trawls is assessed as moderate for marine mammals, seabirds, fish and elasmobranchs listed as Priority Features**. **There is also a moderate risk of marine mammal and elasmobranch bycatch in pots/traps**, driven primarily by entanglement risk to minke whale and basking shark, **and a moderate risk of fish and elasmobranch bycatch in dredges,** driven by the increased exposure to listed species with a demersal life history and the potential risk of population level impacts to threatened species like the flapper skate. Continued monitoring and enhanced data collection and research to address knowledge gaps may allow us to reassess this risk in future. **The risk of bycatch of other mobile species groups in dredges and pots/traps is considered to be low.**
- The target species listed under the Non-Quota Shellfish FMP are not considered key prey species, and bycatch of key prey species is not thought to be at a level of concern for Priority Features. Mobile species that utilise these shellfish as part of their diet are considered generalist feeders and not significantly affected by the availability of particular prey species (Dickey-Collas et al., 2014). **Therefore, we consider there to be a low risk of removal of important prey species that Priority Features depend on.**

[18] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/marine-report-guidance-on-selection-designation-of-mczs-in-ni-inshore-region-2014.PDF

- Mobile demersal fishing, including demersal trawling and particularly dredging has the capacity to impact the benthic habitats and low/limited mobility species over which they occur, primarily through physical penetration, abrasion, disturbance of the seabed and physical removal. Given that the Priority Features lists are quite comprehensive in scope, there is likely to be considerable overlap between these benthic features and the fishing activities listed. Therefore, the risk rating echoes the rating for the D6 seafloor integrity descriptor above. **The risk rating for physical impacts from demersal trawls and dredges to Priority Features is considered high.** While the physical impacts from pots/traps is likely to be lower, the relative impact will be linked to the intensity of pot/trap fishing in an area. Owing to a need for further evidence, **the risk rating for physical impacts from pots and traps to Priority Features is considered moderate.** Recommendations for further work with respect to physical impacts of the Non-Quota Shellfish fisheries are highlighted under the assessment of risk for GES descriptor D6 “seafloor integrity”.

Environmental effects associated with UK MS Descriptors

Advice provided to the relevant fisheries policy authorities by the SNCBs gives more detail on the key risks to UK MS descriptors arising from non-quota shellfish fishing and their likely impact on achieving Good Environmental Status (GES) (See appendix A).

The following potential issues and their associated risk level[19] have been identified for non-quota shellfish fishing on UK MS descriptors:

- **There is a moderate risk to achieving GES for the biological diversity of cetaceans, seals and seabirds from fishing activities associated with this FMP.** Although the risks caused by Non-Quota Shellfish fisheries in terms of bycatch and reduced prey are likely to be low for these species, there are still significant gaps in the available evidence. As a result, the FMP risk rating has been upgraded to moderate.
- **There is a high risk to seafloor integrity due to benthic disturbance caused by demersal trawls and dredges.** Due to data availability, this risk is assessed only based on data collated across the >12m UK mobile demersal fishing fleet. It does not include impacts from static gears; while these are likely to be lower risk, these gears have the potential to significantly impact seafloor integrity if

[19] **Draft GES rapid risk assessment categories:** Low risk = some risk does exist, but impact may not be of a scale to impact upon GES descriptors. Moderate risk = clear link between fishing activity and GES indicator but other activities also significantly contribute to current indicator status. Or where high-risk activity only makes up a small proportion of fishery. High risk = recognised link between fishing activity within FMP and failure of GES indicator. ‘Risk unclear’ used where situation is complex, and more work is required to understand true nature of risk.

operating at a high intensity. Further work is needed to disentangle and quantify impacts from individual fisheries.

- **There is a moderate risk of impacts from marine litter.** More robust estimates of abandoned, lost, or discarded fishing gear in the fishery are required.
- Developing and implementing measures to achieve sustainable harvesting of non-quota shellfish stocks reduces the risks associated with achieving targets for D3 Commercial fish. Further work is required to elucidate risk for the impacts on D1 and D4 for Fish and Foodwebs, and there are likely to be significant evidence gaps.

Climatic Factors

Vessels fishing for non-quota shellfish contribute to the total carbon emissions at sea each year by the UK's fishing fleets. While the estimated emissions by the UK fishing fleet represents a small proportion of the overall emissions in the UK, decarbonising the fleet and moving towards net zero will help reduce the contribution of fisheries activities to climate change.

No conclusive evidence is currently available on the impact of fishing activity for non-quota shellfish on organic carbon stocks. However, the impact of towed demersal gear on blue carbon is of concern. Improved recording of the intensity of fishing on the seabed more broadly will help any future assessment of any effects on organic carbon stocks when the evidence base on blue carbon habitats in UK waters improves, and the impacts will depend on the gears used to fish non-quota shellfish now, and in the future.

Cultural Heritage

Fishing activity can have both positive and negative effects on marine heritage assets. The positive effects relate to the discovery of marine heritage assets during fishing activity, with both past and future discoveries or findspots often reliant on fishing gear interactions. Negative effects can be caused by physical disturbance to cultural heritage on and within the seabed. Specific effects include: impeded access and interpretation of assets by fishing gear (e.g. nets, lines and ropes) collecting around physical structures; direct damage of assets by gear, usually towed gear, causing irreparable alteration to physical structures; burial of archaeological material by sediment during fishing practices; removal of the archaeological material from the seabed during fishing practices; and transferal of archaeological material from its original place on the seabed during fishing practices. Avoiding negative interactions with marine heritage assets will help conserve them for their enjoyment by future generations.

Benthic towed gear has been identified to cause damage to marine heritage assets. Historic England have evidence of two recent examples of damage from fishing activity to designated heritage assets, the Klein Hollandia (aka Eastbourne Wreck, LEN 1464317) and the Rooswijk (LEN 1000085).

The marine historic environment also plays an important role in providing ecosystem services in relation to nature conservation, sea angling, recreational diving and commercial fishing. Marine heritage assets, particularly ship and plane wrecks can provide habitats for marine life, with fish often aggregating around them for refuge or to feed. Avoiding negative interactions with marine heritage assets that act as habitats can positively contribute to the conservation of the wider marine environment.

Landscape and Seascape

Fishing activity above the surface is considered a feature of the marine seascape, therefore the presence of trawling vessels is not considered to have a negative effect on this aspect of the seascape character.

Fishing activity using demersal towed gear has the potential to cause physical disturbance of the seabed and could impact deposits associated with prehistoric landscapes that are now submerged by sea-level rise. These former landscapes, referred to as moorlog, are often represented by peaty and other fine-grained deposits. Examples of these prehistoric landscapes and deposits can be found in the Dogger Bank region[20].

The impact of demersal towed gear on the seabed is also considered as part of the GES Descriptor D6 – Seabed Integrity.

4. Relevant Plans, Programmes and Environmental Protection Objectives

The Non-Quota Shellfish FMP has broad application since it covers an activity that occurs across Northern Ireland waters. Consequently, the plan will interact with a range of established national legislation, plans and programmes, and international agreements and declarations signed by the UK.

The Non-Quota Shellfish FMP applies to Northern Ireland waters, therefore, when preparing FMPs, the relevant fisheries policy authorities are required to have regard to this existing regulatory structure.

[20] Coles, Bryony J. "Doggerland: a speculative survey." Proceedings of the Prehistoric Society. Vol. 64. Cambridge University Press, 1998.

The sections below set out those plans, programmes, and environmental protection objectives that DAERA consider relevant to the implementation of the Non-Quota Shellfish FMP. This FMP could interact with other relevant plans and projects. Any cumulative impacts will also be considered in any future assessments ahead of implementing measures.

International

The Non-Quota Shellfish FMP has had regard to the commitments the UK has made under the following international agreements and declarations during its preparation:

- Trade and Cooperation Agreement (TCA) between the EU and the UK
- UN Convention on the Law of the Sea (UNCLOS)
- UN Sustainable Development Goals
- UN Convention on Biological Diversity (CBD)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- RAMSAR Convention
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention for the Protection of the Marine Environment of the Northeast Atlantic (OSPAR)
    - The OSPAR Quality Status Report is a key resource when looking at the environmental impact of fisheries in the Northeast Atlantic.
- Convention for the Protection of the Archaeological Heritage of Europe
- Convention for the Protection of the Architectural Heritage of Europe
- Council of Europe Landscape Convention
- EU Western Waters Multi-Annual Plan - REGULATION (EU) 2019/472 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

Domestic

The Non-Quota Shellfish FMP has had regard to the following national legislation, plans and programmes during its preparation:

Marine Protected Areas

FMPs are required by law to consider the implications of the fishing activity they manage for designated sites, primarily Marine Protected Areas (MPAs). Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are protected under the Conservation of Habitats and Species Regulations 2017, known as the Habitats Regulations. Marine Conservation Zones (MCZs) are protected by the Marine and Coastal Access Act 2009.

The MPA network covers 38% of UK waters. Relevant or public authorities (including fisheries regulators) assess human activities that could interact with the designated features of MPAs, seek the advice of SNCBs, and introduce management where required. The Non-Quota Shellfish FMP will support the management of fishing activity in MPAs. When implementing any actions arising from the FMP that overlap with SACs and SPAs and MCZs or their designated features, an assessment will be undertaken prior to implementation, to assess the likely effects of the action on the conservation objectives of the site.

Marine regulators also have responsibilities relating to Sites of Special Scientific Interest (SSSIs) under the Wildlife & Countryside Act 1981 and Natural Environment & Rural Communities Act 2006. Ramsar sites (wetlands of international importance), designated under the Ramsar Convention, are often underpinned by SSSIs but are afforded the same protection at a policy level as SACs and SPAs. Appendix C lists the different types of MPA and relevant designations in the UK.

Conservation of Habitats and Species Regulations 2017 and Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

The Conservation of Habitats and Species Regulations 2017 include provisions for: protecting sites that are internationally important for threatened habitats and species (European marine sites) and provide a legal framework for species requiring protection (European protected species). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 sets out changes to made to the 2017 Regulations to ensure the regulations operate effectively in Northern Ireland waters. The Non-Quota Shellfish FMP will support the protection of protected sites and species.

The Conservation of Offshore Marine Habitats and Species Regulations 2017

The Conservation of Offshore Marine Habitats and Species Regulations 2017 include provisions for the designation and protection of areas that host important habitats and species in the offshore marine area. The Non-Quota Shellfish FMP will support the protection of offshore marine habitats and species.

The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)

The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 include provisions for transposing the Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) into Northern Ireland law. After the EU exit, amendments were made by The Conservation (Natural Habitats,

etc.) (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 to legislation regarding biodiversity protection and water. The Non-Quota Shellfish FMP will support the conservation of marine habitats and species.

Marine Strategy Regulations 2010 – UK wide

The Marine Strategy Regulations 2010 requires Administrations in the UK to take action to achieve or maintain Good Environmental Status (GES) in UK waters. The UK Marine Strategy (UK MS) is a key pillar of marine policy in the UK. There is a clear link between the UK MS and the 'ecosystem objective' of the Fisheries Act 2020 – sections 1(4) and 1(10).

The UK Marine Strategy Part Three: Programme of Measures identifies FMPs as a tool to support the delivery of GES for commercial fisheries (Descriptor 3). It also recognises FMPs could, where appropriate include 'measures to mitigate the impact of fishing activity on the wider environment, including the seabed' to support the delivery of GES for other descriptors.

Marine Plans – UK wide

The Marine and Coastal Access Act 2009 (MCAA) makes provision for the UK Marine Policy Statement (MPS), published 2011, and requires (together with the Marine Act (Northern Ireland) 2013) the production of marine plans where the MPS is in place. The MPS provides the framework for marine plans around the UK and sets the high-level policy context for marine planning, including setting high-level marine objectives. Under MCAA s.58, decisions relating to the marine area should be taken in line with the Marine Plan. The Non-Quota Shellfish FMP considers the relationship between marine spatial planning and fishing activity being managed through FMPs, and how these policies can work in a joined-up way to ensure more effective use of the marine space and resources. Further information on the marine plans in Northern Ireland is provided in Appendix D.

The Environment Act 2021 – UK Wide

The Environment Act 2021 sets out commitments to protect and enhance our environment for future generations. The act seeks to improve air and water quality, protect wildlife, increase recycling and reduce plastic waste. A central pillar is an obligation for policy makers to have due regard to five environmental principles (integration principle, prevention principle, rectification at source principle, polluter pays principle, precautionary principle) during the development of policy. Policy goals developed through the Non-Quota Shellfish FMP will have due regard to these principles. The Environment Act 2021 also makes provision for legally binding targets of which the targets for biodiversity and Marine Protected Areas will relate to FMPs.

Further details of the environmental principles can be found at Environmental Principles Gov.uk page.

Climate Change Act 2008 – UK Wide

The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are adapted to. The Act also establishes the framework to deliver on these requirements. The Non-Quota Shellfish FMP will support policies to meet targets to achieve net zero by 2050 as set out in the legislation.

Marine wildlife bycatch mitigation initiative – UK Wide

The Marine wildlife bycatch mitigation initiative outlines how the UK will achieve its ambitions to minimise and, where possible, eliminate the bycatch of sensitive marine species. This initiative brings together, and builds on, existing work such as the UK Bycatch Monitoring Programme and Clean Catch UK, recognising that further actions need to be taken if we are to achieve our objectives. The Non-Quota Shellfish FMP will support this initiative by contributing to mitigating the negative impacts of fishing activity as appropriate.

The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017

The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017 implement provisions on the assessment of the effects of certain public and private projects on the environment.

The Wildlife (Northern Ireland) Order 1985

The Wildlife (Northern Ireland) Order 1985 prohibits the intentional killing, taking or injuring of certain wild birds and wild animals or the intentional destruction, uprooting or picking of certain wild plants.

The Environment (NI) Order 2002

The Environment (Northern Ireland) Order 2002 is a statutory framework that places obligations on individuals and organisations to protect and manage the environment. The purpose of the Order is to: (a) provide a statutory framework to enable transposition of the requirements of EC Directives 96/61 on Integrated Pollution Prevention and Control (the IPPC Directive) and 96/62 on Ambient Air Quality Assessment and Management; (b) make additional provision for the prevention and

control of environmental pollution; and (c) introduce measures to allow for the better protection and management of Areas of Special Scientific Interest (ASSIs).

The Order provides Northern Ireland legislation broadly similar to that already in operation in Great Britain in the Environment Act 1995 (Part IV), the Pollution Prevention and Control Act 1999, and the Countryside and Rights of Way Act 2000.

Wildlife and Natural Environment Act (NI) 2011 (WANE)

The Wildlife and Natural Environment Act (Northern Ireland) 2011 (WANE) amends the above Wildlife (NI) Order 1985 and The Environment (NI) Order 2002 with provision to protect a greater range of wild fauna, flora, and habitats, and increase protection to Areas of Special Scientific Interest (ASSIs). This is the primary tool for the conservation and protection of Northern Ireland's threatened or endangered wildlife. The Act requires every public body to promote the conservation of biodiversity and defines functions of public bodies in Northern Ireland with respect to the conservation of biodiversity.

The Act also requires the publication of biodiversity lists which are considered to be of conservation importance in Northern Ireland and outlines where public bodies must take steps as far as reasonably practicable to further their conservation. The list of Northern Ireland Priority Habitats and Species (collectively referred to as 'Priority Features' in this Environmental Report document) can be found on the DAERA webpages (DAERA, 2015 and DAERA, 2023, respectively). The risks to the Priority Features are being considered in the Non-Quota Shellfish FMP.

Towards an Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026

Towards and Integrates Coastal Zone Management Strategy for Northern Ireland 2006-2026 (ICZM) seeks to reconcile the different policies that have an effect on the coast, and to establish a framework that facilitates the integration of the interests and responsibilities of those involved in the development, management and use of the coast.

Planning (NI) Act 2011

The Planning (NI) Act 2011 makes provision relating to planning in Northern Ireland. The Act covers various topics such as forestry, land, soil, mineral resource, waste and hazardous substances. The planning system has three main functions: development planning, development management, and enforcement. Under the Act, responsibility for delivering the majority of operational planning functions passed to local councils in April 2015.

Historic Monuments and Archaeological Objects (NI) Order 1995

The Historic Monuments and Archaeological Objects (NI) Order 1995 provides for the protection of historic monuments and archaeological objects.

Archaeology 2030, A Strategic Approach for Northern Ireland

Archaeology 2030, A Strategic Approach for Northern Ireland, was launched in 2020 with a strategic vision for the future – for archaeology to be accessed and valued by as many people as possible, led by a sector which is healthy, resilient and connected.

Department for Communities 'Conservation Principles' guidance

Department for Communities 'Conservation Principles' guidance for the sustainable management of the historic environment in Northern Ireland sets out a best practice conservation framework for all aspects of decision making affecting our historic environment.

The Strategic Planning Policy Statement (SPPS) for Northern Ireland

The Strategic Planning Policy Statement (SPPS) for Northern Ireland sets out the Department's regional planning policies for securing the orderly and consistent development of land in Northern Ireland under the reformed two-tier planning system. The existing suite of Planning Policy Statements (PPSs) and the remaining provisions of 'A Planning Strategy for Rural Northern Ireland' are currently retained under the transitional arrangements of the SPPS. It should be noted that PPSs will be superseded by Local Development Plans when they are adopted.

Retained PPSs set out the policies of the Department of the Environment Northern Ireland (the Department) on particular aspects of land-use planning and apply to the whole of Northern Ireland. Their contents will be taken into account in preparing development plans and are also material to decisions on individual planning applications and appeals. The following PPS are of relevance:

- Planning Policy Statement 2 'Natural Heritage' (PPS2) sets out the Department's planning policies for the conservation, protection and enhancement of our natural heritage. For the purpose of this Planning Policy Statement, natural heritage is defined as "the diversity of our habitats, species, landscapes and earth science features".
- Planning Policy Statement 18 'Renewable Energy' (PPS18) sets out the Department's planning policy for development that generates energy from renewable resources and that requires the submission of a planning application.

Environment Strategy and Environment Improvement Plan

The Environment Strategy is an overarching document setting out Northern Ireland's environmental priorities for the coming decades and forms part of the Green Growth agenda (the Green Growth Strategy will provide more detail on actions in respect of climate change & greenhouse gas emissions)

The Environmental Improvement Plan for Northern Ireland is the first published Environment Strategy and forms the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment and thereby improve the health and well-being of all who live and work here; elevate Northern Ireland to an environmental leader; create opportunities to develop our economy; and enable us to play our part in protecting the global environment for decades to come.

It includes a mix of both existing and new environmental objectives, targets and actions for DAERA and other departments with a role in improving the environment.

Draft Green Growth Strategy

The draft Green Growth Strategy sets out an ambitious vision and a framework for delivery with which all other Northern Ireland government policies and strategies must align. It provides us with a vitally important opportunity to embed wider climate change, a green economy and environmental considerations into decision making.

The Climate Change Act (Northern Ireland) 2022

The Climate Change Act (Northern Ireland) 2022 sets a target of an at least 100% reduction in net zero greenhouse gas (GHG) emissions by 2050 (i.e., net zero emissions by 2050) for Northern Ireland compared to baseline, along with interim targets including an at least 48% reduction in net emissions by 2030. DAERA must also, by June 2024, review and potentially set updated 2030 and 2040 interim emissions reduction targets to ensure that they are in line with the 2050 net zero target.

The Act also sets other sectoral targets including 2030 targets at least 80% of electricity consumption from renewable sources (DfE) and 70% of waste is recycled (DAERA) as well as a target for a minimum spend of 10% of overall transport budgets on active travel (DfI).

Northern Ireland Energy Strategy 2050

Energy accounts for almost 60 per cent of Northern Ireland's greenhouse gas emissions. The Northern Ireland Energy Strategy 'Path to Net Zero Energy' sets out a pathway for energy to 2030 that will mobilise the skills, technologies and behaviours needed to take us towards our vision of net zero carbon and affordable energy by 2050.

Other FMPs

The fisheries authorities considered the interaction between the published FMPs and draft plans whilst drafting this FMP. The Non-Quota Shellfish FMP proposes management for non-quota shellfish and will have relevance for other FMPs, particularly those operating in the same region due to the interconnectivity of stocks, shared fishing techniques and the potential for bycatch.

The Non-Quota Shellfish FMP will interact with the following other FMPs; King Scallop FMP, Crabs & Lobsters FMP, Queen Scallop FMP, Irish Sea Demersal FMP, Irish Sea Pelagic FMP and Northern Ireland Intertidal Hand-Gathering of Shellfish FMP.

The interaction between FMPs will be considered when monitoring the effectiveness of plans. Any necessary adaptations would be built into the plan's ongoing implementation and adjusted in future revisions of the FMP.

5. Assessment of Environmental Effects

The environmental baseline information (section 3) shows that the marine environment is subject to a range of pressures from human activities, including climate change. Fishing-related activities form only part of the contribution of these pressures to the current state of our marine environment.

The present assessment acknowledges the evidence that shows those pressures that are largely derived from fishing activity and can impact the marine environment directly. Fishing can also contribute to other environmental effects when considered in-combination with other processes and activities.

Section 5 assesses the environmental effects of the policy goals and actions of the Non-Quota Shellfish FMP in relation to the environmental issues screened into this SEA, and where applicable their associated UK MS descriptors (Table 4).

Overview of the Potential Positive and Negative Environmental Effects of the Policy Goals, Actions and Measures of the Non-Quota Shellfish FMP

The potential positive and negative environmental effects of implementing goals (considering the actions that sit under them) and measures of the Non-Quota Shellfish FMP have been identified in below.

Table 4. High-level assessment of the positive and negative environmental effects of the Non-Quota Shellfish FMP goals.

Policy goal	Actions to achieve policy goals	Positive effects	Negative effects
Harvest non-quota shellfish stocks in Northern Ireland waters sustainably, with biomasses maintained above the level capable of producing MSY (or a proxy of MSY).	The management of the non-quota shellfish fisheries will be informed based on the best available scientific advice.	This action, while important, will not by itself have a positive effect on the environment. However, it will allow for more informed management decisions in the future that could result in improvements across a range of receptors and ultimately contribute to the sustainable management of targeted stocks. This may have indirect benefits for wider environment, for example food webs and biodiversity. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6)	No immediate negative effects are anticipated. However, this action may have unintended negative effects if it eventually leads to management that reduces opportunities and could lead to spatial changes in fishing pressure to other places within the FMP area or beyond. Levels of realised fishing effort may fluctuate in response to changes in catch limits. Increased fishing effort may incur additional impacts on the wider environment. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6)

Policy goal	Actions to achieve policy goals	Positive effects	Negative effects
		• Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Climatic factors	• Water (UK MS - D10, D11) • Climatic factors
Recognise and address gaps in evidence necessary to enhance stock assessment.	Identify the key drivers and main sources of uncertainty in current non-quota shellfish stock assessments. Develop a research plan to address data gaps for better stock assessments, focusing on stock structure and the distribution of non-quota shellfish in Northern Ireland waters. Implementation of the agreed policy on vessel monitoring devices for the under 12 metre fishing fleet	These actions, while important, will not by themselves have a positive effect on the environment. However, it will allow for more informed management decisions in the future that could result in improvements across a range of receptors and ultimately contribute to the sustainable management of targeted stocks. This may have indirect benefits for wider environment, for example food webs and biodiversity. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Climatic factors	No immediate negative effects are anticipated. However, these actions may have unintended negative effects if they eventually lead to management that reduces opportunities and could lead to spatial changes in fishing pressure to other places within the FMP area or beyond. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Climatic factors

Policy goal	Actions to achieve policy goals	Positive effects	Negative effects
Identify ecosystem-based fisheries management methods applicable to non-quota shellfish fisheries.	Compile available data into a report on the ecosystem role of non-quota shellfish fisheries. Promote fishery-science partnerships to fill knowledge gaps using industry expertise. Consider how to undertake additional targeted evidence collection (including self-reporting and the potential for remote electronic monitoring (REM) programmes) to improve estimates of bycatch of marine mammals, seabirds and designated fish for gear types used to target non-quota shellfish. Consider research into how an ecosystem-based approach could be incorporated into future iterations of the Non-Quota Shellfish FMP and where these might align with comparable approaches for other species. Consider development of policy aiming to minimise or eliminate any impact of the non-quota shellfish fisheries in relation to the designated features of MPAs and wider seas to	These actions, while important, will not by themselves have a positive effect on the environment. However, it will allow for more informed management decisions in the future that could result in improvements across a range of receptors and ultimately contribute to the sustainable management of targeted stocks. If realised, management stemming from these actions is expected to deliver broader environmental benefits, including improvements to biodiversity and food webs. By promoting low-impact fishing techniques, the use of REM, and better handling of sensitive marine species, these actions are expected to contribute to more sustainable practices and enhance stock and sensitive marine species recruitment. Improved understanding of bycatch would enable appropriate mitigation to be implemented, which would contribute positively	No immediate negative effects are anticipated. However, these actions may have unintended negative effects if they eventually lead to management that reduces opportunities and could lead to spatial changes in fishing pressure to other places within the FMP area or beyond. Data collection and processing needs to be considered alongside proposed management actions as in isolation it will not prevent the associated fisheries from declining further if overfishing is taking place or reduce environmental impacts associated with fishing activity. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS – D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Cultural Heritage

Policy goal	Actions to achieve policy goals	Positive effects	Negative effects
	progress contribution towards achieving GES in the Northern Ireland zone, compatible with targets set by the UK Marine Strategy (UKMS).	to biodiversity and the condition of MPAs. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Cultural Heritage • Landscape and Seascape • Climatic factors	
Deliver a framework to support the role of the FMP in realising sustainable fisheries and marine economies.	Consider an economic assessment of the fisheries to identify any barriers to the realisation of economic viability to the coastal communities within the FMP area. Explore funding opportunities to encourage industry-led development of strategies aimed at maximizing the efficiency of fishing vessels, whilst maintaining sustainable practices. This includes investigating the potential for automation, assessing circular economy benefits (such as total catch valorisation and utilisation of by-products).	Including social, economic and cultural importance in fisheries management is consistent with ecosystem-based approaches and can lead to improved governance and environmental outcomes. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Water (UK MS - D10, D11) • Climatic factors	No immediate negative effects are anticipated, however if social, economic and cultural importance are considered in isolation, fisheries management approaches may have negative environmental consequences. If these actions lead to management that increases opportunities or changes the technical measures underpinning the fishery, it could lead to change in the scale and types of pressure associated with the non-quota shellfish fisheries, which

Policy goal	Actions to achieve policy goals	Positive effects	Negative effects
	Consider a review of current technical measures affecting the non-quota shellfish fisheries, to include a consideration of the impact of potential modifications to these measures on both the shellfish fisheries (in scope of this FMP) and other species. Consider how to adapt the FMP to reflect relevant findings from an economic assessment and when new or improved measures are developed as appropriate.		may have a negative impact on the wider environment. These actions may have unintended negative effects if they eventually lead to spatial changes in marine activities to other places within the FMP area or beyond. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Climatic factors
Develop strategies to adapt to the impact of climate change on non-quota shellfish fisheries.	Ensure that the non-quota shellfish fisheries are considered within wider research to identify the likely impacts of climate change on fisheries, their links within the wider ecosystem. Consider how best to maintain collaboration and involvement across government, industry, and academic sectors in initiatives to reduce environmental impacts of the	Although this action will have no immediate positive effects on the environment, the increased understanding will ultimately support better management which will help achieve sustainability goals. This policy goal will improve understanding of the contribution to climate change impacts the non-quota shellfish fishery has, and could support the	Any unintended reduction in fishing opportunities could lead to spatial changes in fishing effort and increased fishing pressure elsewhere. Any change in fishing practices through mitigation could introduce a different set of pressures that may have negative effects. Relevant SEA Issues:

Policy goal	Actions to achieve policy goals	Positive effects	Negative effects
	non-quota shellfish fisheries (including CO2 emissions). Consider identifying the impacts that the non-quota shellfish fisheries have on the marine environment (including CO2 emissions) through collaborative studies. Consider how ecosystem-based fisheries management approaches can be used for managing fishing for these non-quota shellfish, that are robust to the effects of climate variability.	development of climate change mitigation and adaptation measures for non-quota shellfish fisheries in Northern Ireland, helping to reduce the impact that vessels targeting non-quota shellfish have on the marine environment. Maintaining collaboration across government, industry, and academic sectors can lead to more coordinated efforts in reducing the environmental impacts of fisheries. This holistic approach can foster the development and implementation of innovative solutions that promote sustainable fishing practices and contribute to reducing carbon footprints across the sector. Relevant SEA Issues: • Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Climatic factors	• Biodiversity, fauna, flora (UK MS - D1, D3, D4, D6) • Geology/sediments (UK MS - D6) • Water (UK MS - D10, D11) • Climatic factors

Overview of Potential Positive Environmental Effects of the FMP

Biodiversity, Flora, Fauna, Geology and Sediments, Water quality

The overarching aim of the Non-Quota Shellfish FMP is to preserve long-term sustainable use of non-quota shellfish fisheries whilst minimising any potential negative environmental, social, or economic impacts in Northern Ireland waters.

Fishing opportunities for the crab, lobster and scallop stocks within scope of this FMP are not currently subject to total allowable catch (or quota) limits, but are managed through licencing and a range of technical measures including minimum conservation reference sizes (MCRS) for crabs and lobsters, and conservation measures to protect egg bearing crabs and prohibit the landing of v-notched lobsters.

Currently, there is insufficient evidence to make an assessment of MSY reference points for non-quota shellfish, but length-based indicators are being used as MSY proxies for crabs and lobsters targeted in this fishery. The FMP sets out a path to improve the overall management approach by considering how the evidence base can be strengthened, with any subsequent action focussed on restoring (if required) and then maintaining the stock at sustainable levels.

The actions within this FMP are focused on the achievement of, and maintaining these stocks at sustainable levels, continuing to deliver any existing management approaches, and identifying and delivering improvements to management where this is needed. The actions within the FMP also allow for future action to be taken should it be needed.

Securing the long-term sustainable harvesting of non-quota shellfish stocks in Northern Ireland could:

- Help reduce the risk of non-quota shellfish stocks being overexploited.
- Reduce fishing-related mortality which may help non-quota shellfish populations become more resilient to environmental change which could benefit marine ecosystem function and biodiversity; and
- Help control species removal from food webs.

Policy goal 1 and associated actions relate to sustainable stock management with regard to maintaining stocks at levels that can consistently produce MSY (or proxies thereof). These actions are expected to contribute towards the sustainability of targeted stocks, with possible indirect benefits for the wider environment, for example food webs and biodiversity.

Policy goal 2 sets out actions focussed on improving data gaps and ensuring the availability of high-quality data for stock assessments. This will allow for more informed management decisions in the future that could result in improvements across a range of receptors and ultimately contribute to the sustainable management of targeted stocks. This may have indirect benefits for wider environment, for example food webs and biodiversity.

Actions under policy goals 3 and 5 seek to improve understanding of the wider ecosystem impacts and interdependencies within the non-quota shellfish fisheries. These actions will address knowledge gaps around benthic impacts and bycatch of sensitive marine species in the fisheries. Particularly, an action to consider enhanced monitoring through self-reporting and REM will build the evidence base on bycatch of sensitive species, allowing for more refined assessments of risk and development of appropriate mitigations which, if adopted, should deliver benefits with respect to foodwebs and biodiversity. Policy goal 3 also outlines an action intended to support achievement of GES for these fisheries "aiming to minimise or eliminate any impact of the non-quota shellfish fisheries in relation to the designated features of MPAs and wider seas to progress contribution towards achieving GES in the Northern Ireland zone". This will allow for appropriate mitigation measures to be designed where required, tackling issues such as bycatch, benthic impact and litter. If then implemented, these measures would be expected to have a positive effect on sea floor integrity and biodiversity.

Continuity and development of measures to manage harvesting of non-quota shellfish within sustainable limits (set out on in section 1 and assessed in section 5), will help contribute to the achievement of GES for Commercial fish (D3) for the UK MS by seeking to ensure that target stocks are harvested sustainably. The FMP's proposed interventions to develop better evidence on bycatch and wider seas impacts from non-quota shellfish fishing should positively contribute to achieving GES for descriptors D1, D4, D6 and D10.

Climatic factors

The Non-Quota Shellfish FMP acknowledges that the UK seafood sector will need to consider how it will reduce emissions to contribute to meeting the Net Zero target. The draft FMP has not proposed any actions to reduce emissions at this stage. However, the FMP supports policy development to reduce the contribution of fisheries activities to climate change, support the adaptation of the fishery, and will contribute to building an improved understanding of how climate change is influencing the non-quota shellfish stock dynamics.

Policy goal 5 and associated actions relating to supporting research and collaboration to assess climate change impacts, ecosystem connections, and environmental effects of fisheries, including CO_2 emissions, are not expected to have immediate positive

effects on the environment or contribute to the net zero target. However, the increased understanding and enhanced collaboration can lead to more coordinated efforts and foster the development and implementation of innovative solutions which will help achieve sustainability goals.

Cultural heritage

While the FMP is not intended to focus on mitigating the impacts of fishing on marine heritage assets, fisheries management could contribute to safeguarding these assets and their locations. In addition, there is the potential for positive interactions to arise between fishing and cultural heritage. A degree of fishing disturbance can lead to some heritage assets being revealed and investigated, thereby improving the knowledge base.

Policy goal 3 also outlines an action intended to support achievement of GES for these fisheries “aiming to minimise or eliminate any impact of the non-quota shellfish fisheries in relation to the designated features of MPAs and wider seas to progress contribution towards achieving GES in the Northern Ireland zone”. Fisheries management that reduces adverse effects on habitats and seabed features, for example through gear design and spatial closures, could indirectly help to conserve both known and unknown marine heritage assets. However, further consideration of mitigating any impacts on these features may need to be considered.

Managing stocks so they are harvested in a sustainable way can have environmental, social and economic benefits. Ensuring a fishery is environmentally, socially and economically sustainable over the long term could help promote the cultural importance of non-quota shellfish fishing and preserve the cultural heritage of fishing itself including wrecks of fishing vessels, historic harbours and infrastructure, and fishing communities.

The SEA process will highlight to fisheries policy authorities how fisheries management policy goals and actions could support measures that protect the historic marine environment and improve early reporting of previously unknown sites.

Landscapes and Seascapes

While the FMPs are not intended to focus on mitigating the impacts of fishing on submerged prehistoric landscapes or seascapes, fisheries management could contribute to safeguarding these assets and their locations.

Policy goal 3 also outlines an action intended to support achievement of GES for these fisheries “aiming to minimise or eliminate any impact of the non-quota shellfish fisheries in relation to the designated features of MPAs and wider seas to progress contribution towards achieving GES in the Northern Ireland zone”. Fisheries

management that reduces adverse effects on habitats and seabed features, for example through gear design and spatial closures, could indirectly help to conserve submerged prehistoric landscapes or seascapes. However, further consideration of mitigating any impacts on these features may need to be considered.

The SEA process will highlight to fisheries policy authorities how fisheries management policies and measures could support measures that protect submerged prehistoric landscapes or seascapes.

Overview of Potential Negative Environmental Effects of the FMP

Biodiversity, Flora, Fauna, Geology and Sediments, Water quality, Climatic factors, Cultural heritage

Acknowledging that the proposed policy goals and actions are at the beginning stages of their development, the assessment of likely negative effects identified a low risk of significant adverse effects on biodiversity, flora, fauna, water quality, and cultural heritage from implementing individual policy goals and actions. However, there remains uncertainty. In particular, we do not yet know the potential environmental effects of implementing the combination of actions set out in the Non-Quota Shellfish FMP.

Nevertheless, the policies and actions should deliver improved environmental protection, so although it is difficult at this stage to anticipate all the potential significant negative effects on the environment in the short term, the overall ambition is to have a positive effect on the environment over the long term through the implementation of an ecosystem-based approach to fisheries management. From an MPA perspective, any changes in management will be subject to MPA assessments which will ensure MPA features are protected inside and outside sites.

There is the potential for factors such as the spatial footprint, intensity, type of gear and fishing methods of the non-quota shellfish fishery to alter through publishing the FMP and implementing its policy goals and actions. We recognise that management interventions brought in through FMPs may solve one issue, but unintended and unpredictable issues could arise because of the measures being implemented. For example, it is acknowledged that some of the proposed actions to support the FMP policy goals may, through interventions intended to have a positive effect, lead to displacement of fishing activity to other locations or into other fisheries. This may result in negative environmental effects that fall outside the scope (area or species) of this FMP. Where an FMP cannot solve an issue, it may be appropriate for other FMPs to consider this issue. Or, if areas beyond Northern Ireland waters are affected, it may be appropriate for this issue to be considered through wider UK or international fisheries management fora.

This section has identified potential negative effects that could arise from the implementation of the FMP's policy goals and actions. Due to the policy goals and actions being at an early stage of development it is difficult to systematically set out their magnitude and significance, without further detail on the nature, timing, duration, scale or location of the proposed actions. Changes to fishing activity resulting from the implementation of the FMP policy goals and actions should be monitored as part of the process of evaluating the effectiveness of FMPs. Tools such as iVMS and VMS greatly improve, or could improve, our ability to monitor spatial and temporal changes in fishing effort. REM and self-reporting can help track changes in catch and bycatch. Such monitoring would help identify any unintended consequences on the environment and indicate whether the implementation of these actions could lead to any significant environmental effects if unmanaged. Mitigating action could then be considered where any significant negative effects are identified, that are related to those issues scoped into this assessment.

In-combination Effects

The Non-Quota Shellfish FMP could potentially have positive (or negative) in-combination effects with other programmes to deliver sustainable fisheries (see section 4). Whilst these other programmes focus on different topics, there are common themes that positively link them together. For example, FMPs and the Marine Plans share the common principles of managing marine resources sustainably and reducing the impact of anthropogenic pressure on the marine environment. Having due regard to the Environmental Principles during the development of policy will further ensure that the environment will be appropriately considered throughout the FMP process. More broadly, we anticipate the cumulative positive effect of these programmes will result in helping to meet sustainability objectives and achieving long-term improvements to the marine environment.

Undertaking the in-combination assessment at this stage in the production cycle of the FMP proved difficult due to the policy goals and actions being at an early stage of development. The assessment of the likely negative effects of the individual policy goals and actions in section 5 identified a low risk of significant adverse effects on the environment and therefore no amendments are needed ahead of publishing the FMP. When considering the combined effect of other potential policies, we are not aware at this stage that any other regimes/activities are going to change that position.

The FMP could facilitate the in-combination assessment with Marine Plans in this SEA, by providing more specific detail on how the FMP could positively or negatively interact with them. However, a Marine Plan assessment will be undertaken on the finalised FMP policy goals prior to publication, to assess how they will interact with Marine Plan policies. The assessment will identify whether an FMP policy goals will be compliant, potentially conflict, or not be compliant with Marine Plan policies. The interaction between FMPs and Marine Plans will be further considered when monitoring the

effectiveness of plans. Any necessary adaptations, to ensure FMPs and Marine Plans interact positively, would be built into the plan's ongoing implementation and adjusted in future revisions of the FMP as required.

Before there are any changes to fisheries management as a result of the Non-Quota Shellfish FMP, where necessary, all new measures will be subject to Habitats Regulations Assessments and Marine Conservation Zone assessments. Such assessments will consider the potential in-combination effects with other plans and projects that are occurring or will occur within in an MPA. These assessments will also identify where any specific interactions exist.

The combined effect of implementing the policy goals and actions of all FMPs will be considered through the mandatory FMP monitoring process once the plan is published and could form part of the longer-term JFS or FMP review cycles (see section 8).

Conclusions

Non-quota shellfish fishing is an ongoing activity that poses some risks to the quality status of the marine environment. The Non-Quota Shellfish FMP focuses on achieving the sustainable harvesting of non-quota shellfish stocks and therefore will reduce the risks to the future status of these stocks in the long-term giving positive benefits to the environment. The policy goals and actions outlines, if realised, could offer positive benefits, including ensuring stock sustainability and contributing to improving the status of UK MS commercial fish stocks (D3). In doing this there may also be improvements in overall fish biodiversity (D1) and the marine food webs (D4).

Nevertheless, we acknowledge that fishing for non-quota shellfish within sustainable limits may not remove all the associated negative effects of that fishing on the wider marine environment.

The Fisheries Objectives (in the Fisheries Act 2020) require FMPs to integrate environmental, social and economic aspects of a fishery when introducing interventions to control fishing activity within sustainable levels. Achieving the balance between these three elements will be a central component of making a positive contribution to the sustainability objective.

The Non-Quota Shellfish FMP takes a precautionary approach to fisheries management and adopts a balanced and proportionate approach towards delivering the fisheries objectives. The policy goals and actions set out in this FMP may result in positive and negative effects on the environment in the short term, with the overall ambition to have a positive effect on the environment over the long term through the implementation of the ecosystem-based approach to fisheries management.

As well as impacting the shellfish stocks themselves, the non-quota shellfish fisheries are likely to be impacting the wider environment. Bycatch/entanglement of certain

species, and the impact mobile demersal gear is having on seafloor integrity, have been highlighted as a risk.

Actions have been proposed to monitor and investigate the impact of unwanted / protected species bycatch and to determine a route to support achievement of GES, which would include considerations around benthic impact and litter. While these will not result in immediate positive environmental benefits or environmental improvements, they should help determine what mitigation may be required.

Before there are any changes to fisheries management as a result of the Non-Quota Shellfish FMP, where necessary, all new measures will be subject to Habitats Regulations Assessments and Marine Conservation Zone assessments. Such assessments will consider the potential in-combination effects with other plans and projects that are occurring or will occur within in an MPA. These assessments will also identify where any specific interactions exist.

The Non-Quota Shellfish FMP does not specifically consider the impacts of fishing on marine heritage assets. However, any future fisheries management aimed at reducing wider environmental effects could indirectly help to conserve both known and unknown marine heritage assets. This iteration of the FMP focuses on setting out measures to achieve sustainable harvesting of targeted shellfish stocks but there is scope for future iterations of the FMP to address this wider issue.

The Non-Quota Shellfish FMP does not specifically consider the impacts of fishing on submerged prehistoric landscapes or seascapes. However, fisheries management aimed at reducing the impact on seabed integrity could indirectly help to conserve submerged prehistoric landscapes or seascapes. This iteration of the FMP focuses on setting out measures to achieve sustainable harvesting of targeted shellfish stocks but there is scope for future iterations of the FMP to address this wider issue.

6. Proposed Measures to Reduce Significant Negative Effects

Existing Negative Effects of Non-Quota Shellfish Fishing

This ER has acknowledged the existing negative environmental effects associated with the fishing activity which will be managed through the FMP. The actions proposed by the FMP to reduce negative effects are set out below.

Biodiversity, Flora, Fauna, Geology and Sediments (soil), Water quality

Fishing opportunities for the crab, lobster and scallop stocks within scope of this FMP are not currently subject to total allowable catch (or quota) limits but are managed through licencing/permits and effort limits, and a suite of technical measures, including spatial and temporal restrictions and protection of juvenile/ spawning shellfish through MCRS and landing restrictions. Currently, there is insufficient evidence to make an assessment of MSY reference points for non-quota shellfish, but length-based indicators are being used as MSY proxies for crabs and lobsters targeted in this fishery.

This plan brings together all existing management measures for non-quota shellfish along with all available science and evidence, and highlights where gaps exist and what is required to fill those gaps to enable the necessary protection for stocks now and in the long term. The FMP sets out a path to improve the overall management approach by considering how the evidence base can be strengthened, with any subsequent action focussed on restoring (if required) and then maintaining the stock at sustainable levels.

The Non-Quota Shellfish FMP has considered advice from SNCBs with respect to the impacts from non-quota shellfish fishing activity on MPA features and the wider marine environment in relation to UK MS descriptors and Priority features. The Non-Quota Shellfish FMP has set out the following proposed actions to reduce those known negative effects below.

Impacts within MPAs

The MPA network (see Appendix C) is protected through the existing MPA management process by managing human activities such as fishing to avoid likely significant effects on the environment. DAERA is the regulator responsible for developing fisheries management legislation for MPAs in the Northern Ireland marine zone.

Before DAERA implement any new management interventions proposed in the Non-Quota Shellfish FMP, those interventions will be screened for likely significant effects on any Special Areas of Conservation or Special Protection Areas that overlap with the geographical scope of the measure and, where necessary, a further appropriate assessment completed in accordance with the Conservation of Habitats and Species Regulations 2017, the Conservation of Offshore Habitats and Species Regulations 2017 or the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. In accordance with the Marine and Coastal Access Act 2009, a Marine Conservation Zone (MCZ) assessment will also be completed before any new management measure is implemented that may significantly hinder the conservation objectives of an MCZ. Consideration must also be given to the duties required under the Marine Act (Northern Ireland) 2013.

The points above will make sure the impacts of non-quota shellfish fishing activity and the FMP's policy goals and actions do not prevent our ability to meet the conservation objectives for MPA features for each site, and other targets in the Environmental Improvement Plan.

Environmental effects associated with designated features of MPAs

The marine environment outside of MPAs but within the spatial boundaries of this FMP may potentially be negatively impacted by non-quota shellfish fishing activities. SNCB advice highlighted the risk of bycatch of mobile species (birds, mammals and fish) that are designated features of MPAs where they occur out with sites. This bycatch was classified as moderate risk for mobile species in demersal trawls, primarily driven by significant gaps in the available data.

The advice acknowledged the lack of high-quality bycatch data. This severely restricts both the ability to draw firm conclusions on bycatch risks for mobile MPA features beyond site boundaries, and the ability to identify specific mitigation. Policy 3 specifically addresses bycatch of sensitive marine species in the fisheries. The actions set out as part of this policy goal aim to build our understanding of bycatch issues for these fisheries in order to develop appropriate mitigation where needed. Actions focus on improving monitoring and supporting management measures for MPAs and wider seas. Improving understanding of bycatch will allow for appropriate mitigation measures to be designed where required. If then implemented, these measures would be expected to have a positive effect on biodiversity and food webs.

UK MS Descriptors Impacts

The Non-Quota Shellfish FMP focuses on achieving sustainable harvesting of the target shellfish stocks in Northern Ireland. This will support the achievement of GES for UK MS D3 – Commercial fish and shellfish stocks. This will also benefit the wider marine environment and support improvements in the status of fish biodiversity (D1) and marine food webs (D4).

The risks identified in the SNCB advice largely mirror the risks associated with designated features of MPAs, suggesting a moderate risk for D1, D4 cetaceans, seals and seabirds associated with bycatch in demersal trawls. The advice also identified a high risk to seafloor integrity (D1 & D6) due to benthic disturbance caused by mobile demersal fishing activities and a moderate risk of impacts from marine litter (D10).

Reducing bycatch of sensitive and/or non-target species is complex and requires solutions that are tailored to the different fisheries. As discussed above, focus within the Non-Quota Shellfish FMP will be on improved data collection including actions to consider the use of REM and self-reporting, to support a higher-resolution assessment of risk and the design of appropriate mitigation

Further data would help establish the location, scale, and risk of bycatch. Supporting existing programmes such as the UK Bycatch Mitigation Initiative will contribute to resolving the issue. Additional data through REM, a catch recording scheme, and encouraging participation in existing observer programmes, will increase our understanding and thereby allow better decision-making regarding mitigations on what and where mitigation may be required. Improving reporting pathways (for both fishermen and fisheries managers) and bycatch monitoring programmes will help improve understanding and our ability to determine whether any mitigatory action is necessary.

There is also ongoing work focusing on understanding and mitigating the impact of bycatch on the wider population being progressed through Defra's Marine wildlife bycatch mitigation initiative (BMI) and the Clean Catch UK programme. Further development of these programmes to ensure coverage of risks identified through this FMP are the most suitable route to mitigation.

The Non-Quota FMP includes an action to "Consider development of policy aiming to minimise or eliminate any impact of the non-quota shellfish fisheries in relation to the designated features of MPAs and wider seas to progress contribution towards achieving GES in the Northern Ireland zone, compatible with targets set by the UK Marine Strategy (UKMS)". This action provides a space to consider the wider ecosystem impacts of the non-quota shellfish fisheries, with respect to delivering GES. Mobile demersal gears, and dredges in particular are recognised to be driving a failure to achieve GES for seafloor integrity. This action should support delivery of proportionate management to reduce benthic impacts within the non-quota shellfish fisheries and contribute towards achieving GES in Northern Ireland waters.

In the updated UK Marine Strategy Part 1 (2019) Defra made a commitment to assess the feasibility of setting up a partnership working group, referred to here as the Benthic Impact Working Group. The UK Administrations and Government agencies are in the process of developing this Group which will be tasked with providing evidence-based advice to reduce the impacts of fishing activity on benthic habitats to achieve Good Environmental Status. Once convened, this group should provide strategic oversight

and direction for delivering future advice. This includes identifying, developing, and trialling possible mitigation or management options, in partnership, and could support the development of actions under policy goal 3 of this FMP.

Priority Features (Northern Ireland)

The risks identified in the SNCB echo the risks associated with designated features of MPAs and UK MS descriptors, highlighting a moderate risk of bycatch for mobile Priority Features a high risk of physical impact to habitat and lo/limited mobility Priority Features due to benthic disturbance caused by mobile demersal fishing activities.

As stated in the sections above, policy goal 3 includes actions to improve monitoring of bycatch and an action to consider approaches to minimise impacts on the wider seas (e.g. benthic impact). These actions will begin to tackle data gaps and support mitigation of these risks for the Non-Quota Shellfish FMP.

Climate Change

Vessel Emissions

The Non-Quota Shellfish FMP acknowledges that whilst fishing vessels need to reduce emissions, there are no ready solutions currently available. The FMP proposes actions as part of policy goal 5 aimed at collaboration for reducing environmental impacts of the fisheries (including CO_2 emissions), improving the evidence base, and reviewing measures to making vessels more efficient. When new evidence around climate change impacts is developed that require any adaptation of the fishery, this will be integrated into the FMP. In the meantime, there are existing government schemes which are open to support the fishing sector in the transition to Net Zero and support businesses to adapt. DAERA are currently in the process of investigating existing carbon mitigating solutions and is collaborating across government and with stakeholders to support the development of pathways to Net Zero.

Blue Carbon

Certain marine habitats, such as muddy sediments, are able to store carbon and are therefore known as blue carbon habitats. If left undisturbed, these habitats can contribute to GHG emissions reductions. Habitat disturbance through fishing practices may affect seabed carbon dynamics. DAERA continue to develop an evidence base on blue carbon habitats in the UK; further evidence is required to understand the trade-offs and wider consequences of decisions. This evolving evidence could support future consideration of measures to reduce impacts of demersal fishing on blue carbon (e.g. through spatial or technical fisheries management measures). The Blue Carbon Evidence Partnership is working to increase the blue cardon carbon evidence base, and as further research develops in this area, it will be considered for future iterations of the FMP.

Climate change impacts on non-quota shellfish stocks and fisheries

The Non-Quota Shellfish FMP acknowledges that climate change has potential implications for shellfish stocks, but the overall impacts are not yet fully understood. Policy goal 5 specifically looks at how the fishing industry can be supported to adapt to the impact of climate change. This includes actions on wider research to identify impacts of climate change on fisheries, including their links within the wider ecosystem, as well as identifying the impacts of the fisheries on the marine environment. Another component of the FMP will be to support the industry's adaptation to the impacts of climate change in addition to encouraging industry participation in initiatives to reduce CO_2 emissions. Future iterations of the FMP will be adapted as research into climate change develops and new methods to address climatic challenges arise.

Cultural Heritage

The Non-Quota Shellfish FMP does not explicitly consider the potential impacts of non-quota shellfish fishing activity on marine cultural heritage.

DAERA, should consider working with agencies such as DfC Historic Environment Division to consider how measures that could protect the marine historic environment could be incorporated into fisheries management for future iterations. Considering appropriate measures to reduce negative interactions with marine heritage assets could strengthen the positive interactions between FMPs and cultural heritage and has the potential for the FMP to contribute to having a positive effect on the current baseline.

Landscapes and Seascapes

The Non-Quota Shellfish FMP does not explicitly consider the potential impacts of fishing activity on submerged prehistoric landscapes or seascapes.

The FMPs will investigate the impact of fishing activity has on the wider environment. Any future management intervention could indirectly help to conserve submerged prehistoric landscapes or seascapes.

DAERA, should consider working with agencies such as DfC Historic Environment Division and JNCC to consider how measures that could protect the marine historic environment could be incorporated into fisheries management for future iterations. Considering appropriate measures to reduce negative interactions with submerged prehistoric landscapes or seascapes could strengthen the positive interactions between the FMPs and the wider marine environment. This has the potential for the FMPs to contribute to having a positive effect on the current baseline.

Effects identified by this assessment

The assessment of the likely negative effects of the policy goals and actions in section 5 identified a low risk of significant adverse effects on the environment from implementing individual policy goals and actions. Therefore, no changes to the proposed policy goals and actions are needed ahead of publishing the FMP. Where appropriate, the policy goals and actions will be developed and implemented to mitigate any potential negative effects identified by the current assessment.

The likely negative effects will also be considered when developing monitoring activities as part of the implementation process (see section 8), to ensure that any negative effects of the of the FMP's policy goals and actions individually or combined can be further reduced. Given the uncertainty as to the negative effects of implementing the individual policy goals and actions, monitoring changes to fishing activity resulting from the implementation of the FMP will help identify any unintended consequences on the environment that could subsequently lead to significant negative environmental effects. Where likely unintended environmental consequences are identified, appropriate changes to management or mitigation can be implemented to reduce to any negative environmental effects developing.

General

The UK is committed to using marine resources sustainably and reducing the impact of fishing on the marine environment to comply with its international and domestic obligations. The Non-Quota Shellfish FMP seeks to support these commitments by providing the tools (FMP policy goals and actions) to deliver the sustainable harvesting of non-quota shellfish stocks.

The range of environmental issues identified through this assessment have been considered by the Non-Quota Shellfish FMP. The FMP acknowledges that the evidence base is not sufficiently comprehensive at present to fully address many of the issues and therefore proposes a multi-step, iterative approach to deliver long-term sustainability through improving the evidence base. The FMP should remain flexible to adapt its policy goals and actions as new evidence on potential impacts of non-quota shellfish fishing emerge, particularly in relation to climate change.

This ER considers that the FMP has proposed all necessary actions to address existing issues and has appropriately considered how it will address potential issues arising from the implementation of the FMP's policy goals and actions. This ER has therefore not proposed any mitigations in addition to those already set out in the FMP.

7. Reasonable Alternatives

Regulation 12(2)(b) of the SEA Regulations 2004 requires the fisheries policy authorities to consider reasonable alternatives to the Non-Quota Shellfish FMP. A reasonable alternative has been defined as 'an activity that could feasibly attain or

approximate the FMP's goals at a lower environmental cost or decreased level of environmental degradation'[21].

Section 2 of the Fisheries Act 2020 requires the fisheries policy authorities to publish a JFS setting out how they will use FMPs to achieve, or contribute to achieving, the fisheries objectives. The JFS lists the planned FMPs, including the Non-Quota Shellfish FMP. This listing creates a legal requirement to prepare and publish the Non-Quota Shellfish FMP and does not allow for a reasonable alternative to producing an FMP unless a 'relevant change of circumstances', as set out in section 7 (7)[22] of the Fisheries Act applies; we are not aware of any information that would invoke these circumstances.

The Non-Quota Shellfish FMP, alongside the other 42 FMPs was agreed by the fisheries policy authorities through the JFS publication process. Engagement across administrations took place via the processes outlined in the Fisheries Framework. Regular scrutiny of the emerging list of FMPs was built into every step of the JFS policy formation, and through this process credible alternatives to managing stocks without an FMP were considered. The list of FMPs, which included an FMP for non-quota shellfish, was part of the public consultation on the Joint Fisheries Statement in early 2022. There were no comments on the inclusion of an FMP for non-quota shellfish.

The non-quota shellfish fishery is an ongoing activity and management already exists. The Non-Quota Shellfish FMP seeks to maintain the current approach regarding the harvesting of non-quota shellfish stocks sustainably, alongside broader improvements through a Long-Term Management Strategy, and a focus on improving the evidence base. The FMP also seeks to promote the management of the fishery in a more coherent and coordinated manner that considers wider environmental issues. On that basis, the FMP will likely deliver greater environmental gain and will have a more significant positive impact on improving the current environmental baseline, compared to a 'business as usual' approach that only continues with existing fisheries management.

The Non-Quota Shellfish FMP policy goals and actions were developed to specifically address those fisheries management issues identified within the non-quota shellfish fishery.

A range of environmental issues (e.g., through SNCB advice, evidence relating to climatic change impacts) have been considered during the development of the current proposed policy goals and actions to ensure they have minimal negative environmental effects and where applicable maximum positive environmental gain. Stakeholder input,

[21] Reasonable alternatives definition
[22] Fisheries Act 2020 (legislation.gov.uk)

including that from the environmental sector has been considered during the development of policy goals and actions. These processes have been employed to ensure the most appropriate actions have been proposed for this stage in the life cycle of the FMP. An assessment of the potential alternatives to the proposed Non-Quota Shellfish FMP policy goals (considering the actions that sit under them) is provided in Table 5.

Table 5. Assessment of alternatives to proposed Non-Quota Shellfish policy goals.

Policy goal theme	Policy goal	Alternatives
Sustainable fisheries	Harvest non-quota shellfish stocks in Northern Ireland waters sustainably, with biomasses maintained above the level capable of producing MSY (or a proxy of MSY).	Harvesting non-quota shellfish stocks in line with scientific advice is required to ensure the stocks are fished sustainably. No reasonable alternative is available.
Evidence	Recognise and address gaps in evidence necessary to enhance stock assessment.	This policy goal is focused on building upon the current data collection and scientific approach that is in place. Scientific evidence is essential for delivering appropriate and sustainable fisheries management. No reasonable alternatives have been identified at this stage.
Management approach	Identify ecosystem-based fisheries management methods applicable to non-quota shellfish fisheries.	Understanding and minimising impacts on the wider environment is an important part of delivering an ecosystem-based approach. Better information, from enhanced monitoring and reporting, is required to understand the detailed nature of bycatch to adequately mitigate impacts. Without this, it is not possible to design effective mitigation measures. No reasonable alternatives have been identified at this stage.

Policy goal theme	Policy goal	Alternatives
Social and economic	Deliver a framework to support the role of the FMP in realising sustainable fisheries and marine economies.	This is considered a requirement for making appropriate management decisions. It allows management measures to be developed in partnership by those that will be impacted. This will allow for alternative management measures to be discussed and agreed upon in the future.
Climate change	Develop strategies to adapt to the impact of climate change on non-quota shellfish fisheries.	Considering climate change issues is required to ensure the industry contributes to reducing its impact on the environment and is ready to adapt to the environmental impacts of climate change. Improving the evidence base on the impact of fishing on climate change, along with maintaining and enhancing cross-sector collaboration, is crucial for making informed, evidence-based management decisions. No reasonable alternative is available. Alternative options can be considered as detailed measures are drafted.

The proposed policy goals and actions set out in the FMP are therefore considered to be the most appropriate for this stage in the FMP's development.

The Non-Quota Shellfish FMP will develop through future iterations as the evidence base improves. Policy goals and actions will be adapted to ensure the most appropriate and effective management interventions are used to address contemporary issues. Where appropriate, additional measures will be developed as options for more targeted management become available, addressing a broader range of fisheries management issues in the long term.

The public will be consulted on the Non-Quota Shellfish FMP, alongside the consultation of this ER. These consultations will provide stakeholders with the opportunity to review proposed policy goals and actions and present alternatives if available.

8. Monitoring and Review

Monitoring

Regulation 17 of the SEA Regulations 2004 requires the responsible authorities to monitor the significant environmental effects of the implementation of the Non-Quota Shellfish FMP policy goals and actions to identify unforeseen adverse effects at an early stage, ensuring appropriate remedial action can be undertaken. Paragraph 9 of Schedule 2 to the 2004 Regulations requires the Environmental Report to include a description of the measures envisaged concerning monitoring in accordance with regulation 17.

The types of relevant monitoring already undertaken or proposed by the FMP fall into two types:

- Monitoring the effectiveness of FMP goals and actions
- Environmental impacts monitoring

Monitoring effectiveness of the FMP

Section 6 of the Fisheries Act 2020 requires the FMP to identify appropriate monitoring against specified indicators to assess the effectiveness of the Non-Quota Shellfish FMP.

The Department is committed to establishing an oversight arrangement which will oversee the implementation of the FMP actions. In drafting this FMP, the Department established working groups for crab and lobsters and separately for scallops. One option may be using these working groups to advise on monitor the effectiveness of how the FMP is being implemented. Many of the members sit on the Department's Inshore Fisheries Partnership Group, which is a forum for discussing and developing policies relevant to fisheries management in the Northern Ireland zone. The Department may consider an extension of the remit of that group as a mean to providing that monitoring function.

The Non-Quota Shellfish FMP policy goals and actions are intended: 1. to ensure that the shellfish stocks covered by this FMP are fished sustainably with biomasses maintained above the level capable of producing MSY (or a proxy of MSY); and 2. to support improvements in the overall management approach.

The AFBI stock assessments produced annual, provide an indication of the sustainability of the stocks covered by the Non-Quota Shellfish FMP, utilising size-based reference points as proxies for MSY and Landing Per Unit Effort (LPUE) to assess trends and advise on maximum landings for the period. DAERA undertake reviews of these assessments on an annual basis to determine how the non-quota shellfish stocks are performing against the reference points provided within this advice. The health of the stock will continue to be reviewed in this way.

The impact of this FMP will be monitored to assess the effectiveness of its policy goals and actions in meeting the Fisheries Act Objectives. Further details can be found in the "Implementation, Monitoring and Review" section of the FMP.

In reporting on the effectiveness of the Non-Quota Shellfish FMP, the fisheries policy authorities will follow a two-pronged approach:

1) The responsible authorities will report on levels of biomass, to provide an indication of the overall health of the stock.
2) Individual policy goals and actions will be monitored and reported on. As part of the three year review cycle for the JFS, as set out under section 11 of the Fisheries Act (2020), each goal and action contained within the FMPs will be considered and reported on in relation to a) whether it has been implemented and b) any known interactions between the actions and health of the stock.

In addition to the monitoring set out in the FMP, monitoring of the environmental effects of implementing the FMP's policy goals and actions will be undertaken by fisheries managers (DAERA), and may include;

- Monitoring changes in fishing activity e.g. changes in effort or the spatial and/or temporal patterns of fishing, resulting from the implementation of the FMP.

If any negative impacts are identified, fisheries managers should consider adjusting non-quota shellfish fishery management.

Environmental Impacts

MPAs

The conservation status of MPAs, including SACs, SPAs, and MCZs is monitored by the SNCBs, and is reported under the Habitats Regulations and Marine and Coastal Access Act. Findings from these monitoring activities could be used to help indicate where potential risks or impacts associated with fishing activity being managed through the FMP are occurring. FMPs could act on this evidence to amend its policy goals and actions to reduce or avoid these risks or impacts. Findings from these monitoring activities could also be used to indicate where FMP policy goals and actions are having a positive effect.

UK MS

The UK MS monitors and assesses the state of the marine environment against 11 descriptors. See section above for details on how monitoring the FMP will link into future assessments under the UK MS.

Priority Features (Northern Ireland)

In 2011, WANE (see section 4 for detail) placed a statutory duty on public bodies to conserve biodiversity. It called for the publication of biodiversity lists of species and habitats that are considered to be of conservation importance in Northern Ireland, and later DAERA created the Priority Marine Feature (PMF) List[18]. A subset of this list forms the basis of the Marine Conservation Zone (MCZ) designation programme, and these features will have received protection through the assessments required in advance of introducing legislation such as the Marine Protected Areas (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022 and the Scallop Enhancement Sites (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022 where the latter applies in any MCZ.

Atmospheric emissions

The Climate Change Committee (CCC) was set up under the Climate Change Act 2008 to support the strategic aims of Defra and the devolved administrations and to independently assess how the UK can optimally achieve its emissions reductions goals. The Committee advises on the level of carbon budgets and submits annual reports to Parliament on the UK's progress towards targets and budgets. Evidence on the contribution of the non-quota shellfish fishing fleet has been considered in this SEA and would continue to be reviewed against the FMP policy goals as part of monitoring.

Review

The Fisheries Act 2020 requires the Non-Quota Shellfish FMP to be reviewed at least every six years; the Act requires a report on the FMP's progress to be included in the report on the JFS every three years. The formal review will assess how the FMP has contributed to the non-quota shellfish fishery harvesting within sustainable limits and the Fisheries Act objectives. An earlier review may be triggered in light of a change to relevant evidence, international obligations, or wider events. The decision to review earlier will be taken by the fisheries policy authorities.

The results of monitoring the effectiveness of the Non-Quota Shellfish FMP will also contribute to the legally required process to review the JFS. The JFS report will set out the extent to which each FMP has been implemented and has affected stock levels in the UK.

Additional reviews can be conducted at any point within these time scales if relevant evidence, international obligations, or wider events require a change in the policy goals set out in the FMP.

The findings of these reviews will inform the development of subsequent iterations of the Non-Quota Shellfish FMP. As part of the reporting and wider review processes, alternatives to management can be identified to ensure the Non-Quota Shellfish FMP delivers on its policy goals and actions, and wider environmental obligations.

The SEA Environmental Report will be periodically updated to reflect how the implementation of FMP policy goals and actions affect the environment. Such updating will ensure that the SEA remains up to date throughout the ongoing FMP process into the future.

Appendix A: Eleven Descriptors of the UK MS

D1 - Biological diversity (cetaceans, seals, birds, fish, and benthic habitats)

D2 - Non-indigenous species

D3 - Commercially exploited fish and shellfish

D4 - Food webs (cetaceans, seals, birds, and fish)

D5 - Eutrophication

D6 - Sea-floor integrity (benthic habitats)

D7 - Hydrographical conditions

D8 - Contaminants

D9 - Contaminants in fish and other seafood for human consumption

D10 - Litter

D11 - Introduction of energy, including underwater noise

Appendix B: Additional Baseline Information

D1 and D4 – Cetaceans

Cetaceans (whales and dolphins) are an important marine ecosystem component that contributes to overall levels of biodiversity (D1). In addition, as top predators, the abundance of cetaceans can also provide some understanding on how the food web is functioning (D4).

To meet Good Environmental Status, the high-level objective is that 'the population abundance of cetaceans indicates health populations that are not significantly affected by human activities'. However, according to the 2019 updated Marine Strategy Part One: UK updated assessment and Good Environmental Status, the overall status of cetaceans in the North Sea and Celtic Seas is currently uncertain. The baseline environmental condition with respect to cetaceans is therefore one where some degree of recovery is potentially required to meet GES. For more information, read UK MS Cetaceans assessment.

A summary of the status is shown in Table A1. When considering the detailed targets and indicators used to make the assessment, the data suggests some are in line with GES in some geographic areas. But for many others, the results are either unclear or insufficient data is available to make an assessment. It should be noted that the indicators used do not always cover the entire breadth of what is set out in the target. For instance, the bycatch assessment is currently primarily driven by looking at harbour porpoise. The indicators can be developed in the future as more evidence is available.

Table A1. Detail from the 2019 UK MS assessment on descriptor D1; D4: Cetaceans. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Target	Indicator	North Sea	Celtic Seas
The long-term viability of cetacean populations is not threatened by incidental bycatch	Harbour porpoise bycatch	GES achieved	GES status uncertain

Target	Indicator	North Sea	Celtic Seas
There should be no significant decrease in abundance caused by human activities	Abundance and distribution of coastal bottlenose dolphins	GES achieved	GES status uncertain
There should be no significant decrease in abundance caused by human activities	Abundance and distribution of cetaceans other than coastal bottlenose dolphins	GES partially achieved	GES status uncertain
Population range is not significantly lower than the favourable reference value for the species	Abundance and distribution of coastal bottlenose dolphins	GES achieved	GES status uncertain
Population range is not significantly lower than the favourable reference value for the species	Abundance and distribution of cetaceans other than coastal bottlenose dolphins	GES partially achieved	GES status uncertain

Current impact of fisheries on the baseline condition

Fishing is one of several anthropogenic activities that are considered relevant to this ecosystem component. Other pressures include noise impacts from offshore infrastructure such as renewable energy and pollution from a range of sources. More information on relevant pressures is provided in section 2.6.1 of the Marine Strategy Part One: UK updated assessment and Good Environmental Status.

Cetacean bycatch

There is a specific target associated with the impact of bycatch from fisheries on the viability of cetacean populations. In the 2019 UK MS assessment, only data on the bycatch of Harbour Porpoise was used. This estimated that bycatch in the North Sea was below the precautionary threshold of 1% of the population estimate (and therefore

meeting the indicator target), but above this threshold for the Celtic Seas. It was, however, below the less precautionary 1.7% of population estimate. Whether the target was being met in the Celtic Seas was therefore uncertain. For more detail on the assessment, read UK MS harbour porpoise bycatch assessment.

More recent analysis for the 2023 OSPAR quality status report (which uses the same indicator as the UK MS) shows that bycatch of harbour porpoise in the Greater North Sea and Irish & Celtic seas are exceeding the threshold. Bycatch of common dolphin is also exceeding the threshold. For more details, read OSPAR Marine Mammal By-catch assessment. As this is a common indicator for both OSPAR and UK MS, that suggests that an updated UK MS assessment would no longer be seen as meeting this target.

Using the latest evidence from the UK Bycatch Monitoring Programme by Kingston et al (2021)[23], it is specifically net fisheries (for example, gill nets, tangle nets etc) that are largely responsible for both harbour porpoise and common dolphin bycatch.

Cetacean abundance and range targets

For coastal bottlenose dolphins, the indicator target of 'no statistically significant decrease in abundance' was met in the Greater North Sea and for the largest group in the Celtic Seas (in the Coastal Wales assessment unit). No assessment has been possible for the other two smaller Celtic Seas Groups (in the West Coast assessment unit and Coastal Southwest assessment unit). For more information, read UK MS Abundance and distribution of coastal bottlenose dolphins assessment.

For species other than coastal bottlenose dolphins, the indicator target of 'no significant decline' was met for some species in some areas (minke whale in the Greater North Sea), but for most species and all of the Celtic Seas, there was insufficient evidence to make an assessment. For more information, read UK MS Abundance and distribution of cetaceans other than coastal bottlenose dolphins assessment.

Without this information, it is difficult to understand the potential impact fisheries could currently be having (alongside impacts from other industries or factors such as pollution) and if fisheries impacts are a scale of concern. Aside from bycatch (which is considered separately), the mechanism by which certain fisheries could theoretically be impacting on abundance and distribution would be through the removal of prey species important to cetacean species. At high levels, this could potentially lead to population-level impacts.

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23 Kingston, A., Thomas, I. and Northridge, S. (2021) UK Bycatch Monitoring Programme Report for 2019. Sea Mammal Research Unit.

Cetacean summary

The status of cetaceans with both the North Sea and Celtic Sea is mixed. While there are some aspects that are in line with the achievement of GES, much of the picture is unclear. The impact of various net fisheries is leading to bycatch that, in places, might be impacting long term population viability of harbour porpoise.

Other than for a limited number of coastal bottlenose dolphin populations, it is unclear whether the abundance and range of most cetacean species can be considered in line with GES. Fisheries and the removal of prey species is one of several activities / pressures that have the potential to result in changes in cetacean abundance and distribution.

D1 and D4 – Seals

The UK has achieved its aim of GES for grey seals in the Greater North Sea and Celtic Seas. There was a significant increase in the abundance of harbour seals in West Scotland where most harbour seals are located, but their status in other parts of the Celtic Seas is uncertain. Harbour seals in the Greater North Sea have not yet achieved GES.

Seals are an important marine ecosystem component that contributes to overall levels of biodiversity (D1). In addition, as top predators, seal productivity can also provide some understanding and insight as to how the food web is functioning (D4).

To meet Good Environmental Status, the high-level objective is that 'the population abundance and demography of seals indicate healthy populations that are not significantly affected by human activities'. According to the Marine Strategy Part One: UK updated assessment and Good Environmental Status, the UK has achieved its aim for GES for grey seals in the Greater North Sea and Celtic Seas. For harbour seals, there has been a significant increase in abundance in West Scotland where most harbour seals are located but their status is uncertain in other parts of the Celtic Seas and below what is required for GES in the Greater North Seas. For more information, read, UK MS seal biodiversity assessment.

A summary of the current status is shown in Table A2. It should be noted that the current indicators used do not always cover the entire breadth of what is set out in the targets. For instance, there was no indicator developed or used as part of the 2019 assessment for bycatch.

Table A2. Detail from the 2019 UK MS assessment on descriptor D1; D4: Seals. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Table notes:
Note 1: For this indicator, read OSPAR Marine Mammal By-catch assessment 2023.

Target	Indicator	North Sea	Celtic Seas
The long-term viability of seal populations is not threatened by incidental bycatch.	Marine mammal bycatch (OSPAR)Note1	Not applicable	Not applicable
Population abundance and distribution are consistent with favourable conservation status.	Grey seal abundance and distribution	GES achieved	GES achieved
Population abundance and distribution are consistent with favourable conservation status.	Harbour seal abundance and distribution	GES not achieved	GES status uncertain
Grey seal pup production does not decline substantially in the short or long-term.	Grey seal pup production (OSPAR)	GES achieved	GES achieved

Current impact of fisheries on the baseline condition

Fishing is one of several anthropogenic activities that are considered relevant to marine mammals. Other pressures include noise impacts from offshore infrastructure such as renewable energy and pollution from a range of sources. More information on relevant pressures is provided in section 2.6.1 of the Marine Strategy Part One: UK updated assessment and Good Environmental Status.

Seal bycatch

The 2019 UK MS assessment suggests a new target on bycatch mortality will be used in the future. Seal bycatch was not considered within the 2019 assessment. Grey

seals are one of the three marine mammal species regularly recorded during the UK Bycatch Monitoring programme. Figures for seals (grey and harbour) are combined but the majority are thought to be greys. In the 2018 report[24] the authors were fairly confident that all seals observed in gillnets were greys. Harbour seals (referred to as common seals in the report) are rarely caught and numbers are too low to generate a useful bycatch estimate separately. The gears that pose the most risk to grey seals appears to be tangle and trammel nets, which was estimated to account for over 90% of seal bycatch in 2019[25].

The most recent OSPAR quality status reports assessment on marine mammal bycatch[26] (which is likely to feed into the next round of UK MS assessments), concludes that although grey seal bycatch is high, bycatch in 2020 was below the threshold value set and therefore not thought to be demographically significant. This suggests that in an updated UK MS assessment, seal bycatch is not likely to be threatening the long-term viability of the population and the bycatch target will be met.

Seal abundance and production

The 2019 UK MS assessment reports that grey seal numbers have continued to increase. Increases in grey seal pup production has slowed since the rapid increase following the end of culling in the 1970s, but still shows a positive trend. This is line with GES. Harbour seal abundance has increased over both the short and long term in the English Channel and along the East Coast of England. But there have been short-term and long-term declines in parts of Scotland. The cause of the declines is not currently known. For more information, read UK MS seal biodiversity assessment.

Seals summary

Grey seals populations and productivity continues to increase, and targets are being met. Bycatch (largely in tangle and trammel nets) is occurring but not at levels that threaten population viability. For harbour seals, the status is not in line with GES where population declines have occurred in some areas. The cause is unknown. It is not thought to be linked to bycatch as occurrences are rare and there is no indication that it is linked to other pressures associated with fishing.

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24 Northridge, S., Kingston, A. and Thomas, I. (2019) Annual report on the implementation of Council Regulation (EC) No 812/2004 during 2018. Sea Mammal Research Unit).

25 Kingston, A., Thomas, I. and Northridge, S. (2021) UK Bycatch Monitoring Programme Report for 2019. Sea Mammal Research Unit.

26 Marine Mammal By-catch

D1 and D4 – Birds

The UK has achieved its aim of GES for non-breeding waterbirds in the Greater North Sea but not in the Celtic Seas. Breeding seabirds have not achieved GES.

Seabirds are well monitored species that are an important marine ecosystem component that contributes to overall biodiversity (D1). In addition, as top predators, the abundance of birds can also provide some understanding and insight as to how the wider food web is functioning (D4).

To meet Good Environmental Status, the high-level objective is that 'the abundance and demography of marine bird species indicate healthy populations that are not significantly affected by human activities. According to the Marine Strategy Part One: UK updated assessment and Good Environmental Status, GES has not been achieved for seabirds in the Greater North Sea and the Celtic Seas and the situation is declining, evidenced by increasing breeding failure rates. The baseline environmental condition with respect to birds is therefore one where some recovery is required to meet GES. For more information, read UK MS marine bird biodiversity assessment.

A summary of the current status is shown in Table A3. It should be noted that the current indicators used do not always cover the entire breadth of what is set out in the targets. For instance, although there are plans for target about bycatch, there was no indicator developed or used as part of the 2019 assessment.

Table A3. Detail from the 2019 UK MS assessment on descriptor D1; D4: Birds. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Table notes:
Note 1: For this indicator, read OSPAR Pilot Assessment of Marine Bird Bycatch 2023.

Target	Indicator	North Sea	Celtic Seas
The long-term viability of marine bird populations is not threatened by deaths caused by incidental bycatch catch in mobile and static fishing gear.	Under development (Note1)	Data not available	Data not available
The population size of species has not declined substantially since 1992 as a result of human activities.	Marine bird abundance	GES not achieved	GES not achieved

Target	Indicator	North Sea	Celtic Seas
Widespread lack of breeding success in marine birds caused by human activities should occur in no more than three years in six.	Marine bird breeding success/failure	GES not achieved	GES partially achieved
Widespread lack of breeding success in marine birds caused by human activities should occur in no more than three years in six.	Kittiwake breeding success[27]	GES not achieved	Not assessed
There is no significant change or reduction in population distribution caused by human activities.	Distribution of breeding and non-breeding marine birds	Not assessed	Not assessed
There is no significant change or reduction in population distribution caused by human activities.	Invasive mammal presence on island seabird colonies	Not assessed	Not assessed

Current impact of fisheries on the baseline condition

Fishing is one of several anthropogenic activities that are considered relevant to this ecosystem component, including incidental bycatch and competition for resources (for example, sandeel fishing). Other pressures include mortality due to renewables, disturbance from a range of activities, oil pollution, and transfer of non-indigenous species to islands from ships. More information on relevant pressures is provided in section 2.6.1 of the Marine Strategy Part One: UK updated assessment and Good Environmental Status.

Bird populations size and breeding success

27 Kittiwake breeding success has only been achieved for the English mainland colonies. GES for Kittiwake breeding success has not been achieved for the entire North Sea region due to breeding failures in Orkney and Shetland.

In the 2019 UK MS assessment, population targets were met for non-breeding water birds in the Greater North Sea but not in the Celtic Seas. Population targets for breeding seabirds were not met for breeding seabirds in either sub-region. In both sub-regions, a quarter or more species showed frequent and widespread breeding failures. Surface-feeding species that predominantly prey on small fish are often subject to greater ecological pressures compared to others. This would suggest that the surface feeding availability of small forage fish species including lesser sandeel and sprat is limiting the breeding success of surface-feeding species such as black-legged kittiwake. Reductions in food availability could be a result of climate change or due to past and present fisheries, or a combination of both. For more information, read, UK MS marine bird biodiversity assessment.

The recent avian influenza outbreak Is likely to have had a strong negative effect on seabird population sizes for some species. It is not yet clear what the extent of the impact is, but it has the potential to move the baseline further away from meeting GES targets.

Bird bycatch

The 2019 UK MS assessment suggests a new target on bycatch mortality that will be used in the future. It is well recognised that certain fishing gears can pose a high bycatch risk to seabirds. Anderson et al[28] (2022) identifies the UK offshore demersal longline fishery and the <10m static net fishery as the fleets that pose the highest risk to birds.

Mortality estimates are not produced routinely for birds using data available from the UK Bycatch Monitoring Programme. Preliminary estimates using the available data suggests that UK vessels in longline, gillnet and midwater trawls may account for thousands of seabird mortalities each year covering several species, with fulmar and cormorant being the most affected species in terms of possible population impacts with a further five species (great northern diver, gannet, shag, guillemot and razorbill) having an estimated bycatch mortality that exceeded 1% of total adult mortality (Northridge et al 2020[29] and Miles et al 2020[30]). However, these estimates have high

28 Anderson, O.R.J., Thompson, D. & Parsons, M. (2022). Seabird bycatch mitigation: evidence base for possible UK application and research. JNCC Report No. 717, JNCC, Peterborough. ISSN 0963-8091.

29 Northridge. S., Kinston. A. and Coram. A. (2020). Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Scottish Ocean Institute, University of St Andrews. Final report to JNCC

30 Miles, J., Parsons, M. and O'Brien, S. (2020). Preliminary assessment of seabird population response to potential bycatch mitigation in the UK-registered fishing fleet. Report prepared for the Department for Environment Food and Rural Affairs (Project Code ME6024).

uncertainty in part because sample sizes are low and possibly unrepresentative of the fleet.

Bird summary

Seabird populations are currently below the level that is considered to meet GES and the situation is deteriorating. Some declines in breeding success have been linked to prey availability caused by climate change and / or past and present fisheries. Invasive predatory mammals are also known to impact breeding success on island colonies. The impact of bycatch will be included in future assessments and current evidence suggests that some longline and static net fisheries could be having possible population level impacts on certain species.

D1 and D4 – Fish and D3 – Commercially exploited fish and shellfish

Demersal fish biodiversity is recovering from a history of over-exploitation, but GES has not yet been achieved in either the Greater North Sea or the Celtic Seas. A partial assessment of pelagic shelf fish status did not provide a clear result.

The UK has achieved its aim of GES for some commercially exploited fish. Most national shellfish stocks have either not yet achieved GES or their status is uncertain. The percentage of quota stocks fished below MSY and the proportion of marine fish spawning stock biomasses capable of producing MSY have increased significantly since 1990.

Fish are an important ecosystem component that contributes to overall levels of biodiversity (D1). In addition, fish of different species have a significant role in marine food webs (D4), acting as both predators and prey. Some fish species are commercially exploited, and only a proportion of these have managed quotas. Over exploitation can lead to a decline in stocks (D3) which can reduce both future commercial opportunities and have wider ecological impacts.

In order to meet Good Environmental Status, the high-level objective for fish is that ‘the abundance and demography of fish indicate healthy populations that are not significantly affected by human activities. For stocks of commercial fish, the high-level objective is that ’Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock’.

According to the Marine Strategy Part One: UK updated assessment and Good Environmental Status, neither of these objectives are currently being met, although there are signs of improvement. The baseline environmental condition with respect to fish is therefore one where recovery is required to meet GES. For more information,

read, UK MS fish biodiversity assessment and UK MS commercial fish and shellfish assessment.

The 2019 assessment used a limited number of indicators. More indictors are being included in future assessments. A summary of the current status and indicators is shown in Table A4a and A4b.

Table A4a. Detail from the 2019 UK MS assessment on fish D1; D4: Fish. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Target	Indicator	North Sea	Celtic Seas
The size structure of fish communities is indicative of a healthy marine food web.	Size composition in fish communities	GES not achieved	GES not achieved
The size structure of fish communities is indicative of a healthy marine food web.	Proportion of large fish (Large Fish Index)	GES not achieved	GES partially achieved
The size structure of fish communities is indicative of a healthy marine food web.	Mean maximum length of fish.	GES not achieved	GES not achieved
Incidental bycatch is below levels which threaten long-term viability and recovery of fish populations.	Under development	Not assessed	Not assessed
The population abundance of sensitive species is not decreasing due to anthropogenic activities and long-term viability is ensured.	Recovery in the population abundance of sensitive fish species	GES not achieved	GES achieved

Target	Indicator	North Sea	Celtic Seas
For fish species in the Habitats and Birds Directive population abundance and geographic distribution meets established favourable reference values.	UK assessments of listed fish species	Not assessed	Not assessed
For listed fish species, the area and the quality of the habitat is sufficient.	UK assessments of listed fish species	Not assessed	Not assessed

Table A4b. Detail from the 2019 UK MS assessment D3: commercial fish and shellfish. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Target	Indicator	North Sea	Celtic Seas
The Fishing mortality rate of populations of commercially exploited species is at or below levels which can produce the maximum sustainable yield.	Commercial fishing pressure for stocks of UK interest	GES partially achieved	GES partially achieved
The Spawning Stock Biomass of populations of commercially exploited species are above biomass levels capable of producing the maximum sustainable yield.	Reproductive capacity of commercially exploited stocks of UK interest	GES partially achieved	GES partially achieved

Current impact of fisheries on the baseline condition

The status of commercial fish stocks (D3) primarily relates to exploitation rates so is predominantly influenced by fishing activities. For commercial fish some (53% of quota stocks) were being exploited at or below MSY in 2015, but this was not the case for all stocks. Out of a suite of 79 TACs which can be reported across multiple years, 32 of the 79 baseline TACs were consistent with ICES' advice (40%) in 2023 compared to 27 TACs (34%) in 2022 (Bell et al.2023[31]). Most non-quota stocks are unassessed, and do not have MSY or a suitable proxy in place despite being a significant proportion of UK landings. Most shellfish stocks have either not met the requirement, or their status is uncertain. For more information, read UK MS commercial fish and shellfish assessment.

Fish as part of the ecosystem (D1 and D4) encompasses a much wider range of species, including those not commercially targeted. Both the removal of targeted species and bycatch of non-targeted / non-commercial fish species is relevant. While fishing is considered the main anthropogenic activity that is relevant to this ecosystem component, other pressures such as noise from renewable infrastructure and hydrodynamic changes brought about from coastal defence are also relevant in some instances. More information on relevant pressures is provided in section 2.6.1 of the Marine Strategy Part One: UK updated assessment and Good Environmental Status.

Recovery from past over-exploitation by fisheries does appear to be occurring in some areas. Demersal fish biodiversity is recovering from a history of over-exploitation, but GES has not been achieved in either the Greater North Sea or the Celtic Sea. A partial assessment of pelagic shelf fish status did not provide a clear result. For more information, read UK MS fish biodiversity assessment.

Fish summary

The current status of fish communities in the UK is primarily shaped by historical over-exploitation by fisheries, while ongoing over-exploitation continues to be a notable contributing factor. Improved fisheries management since the 1990s has resulted in more stocks being fished at or below MSY levels so, although the target is not yet met, there is a positive trend. Improved fisheries management has also resulted in some positive trend in fish communities beyond the targeted stocks.

31 Bell ED, Nash RMD, Garnacho E, De Oliveira J, Hanin M, Gilmour F, O'Brien CM 2023. Assessing the sustainability of negotiated fisheries catch limits by the UK for 2023. Cefas project report for UK fisheries policy authorities

D1 and D6 – Benthic Habitats

The levels of physical damage to soft sediment habitats are consistent with the achievement of GES in UK waters to the west of the Celtic Seas, but not in the Celtic Seas or in the Greater North Sea. For sublittoral rock and biogenic habitats GES has not yet been achieved. Descriptor also relevant to Geodiversity (geology and sediments).

Benthic habitats are an important ecosystem component that contributes to overall levels of biodiversity (D1). It is also important to ensure the structure and function of the benthic ecosystems is adequately safeguarded by considering seafloor integrity (D6).

To meet Good Environmental Status, the high-level objective is that 'the health of seabed habitats is not significantly adversely affected by human activities'. However, according to the Marine Strategy Part One: UK updated assessment and Good Environmental Status, GES has not been achieved. This states that the main problem is caused by physical disruption of the seabed from fishing gear (demersal towed gear). The baseline environmental condition with respect to benthic habitats is therefore one which is required to meet GES. For more information, read UK MS benthic biodiversity and seafloor habitats assessment.

A summary of the current status is shown in Table A5. Most indicators focussing on intertidal benthic habitat are consistent with GES (except for saltmarsh in the North Sea), but subtidal habitats are not consistent with GES.

Table A5. Detail from the 2019 UK MS assessment on D1; D6: Benthic habitats. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Table notes:
Note 1: The benthic communities' indicator (OSPAR BH2) is currently in the pilot stage of development.

Target	Indicator	North Sea	Celtic Seas
The physical loss of each seabed habitat type caused by human activities is minimised and where possible reversed.	Physical loss of predicted habitats	GES not achieved	GES not achieved
The extent of habitat types adversely affected by physical disturbance caused	Extent of Physical damage indicator to predominant	GES not achieved	GES not achieved

Target	Indicator	North Sea	Celtic Seas
by human activity should be minimised.	and special habitats		
The extent of habitat types adversely affected by physical disturbance caused by human activity should be minimised.	Benthic communities' indicator[Note1]	Not assessed	Not assessed
Habitat loss of sensitive, fragile, or important habitats caused by human activities is prevented, and where feasible reversed.	Physical loss of predicted habitats indicator	GES not achieved	GES not achieved
The extent of adverse effects caused by human activities on the condition, function and ecosystem processes of habitats is minimised.	Benthic communities' indicator	Not assessed	Not assessed
The extent of adverse effects caused by human activities on the condition, function and ecosystem processes of habitats is minimised.	Aggregated Infaunal Quality Index	GES not achieved	GES partially achieved
The extent of adverse effects caused by human activities on the condition, function and ecosystem processes of habitats is minimised.	Aggregated Saltmarsh Tool	GES not achieved	GES achieved
The extent of adverse effects caused by human activities on the condition, function and ecosystem processes of habitats is minimised.	Aggregated Rocky Shore Macroalgal Index	GES achieved	GES achieved

Target	Indicator	North Sea	Celtic Seas
The extent of adverse effects caused by human activities on the condition, function and ecosystem processes of habitats is minimised.	Aggregated Intertidal Seagrass Tool	GES achieved	GES achieved
The extent of adverse effects caused by human activities on the condition, function and ecosystem processes of habitats is minimised.	Intertidal rock community change indicator (MarClim)	GES status uncertain	GES status uncertain

Current impact of fisheries on the baseline condition

Fishing is one of several anthropogenic activities that are considered relevant to this ecosystem component. Other pressures include physical loss from renewable energy generation and oil extraction, coastal defence and the input and spread on invasive non-native species. But the main barrier to the achievement of GES is caused by physical disruption of the seabed from fishing. More information on relevant pressures is provided in section 2.6.1 of the Marine Strategy Part One: UK updated assessment and Good Environmental Status.

Physical disturbance of seabed

Fishing is considered to be the main driver of physical disturbance and occurs when gear is towed across the seafloor. The degree of disturbance depends on factors such as the size of the gear, the activity level (for example, number of tows per year) how fragile the benthic species present are and how quickly they can recover. The use of demersal towed gears is widely distributed. Using available VMS data and benthic habitat data available, the 2019 UK MS assessment concluded that seabed disturbance targets were not being met within the Greater North Sea and Celtic Seas. As the analysis combined the VMS of all towed gear metiers together, it is not yet possible to determine the relative contribution of different gear types to the current levels of seabed disturbance. Other activities, such as aggregate extraction, have yet to be included within the analysis, but the spatial extents of these are considerably smaller than fishing activity. For more information and detail of the analysis, read UK MS Extent of physical damage to predominant seafloor habitats assessment and UK MS Extent of Physical Damage to Predominant and Special Habitats assessment.

Habitat loss

UK MS assessments on a limited range of highly sensitive habitats (seagrass beds and horse mussel reefs), suggest that a loss of areas of potential habitat has occurred up to 2016. This was based on modelled data. The main causes were not thought to be due to fishing as these impacts are generally considered reversable. Irreversible loss has been predicted to have come about from aquaculture, navigational dredging and dredge spoil disposal, recreational activity, and coastal development. For more information, read UK MS Potential physical loss of predicted seafloor habitats assessment. There are instances where fishing can result in permanent habitat loss (for instance, heavy bottom towed gear over softer, rocky reef habitats), but fishing is generally considered to lead to habitat disturbance and degradation rather than loss.

Benthic habitat summary

There is widespread disturbance of seabed habitats by demersal towed gear that is contributing to the failure to achieve GES. Other impacts from non-fisheries activities may also be having an influence, but to a much lesser degree.

D4 – Food webs

Food webs (D4) are the network of predator-prey relationships that occur in the marine environment, from phytoplankton to top predators such as birds or seals. Fish communities are a key component of food webs. Knowledge of food webs allow understanding of how changes at one trophic level can impact those above and below it.

To meet Good Environmental Status, the high-level objective for food webs is that 'the health of the marine food web is not significantly affected by human activities'. According to the Marine Strategy Part One: UK updated assessment and Good Environmental Status, the extent to which good environmental status has been achieved is uncertain. Plankton communities are changing, some fish communities are recovering from past overexploitation, but others are not, breeding seabirds are in decline, and grey seal numbers are increasing. It is known that the components of the marine food webs are changing but it is not always clear how they are affecting each other. For more information, read UK MS food webs assessment.

A summary of the current status is shown in Table A6.

Table A6. Detail from the 2019 UK MS assessment on D4: food webs. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Target	Indicator	North Sea	Celtic Seas
The species composition and relative abundance of representative feeding guilds are indicative of a healthy marine food web.	Mean maximum length of fish	GES not achieved	GES not achieved
The species composition and relative abundance of representative feeding guilds are indicative of a healthy marine food web.	Selected plankton lifeforms pairs (for example, large vs small zooplankton)	GES status uncertain	GES status uncertain
The species composition and relative abundance of representative feeding guilds are indicative of a healthy marine food web.	Abundance and distribution of coastal bottlenose dolphins	GES achieved	GES status uncertain
The species composition and relative abundance of representative feeding guilds are indicative of a healthy marine food web.	Abundance and distribution of cetaceans other than coastal bottlenose dolphins	GES partially achieved	GES status uncertain
The species composition and relative abundance of representative feeding guilds are indicative of a healthy marine food web.	Marine bird abundance	GES not achieved	GES not achieved

Target	Indicator	North Sea	Celtic Seas
The balance of abundance between representative feeding guilds is indicative of a healthy marine food web.	TBC	Not assessed	Not assessed
The size structure of fish communities is indicative of a healthy marine food web.	Size composition in fish communities	GES not achieved	GES partially achieved
Productivity of the representative feeding guilds, characterised by key species, is indicative of a healthy marine food web.	Grey seal pup production	GES achieved	GES achieved
Productivity of the representative feeding guilds, characterised by key species, is indicative of a healthy marine food web.	Marine bird breeding success/failure	GES not achieved	GES partially achieved
Productivity of the representative feeding guilds, characterised by key species, is indicative of a healthy marine food web.	Kittiwake breeding success[32]	GES achieved	Not assessed

Current impact of fisheries on the baseline condition

32 Kittiwake breeding success has only been achieved for the English mainland colonies. GES for Kittiwake breeding success has not been achieved for the entire North Sea region due to breeding failures in Orkney and Shetland.

Anthropogenic impacts on the marine food web are multiple and complex. As fish communities are a key component of food webs, pressure from fisheries can have a significant impact. The removal of forage fish (i.e., species at a low trophic level that contribute significantly to the diets of other fish, marine mammals, or seabirds) has the potential to impact higher tropic levels. For instance, reduction in the availability of small forage fish is likely to be contributing to the breeding success of some marine birds. Climatically driven changes in plankton will also have a strong influence on the rest of the food web. More detail is given under the individual faunal group sections. For more information, read UK MS food webs assessment.

Food webs summary

Historic fishing activity has had a large impact on fish community structure which is a key component of marine food webs. With improved fisheries management focusing on stocks, some recovery is occurring. However, the management of fish stocks solely to safeguard future fisheries will not necessarily lead to all food web targets being met. Changes in plankton are likely driven by prevailing environmental conditions, but other impacts cannot be ruled out.

D10 – Marine Litter

To achieve Good Environmental Status for marine litter, the high-level objective is that 'the amount of litter and its degradation products on coastlines and in the marine environment is reducing and levels do not pose a significant risk to the environment and marine life.' According to the Marine Strategy Part One: UK updated assessment and Good Environmental Status, GES has not been achieved for marine litter, and it remains a significant pressure on marine ecosystems. The baseline environmental condition with respect to marine litter is therefore one where improvement is required to meet GES. For more information, read UK MS litter assessment. A summary of the current status is shown in Table A7.

Table A7. Detail from the 2019 UK MS assessment on D10 Marine Litter Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Target	Indicator	North Sea	Celtic Seas
A decrease in the total amount of the most common categories of litter found on surveyed beaches.	Presence of litter (beaches)	GES not achieved	GES not achieved

Target	Indicator	North Sea	Celtic Seas
A decrease in the number of items of litter on the seabed.	Presence of litter (seabed)	GES status uncertain	GES status uncertain
A downward trend in the number of northern fulmars with more than 0.1g of plastic particles in their stomach.	Presence of floating litter	GES status uncertain	GES status uncertain
Develop an appropriate indicator to measure micro-litter in the marine environment.	In development	Not assessed	Not assessed

Current impact of fisheries on the baseline condition

Fishing activities can contribute to marine litter through discarded or lost fishing gear, including nets, lines, and traps. This type of litter, also known as "ghost gear", can persist in the environment, entangling marine life, smothering benthic habitats, and introducing microplastics into the marine food chain. In addition, waste generated onboard fishing vessels, such as packaging materials and food waste, can also contribute to marine litter when not disposed of properly.

Marine litter summary

Marine litter, including from fishing activities, is a significant pressure on marine ecosystems and water quality. The UK has not yet achieved its aim of GES for litter. Beach litter levels in the Celtic Seas have remained largely stable since the assessment in 2012, whilst beach litter levels in the Greater North Sea have slightly increased. Waste fishing material is a component of beach litter. Both floating litter and seafloor litter remain an issue, with plastic the predominant material. Achieving GES for marine litter requires improved waste management practices, the reduction of lost or discarded fishing gear, and increased awareness and monitoring of the issue.

D11 – Underwater noise

To achieve Good Environmental Status for underwater noise, the high-level objective is that ‘loud, low and mid frequency impulsive sounds and continuous low frequency sounds introduced into the marine environment through human activities are managed to the extent that they do not have adverse effects on marine ecosystems and animals

at the population level.' Marine Strategy Part One: UK updated assessment and Good Environmental Status, indicates that data on underwater noise is limited, making it difficult to determine whether GES has been achieved. However, increasing awareness of the issue has led to further research and monitoring efforts. For more information, read UK MS underwater noise assessment. A summary of the current status is shown in Table A8.

Table A8. Detail from the 2019 UK MS assessment on D11 Underwater noise. Taken from Marine Strategy Part One: UK updated assessment and Good Environmental Status and the UK MS Marine Online Assessment Tool.

Target 2019	Indicator	North Sea	Celtic Seas
Levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals.		GES status uncertain	GES status uncertain
Levels of anthropogenic continuous low-frequency sound do not exceed the levels that adversely affect populations of marine animals	Safe levels of low anthropogenic continuous low frequency sound	GES status uncertain	GES status uncertain

Current impact of fisheries on the baseline condition

Fishing activities can generate underwater noise through the use of engines, sonar, and other equipment. Although fisheries are not the primary source of anthropogenic underwater noise (shipping, construction, and energy production are major contributors), they can still contribute to the overall noise pollution in the marine environment. This noise can impact marine species that rely on sound for communication, navigation, and foraging, leading to changes in behaviour, stress, and potential displacement from preferred habitats.

Summary

Underwater noise from fisheries, while not the primary source, can still contribute to the overall noise pollution in the marine environment. Fishing vessels will contribute to underwater noise through sonar, engine noise, gear interacting with seabed and deploying and retrieving gear. The achievement of GES for underwater noise in the UK is uncertain. Research and monitoring programmes established since 2012 have provided an improved understanding of the impacts of sound on marine ecosystems. However, achieving GES for underwater noise will require better understanding and monitoring of the issue, as well as the development and implementation of strategies to manage noise pollution from various sources.

Appendix C: UK MPA designations

1. Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017
    - Special Protection Areas (SPAs) - England, Scotland, Wales
    - Special Areas of Conservation (SACs) - England, Scotland, Wales
2. Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)
    A. Special Protection Areas (SPAs) – Northern Ireland
    B. Special Areas of Conservation (SACs) – Northern Ireland
3. Marine and Coastal Access Act 2009
    - Marine Conservation Zones (MCZs) – England, Wales
    - Nature Conservation Marine Protected Areas (NCMPAs), offshore waters – Scotland
4. Marine (Scotland) Act 2010
    - Nature Conservation Marine Protected Areas (NCMPAs), inshore waters – Scotland
5. Marine Act (Northern Ireland) 2013
    - Marine Conservation Zones (MCZs) – Northern Ireland
6. Natural Environment and Rural Communities Act 2006 (Part 4)
    - Sites of Special Scientific Interest (SSSI) – England, Scotland, Wales
7. The Environment (Northern Ireland) Order 2002
    - Coastal Areas of Special Scientific Interest (ASSIs) - Northern Ireland
8. Convention on Wetlands of International Importance
    - Ramsar Sites (Wetland of International Importance under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat)

Appendix D: Marine Plans – Specific detail within the UK

Northern Ireland

The Department of Agriculture, Environment and Rural Affairs (DAERA) is the Marine Plan Authority (MPA) that prepares marine plans for the Northern Ireland marine area. The Draft Marine Plan for Northern Ireland will facilitate the sustainable development and protection of the marine area. The Marine Plan has been developed to support and complement other Northern Ireland and UK legislation, policies, plans and strategies. These include the Climate Change (Northern Ireland) Act 2022 and the Fisheries Act 2020 along with its associated Joint Fisheries Statement.

Wales

The first Welsh National Marine Plan was introduced in 2019, providing a statutory policy framework to help guide the sustainable development of the Welsh marine area. It was prepared and adopted under the MCAA to conform with the UK MPS. Under the MCAA, the Welsh Ministers are the marine plan authority for the Welsh marine planning area and the Welsh Marine Plan covers both the inshore and offshore areas. The Marine Plan includes specific policies in relation to commercial fisheries alongside cross-cutting environmental and socio-economic policies.

England

Marine plans put into practice the objectives for the marine environment that are identified in the MPS alongside the National Planning Policy Framework (NPPF) and the Localism Act 2011. The MMO is responsible for preparing marine plans in England, and published the North East, North West, South West, South East, South and East marine plans. The marine plans include policies to support a sustainable fishing industry and a healthy marine environment.

Appendix E: Glossary

Biodiversity: The variety of all life on earth, including the diversity within and between all plant and animal species and the diversity of ecosystems.

Blue carbon: Carbon captured by the world's oceans and coastal ecosystems. Blue carbon habitats are the habitats where it is stored.

Bycatch: Defined in section 52 of the Fisheries Act 2020 means (a) fish that are caught while fishing for fish of a different description, or (b) animals other than fish that are caught in the course of fishing.

Climate change: Referring to human-induced climate change driven by greenhouse gas emissions. It includes global warming, warming oceans, greater risks of flooding, droughts, and heat waves.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): CITES is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species.

Convention on the Conservation of Migratory Species of Wild Animals (CMS): The Convention on the Conservation of Migratory Species of Wild Animals, also known as the Convention on Migratory Species (CMS) is an international agreement that aims to conserve migratory species throughout their ranges. The agreement was signed under the auspices of the United Nations Environment Programme and is concerned with conservation of wildlife and habitats on a global scale.

Descriptors (UK Marine Strategy): Descriptors are elements within the environment that provide the means to assess general status or condition of that environment. This can be done through the establishment of indicators or targets for each descriptor.

Ecosystem: A biological community which consists of all the organisms and the physical environment with which they interact.

Ecosystem-based approach: Defined in section 1(10) of the Fisheries Act 2020 as an approach which (a) ensures that the collective pressure of human activities is kept within levels compatible with the achievement of good environmental status (within the meaning of the Marine Strategy Regulations 2010 (S.I. 2010/1627)), and (b) does not compromise the capacity of marine ecosystems to respond to human-induced changes.

Findspots: The place where one or more artefacts have been found. May prove to be associated with a site, other finds, natural features etc., or isolated (no apparent relationship).

Fish: Marine and estuarine finfish and shellfish, including migratory species such as European eel and salmon.

Fisheries: The commercial or recreational capture of wild marine organisms (fish and shellfish); commercial fishing can use a variety of mobile and static gear, vessels and locations.

Fisheries Framework (Fisheries Management and Support Framework): Outlines the legislation and policies for the sustainable management of fisheries and the wider seafood sector. It covers the catching, processing and supply industries, including access to fishing opportunities, licensing, stock recovery, enforcement, data collection, aquaculture, recreational sea angling, and areas of collaboration and common principles. It includes governance structures and ways of working.

Fisheries Management Plan (FMP): A document, prepared and published under the Fisheries Act 2020, that sets out policies designed to restore one or more stocks of sea fish to, or maintain them at, sustainable levels.

Fisheries policy authorities: As defined by section 52 of the Fisheries Act 2020, “fisheries policy authorities” means (a) the Secretary of State, (b) the Scottish Ministers, (c) the Welsh Ministers, and (d) the Northern Ireland department.

Fishermen’s fasteners: Places where fishermen have snagged their fishing gear.

Food webs: The natural interconnection of food chains and a graphical representation of what eats what in an ecological community.

Good Environmental Status (GES): A qualitative description of the state of the seas that the Marine Strategy Regulations 2010 requires authorities to achieve or maintain by the year 2020. Achieving GES is about protecting the marine environment, preventing its deterioration, and restoring it where practical, while allowing sustainable use of marine resources.

Inshore: 0 to 12 nautical miles from the UK’s territorial sea baselines.

Inshore Fisheries and Conservation Authorities (IFCAs): IFCAs are responsible for the management of fishing activities in English coastal waters out to six nautical miles from territorial sea baselines. The 10 IFCAs have a shared 'vision' to lead, champion and manage a sustainable marine environment and inshore fisheries.

International Council for the Exploration of the Sea (ICES): Coordinates and promotes marine research on oceanography, the marine environment, the marine ecosystem, and on living marine resources in the North Atlantic.

Joint Fisheries Statement (JFS): As defined by section 2(1) of the Fisheries Act 2020, a document which sets out the policies of the fisheries policy authorities for

achieving, or contributing to the achievement of, the fisheries objectives in the Fisheries Act 2020.

Marine environment: Includes (a) the natural beauty or amenity of marine or coastal areas, or of inland waters or waterside areas, (b) features of archaeological or historic interest in those areas, and c) flora and fauna which are dependent on, or associated with, a marine or coastal, or aquatic or waterside, environment.

Marine litter: Any solid material which has been deliberately discarded or unintentionally lost on beaches, on shores or at sea. It includes any persistent, manufactured or processed solid material.

Marine Management Organisation (MMO): An executive non-departmental public body in the United Kingdom established under the Marine and Coastal Access Act 2009, with responsibility for planning and licensing of activities in English waters from 0-200 nautical miles, save fisheries activities within 0-6nm which are the responsibility of the IFCAs. The MMO also has some UK responsibilities.

Marine Protected Areas (MPA): Areas of the sea protected by law for nature conservation purposes.

Marine Plans: A marine plan is a document which has been prepared and adopted for a marine plan area by the appropriate marine plan authority in accordance with Schedule 6 of the Marine and Coastal Access Act 2009, and which states the authority's policies for and in connection with the sustainable development of the area.

Maximum Sustainable Yield (MSY): Defined in the Fisheries Act 2020 as the highest theoretical equilibrium yield that can be continuously taken on average from a marine stock under existing environmental conditions without significantly affecting recruitment.

National fisheries authorities: As defined by section 25(4) of the Fisheries Act 2020, these are (a) the Secretary of State, (b) the Marine Management Organisation, (c) the Scottish Ministers, (d) the Welsh Ministers, and (e) the Northern Ireland department. The term ‘national fisheries authorities’ differs from ‘fisheries policies authorities’ in including the MMO.

Non-quota stocks (NQS): Species that are not managed through TACs (quota limits). They include some finfish, most commercial shellfish species, and various other species.

Offshore: 12 to 200 nautical miles from the UK’s territorial sea baselines.

Precautionary approach to fisheries management: Defined in section 1(10) of the Fisheries Act 2020 as an approach in which the absence of sufficient scientific information is not used to justify postponing or failing to take management measures to

conserve target species, associated or dependent species, non-target species or their environment.

Processing: As defined by section 52 of the Fisheries Act 2020: in relation to fish or any other aquatic organism, includes preserving or preparing the organism, or producing any substance or article from it, by any method for human or animal consumption.

RAMSAR Convention: The convention emphasises the special value of wetland, particularly as a key habitat for waterfowl. The Convention resulted in the designation of sites known as Ramsar Sites for management and conservation at an international level.

Recreational sea fishing: An umbrella term for a variety of recreational activities including recreational sea angling recreational netters and charter boats.

Regional Fisheries Management Organisation (RFMO): A multilateral international body or agreement set up to manage and conserve fish stocks in a particular region.

Remote Electronic Monitoring (REM): Integrated on-board systems that may include cameras, gear sensors, video storage, and Global Positioning System units, which capture comprehensive videos and are used to monitor fishing activity with associated sensor and positional information.

Resilience: The ability of an ecosystem, species, habitat, or industry to respond, recover or adapt to either changes or disturbances within a reasonable timeframe without permanent loss or damage.

Sensitive species: As defined in section 52 of the Fisheries Act 2020, sensitive species means: (a) any species of animal or plant listed in Annex II or IV of Directive 92/43/EEC of the Council of the European Communities on the conservation of natural habitats and of wild flora and fauna (as amended from time to time), (b) any other species of animal or plant, other than a species of fish, whose habitat, distribution, population size or population condition is adversely affected by pressures arising from fishing or other human activities, or (c) any species of bird.

Shellfish: As defined in section 52 of the Fisheries Act 2020, shellfish includes molluscs and crustaceans of any kind found in the sea or inland waters.

Statutory Nature Conservation Bodies' (SNCBs): The Statutory Nature Conservation Bodies' (SNCBs) are Natural England, Natural Resources Wales, the Northern Ireland Environment Agency, the Joint Nature Conservation Committee, and the Department of Agriculture, Environment and Rural Affairs (DAERA) statutory advisory body, the Council for Nature Conservation and the Countryside.

Sustainable Development: As defined by the Brundtland report (1987), sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable fishing: Sustainable fisheries protect their stocks and the wider environment whilst delivering social and economic prosperity. Fisheries management decisions should balance environmental, economic and social considerations to create sustainable fisheries that benefit present and future generations. It means ensuring that fish stocks can be fished commercially and recreationally, both now and in the future. Both the short-term and the long-term impacts of decisions managing fishing activity to protect stocks and on the fishing industry should be considered, while any short-term decisions to give social or economic benefit should not significantly compromise the long-term health of the marine environment. These decisions should recognise the cultural importance of fishing through maintaining and, where possible, strengthening coastal communities and livelihoods alongside the requirement for fish stocks to reach and maintain sustainable levels.

Territorial sea: The waters under the jurisdiction of a state, defined by UNCLOS as up to 12 nautical miles from the baseline or low-water line along the coast.

The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR): An international agreement for cooperation for the protection of the marine environment of the North-East Atlantic. Work under the Convention is managed by the OSPAR Commission, made up of representatives of the Governments of 15 Contracting Parties and the European Commission, representing the European Union. Work to implement the OSPAR Convention is taken forward through the adoption of decisions, which are legally binding on the Contracting Parties, recommendations, and other agreements.

Total Allowable Catch (TAC): The total allowable catch (TAC) is a catch limit set for a particular fishery or stock, generally for a year or a fishing season. TACs are usually expressed in tonnes of live weight equivalent but are sometimes set in terms of numbers of fish.

Trade and Cooperation Agreement (TCA): The Trade and Cooperation Agreement between the United Kingdom of Great Britain and Northern Ireland, of the one part, and the European Union and the European Atomic Energy Community of the other part. This agreement governs the relationship between the UK and the EU. It was signed in December 2020, applied from 1 January 2021 and was ratified (in a slightly amended form) in April 2021.

UK Marine Policy Statement (UKMPS): The UK policy framework for preparing marine plans and taking decisions that affect the marine environment in the UK.

UK Marine Strategy (UK MS): The UK Marine Strategy provides the framework for delivering marine policy at the UK level and sets out how we will achieve the vision of clean, healthy, safe, productive, and biologically diverse oceans and seas.

UN Convention on Biological Diversity (CBD): The international legal instrument for the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

UN Convention on the Law of the Sea (UNCLOS): A multilateral international agreement that lays down a comprehensive regime of law and order in the world's oceans and seas, establishing rules governing all uses of the oceans and their resources. It was signed in 1982 and came into force in 1994.

UN Sustainable Development Goals: 17 United Nations goals ‘to transform our world’ and promote prosperity whilst protecting the planet. Goal 14 is to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Water quality: A measure of the condition of water and its suitability to sustain a range of uses for both biotic and human benefits.

Appendix F: Statutory Consultee Consultation Responses

Northern Ireland Environment Agency

1st September 2023

BY EMAIL ONLY

Re: Northern Ireland Inshore Fisheries Management Plan – SEA Screening and Scoping Report

Thank-you for your email dated 28th July 2023 regarding the SEA Screening and Scoping exercise in respect of Northern Ireland Inshore Fisheries Management Plan.

The SEA Team within the Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA) has considered the consultation and our opinions are set out below.

DAERA notes comments regarding the screening stage of the SEA process within Section 5.1 of the scoping report. DAERA is content with these conclusions.

DAERA notes from the Scoping report no Zone of Influence has been included, DAERA recommends that this should be included within the Environmental report. Further, the scoping report does not mention any form of transboundary engagement, DAERA recommends that if the plans Zone of Influence extends into any other jurisdiction, then consultation with said jurisdiction should be considered.

DAERA notes that no SEA objectives have been provided, in addition no targets or indicators have also been provided. Alongside SEA objectives, targets and indicators should also be provided within the Environmental Report.

Natural Environment Division Comments

NIEA Natural Environment Division works to ensure that Northern Ireland's special natural environment, including its flora and fauna and landscapes, is conserved, enhanced and managed for the benefit of this and future generations, thereby contributing to sustainable development.

NED notes from Section 3.1.1 that the Environmental Report will provide an overview description of the environmental baseline. NED would recommend that environmental data under each topic area includes maps were appropriate including areas where activities should not go. Details on existing environmental problems relevant to the plan should be identified in the context of relevant environmental objectives standards and thresholds. NED also recommend that a section on how the existing environment without the implementation of the plan should be included within each topic area in the Environmental Report. NED recommend that within the Environmental Report that any significant gaps in baseline data should be provided and if any alternative / proxy data sources are used where baseline data is unavailable. Any technical deficiencies or lack of know how should also be detailed. NED also note that that no section on interrelationships appear to have been included, this should be included in the Environmental Report.

NED notes that Section 4 contains a list of Relevant Plans and Programs. NED advises that section would benefit from the inclusion of a number of additional plans and programs. These are provided at the end of the NED response. NED advise that details on any relevant conflicts and/or synergies between this plans objectives and the objectives of other plans and programs should be identified and described within the Environmental Report. Please note this should include transboundary plans or programs should they require consultation.

NED notes from sections 5.1.1 and 5.1.3 that there is the potential to affect European sites or European offshore marine sites. NED note that no AA (Appropriate Assessment) screening appears to have been carried out at present. NED would recommend that an AA screening is carried out and dependent on the outcome of this a full AA. This would also be the case for a Marine Conservation Zone assessment for MCZs. NED would welcome the opportunity to review the completed AA screening and full AA should if be required and also any Marine Conservation Zone Assessment when they have been completed.

NED notes from Section 5.3.4 that the level of detail possible for the environmental assessment will depend upon the stage of development of the policies and measures of the FMP and that these are subject to evolution. NED advise that the SEA is therefore likely to require periodic reviews. NED would therefore like to see within the Environmental Report details of triggers which might be in place to ensure that the SEA remains up to date throughout the FMP process.

NED also notes from Section 5.3.6 that Biodiversity, Fauna, Flora, Geology and Sediments, Water and Climatic factors have been scoped into the SEA assessment. NED also note that within Table 2 a justification has been provided. NED welcome this and is largely in agreement with these findings, however, in relation to cultural heritage we are in agreement with concerns raised by Marine and Fisheries and Historic Environment Division (HED) in that cultural heritage should be scoped in.

NED note from Section 6 that alternatives will be detailed in the Environmental Report. NED looks forward to reviewing these as part of the Environmental Report.

Please note following the decision of the United Kingdom to leave the European Union, the collective term of “Natura 2000” sites the network of European protected sites are now known as “National Site Network” sites within the United Kingdom, and is including Northern Ireland.

It may be worth including in your considerations the following:

- The Wildlife (NI) Order 1985 (as amended)
- Wildlife and Natural Environment Act (NI) 2011
- The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended)
- The Environment (NI) Order 2002
- The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017
- The Strategic Planning Policy Statement (SPPS) for Northern Ireland
- Planning Policy Statements (PPS – in particular PPS2 and PPS18). It should be noted that the PPS’s will be superseded by Local Development Plans when they are adopted.
- Biodiversity Strategy for NI to 2020 https://www.daera-ni.gov.uk/publications/biodiversity-strategy-northern-ireland-2020-0
- Draft Environment Strategy https://www.daera-ni.gov.uk/consultations/esni-public-discussion-document
- The Draft NI peatland policy: https://www.daera-ni.gov.uk/consultations/ni-peatland-strategy-consultation.
- The Draft Green Growth Strategy Consultation on the draft Green Growth Strategy for Northern Ireland | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)
- Northern Ireland Energy Strategy 2050 Northern Ireland Energy Strategy 2050 | Department for the Economy (economy-ni.gov.uk)

DAERA have a map browser for NI protected sites and known priority habitat: www.daera-ni.gov.uk/services/natural-environment-map-viewer

A number of useful information sources that highlight the current state of the environment in Northern Ireland at a regional level and which could be referenced are:

Northern Ireland State of the Environment Reports: https://www.daera-ni.gov.uk/publications/state-environment-report-2013

Northern Ireland Environmental Statistics Reports: https://www.daera-ni.gov.uk/articles/northern-ireland-environmental-statistics-report

Other relevant web-links are;

Designated Scientific Sites: www.daera-ni.gov.uk/landing-pages/protected-areas

Regional Landscape Character Map viewer: https://www.daera-ni.gov.uk/services/regional-landscape-character-areas-map-viewer

DAERA have a map browser for NI protected sites and known priority habitat: www.daera-ni.gov.uk/services/natural-environment-map-viewer

Our natural environment datasets are available at the link below: www.daera-ni.gov.uk/articles/download-digital-datasets

Appropriate Assessments should refer to the status of habitats and species in the relevant reports available on the JNCC website as follows: UK Article 17 report for the Habitats Directive https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019/ and the UK Article 12 report for the Birds Directive https://jncc.gov.uk/our-work/european-reporting/#birds-directive-reporting

Marine and Fisheries Division Comments

Marine Planning Team

MPT Response

SEA Screening - Scoping Report – Northern Ireland Inshore Fisheries Management Plan July 2023

The Marine Plan Team (MPT) DAERA – Marine & Fisheries Division welcome the opportunity to comment on the SEA Screening - Scoping Report for the Northern Ireland Inshore Fisheries Management Plan.

Fisheries Management Plans set out how to manage fishing activity so the harvesting of fish stocks remain within sustainable levels. The draft Northern Ireland Inshore FMP has a number of objectives for key commercial species exploited in the Northern Ireland inshore zone such as brown crab, velvet crab, lobster, and king and queen scallops. It will focus on managing fishing activity to achieve the sustainable harvesting of the commercially fished stocks in the Northern Ireland Inshore area.

Relevant Plans, Programmes and Environmental Protection Objectives

Under the Domestic Sub-heading, it is advised the following should also be included:

- the Marine Act (Northern Ireland) 2013; and

- draft Marine Plan for Northern Ireland (2018).

Screening

MPT agree with the outcome of the screening exercise that the draft Northern Ireland Inshore FMP must be subject to environmental assessment.

Scope

It is recommended that for the purposes of transparency that Table 2 attributes the relevant UK MS descriptor of Good Environmental Status to the appropriate corresponding environmental issue, whether or not those issues are scoped in or not.

An explanation or statement as to their relevance, or not, should also be provided.

Further Advice

If an objective led assessment is to be used for the Environmental Report, it is recommended that the appropriate UK MS descriptors are included in the corresponding objective. This will ensure the appropriate descriptors are used and considered to test the potential environmental impacts of the draft Plan.

Marine Conservation Branch Response

Marine Conservation Branch welcomes the opportunity to comment of the Northern Ireland Inshore Fisheries Management Plan SEA Screening/Scoping report and has the following comments:

- Marine Conservation branch welcome the following statement in **Section 1.2.9**: *'FMPs will adopt an ecosystem-based approach […]*'
- For **Section 1.3.2 Objective 5** *'Assess the impacts of fishing for crab, lobsters and scallops in the Northern Ireland Inshore Zone on the wider marine environment'* we recommend this should include considering both direct and indirect impacts such as marine litter, marine disturbance, marine entanglement, marine pollution, marine invasive non-native species, changes in predator/prey species behaviours as a result of fishing in an area and the removal of prey/predator species which could potentially lead to trophic cascade.
- In **Section 3.2.1**. '*The Marine Environment is subject to a range of pressures derived from human activities. […]'.* We recommend that this could be expanded to include examples such as climate change as this is directly impacting fisheries due to changes in fish distributions.
- For Section 3.3.*1 '[…] management interventions will seek to reduce the environmental risks linked to over-fishing these stocks, thereby giving net positive benefit to the environmental status of these stocks.'.* We would argue that this is not classed as net positive because sustainable fishing should be

occurring as best practice therefore, additional positive changes would need to be implemented to achieve net positive benefit.

- Marine Conservation Branch welcome the following statement in **Section 3.3.2** *'Nevertheless harvesting within sustainable limits (MSY or appropriate proxies) may not remove all the associated potential negative impacts from fishing for these sticks on the wider marine environment, and additional measures to address risks or impacts may be required.'*
- We welcome the policies listed in **Section 4.2 and 4.3** however recommend also including the following:
    - Draft Marine Plan for Northern Ireland (2018)
    - Wildlife (Northern Ireland) Order 1985
    - Marine Act (Northern Ireland) 2013
    - An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026
- In **Table 2** we welcome the inclusion of Seascape.
- In **Table 2** we welcome '*Biodiversity, Fauna and Flora'* being scoped in. However we advise expanding the justification section to include the following (not an exhaustive list):
    - Disturbance to non-target species
    - Changes in predator/prey behaviour as a direct and indirect effect of fishing in an area
    - Changes in predator/prey availability due to the removal of species during fishing
    - Invasive species
    - Marine litter/pollution
- Please note, under Section 8.1.2 the proposed public consultation dates will need to be amended.

Marine Historic and Environment

Marine Conservation Branch (MCB) do not agree that cultural heritage should be regarded as beyond the scope of the SEAs. If the SEAs do not cover cultural heritage, then they may be challenged on the basis that they have not identified, described and evaluated likely significant effects of an issue, in this case "cultural heritage, including architectural and archaeological heritage" as set out in Schedule 2 of the Regulations.

MCB refers DAERA's SEA team to the glossary of terms included with the Joint Fisheries Statement and the interpretation of the terms used in the UK Fisheries Act, which state that the marine and aquatic environment includes—

> (a) the natural beauty or amenity of marine or coastal areas, or of inland waters or waterside areas,
>
> (b) **features of archaeological or historic interest in those areas**, and

(c) flora and fauna which are dependent on, or associated with, a marine or coastal, or aquatic or waterside, environment;

"Features of archaeological or historic interest" as defined above are commensurate with "cultural heritage, including architectural and archaeological heritage" as defined within schedule 2 of the SEA regulations.

Each of the scoping reports acknowledges that the fishing activity covered by these FMP's has the potential to cause physical disturbance to the seabed. Accordingly, the fishing activity also has the potential to cause physical disturbance to cultural heritage on and within the seabed. Physical disturbance is often detrimental to the conservation of cultural heritage, harms its significance, and compromises its enjoyment by future generations.

The impact on heritage assets of fishing activity – including the use of towed gear and traps – has been repeatedly observed. This includes damage to heritage assets whose significance is recognised through their statutory protection. DAERA Marine & Fisheries Division working with DFC Historic Environment Division have identified multiple incidents of damage to underwater cultural heritage assets which are attributable to seabed fishing activity.

Recent examples are; scallop dredging damaging historic shipwrecks on multiple sites within Belfast Lough and the *SS Hundson*, a Merchant Vessel torpedoed during WW1 while off the east coast of county Down, and the *SS Lochgarry*, a British Troop ship which ran aground off Rathlin during WW2, have been damaged through trawler gear snagging. This last wreck is a scheduled monument designated under the Historic Monuments and Archaeological Objects (NI) Order 1995.

Whilst Marine Conservation Branch acknowledges that FMPs are not intended to focus on mitigating all impacts of fishing on cultural heritage, implementation of FMP objectives is likely to alter factors such as the spatial distribution, intensity, gear and methods of each fishery. Consequently, the FMPs are likely to change patterns of physical disturbance and therefore the potential for significant effects of these fisheries on cultural heritage. Moreover, FMP objectives on potential damaging impacts and the reduction of environmental impacts are directly relevant to cultural heritage. As such, MCB regards cultural heritage as an issue that clearly lies within the scope of these two SEAs.

MCB also notes that the cultural heritage has been scoped into the following 6 FMP's which are currently out for consultation and therefore the approach taken here is inconsistent with the other UK regions:

- Proposed Fisheries Management Plan for Sea bass in English and Welsh Waters Strategic Environmental Assessment: Environmental Report, pg 24 - Environmental Report Bass FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Fisheries Management Plan for Channel Demersal Non-Quota Species Strategic Environmental Assessment: Environmental Report, pg 30 - Environmental Report Channel NQS FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Crab and Lobster Fisheries Management Plan Strategic Environmental Assessment: Environmental Report, pg 43 - Environmental Report Crab and Lobster FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Fisheries Management Plan for king scallops in English and Welsh Waters Strategic Environmental Assessment: Environmental Report, Pg 35 - Environmental Report King Scallop FMPJuly 2023.pdf (defra.gov.uk)
- Southern North Sea and Eastern Channel Mixed Flatfish Fisheries Management Plan Strategic Environmental Assessment: Environmental Report, pg 26 - Environmental Report Flatfish FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Fisheries Management Plan for Whelk in English Waters Strategic Environmental Assessment: Environmental Report, pg 32 - Environmental Report for Whelk FMPJuly 2023.pdf (defra.gov.uk)

As noted above for the purposes of the Fisheries Act 2020, the 'marine and aquatic environment' includes features of archaeological or historic interest in marine or coastal areas (s. 52). The Act provides that financial assistance, regulatory provisions and sea fish licensing can be applied for the purposes of conserving or enhancing the marine and aquatic environment, including features of archaeological or historic interest. The capacity to apply measures in the Act to features of archaeological or historic interest was confirmed by the Minister during the Committee Stage of the Bill in September 2020.

In contrast, it should be noted that cultural heritage / features of archaeological or historic interest are not among the descriptors used by the UK Marine Strategy to provide a framework to assess Good Environmental Status (GES). Consequently, GES does not cover all the issues encompassed by SEA or by the marine and aquatic environment for the purpose of the Fishing Act and other fisheries legislation. Too closely linking the FMPs and SEAs to GES and the UK Marine Strategy is flawed in this respect. MCB would ask DAERA's SEA team address this flaw expressly in the SEAs, including in proposals for monitoring the effects of FMPs set out in the Environmental Reports.

MCB would also like to note that the UK has other international commitments not referenced in the scoping reports that relate to cultural heritage and are relevant to FMPs, namely:

Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992)

How the consultation response was considered

Point #	How point was considered
1. DAERA notes from the Scoping report no Zone of Influence has been included, DAERA recommends that this should be included within the Environmental report. Further, the scoping report does not mention any form of transboundary engagement, DAERA recommends that if the plans Zone of Influence extends into any other jurisdiction, then consultation with said jurisdiction should be considered.	Point noted. The FMP covers the non-quota shellfish stock in Northern Ireland waters only.
2. DAERA notes that no SEA objectives have been provided, in addition no targets or indicators have also been provided. Alongside SEA objectives, targets and indicators should also be provided within the Environmental Report.	The Environmental Report will examine how the goals and actions in the FMPs may result in both significant positive and negative environmental effects. Further details will be outlined in Section 2, Approach to Strategic Environmental Assessment. Additionally, the report will provide information on relevant indicators for the SEA.
3. NED notes from Section 3.1.1 that the Environmental Report will provide an overview description of the environmental baseline. NED would recommend that environmental data under each topic area includes maps were appropriate including areas where activities should not go. Details on existing environmental problems relevant to the plan should be identified in the context of relevant environmental objectives standards and thresholds. NED also recommend that a section on how the existing environment without the implementation of the plan should be	Some recommendations will be included as part of the development process of the Environmental Report. The environmental baseline and the impacts on UKMS, MPA features, and Priority features will be informed by advice from SNCBs. Due to the high-level nature of FMP goals and actions, as well as their early stage of development, assessing the impact of area-specific management measures is

Point #	How point was considered
included within each topic area in the Environmental Report. NED recommend that within the Environmental Report that any significant gaps in baseline data should be provided and if any alternative / proxy data sources are used where baseline data is unavailable. Any technical deficiencies or lack of know how should also be detailed. NED also note that that no section on interrelationships appear to have been included, this should be included in the Environmental Report.	unlikely to be possible at this stage. Before any changes to fisheries management are made as a result of the draft Non-Quota Shellfish FMP, new measures, where necessary, will undergo Habitats Regulations Assessments and Marine Conservation Zone assessments. These assessments will consider potential in-combination effects with other plans and projects within an MPA and will identify any specific interactions.
4. NED notes that Section 4 contains a list of Relevant Plans and Programs. NED advises that section would benefit from the inclusion of a number of additional plans and programs. These are provided at the end of the NED response. NED advise that details on any relevant conflicts and/or synergies between this plans objectives and the objectives of other plans and programs should be identified and described within the Environmental Report. Please note this should include transboundary plans or programs should they require consultation.	Point noted. Additional plans/programmes will be considered as appropriate in the Environmental Report.
5. NED notes from sections 5.1.1 and 5.1.3 that there is the potential to affect European sites or European offshore marine sites. NED note that no AA (Appropriate Assessment) screening appears to have been carried out at present. NED would recommend that an AA screening is carried out and dependent on the outcome of this a full AA. This would	Relevant fisheries management measures will be developed as an outcome of the FMP process. At the time of developing fisheries management measures, Appropriate Assessments will be

Point #	How point was considered
also be the case for a Marine Conservation Zone assessment for MCZs. NED would welcome the opportunity to review the completed AA screening and full AA should if be required and also any Marine Conservation Zone Assessment when they have been completed.	carried out on those proposed management measures, as required.
6. NED notes from Section 5.3.4 that the level of detail possible for the environmental assessment will depend upon the stage of development of the policies and measures of the FMP and that these are subject to evolution. NED advise that the SEA is therefore likely to require periodic reviews. NED would therefore like to see within the Environmental Report details of triggers which might be in place to ensure that the SEA remains up to date throughout the FMP process.	The Environmental Report will include more detailed information in Section 8, Monitoring and Review.
7. In relation to cultural heritage we are in agreement with concerns raised by Historic Environment Division (HED) in that cultural heritage should be scoped in.	Cultural heritage has been included within the scope of the SEA.
8. NED note from Section 6 that alternatives will be detailed in the Environmental Report. NED looks forward to reviewing these as part of the Environmental Report.	Point noted.
9. Please note following the decision of the United Kingdom to leave the European Union, the collective term of “Natura 2000” sites the network of European protected sites are now known as “National Site Network” sites within the United Kingdom, and is including Northern Ireland.	The term “Natura 2000” is not used within this Environmental Report.

Point #	How point was considered
10. Relevant Plans, Programmes and Environmental Protection Objectives Under the Domestic Sub-heading, it is advised the following should also be included: • the Marine Act (Northern Ireland) 2013; and • draft Marine Plan for Northern Ireland (2018).	Relevant reference to the Marine Act (Northern Ireland) 2013 is included in Section 4 of the ER. Relevant reference to the draft Marine Plan for Northern Ireland (2018) is included in Appendix D of the ER.
11. It is recommended that for the purposes of transparency that Table 2 attributes the relevant UK MS descriptors of Good Environmental Status to the appropriate corresponding environmental issue, whether or not those issues are scoped in or not. An explanation or statement as to their relevance, or not, should also be provided.	Point noted. In Table 4 in Section 5, Assessment of Environmental Effects, UK MS descriptors are included for any relevant environmental issue (including those out of scope).
12. If an objective led assessment is to be used for the Environmental Report, it is recommended that the appropriate UK MS descriptors are included in the corresponding objective. This will ensure the appropriate descriptors are used and considered to test the potential environmental impacts of the draft Plan.	Point noted. In Table 4 in Section 5, Assessment of Environmental Effects, UK MS descriptors are linked to the policy goals.
13. For Section 1.3.2 Objective 5 'Assess the impact of fishing for crab, lobster and scallop in the Northern Ireland Inshore Zone on the wider marine environment.' We recommend this should include considering both direct and indirect impacts such as marine litter, marine disturbance, marine entanglement, marine pollution, marine invasive non-native species, changes in predator/prey species behaviours as a result of fishing in an area and the removal of prey/predator species	Point noted. Some recommendations will be included as part of the development process of the Environmental Report. The environmental baseline and the impacts on UKMS, MPA features, and Priority features will be informed by advice from SNCBs.

Point #	How point was considered
which could potentially lead to trophic cascade.	
14. In Section 3.2.1. 'The Marine Environment is subject to a range of pressures derived from human activities. […]'. We recommend that this could be expanded to include examples such as climate change as this is directly impacting fisheries due to changes in fish distributions.	Section 3, Environmental Baseline, considers climate change, and lines of text similar to this highlighted sentence have been edited to explicitly reference climate change is included.
15. For Section 3.3.1 '[…] management interventions will seek to reduce the environmental risks linked to over-fishing these stocks, thereby giving net positive benefit to the environmental status of these stocks.'. We would argue that this is not classed as net positive because sustainable fishing should be occurring as best practice therefore, additional positive changes would need to be implemented to achieve net positive benefit.	Point noted.
16. We welcome the policies listed in Section 4.2 and 4.3 however recommend also including the following: - Draft Marine Plan for Northern Ireland (2018) - Wildlife (Northern Ireland) Order 1985 - Marine Act (Northern Ireland) 2013 - An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026	Relevant reference to the draft Marine Plan for Northern Ireland (2018) is included in Appendix D of the ER. Relevant reference to the Wildlife (Northern Ireland) Order 1985 has been added to Section 4. Relevant reference to the Marine Act (Northern Ireland) 2013 is included in Section 4 of the ER. Relevant reference Towards an Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026 has been added to Section 4.

Point #	How point was considered
17. In Table 2 we welcome ‘Biodiversity, Fauna and Flora’ being scoped in. However we advise expanding the justification section to include the following (not an exhaustive list): - Disturbance to non-target species - Changes in predator/prey behaviour as a direct and indirect effect of fishing in an area - Changes in predator/prey availability due to the removal of species during fishing - Invasive species - Marine litter/pollution	Added suggested list to Table 3.
18. Please note, under Section 8.1.2 the proposed public consultation dates will need to be amended.	Point noted.

Historic Environment Division

Department for Communities
An Roinn Pobal
Depairtment fur Commonities
www.communities-ni.gov.uk

Historic Environment Division

Date: 10/08/2023

HISTORIC ENVIRONMENT DIVISION COMMENTS RE: THE NORTHERN IRELAND INSHORE FISHERIES MANAGEMENT PLAN (FMP) STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) SCREENING / SCOPING REPORT

DfC Historic Environment Division (HED) operate via a Service Level Agreement with colleagues in DAERA in relation to SEA, whereby we provide authoritative comment and advice in relation to matters of Cultural Heritage including archaeological and architectural heritage. We make the following comments in respect of the documentation received by our office on 31 July 2023.

Historic Environment Division do not agree that cultural heritage is beyond the scope of the SEA. If the SEA does not include this topic, it will not have identified, described or evaluated likely significant effects in relation to "cultural heritage, including architectural and archaeological heritage" as set out in Schedule 2 of the Regulations.

The scoping report identifies that fishing activity covered by the plan has the potential to cause physical disturbance to the seabed, which has the potential to cause physical disturbance and potentially adverse impacts to cultural heritage on and within the sea floor.

HED consider that implementation of the plan objectives is likely to alter the spatial distribution, intensity, gear and methods of each fishery. Therefore, the plan is likely to change patterns of physical disturbance and therefore the potential for significant effects of these fisheries on cultural heritage. The plan objectives on potential damaging impacts and the reduction of environmental impacts are directly relevant to cultural heritage. HED also advise of the potential for indirect effects, positive and negative in relation to cultural heritage associated with the fishing industry, -in that historic features such as harbours and dockland infrastructure might be sustained, or conversely potentially be impacted through new works or, abandonment in favour of new infrastructure.

HED have also observed that cultural heritage has been scoped into the following fisheries management plans which are out for consultation and consider that the approach taken here is inconsistent with the other UK regions:

- Proposed Fisheries Management Plan for Sea bass in English and Welsh Waters Strategic Environmental Assessment: Environmental Report, pg 24 - Environmental Report Bass FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Fisheries Management Plan for Channel Demersal Non-Quota Species Strategic Environmental Assessment: Environmental Report, pg 30 - Environmental Report Channel NQS FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Crab and Lobster Fisheries Management Plan Strategic Environmental Assessment: Environmental Report, pg 43 - Environmental Report Crab and Lobster FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Fisheries Management Plan for king scallops in English and Welsh Waters Strategic Environmental Assessment: Environmental Report, Pg 35 - Environmental Report King Scallop FMPJuly 2023.pdf (defra.gov.uk)

- Southern North Sea and Eastern Channel Mixed Flatfish Fisheries Management Plan Strategic Environmental Assessment: Environmental Report, pg 26 - Environmental Report Flatfish FMPJuly 2023.pdf (defra.gov.uk)
- Proposed Fisheries Management Plan for Whelk in English Waters Strategic Environmental Assessment: Environmental Report, pg 32 - Environmental Report for Whelk FMPJuly 2023.pdf (defra.gov.uk)

HED would also highlight potential for positive interactions between fishing and cultural heritage. This includes the potential for reporting of archaeological objects brought up in nets/as part of the catch. HED also advise of the important cultural heritage of fishing in itself, ranging from wrecks of vessels to historic harbours and maritime structures, and settlements/communities that owe their origins/success to the industry. The potential positive interactions between fishery management plans and heritage are a further source of (beneficial) impacts and add yet more weight to the need for cultural heritage to be within the scope of the SEAs.

In terms of the data sources relevant as evidence bases in relation to any future scoping of Northern Ireland's cultural heritage we advise that our historic-environment-digital-datasets (downloadable spatial data) and our Historic Environment Map Viewer will be pertinent resources. The resources outlined within the report are all from HERoNI – the historic environment record of Northern Ireland, an organic record subject to augmentation as new information comes to light. We further advise that datasets specific to the marine historic environment, including shipwrecks and recorded losses may be obtained through contacting colin.dunlop@daera.gov.uk

HED consider that the following plans, programmes are relevant to fisheries management plans with regard to historic environment considerations and commitments around cultural heritage.

International

- Convention for the Protection of the Archaeological Heritage of Europe (Valletta) 1992
- Convention for the Protection of the Architectural Heritage of Europe (Granada) 1985

National level (NI- related plans, programmes and legislation which relate to cultural heritage, and in some cases across other topics as well)

- Conservation Principles guidance | Department for Communities (communities-ni.gov.uk).
- Historic Monuments and Archaeological Objects (NI) Order 1995
- Planning (NI) Act 2011
- Archaeology 2030, A Strategic Approach for Northern Ireland

Should you have any queries regarding the content of our response, we can be contacted at the above address.

How the consultation response was considered

Point #	How point was considered
1. Historic Environment Division do not agree that cultural heritage is beyond the scope of the SEA. If the SEA does not include this topic, it will not have identified, described or evaluated likely significant effects in relation to "cultural heritage, including architectural and archaeological heritage" as set out in Schedule 2 of the Regulations.	Cultural heritage has been included within the scope of the SEA.
2. HED consider that implementation of the plan objectives is likely to alter the	Cultural heritage has been included within the scope of the SEA.

spatial distribution, intensity, gear and methods of each fishery. Therefore, the plan is likely to change patterns of physical disturbance and therefore the potential for significant effects of these fisheries on cultural heritage. The plan objectives on potential damaging impacts and the reduction of environmental impacts are directly relevant to cultural heritage. HED also advise of the potential for indirect effects, positive and negative in relation to cultural heritage associated with the fishing industry, -in that historic features such as harbours and dockland infrastructure might be sustained, or conversely potentially be impacted through new works or, abandonment in favour of new infrastructure.	
3. HED have also observed that cultural heritage has been scoped into the following fisheries management plans which are out for consultation and consider that the approach taken here is inconsistent with the other UK regions	Cultural heritage has been included within the scope of the SEA.
4. HED would also highlight potential for positive interactions between fishing and cultural heritage.	Cultural heritage has been included within the scope of the SEA.
5. HED consider that the following plans, programmes are relevant to fisheries management plans with regard to historic environment considerations and commitments around cultural heritage. International	Relevant reference to the Convention for the Protection of the Archaeological Heritage of Europe (Valletta) 1992 is included in Section 4 of the ER. Relevant reference to Convention for the Protection of the Architectural Heritage of Europe (Granada) 1985 is included in Section 4 of the ER.

• Convention for the Protection of the Archaeological Heritage of Europe (Valletta) 1992 • Convention for the Protection of the Architectural Heritage of Europe (Granada) 1985 National level (NI- related plans, programmes and legislation which relate to cultural heritage, and in some cases across other topics as well) • Conservation Principles guidance | Department for Communities (communities-ni.gov.uk). • Historic Monuments and Archaeological Objects (NI) Order 1995 • Planning (NI) Act 2011 • Archaeology 2030, A Strategic Approach for Northern Ireland	Relevant reference to the Department for Communities 'Conservation Principles' guidance is included in Section 4 of the ER. Relevant reference to the Historic Monuments and Archaeological Objects (NI) Order 1995 is included in Section 4 of the ER. Relevant reference to the Planning (NI) Act 2011 is included in Section 4 of the ER. Relevant reference to Archaeology 2030, A Strategic Approach for Northern Ireland, is included in Section 4 of the ER.