Marine Management Organisation

North West Inshore and Offshore Marine Plans Sustainability Appraisal. Part 3: Results of the Assessment. Final Report.

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Report prepared by: ClearLead Consulting Ltd. in association with WSP UK Ltd. and MarineSpace Ltd.

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1. Introduction and Purpose of this Report

1.1 Introduction

The North West Marine Plan has been subject to an integrated Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) (hereafter referred to as SA) in line with the requirements of Statutory Instrument 2004 No. 1633: The Environmental Assessment of Plans and Programmes Regulations 2004.

This report is Part 3 of the SA Report. It presents the results of the assessment of the North West Marine Plan and its reasonable policy alternatives.

The SA has been carried out by ClearLead Consulting Ltd, in association with WSP UK Ltd and MarineSpace Ltd. on behalf of the MMO.

1.2 Structure of this Report

The SEA Regulations require that an assessment is carried out on the North West Marine Plan as it is developed and a statutory environmental report (an SA report under the English planning system) is produced and consulted on. This report sets out the SA process followed, outlines why alternatives were selected or rejected, reports on the assessment of the marine plan and outlines a programme for monitoring the effects of the marine plan. This SA Report has been produced alongside the production of the North West Marine Plan and was published for consultation at the same time, providing respondents with appropriate information to base their representations about the sustainability implications of the marine plan.

For the sake of clarity, this SA Report is split into a number of parts. This is Part 3 of the SA Report: Results of the Assessment. The other parts of the report are:

- Part 1: Introduction and Methodology
- Part 2: Scoping Information

A separate Non-Technical Summary is also available.

All reports are available at the following weblink:
https://www.gov.uk/topic/planning-development/mariNW-planning

This report addresses the following:

- the reasons for selecting the alternatives dealt with
- the results of the assessment, including the effects of the alternative options and residual effects of the final version of the North West Marine Plan, for each of the assessment topics, which are:
    - Cultural Heritage
    - Geology, Substrates and Coastal Processes
    - Seascape and Landscape
    - Water
    - Air Quality

    - Climate
    - Communities, Health and Wellbeing
    - Economy
    - Biodiversity Habitats Flora and Fauna
- Mitigation measures
- Cumulative effects assessment
- Monitoring programme

Sections 4 to 12 of this report present the potential significant residual effects of the North West Marine Plan by SA topic.

Full detailed assessments are available in a separate technical appendix (SA Report Technical Appendix B: Assessment of the North West Marine Plan). The technical appendix can be filtered in order to view particular parts of the assessment, SA topics or sub-topics or particular policy groupings. For example, in order to view the assessment of one policy grouping, column E can be filtered by clicking the ‘button’ in row 1 and selecting a grouping from the list that appears. Similarly, to view the assessment against an SA sub-topic, click the ‘button’ in row 1, column C and select the SA sub-topic from the list that appears.

The assessments of policies have been informed by the MMO’s interactive marine planning tool, the Marine Information System (MIS). The MIS has been superseded by an alternate service, Explore Marine Plans (EMP), which is accessible online. EMP draws data from various sources including the MMO, delivery partners and industry, and compiles information on sectors and activities which support the development and implementation of marine plans.

2. The Reasons for Selecting Alternatives

2.1 Introduction

As part of the development of the North West Marine Plan, several reasonable alternative options for the policies within the North West Marine Plan were identified by the MMO and tested through the SA. As required by the SEA Regulations (Schedule 2), the SA Report identifies the reasons for the selection of the preferred options in preference to other alternative options.

In SA, this is interpreted as having two meanings:

1. why it was 'reasonable' to select the alternatives which were developed to be tested
2. why the preferred approach was selected in light of the SA of alternatives

2.2 The Alternatives Developed

Prior to options development the MMO identified key issues, which were then categorised as opportunities or challenges across the north west marine plan areas, which were determined at an appropriate spatial and temporal scale. These key issues were then recorded within the Issues and Evidence Database and arranged into themes:

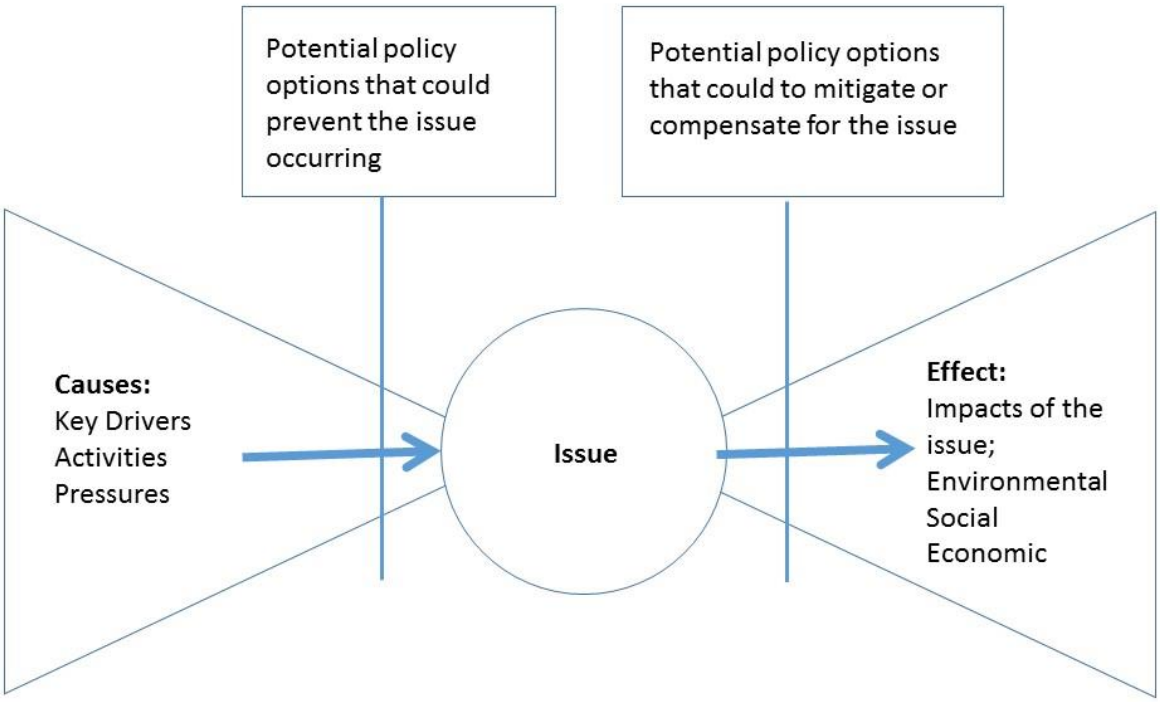
- **economy**: aquaculture, co-existence, ports and harbours, shipping, renewables, oil, gas and CCUS, cables, infrastructure, aggregates
- **environment**: climate change, coastal change, air quality, disturbance, ecosystem approach, habitats, invasive non-native species, litter, marine protected areas (MPAs), geodiversity, species, water quality
- **governance**: cumulative effects
- **social**: access, employment, fisheries, historic environment, seascape, tourism and recreation, dredging and disposal, heritage assets, defence

The issues under these themes are not exclusive and others have been included as appropriate when issues and supporting evidence have been identified through the planning process.

Once key issues were identified for the north west marine plan areas, the causes and effects of these issues were considered, and later validated by stakeholders. Using this, the MMO identified where the most appropriate policy intervention could sit, either preventing the cause of the issue, or where this can't be controlled by policies within the North West Marine Plan, addressing the effect of the issue.

This process is presented in Figure 1.

Figure 1: Methodology for Devising Policy Options.



From this, realistic and deliverable alternatives were created, which align with the Marine Policy Statement (MPS) High Level Marine Objectives (HLMOs)[1] and other relevant legislation, as well as address current and future issues in the plan area. As a result, each of the marine plan areas (north east, north west, south east and south west) has a variety of different 'groupings' (for example, Access) and each 'grouping' had a number of potential options. The groupings and options reflect key issues in each of the marine plan areas, and therefore vary across plan areas. For the North West Marine Plan there were 29 groupings under which 261 individual options were assessed through the SA.

These options were subject to stakeholder engagement during Iteration 2 across the north east, north west, south east and south west marine plan areas. This took place between 29 January 2018 and 29 March 2018. Across these four marine plan areas, a total of 1632 comments were received by the MMO in response to the Iteration 2 consultation. This stakeholder input, along with the SA's options assessment findings, was then used to identify a preferred and sustainable option for each grouping which could be developed into a detailed policy.

Following the identification of a preferred option for each grouping, compatibility checks were undertaken by the MMO, during which the preferred option for each grouping was compared with other preferred options to ensure compatibility with each other. Following this exercise, a gap analysis was undertaken which identified any policy gaps within each marine plan area. A policy gap is where policies existed in other plan areas that were deemed to be nationally relevant, so were therefore introduced in areas where they did not exist after the Iteration 2 options process.

[1] HM Government, UK Marine Policy Statement, 2011

During the compatibility check and gap analysis exercises, some policy options were merged to create preferred policies compatible across the four marine plan areas and some additional preferred policies were introduced to some marine plans in order to fill an identified policy gap. In these cases, the policies had not been considered at the options (Iteration 2) stage as no marine plan issues had been identified in the earlier marine plan development stages. In these cases, there is not considered to be an alternative option to consider because the policy is required to fill a policy gap.

Through the development of the preferred set of policies for each marine plan area, options have been rejected for the following reasons:

- they were not identified as the most sustainable option in the SA
- they were not identified as compatible with other preferred policies, for example because they were a duplicate or overlapped with another policy (in which case some preferred policies were merged, or their strength changed)
- they were not favoured by stakeholders during the Iteration 2 engagement in February/March 2018

Iteration 3 stakeholder engagement was then undertaken on a preferred set of policies with detailed policy content between 21 January 2019 and 29 March 2019. Following engagement, the preferred policies were edited to address consultee comments. The final set of preferred policies was then passed to the SA consultants for assessment. The methodology followed for undertaking this assessment is described in Section 3.3 Part 1 of the SA Report.

2.3 Reasons for Selecting the Alternatives

As mentioned above, stakeholder input, along with the SA's options assessment findings were used to identify a preferred and sustainable option for each grouping which was then developed into a detailed policy. Some of the preferred policies resulted from a combination of options assessed at the options stage and some have also been merged with other policy options.

2.4 Findings of the Assessment of Alternatives

The options assessment stage was undertaken between June 2017 and April 2018 by ClearLead Consulting Ltd working in association with WSP Ltd and MarineSpace Ltd.

The options stage was a significant phase in the marine planning process; it considered the different ways of delivering the vision and HLMO objectives and was the mechanism which determined how the marine plan responded to issues in the north west marine plan area. The options assessment formed part of Iteration 2 of the SA of the marine plans, and the methodology for this is set out within Part 1 of the SA Report.

All reasonable policy options for the North West Marine Plan were assessed against each SA sub-topic. The SA database (Technical Appendix A) was referred to throughout the assessments to provide evidence of relevant issues and baseline

data. The assessment focussed on identifying potential significant effects and providing a comparison between the options being considered for each policy grouping.

The key recommendations from the assessment of the options were to avoid taking forward options which were identified as having the potential to result in a significant negative effect on the SA sub-topic, and to opt for options which would enhance the significant positive effects identified. It was also recommended that policy authors minimise the uncertainty associated with the implementation of a policy. Where applicable, the assessors also identified further mitigation measures which could assist with the development of the preferred options.

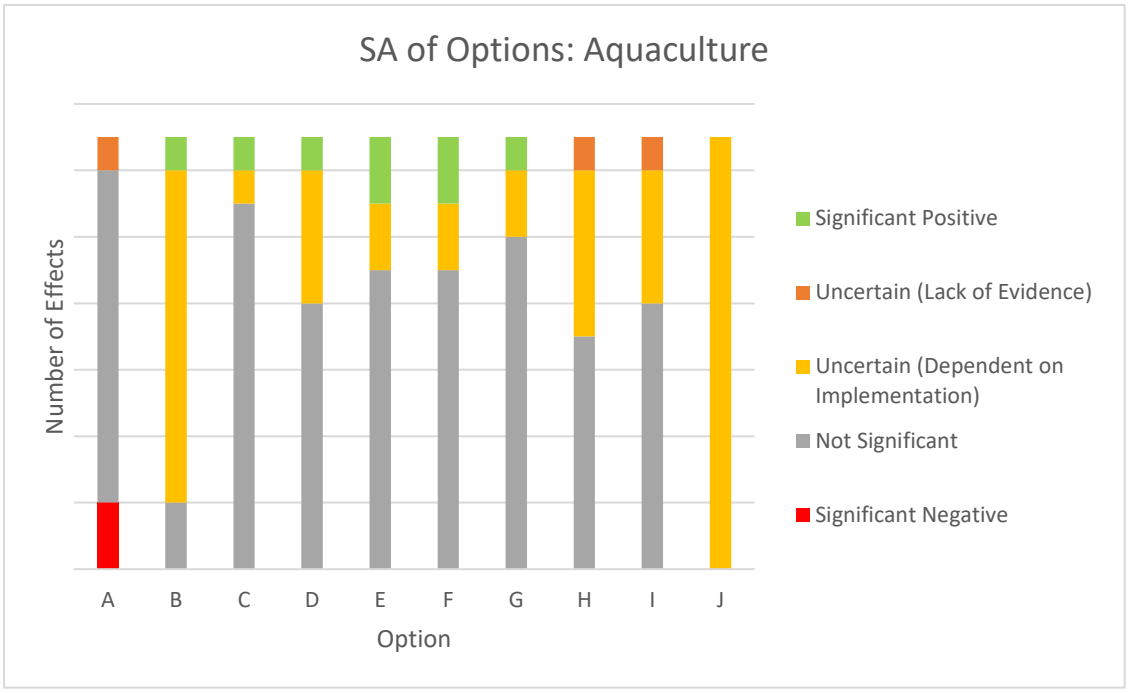
The assessment outputs from the options assessment stage comprised of an Excel workbook containing the assessments of the policy options for each grouping against the relevant SA sub-topics. This totalled 254 policy options across 29 groupings for the North West Marine Plan. From the completed assessments, a pivot table and chart were generated, providing a visual representation of the findings of the assessment for each grouping. An example is shown below. This allowed a quick comparison to be made of the relative performance of all options within a grouping (A – N of the x axis within the example provided below) against the relevant SA sub-topics (tallied in the y axis within the example provided below).

The options assessment of the draft North West Marine Plan was reported in an options assessment SA report which was published in June 2018. The report can be found here, and is organised in 4 sections:

- Section 1 sets out the purpose of this report and details of the options being assessed for the marine plans
- Section 2 outlines the methodology of the SA options assessment
- Section 3 summarises the results of the SA options assessment
- Section 4 outlines the next steps in the plan making and SA processes.

Within Section 3 of the report, the results of the SA options assessment are summarised by policy grouping, highlighting the potential significant or uncertain effects which may be had on any of the SA topics as a result of the implementation of any of the policy options within the individual policy grouping. It presents the comparison of the performance of options assessed for each grouping in the form of a pivot chart. The findings of the assessment of options has been used by the MMO to make decisions between options to be taken forward, with the aim being to take forward the most sustainable option (as identified within the assessment). The decision-making has also considered the responses from stakeholders to the Iteration 2 engagement undertaken by the MMO. Figure 2 below shows an example of the options assessment output.

Figure 2: Example Options Assessment Output.



3. Summary of Policies Assessment Results

3.1 Introduction

This section presents a summary of the assessment findings of the North West Marine Plan.

This follows the assessment of the preferred options under taken in 2019, and takes into account changes made to the policies following consultation, changes made to the policies to address mitigation put forward by the SA, and takes account of the mitigation provided by the final policies within the plan. The results of the assessment of the preferred options can be found here.

This section presents the headline results of the SA of the final policies within the North West Marine Plan, identifying the residual significant positive and negative effects and any uncertainties for each SA sub-topic. The significant effects and uncertainties identified are described further for each SA topic in sections 4 to 12 of this report and presented in detail in Technical Appendix B to this report.

The headline results of the assessment are summarised in Table 1.

Table 1: Headline Results of the Assessment.

	Policy Grouping																											
SA Topic/SA Sub-topic	**Access**	**Aggregates**	**Air Quality**	**Aquaculture**	**Biodiversity**	**Cables**	**Climate change**	**Co-existence**	**Cumulative effects**	**Cross-border co-operation**	**Defence**	**Disturbance**	**Dredging and Disposal**	**Employment**	**Fisheries**	**Heritage Assets**	**Infrastructure**	**Invasive non-native species**	**Marine Litter**	**Marine Protected Areas**	**Oil, Gas and CCUS**	**Ports and Harbours**	**Tourism and recreation**	**Renewables**	**Seascape and Landscape**	**Social benefits**	**Underwater Noise**	**Water Quality**
Cultural Heritage																												
Heritage Assets within marine plan areas						?							?			?					?			?				
Heritage Assets adjacent to marine plan areas						?										?					?							
Geology, Substrates and Coastal Processes																												
Coastal features and processes		?					++																	?				
Seabed substrates and bathymetry		?											?															
Seascape and Landscape																												
Effects on seascape and landscape																++					?				++			
Water																												
Marine litter										++																		
Pollution and water quality								?																				++
Tides and currents																												
Water temperature and salinity																								++				
Air																												
Air pollutants			++																									

	Policy Grouping																											
SA Topic/SA Sub-topic	**Access**	**Aggregates**	**Air Quality**	**Aquaculture**	**Biodiversity**	**Cables**	**Climate change**	**Co-existence**	**Cumulative effects**	**Cross-border co-operation**	**Defence**	**Disturbance**	**Dredging and Disposal**	**Employment**	**Fisheries**	**Heritage Assets**	**Infrastructure**	**Invasive non-native species**	**Marine Litter**	**Marine Protected Areas**	**Oil, Gas and CCUS**	**Ports and Harbours**	**Tourism and recreation**	**Renewables**	**Seascape and Landscape**	**Social benefits**	**Underwater Noise**	**Water Quality**
Climate																												
Climate change resilience and adaptation							++													++								
Greenhouse gas emissions			++																					++				
Communities, Health and Wellbeing																												
Effects on communities										++				++			++						++					
Effects on protected equality groups														++														
Health and the wider determinants of health										++													++			++		
Economy																												
Aggregate extraction		++															++											
Defence																												
Energy generation and infrastructure development						++								++						?	++			++				
Fisheries and aquaculture														++	++													
Leisure/recreation	++													++									++			++		
Marine manufacturing																				?								

	Policy Grouping																											
SA Topic/SA Sub-topic	**Access**	**Aggregates**	**Air Quality**	**Aquaculture**	**Biodiversity**	**Cables**	**Climate change**	**Co-existence**	**Cumulative effects**	**Cross-border co-operation**	**Defence**	**Disturbance**	**Dredging and Disposal**	**Employment**	**Fisheries**	**Heritage Assets**	**Infrastructure**	**Invasive non-native species**	**Marine Litter**	**Marine Protected Areas**	**Oil, Gas and CCUS**	**Ports and Harbours**	**Tourism and recreation**	**Renewables**	**Seascape and Landscape**	**Social benefits**	**Underwater Noise**	**Water Quality**
Ports and shipping														++			++					++						
Seabed assets						++																						
Tourism														++									++					
Biodiversity																												
Benthic and inter-tidal ecology								?	++			?								++	?							
Fish and shellfish						?									?			++									?	?
Marine megafauna																					?						?	
Invasive non-native species																		++										
Ornithology																				++		--						
Plankton																								?				
Protected sites and species									++												?						?	

4. Results of the Assessment - Cultural Heritage

4.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to cultural heritage. It covers heritage assets within the north west marine plan areas and those which are adjacent to the north west marine plan areas. The description of results for both SA sub-topics has been provided below. The full assessment of the cultural heritage SA topic can be found in Technical Appendix B.

4.2 Results of the Assessment of all Policy Groupings on Cultural Heritage

Figure 3: Effects on the Heritage Assets within the Marine Plan Areas SA Sub-Topic.

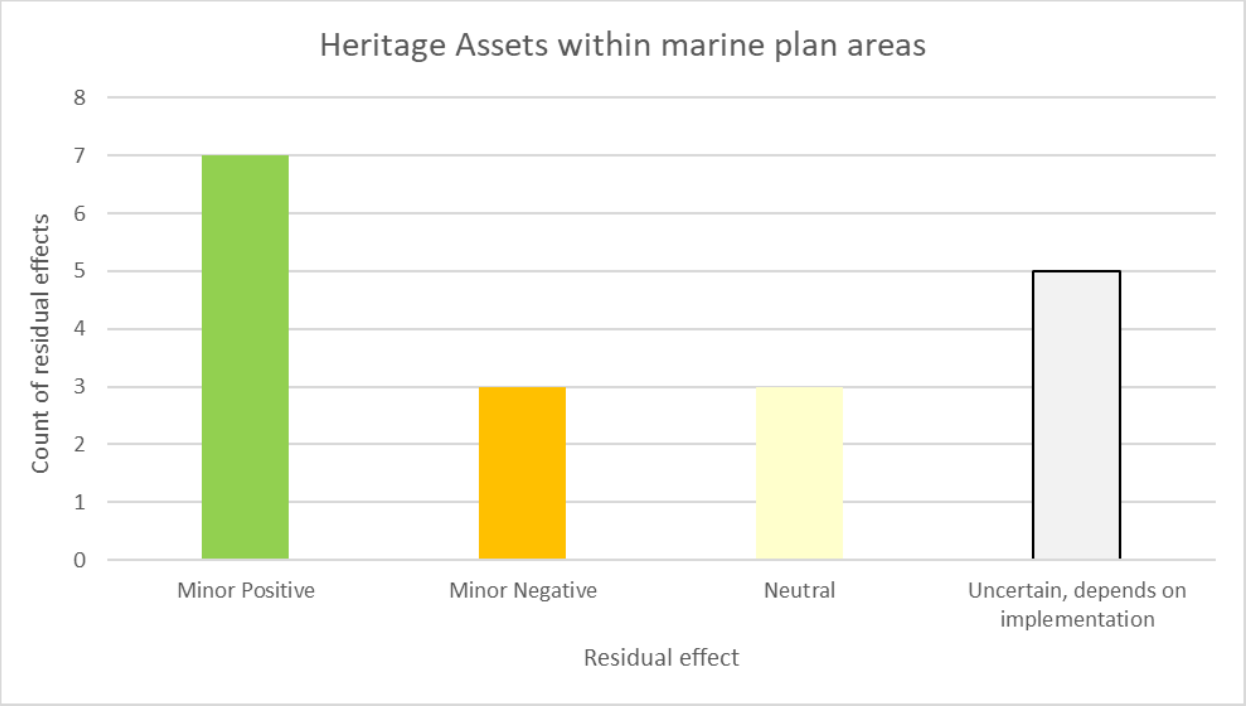
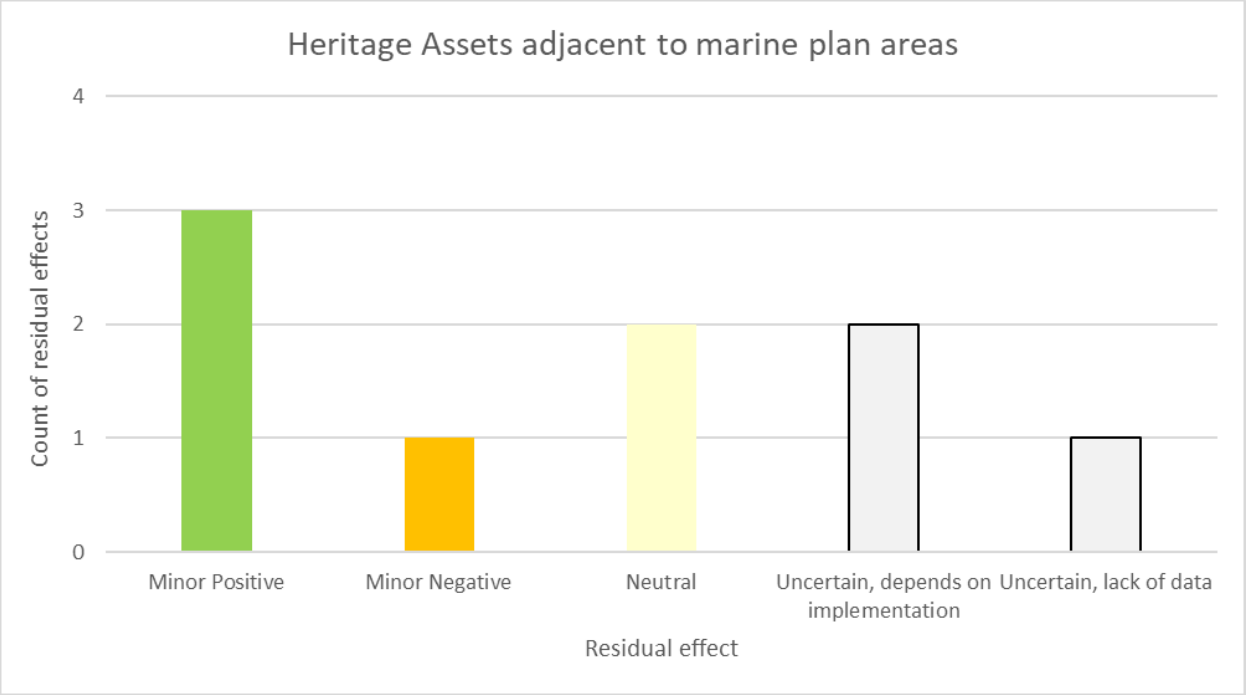


Figure 4: Effects on the Heritage Assets Adjacent to the Marine Plan Areas SA Sub-Topic.



Potential uncertain effects have been identified on heritage assets within the north west marine plan areas. Policy groupings cables, dredging and disposal, oil, gas and CCUS, and renewables all aim to protect current activity and promote future activity within the north west marine plan areas. The baseline has identified the significant under exploited potential of buried heritage assets in the north west marine plan areas, as well as the potential for adverse effects on those heritage assets that are already uncovered, from cables, dredging and disposal, oil and gas and renewables. Policy NW-HER-1 could provide protection to heritage assets, however, it is uncertain which policy would have precedence.

If developments are proposed, the potential negative effects on heritage assets will need to be addressed through the Environmental Impact Assessment (EIA) process, where required under the Marine Works EIA Regulations 2017 (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant environmental effects, be located in a sensitive area and is above the threshold specified in the EIA regulations). This could include an additional archaeological and cultural heritage effect assessment. In some instances the loss of heritage assets may not be mitigatable. An uncertain effect, depending on implementation, is therefore identified.

Uncertain effects have been recorded as a result of the cables and oil, gas and CCUS policy groupings, on heritage assets adjacent to marine plan areas. These policy groupings give preference to cables, oil and gas and carbon capture usage and storage developments which could result in significant negative effects on heritage assets adjacent to marine plan areas, but this would be dependent on implementation.

NW-HER-1 aims to protect heritage assets from developments that have the potential to result in adverse effects. However the last section of policy NW-HER-1 will allow for some harm to heritage assets to occur if harm to such assets cannot be avoided by development , if it can be demonstrated that the public benefits of proceeding with the proposal outweighs the harm to the significance of the heritage assets. Hence, an uncertain effect has been recorded is it will be dependent on implementation.

5. Results of the Assessment - Geology, Substrates & Coastal Processes

5.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to geology, substrates and coastal processes. It covers seabed substrates and bathymetry, and coastal features and processes, these are both separate SA sub-topics. The description of results for both SA sub-topics has been provided below. The full assessment of the geology, substrates and coastal processes SA topic can be found in Technical Appendix B.

5.2 Results of the Assessment of all Policy Groupings on Geology, Substrates and Coastal Processes

Figure 5: Effects on the Coastal Features and Processes SA Sub-Topic.

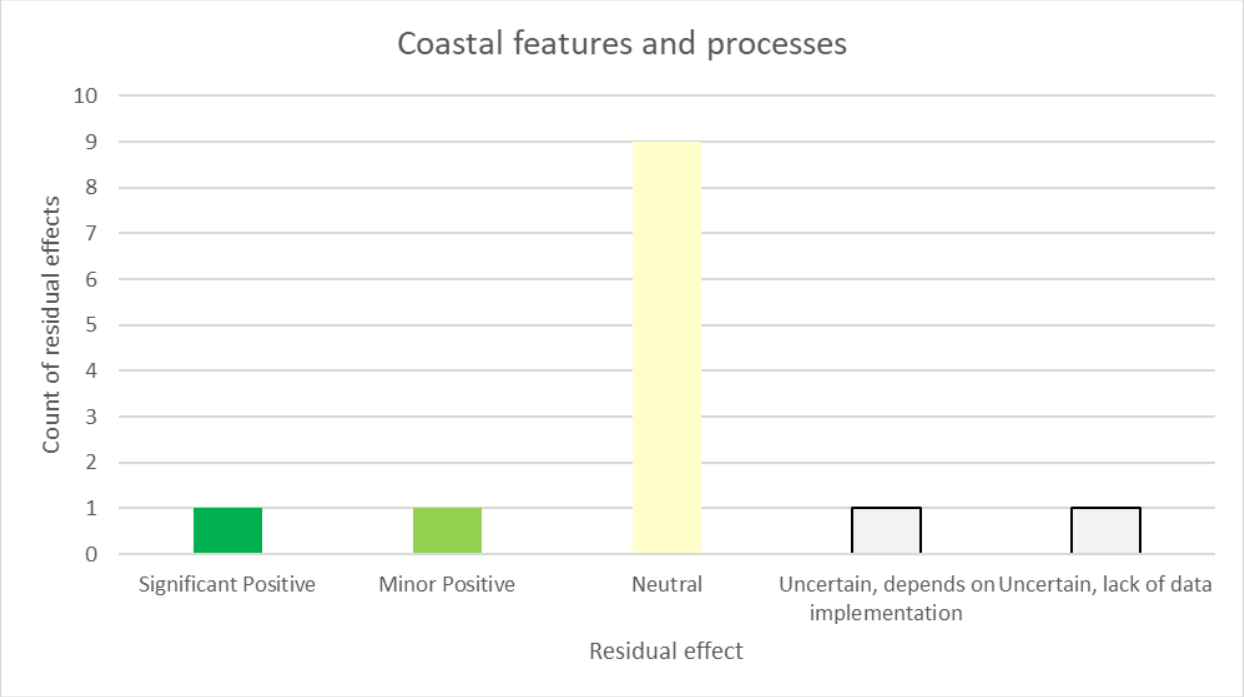
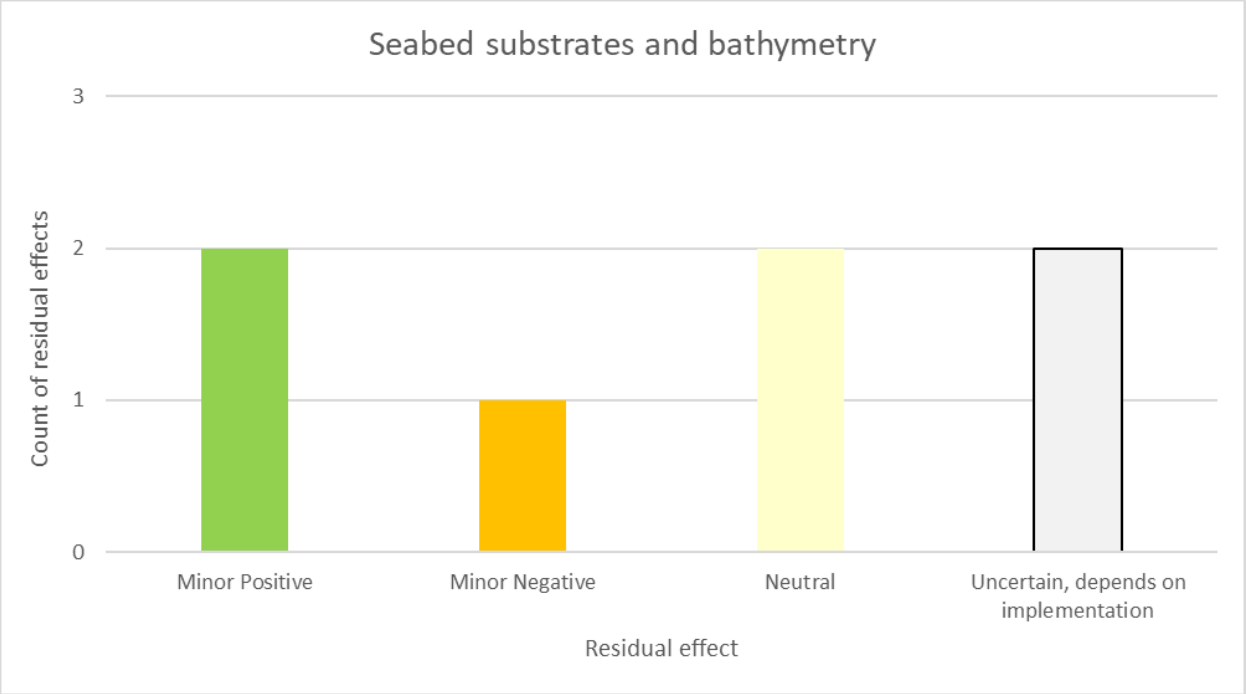


Figure 6: Effects on the Seabed Substrate and Bathymetry SA Sub-Topic.



A significant positive effect has been identified for coastal features and processes, in relation to the climate change policy grouping (see Figure 5). Policies NW-CC-1, NW-CC-2 and NW-CC-3 in combination, seek to increase resilience of geology to the effects of climate change, minimise adverse effects on coastal change adaptation measures and support proposals which have the potential to increase flood defence and carbon sequestering habitats.

The north west marine plan areas contain three Geological Conservation Review Sites, indicative of 26 different processes, formations and regimes relating to sediment supply and transport, tides, waves, surveys, currents and sea-level history. Marine dredging has potential to result in the loss of seabed substrates, whilst disposal of dredge material can disturb the seabed at both the extraction and selected disposal site. The dredging and disposal policy grouping aims to safeguard dredging activity within the north west marine plan areas, rather than increasing dredging activity, however, as dredging is an enabling activity which is essential to the functioning of ports and marinas, it is assumed that NW-DD-1 and NW-DD-2 will help dredging activity to continue. It is assumed that all new dredging proposals would be subject to an EIA, which would assess the potential effect on seabed substrate and bathymetry. This could help to mitigate potential negative effects. An uncertain effect, depending on implementation is recorded for the seabed substrates and bathymetry SA sub-topic.

Aggregate extraction activities have the potential to affect areas of seabed altering sediment processes and physical processes and creating sediment plumes as well as altering the hydrodynamic regime and consequently coastal processes. There are currently no licensed aggregate extraction areas in the north west marine plan areas, however, there is one site located within the Irish Sea which has been included within Round 4 of The Crown Estates leasing rounds. Policies have the potential to help to safeguard this site for future aggregate developments, which have the

potential to result in significant negative effects, however, there is no certainty on whether development will take place at this stage, and for this reason an uncertain effect has been identified, for both geology, substrates & coastal processes SA sub-topics.

Similarly, uncertain effects have been identified in relation to the aquaculture, cables, infrastructure, oil, gas and CCUS and ports and harbours policy groupings. These policy groupings could lead to the introduction of structures within the inshore marine plan area, which has the potential to alter coastal processes. However, as the details of projects including size and location are currently unknown, the potential effects cannot be determined.

The effects of renewable energy installations on potentially sensitive environmental features are unknown at present. Policies NW-REN-1, NW-REN-2 and NW-REN-3 could result in further renewable energy developments within the north west marine plan areas. Whilst the installation of renewable technology and subsequent reduced contributions to climate change may help to appease the effects of increased storminess such as coastal inundation and change, development within the marine environment, particularly the inshore marine plan area, may affect environmental features either directly or through alterations of coastal processes. Due to the unknown type and location of future renewable sites, an uncertain effect has been identified, for the coastal features and processes sub-topic.

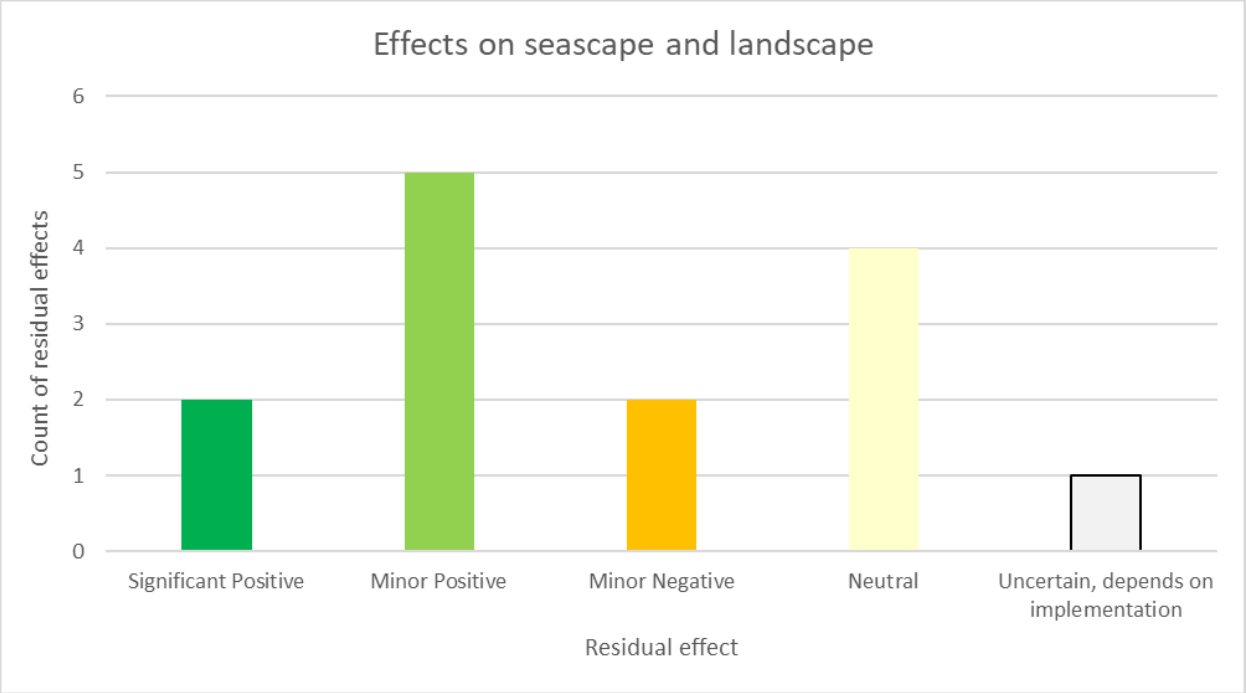
6. Results of the Assessment - Seascape & Landscape

6.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to seascape and landscape. The full assessment of the seascape and landscape SA topic can be found in Technical Appendix B.

6.2 Results of the Assessment of all Policy Groupings on Seascape & Landscape

Figure 7: Effects on Seascape and Landscape SA Sub-Topic.



A significant positive effect has been identified in relation to the seascape and landscape policy grouping, as seen in Figure 7. Policy NW-SCP-1 aims to maintain and improve the seascape and landscape within the north west marine plan areas. Proposals which may harm the current seascape or landscape must demonstrate why this is necessary and mitigate adverse effects. NW-SCP-1 also outlines the need for consideration of locally designated areas, such as the Arnside and Silverdale AONB, and opportunities to enhance or conserve such areas are encouraged.

There is a close relationship between the presence of heritage assets and the character, value and appreciation of landscape and seascape. St Bees Head is the only part of the north west inshore marine plan area that is designated as a heritage coast. Policy NW-HER-1 aims to protect heritage assets from future proposals, ensuring that the diversity of the marine environment, and its cultural heritage, is protected. The policy supporting text has also identified how the setting of heritage assets may also be important to the significance of the asset. For these reasons, a significant positive effect has been identified, in regard to the heritage assets policy grouping on the seascape and landscape SA sub-topic.

Oil, gas and carbon capture usage and storage developments have potential for negative visual effects on the seascape and landscape of the north west marine plan areas. Given the importance of the Lake District National Park and Solway Coast and Arnside and Silverdale AONBs, if developments were to come forward, there is potential for significant negative effects. Policies NW-OG-1 and NW-OG-2 may not directly result in further oil and gas developments within the north west marine plan areas, however, there are currently 23 licensed areas and 13 new blocks that have been provisionally awarded as part of the 31st licensing round. The 32nd round is currently in progress and may result in further blocks coming forward. Given that the oil and gas industry in the north west region contributes significantly to the UK overall supplies, it is assumed that these policies will ensure that development will continue, which has the potential to negatively affect seascape and landscape within the north west marine plan areas. Whether carbon capture usage and storage developments come forward as a result of policies NW-CCUS-1, NW-CCUS-2 and NW-CCUS-3 is currently uncertain, although it is noted that the Liverpool Bay oil and gas fields project has the potential to adversely affect the seascape if the project proceeds. Therefore, an overall uncertain effect has been recorded.

7. Results of the Assessment - Water

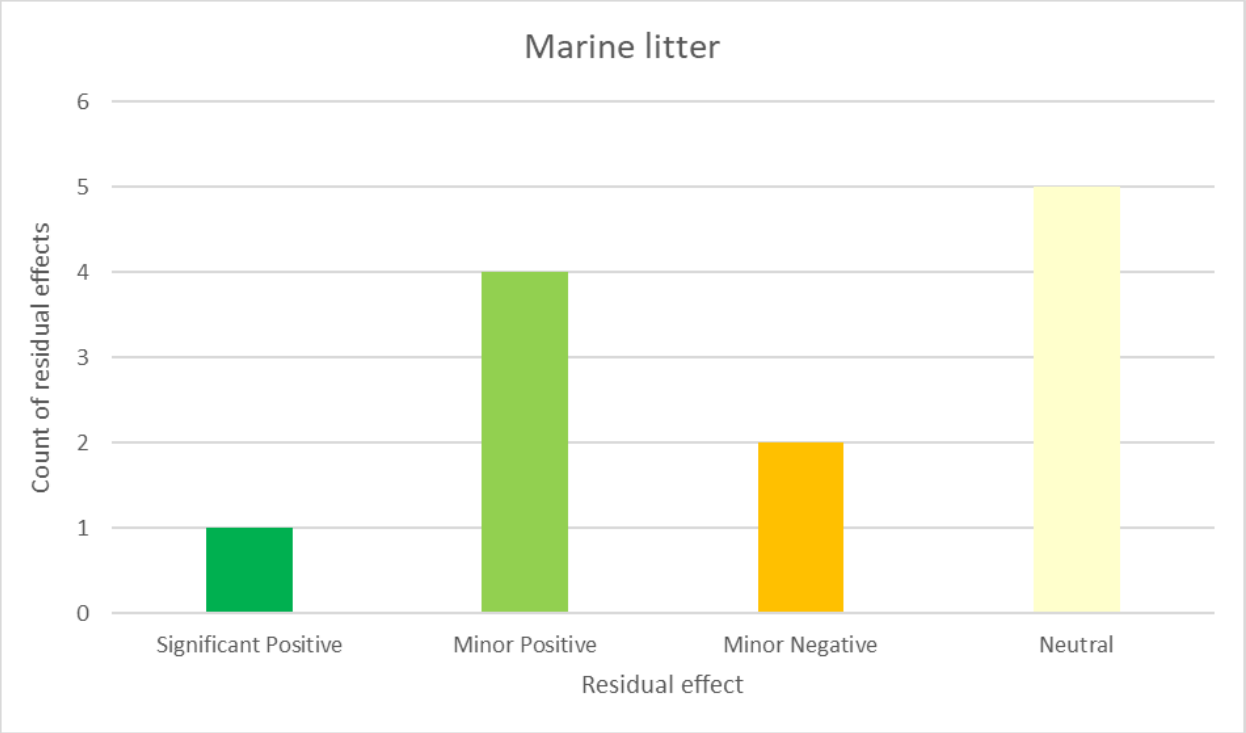
7.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to water. It covers tides and currents, water temperature and salinity, pollution and water quality (including eutrophication) and marine litter, which comprise four separate SA sub-topics. The full assessment of the water SA topic can be found in Technical Appendix B.

7.2 Results of the Assessment of all Policy Groupings on Water

7.2.1 Marine Litter

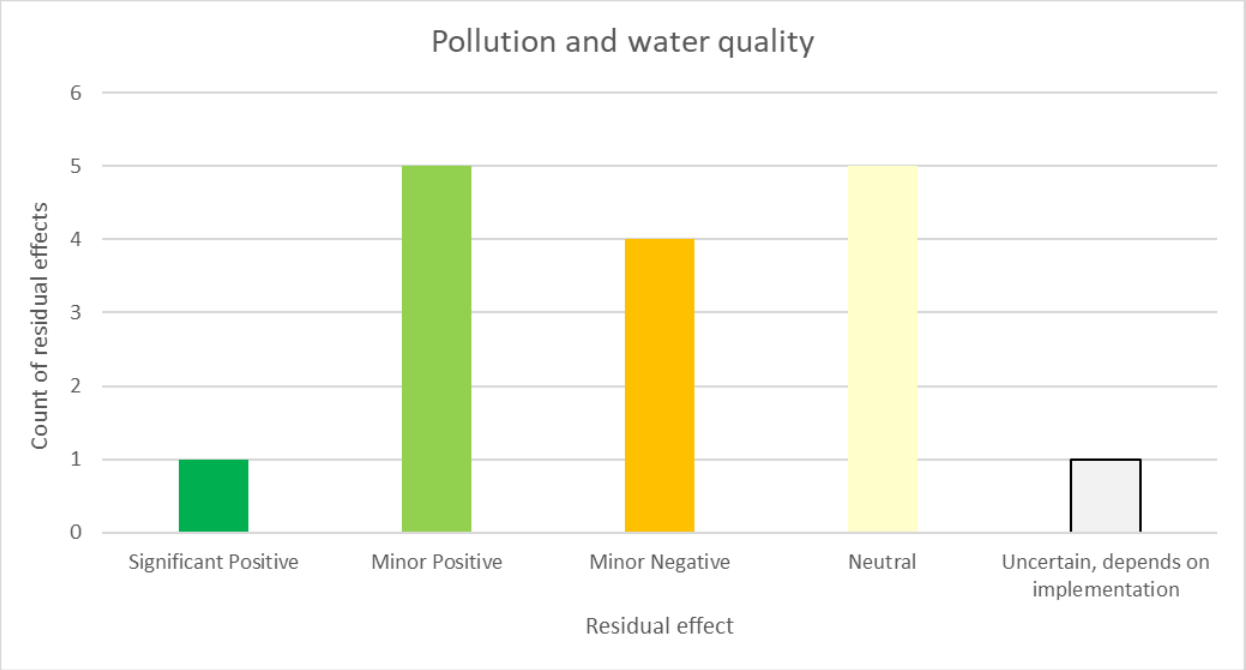
Figure 8: Effects on the Marine Litter SA Sub-Topic.



Marine litter is transboundary in nature. The European Commission has stated in order to tackle marine litter issues, a joined up approach is needed. The NW-CBC-1 policy supporting text states that the alignment of marine planning with other planning, regulation and management bodies is necessary in order to manage pressures and aims to ensure cross-border effects are minimised across international borders. It is therefore considered that the cross-border co-operation policy has the potential to result in a significant positive effect on the marine litter SA sub-topic.

7.2.2 Pollution and Water Quality

Figure 9: Effects on the Pollution and Water Quality SA Sub-Topic.



Policy NW-WQ-1 aims to enhance and restore water quality within the north west marine plan areas. Given that water quality is an issue across the two plan areas, it is assumed that this policy will result in the improvement of water quality, therefore a significant positive effect has been identified in relation to pollution and water quality SA sub-topic.

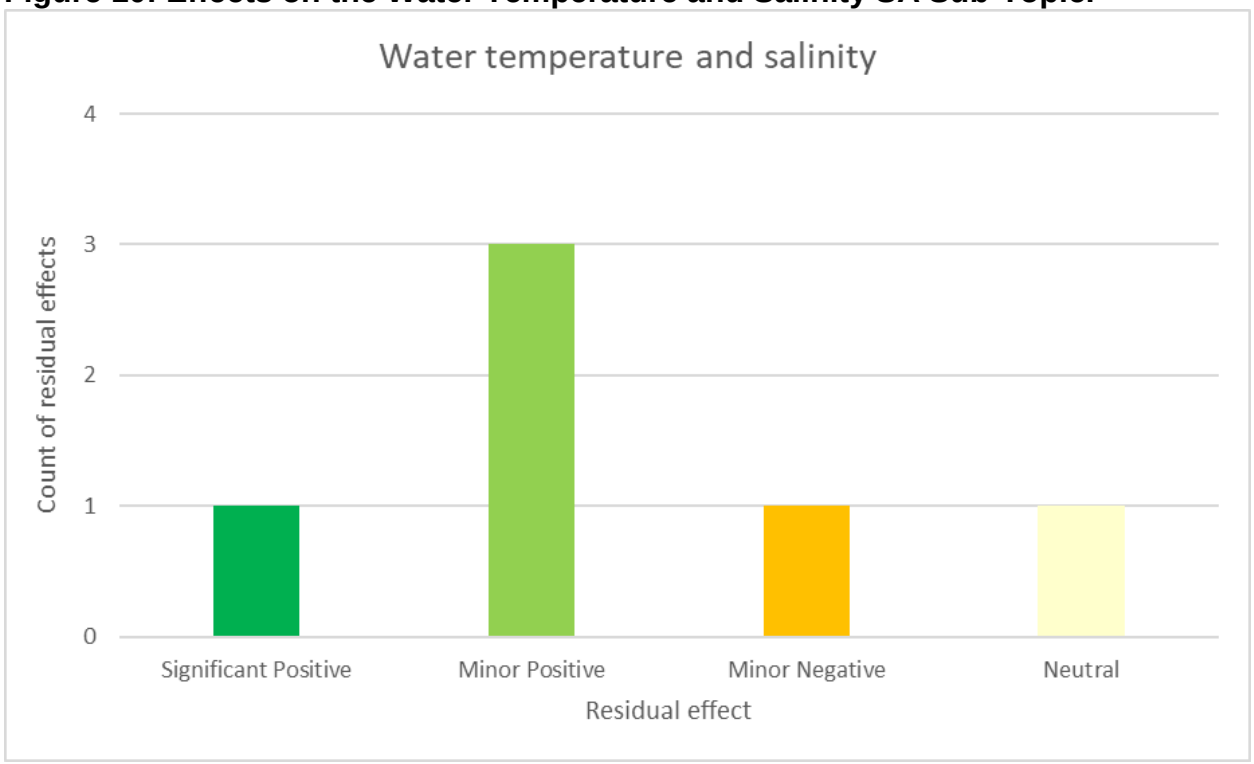
There are current conflicts between marine activities and water pollution. During 2019, 16% of north west beaches were classified as 'sufficient'. Water quality in the plan area has been affected by mine discharges, oil and gas activities and nuclear discharges. As NW-CO-1 is an economic policy, it is assumed that priority will be given to the economic activities. However, as the quality of bathing waters can play an integral part in tourism and recreation sector, the policy could indirectly result in water quality being protected. As this is not known for certain, an uncertain effect has been identified in relation to the co-existence policy grouping.

7.2.3 Tides and Currents

No residual significant positive, significant negative or uncertain effects have been recorded for this SA sub-topic. This is following amendments to both policy wording and supporting text, by the MMO after their consideration of consultee comments and mitigation suggested from the SA of the draft policies. Therefore, there are no significant effects reported here. For a more detailed assessment, including the mitigation provided by other policies, the mitigation suggested at the draft assessment stage, as well as showing where minor positive, minor negative and neutral effects occur, please see Technical Appendix B.

7.2.4 Water Temperature and Salinity

Figure 10: Effects on the Water Temperature and Salinity SA Sub-Topic.



A potential significant indirect positive effect has been identified in relation to the renewables policy grouping on the water temperature and salinity SA sub-topic. It is assumed that an increase in renewable energy generation as supported through policies NW-REN-1, NW-REN-2 and NW-REN-3, could work to counter the advance of climate change and the associated effects on water temperature and salinity.

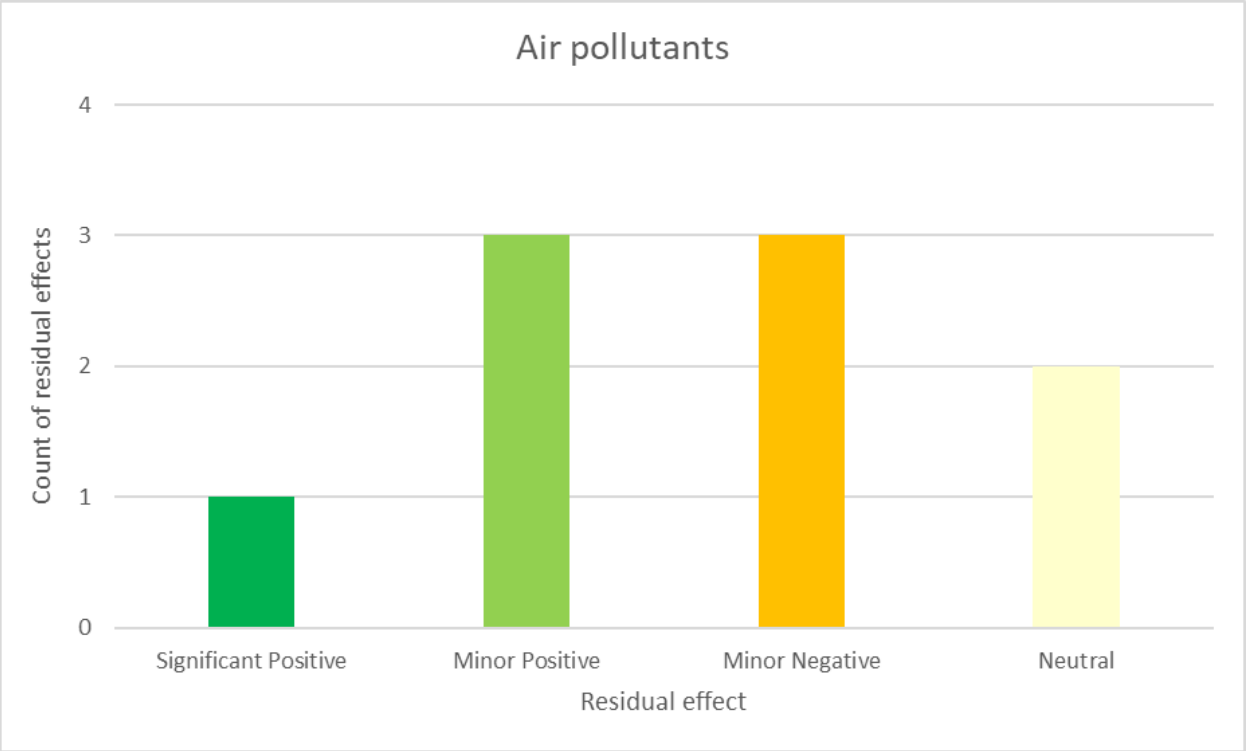
8. Results of the Assessment - Air Quality

8.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to air quality. It covers the air pollutants sub-topic. The full assessment of the Air Quality SA topic can be found in Technical Appendix B.

8.2 Results of the Assessment of all Policy Groupings on Air Quality

Figure 11: Effects on the Air Pollutants SA Sub-Topic.



Policy NW-AIR-1 has the potential to help in reducing air pollution from future proposals, as the policy aims for all proposals to demonstrate consideration of their contribution to air pollution, both direct and cumulative. Given that air pollution is an issue in the north west inshore marine plan area, the policy has the potential to effectively help to reduce air pollution. Therefore, a significant positive effect has been identified with regard to the air pollutants SA sub-topic and the air quality policy grouping. The policy is likely to be further supported by local planning policies as well as the Clean Air Strategy[2].

[2] Department for Environment Food and Rural Affairs, Clean Air Strategy, 2019

9. Results of the Assessment - Climate

9.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to climate. It covers greenhouse gas emissions and climate change resilience and adaptation. Due to the similarities in performance across the two climate SA sub-topics, the description of results has been grouped. The full assessment of the Climate SA topic can be found in Technical Appendix B.

9.2 Results of the Assessment of all Policy Groupings on Climate

Figure 12: Effects on Climate Change Resilience and Adaptation SA Sub-Topic.

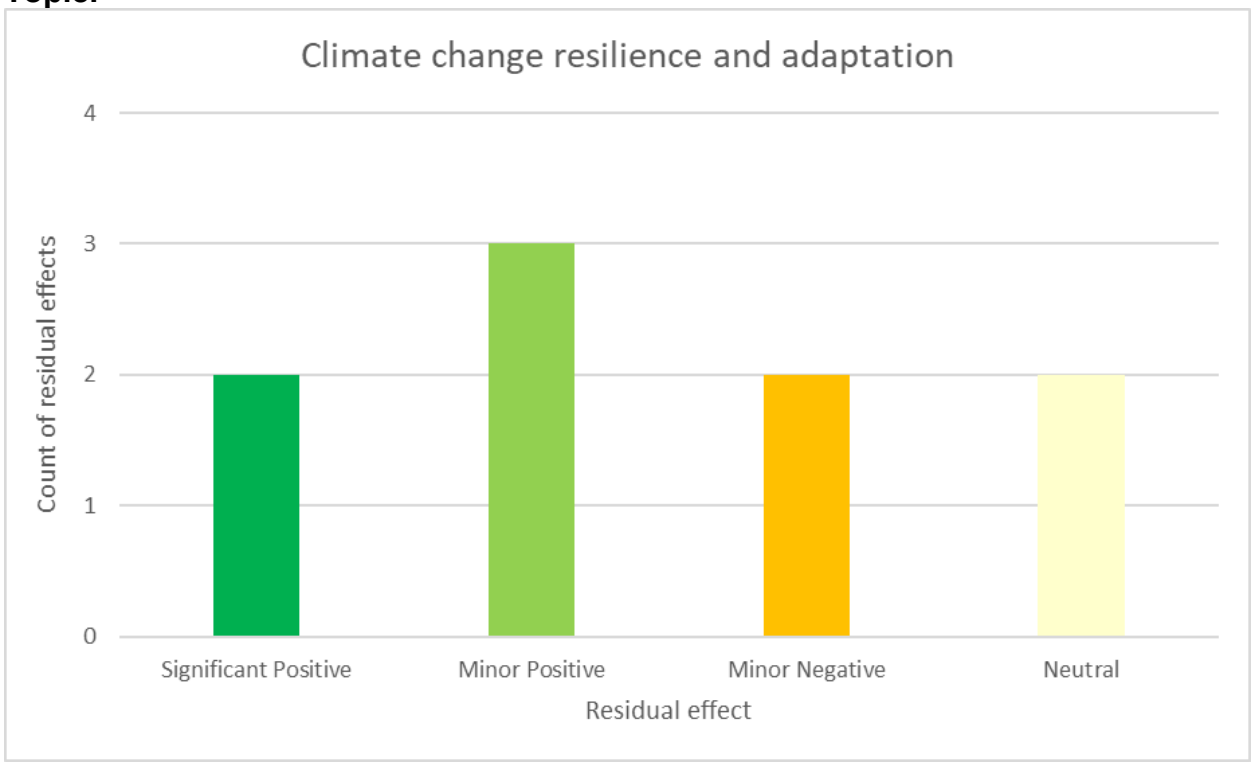
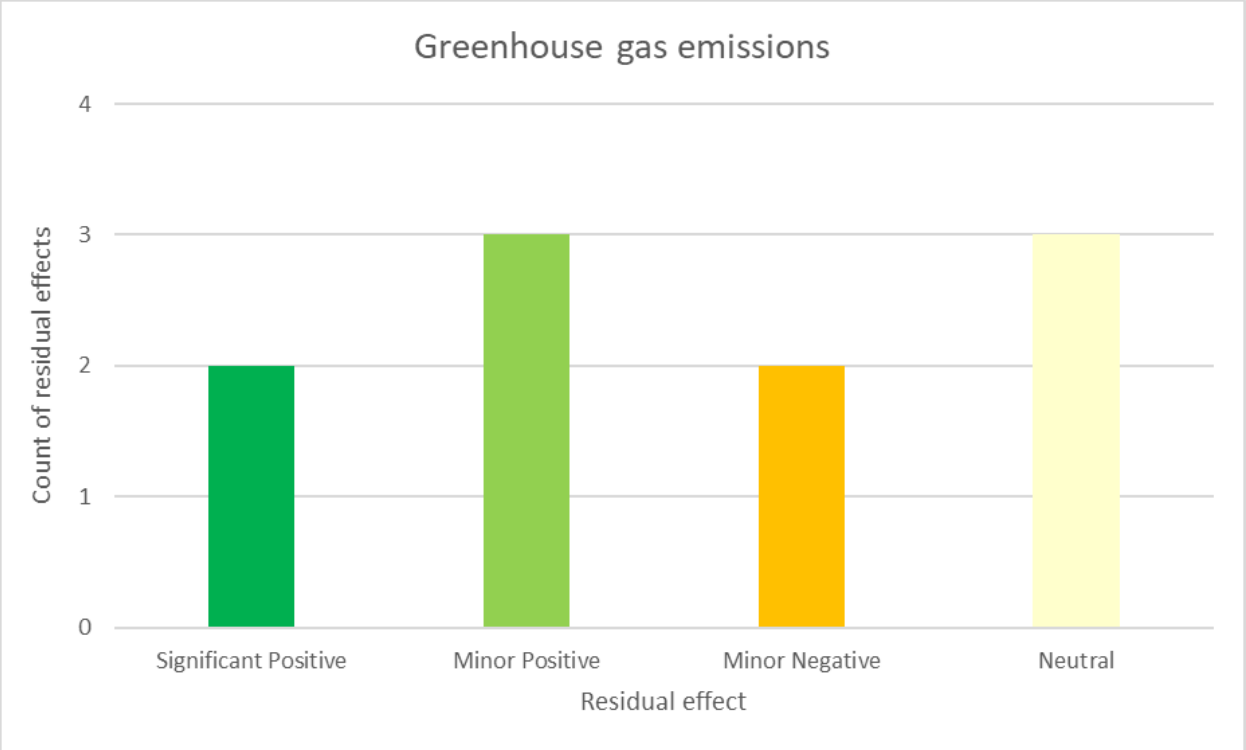


Figure 13: Effects on the Greenhouse Gas Emissions SA Sub-Topic.



The climate change policy grouping could result in a potential significant positive effect on the climate change resilience and adaptation SA sub-topic. In combination, policies NW-CC-1, NW-CC-2 and NW-CC-3 seek to increase resilience and adaptation to the effects of climate change. This includes the minimisation of adverse effects on coastal change adaptation measures and support of proposals which have the potential to increase flood defence and carbon sequestering habitats. Further potential significant positive effects have been identified, with regard to the marine protected areas policy grouping. The issue of climate change adaption is directly addressed, with clear preference for proposals which enhance the adaptability of marine protected areas to climate change.

A potential significant positive effect has been identified in relation to the renewables policy grouping on the greenhouse gas emissions SA sub-topic as these policies support increased energy generation by marine renewables which in turn could alleviate demand on greenhouse gas-emitting fossil fuel energy generation. Policy NW-AIR-1 aims for all proposals to demonstrate consideration of their contribution to air quality and greenhouse gas emissions, both directly and cumulatively. Given that air pollution is an issue in the north west marine plan areas, the policy has the potential to effectively help to reduce air pollution. The policy is likely to be further supported by local planning policies as well as the Clean Air Strategy[3]. For this reason, a significant positive effect has been identified for the greenhouse gas emissions SA-sub-topic.

[3] Department for Environment Food and Rural Affairs, Clean Air Strategy, 2019

10. Results of the Assessment - Communities, Health & Wellbeing

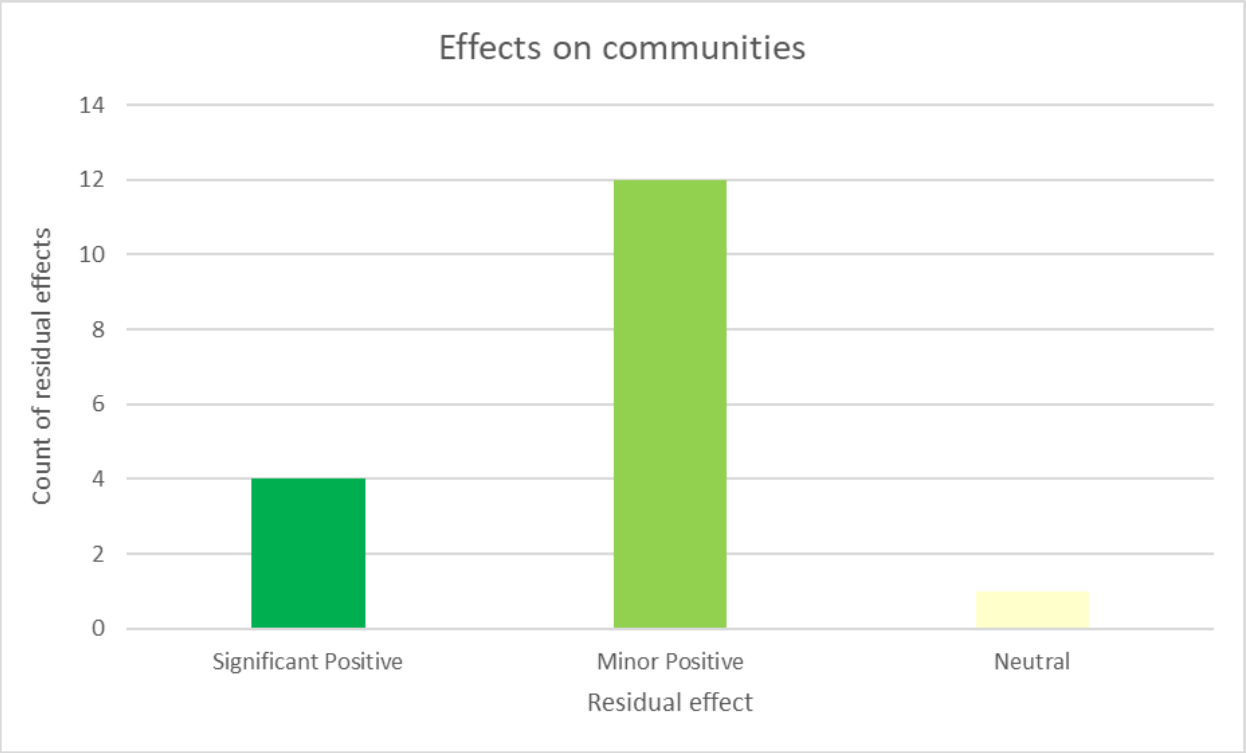
10.1 Introduction

This section of the report presents the performance of the North West Marine Plan in relation to communities, health and wellbeing. This topic covers health and wider determinants of health and effects on communities, which comprise one SA sub-topic, and effects on protected equality groups, which comprise a second SA sub-topic. The full assessment of the communities, health and wellbeing SA topic can be found in Technical Appendix B.

10.2 Results of the Assessment of all Policy Groupings on Communities, Health & Wellbeing

10.2.1 Effects on Communities

Figure 14: Effects on the Communities SA Sub-Topic.



The baseline has identified income and employment deprivation issues associated with coastal communities across the north west inshore marine plan area. As NW-EMP-1 is specifically aimed at areas of deprivation and focusses employment opportunities on local skill sets, a significant positive effect has been identified with regard to the employment policy grouping and the effects on communities SA sub-topic.

Infrastructure policy NW-INF-1 supports the diversification and regeneration of marine based industries. Given the high dependence upon the fishing sector and the decline the industry is now facing, it is assumed that the diversification and

regeneration that the policy provides has the potential to result in significant positive effects on communities.

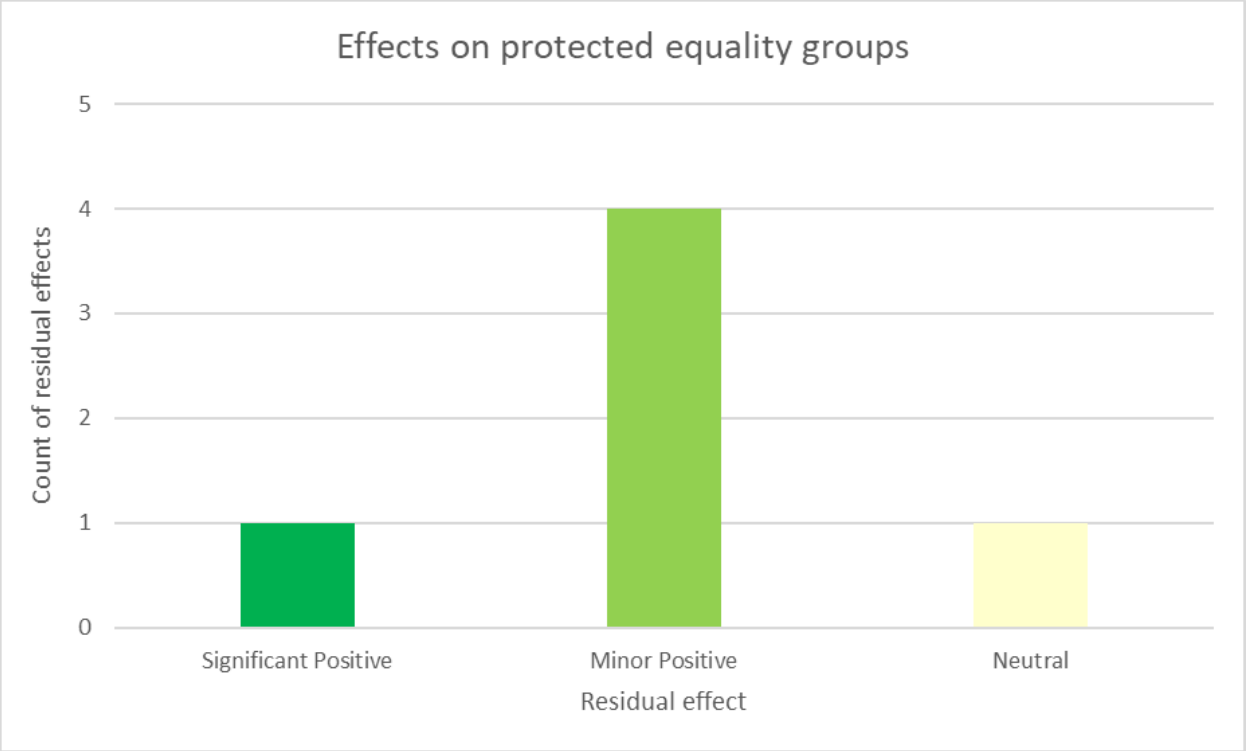
Further significant positive effects have been identified in relation to the tourism and recreation policy grouping. Increased access to tourism and recreation activities has the potential to provide significant social benefits for communities through greater social cohesion, improved health and wellbeing (both physical and mental) and job creation.

Deprivation in relation to income, employment, education shows more deprived lower super output areas (LSOA) on the coast compared to the rest of England[4]. Policy supporting text for NW-CBC-1 states that proposals that occur in the north west marine plan areas should consider the transboundary effects upon adjacent marine plan areas and the terrestrial environment including economic, social and environmental effects, in order to achieve sustainable development. It is therefore considered that all future proposals will need to consider potential impacts on communities in order to achieve sustainable development, and for this reason a potential significant positive effect has been identified in relation to NW-CBC-1.

[4] The Indices of Deprivation 2015 measures deprivation in small areas across England. These small areas are called Lower-Layer Super Output Areas (LSOAs) and are a standard way of dividing up the country – Ministry of Housing, Communities and Local Government (formerly the Department for Communities and Local Government), The English Indices of Deprivation 2015

10.2.2 Effects on Protected Equality Groups

Figure 15: Effects on the Protected Equality Groups SA Sub-Topic.

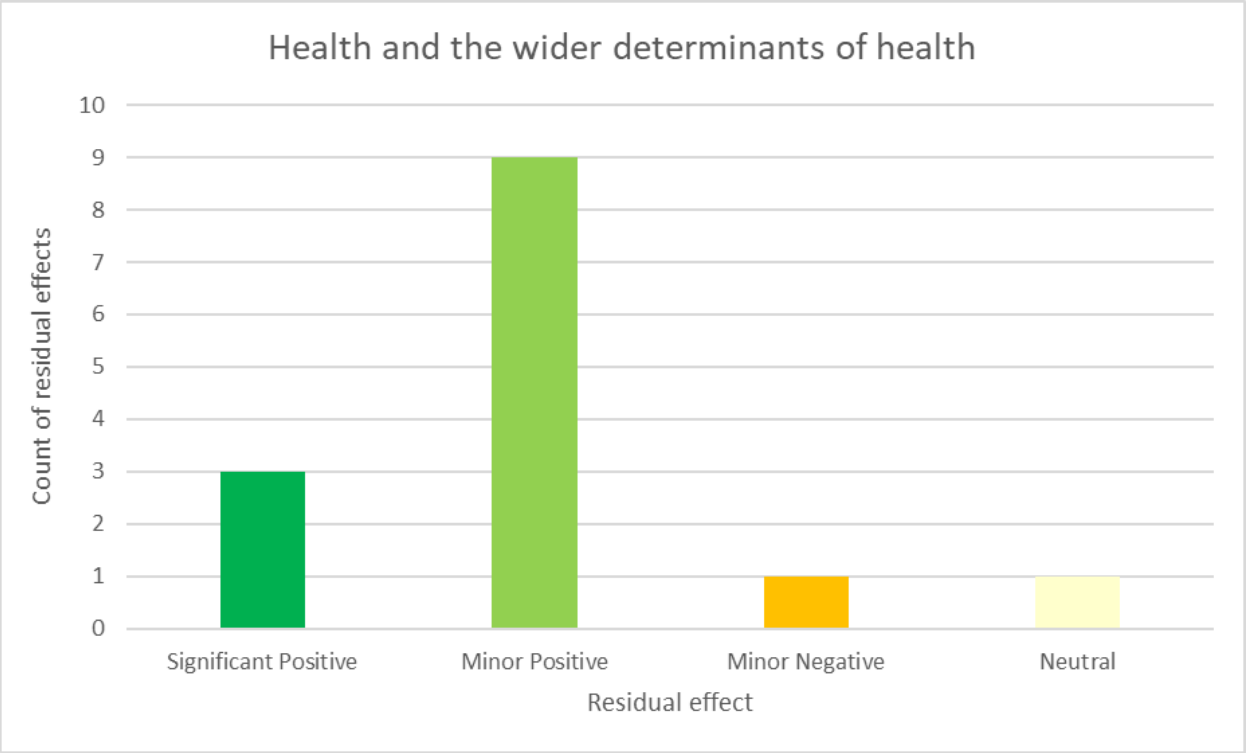


Under the Equalities Act (2010)[5], protected characteristics are age, disability, sex, gender reassignment, pregnancy or maternity, race, religion or belief, sexual orientation, marriage and civil partnership.. NW-EMP-1 policy supporting text states it will encourage public authorities to consider the long-term employment benefits of a proposal and how the required skills equate to those of the marine plan area. It will enable maximum sustainable activity, prosperity and opportunities for all, both now and in the future. It is therefore assumed that the employment policy will help to provide employment opportunities for all, including those from protected equality groups, and for this reason, a potential significant positive effect has been identified.

[5] Equality Act 2010 (Commencement No. 1) Order 2010 (SI 2010/1736)

10.2.3 Health and the Wider Determinants of Health

Figure 16: Effects on the Health and Wider Determinants of Health SA Sub-Topic.



The baseline has identified that health problems are more prevalent on the coast, with Blackpool topping the list of local authorities across England with the highest number of prescriptions of antidepressants[6]. Access to a high quality marine environment can make a significant contribution to the mental and physical health and wellbeing of communities. Given the issues identified in the baseline, the social benefit policy grouping (specifically NW-SOC-1) has potential to tackle these and result in a significant positive effect.

Access to recreational activities can make an important contribution to health and wellbeing of communities. As policy NW-TR-1 aims to protect existing recreational and tourism developments from future proposals and support future recreation and tourism opportunities, a significant positive effect has been identified, for the tourism and recreation policy grouping.

Policy NW-CBC-1 supporting text states that proposals that occur in the north west marine plan areas should consider the cross-border effects upon adjacent terrestrial environment including economic, social and environmental effects. As social, environmental and economic effects are taken into consideration, it is assumed that this policy has the potential to result in a significant positive effect on health, in particular the wider determinants of health.

[6] https://www.theguardian.com/society/2017/apr/14/antidepressants-prescribed-deprived-seaside-towns-of-north-and-east-blackpool-sunderland-and-east-lindsey-nhs

11. Results of the Assessment - Economy

11.1 Introduction

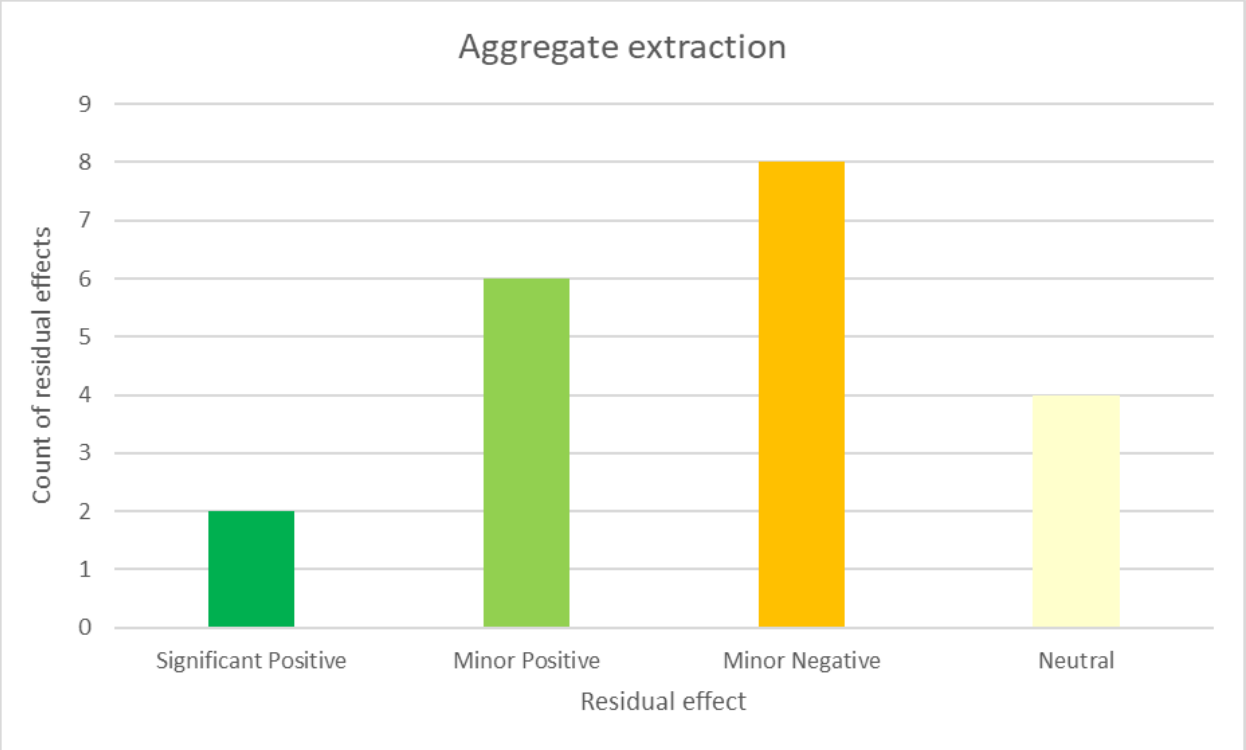
This section of the report presents the performance of the North West Marine Plan in relation to the economy. This topic encompasses ports and shipping, fisheries and aquaculture, leisure/recreation and tourism, marine manufacturing, defence, aggregate extraction, energy generation and infrastructure development (renewables, carbon capture usage and storage, nuclear and fossil fuels) and seabed assets. Each of these comprises a separate SA sub-topic, and all have been scoped in for the SA of both the inshore and offshore north west marine plan areas.

Sub-section 11.2 is split into nine parts, reflecting the nine SA sub-topics. The full assessment of the economy SA topic can be found in Technical Appendix B.

11.2 Results of the Assessment of all Policy Groupings on Economy

11.2.1 Aggregate Extraction

Figure 17: Effects on the Aggregate Extraction SA Sub-Topic.



The aggregate policy grouping has the potential to result in higher levels of extraction across the north west marine plan areas. The baseline has identified the significance of the UK marine aggregates and the importance they could play in the future for meeting housing demands and provision of fill for major coastal infrastructure projects, such as ports, coastal defences, renewable energy and nuclear energy projects. For these reasons a potential significant positive effect has been identified.

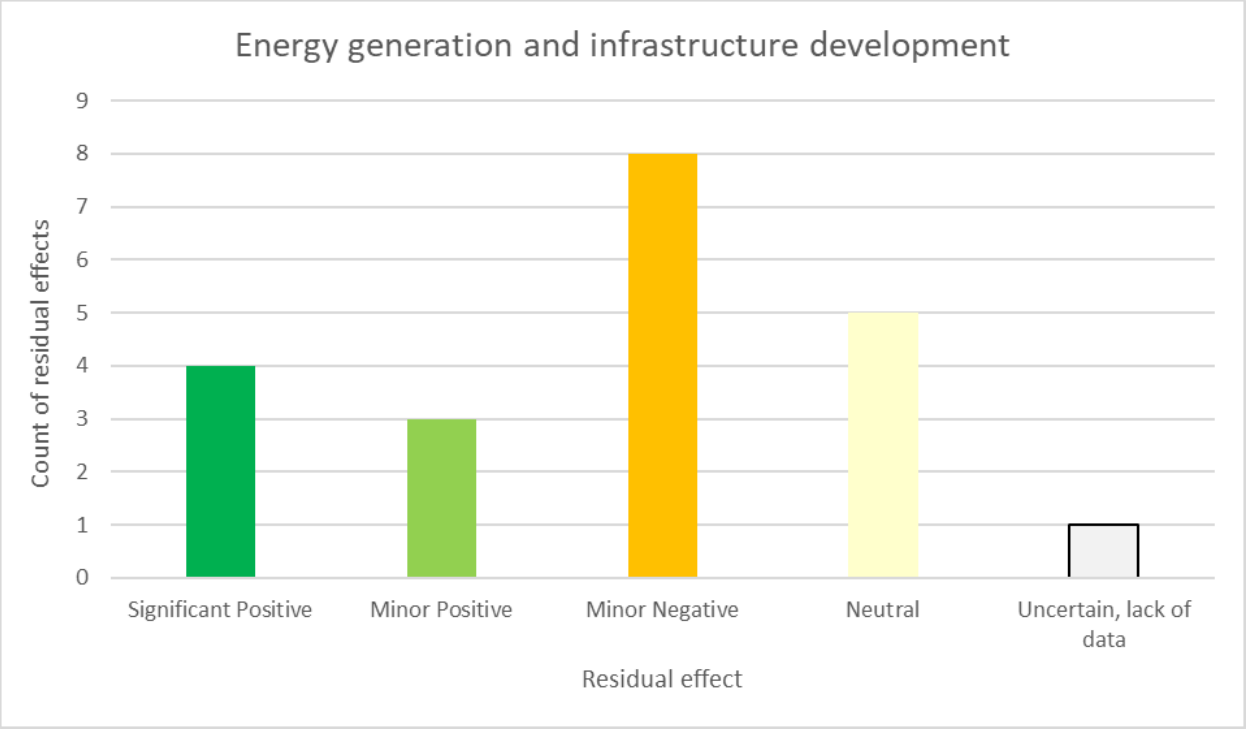
Policy NW-INF-2 aims to safeguard existing landing facilities within the north west inshore marine plan area, which are predominantly used for aggregate activity. The policy should therefore result in a significant positive effect on aggregate extraction.

11.2.2 Defence

No residual significant positive, significant negative or uncertain effects have been recorded for this SA sub-topic. This is following amendments to both policy wording and supporting text, by the MMO after their consideration of consultee comments and mitigation suggested from the SA of the draft policies. Therefore, there are no significant effects reported here. For a more detailed assessment, including the mitigation provided by other policies, the mitigation suggested at the draft assessment stage, as well as showing where minor positive, minor negative and neutral effects occur, please see Technical Appendix B.

11.2.3 Energy Generation and Infrastructure Development

Figure 18: Effects on the Energy Generation and Infrastructure SA Sub-Topic.



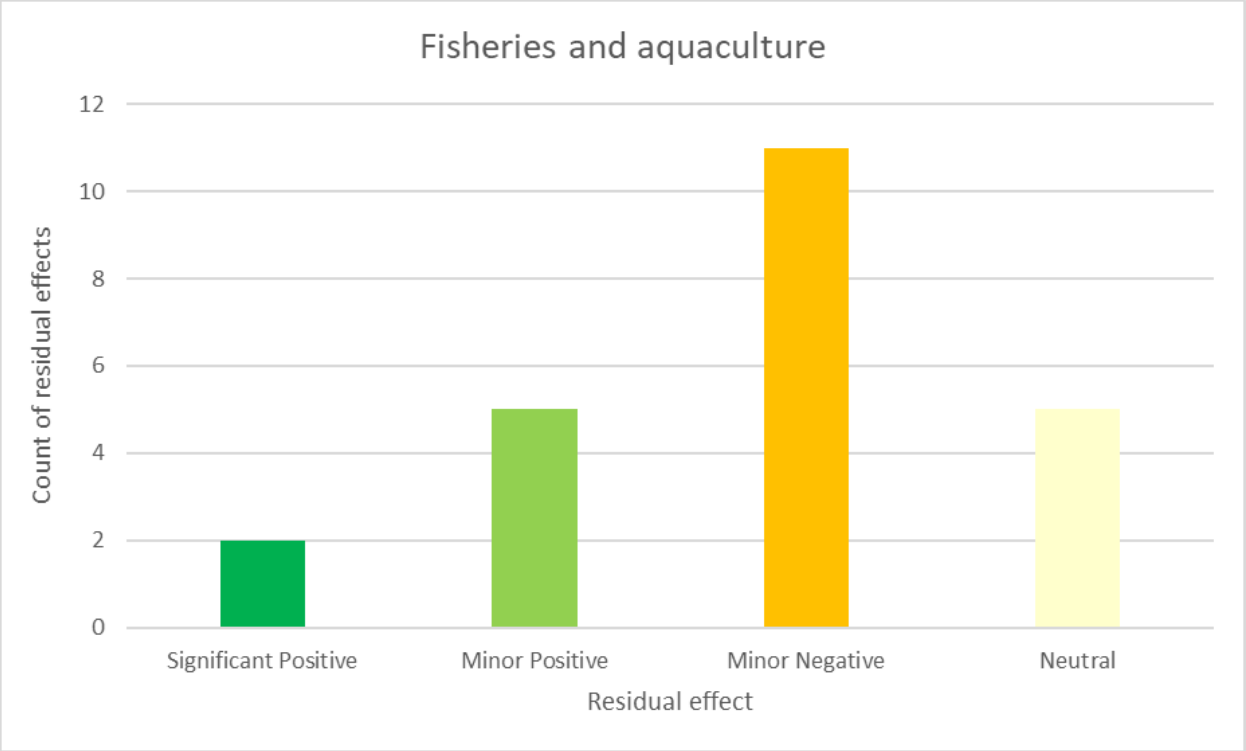
The baseline has identified the importance that oil and gas contributes to the UK's economy and electrical interconnections with other nations help to contribute to UK energy security, affordability and decarbonisation objectives. The renewable energy policy grouping supports the UK's Clean Growth Strategy, by offering potential to deliver clean, renewable energy. The cables, renewables and oil, gas and CCUS policy groupings all have the potential to help enable future development within the north west marine plan areas, promote new technologies and help to ensure energy security for the future. For these reasons, potential significant positive effects on the energy generation and infrastructure development SA sub-topic, have been identified.

The employment policy grouping has the potential to result in significant positive effects on energy generation and infrastructure development, as it could support further development, diversification and employment opportunities.

An uncertain effect has been recorded, due to the prevalence of both marine protected areas and existing energy generation industry within the north west marine plan areas. It is unclear how existing infrastructure, such as the gas terminal at Barrow-in-Furness would be dealt with under these policy groupings.

11.2.4 Fisheries and Aquaculture

Figure 19: Effects on the Fisheries and Aquaculture SA Sub-Topic.

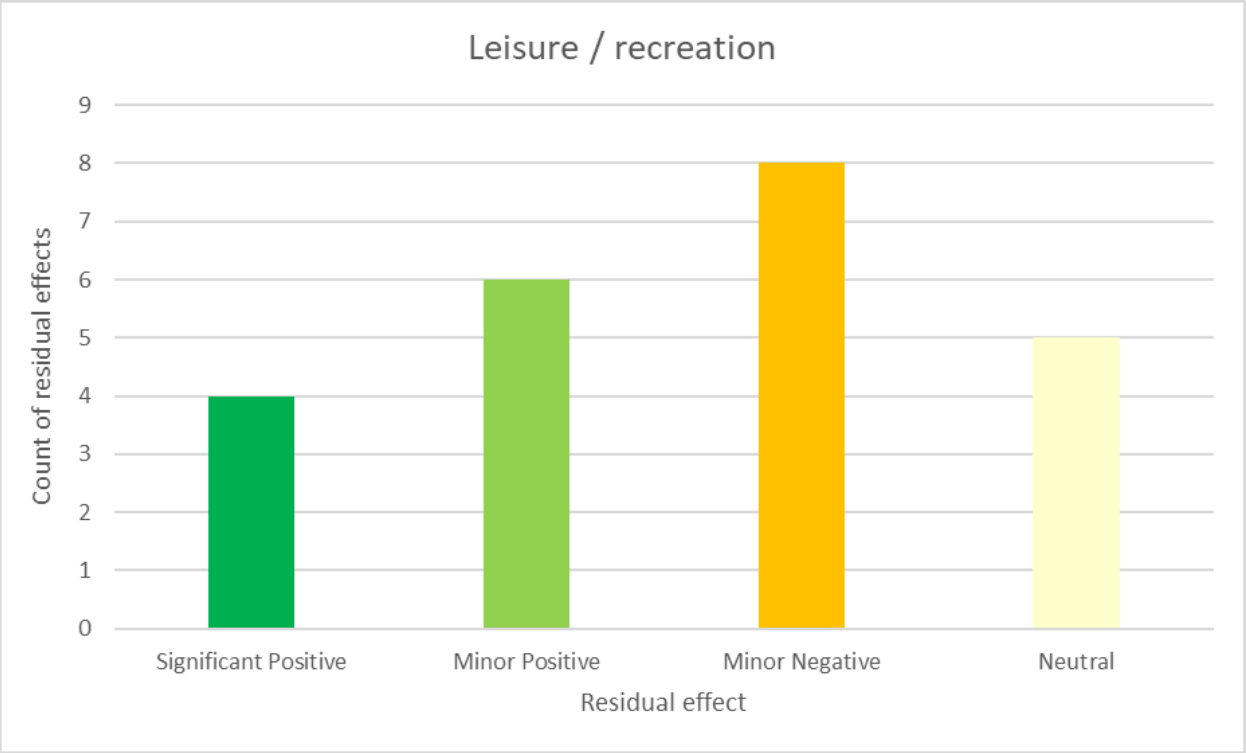


The fisheries policy grouping directly addresses fishing within the north west marine plan areas. The development of a sustainable fishing industry, with good access to both fishing grounds and aquaculture sites is promoted within policies NW-FISH-1 and NW-FISH-2. For this reason, a potential significant positive effect has been recorded.

The fishing industry has suffered decline in recent years, making it increasingly difficult to provide a livelihood. Given that fishing is an important industry within the region, NW-EMP-1 has the potential to result in significant positive effects in relation to employment, if new proposals align with local skills and strategies.

11.2.5 Leisure and Recreation

Figure 20: Effects on the Leisure and Recreation SA Sub-Topic.

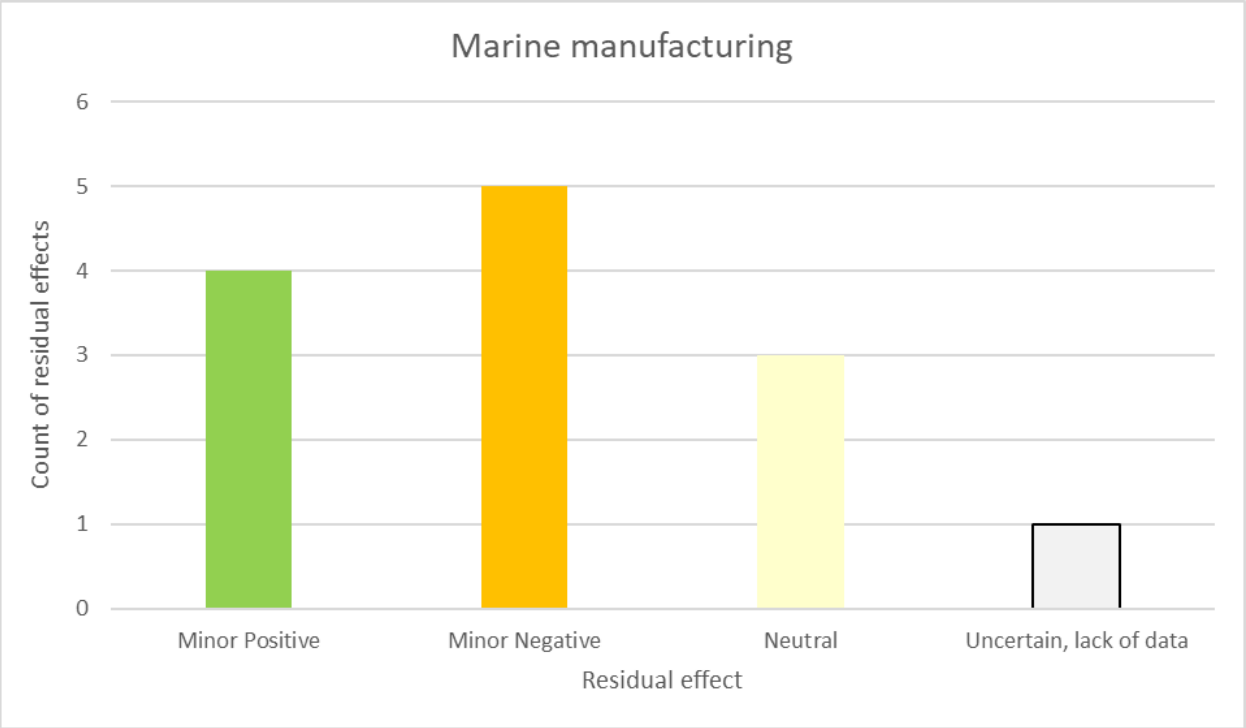


Both the access and tourism and recreation policy groupings aim to increase access to the marine environment, providing greater leisure and recreational opportunities across the north west marine plan areas. Examples of areas within this plan where access would be encouraged include the Wyre Estuary and the Fleetwood Docks. For these reasons, significant positive effects have been identified.

Implementation of policy NW-EMP-1 has the potential to result in significant positive effects on the leisure and recreation industry. Policy NW-SOC-1 should also result in significant positive effects, as it requires proposals to demonstrate and consider the public appreciation and enjoyment of the marine environment.

11.2.6 Marine Manufacturing

Figure 21: Effects on the Marine Manufacturing SA Sub-Topic.



An uncertain effect has been identified due to the proximity of Barrow Port, Barrow-in-Furness to the Morecambe Bay Special Area of Conservation (SAC) and Morecambe Bay and Duddon Estuary Special Protection Areas (SPAs). The effects of this manufacturing facility on the marine protected areas are currently unclear, and further monitoring of the habitats would be required to establish the interactions between these co-existing sites.

11.2.7 Ports and Shipping

Figure 22: Effects on the Ports and Shipping SA Sub-Topic.

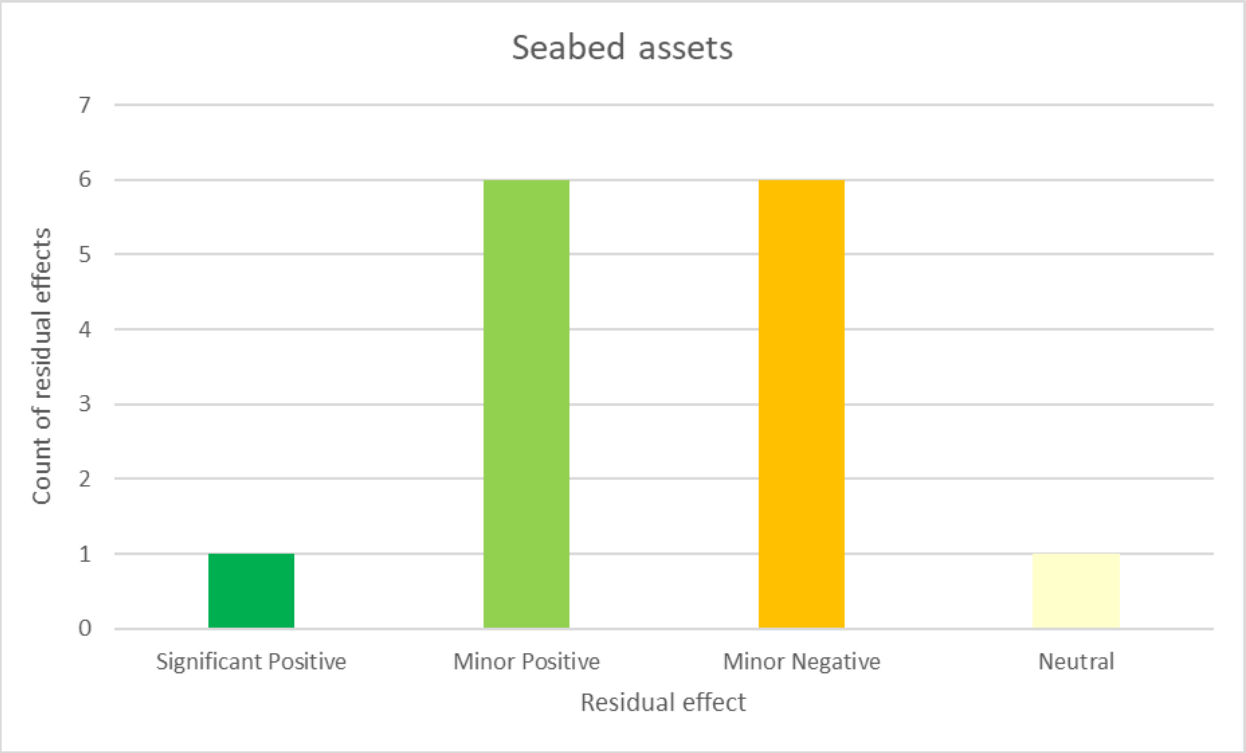
Potential significant positive effects have been identified in relation to the ports and shipping policy grouping. Policies NW-PS-2 and NW-PS-3 have the potential to help safeguard port access and key navigational routes, whilst policies NW-PS-1 and NW-PS-4 could increase port and shipping activity within the north west marine plan areas. All four policies support existing shipping infrastructure and open up new opportunities for short sea shipping.

The implementation of policy NW-EMP-1, within the employment policy grouping, has the potential to result in significant positive effects on the ports and shipping industry.

Policy NW-INF-2 aims to safeguard existing landing facilities, which in turn will help to support the ports and shipping sector. For this reason a significant positive effect has been identified.

11.2.8 Seabed Assets

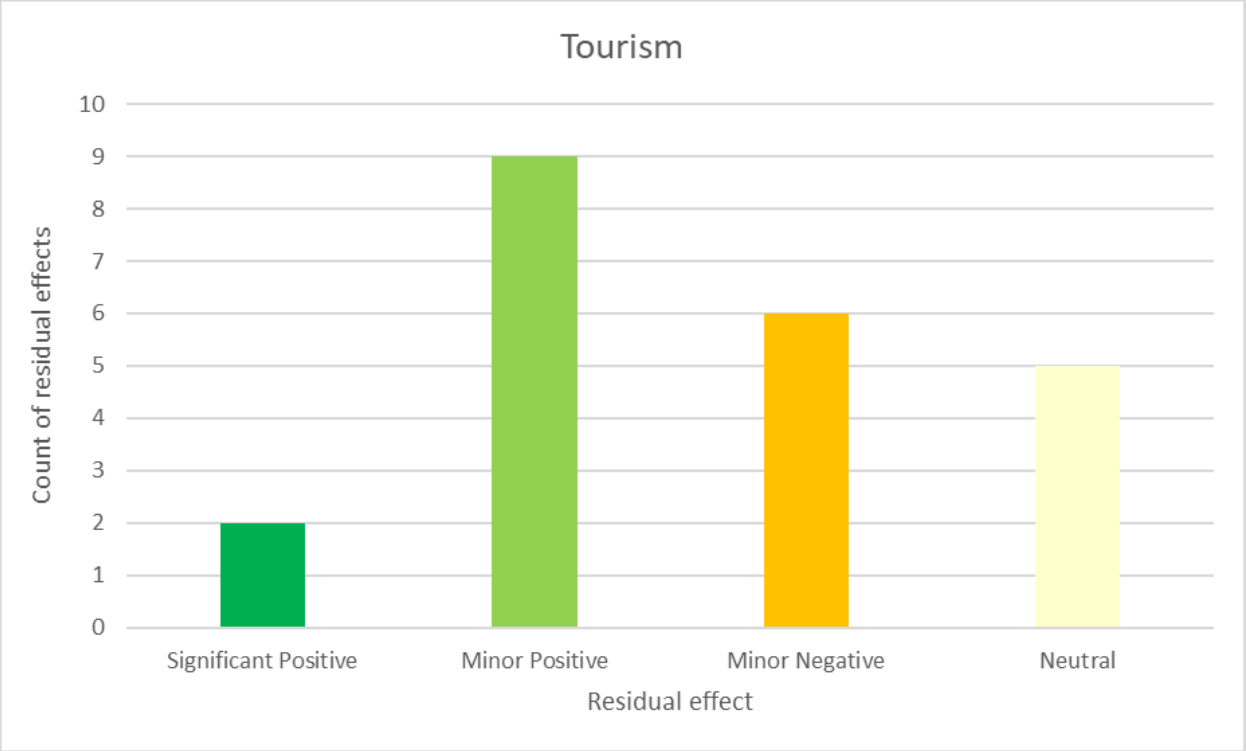
Figure 23: Effects on the Seabed Assets SA Sub-Topic.



A potential significant positive effect has been identified in relation to the cables policy grouping. Policies NW-CAB-1, NW-CAB-2 and NW-CAB-3 aim to support existing cable infrastructure and encourage new cable developments within the north west marine plan areas.

11.2.9 Tourism

Figure 24: Effects on the Tourism SA Sub-Topic.



The tourism and recreation policy grouping has the potential for significant positive effects on the tourism SA sub-topic. Policy NW-TR-1 aims to protect existing tourism activities and could result in expansion and diversification of existing developments as well as new proposals.

The north west marine plan areas provide various tourism opportunities, which make a substantial contribution to the UK's economy. Providing further employment opportunities and diversification, has the potential to result in more tourism opportunities and therefore a significant positive effect is identified for the tourism SA sub-topic resulting from NW-EMP-1.

12. Results of the Assessment - Biodiversity, Habitats, Flora & Fauna

12.1 Introduction

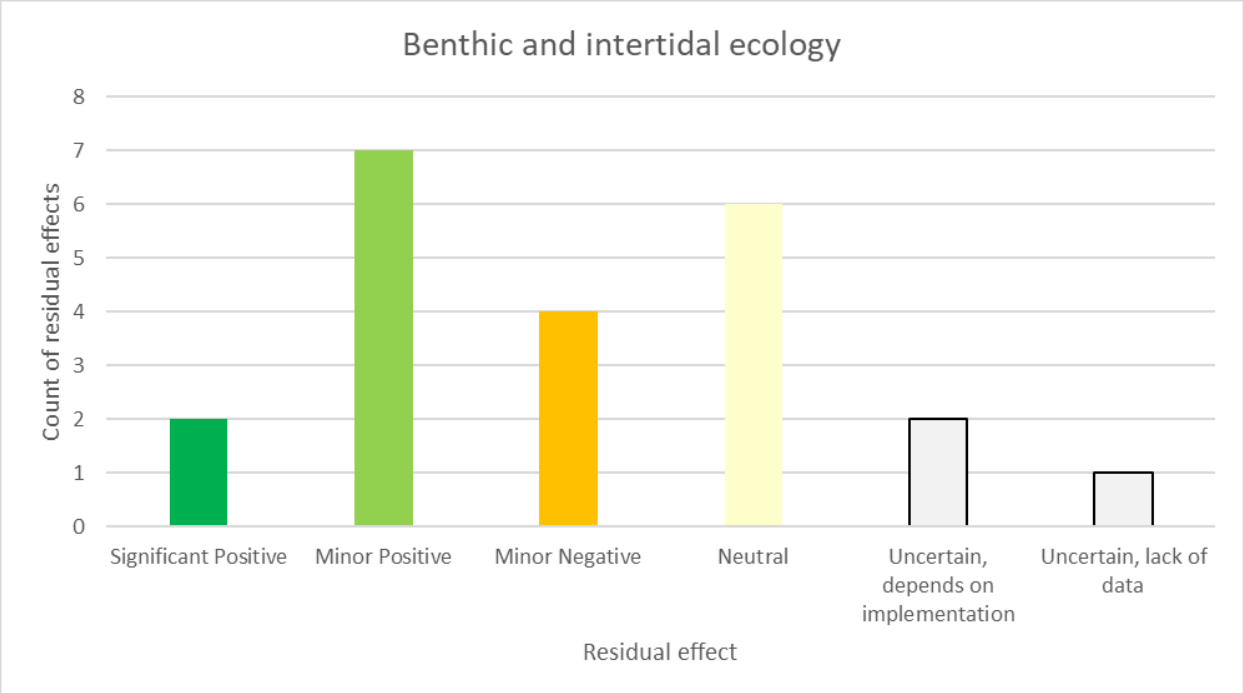
This section of the report presents the performance of the North West Marine Plan in relation to biodiversity, habitats, flora and fauna. This topic encompasses protected sites and species, benthic and intertidal ecology and fish and shellfish, marine megafauna, plankton, ornithology and invasive non-native species. Each of these comprises a separate SA sub-topic.

Sub-section 12.2 is split into seven parts, reflecting the seven SA sub-topics. The full assessment of the biodiversity SA topic can be found in Technical Appendix B.

12.2 Results of the Assessment of all Policy Groupings on Biodiversity, Habitats, Flora & Fauna

12.2.1 Benthic and Intertidal Ecology

Figure 25: Effects on the Benthic and Intertidal SA Sub-Topic.



The implementation of the marine protected areas policy grouping has the potential for significant positive effects on marine protected area networks, including benthic and intertidal ecology. In particular, policies NW-MPA-2 and NW-MPA-3 may aid in increasing the adaptability of benthic and intertidal environments to the effects of climate change, and make suitable arrangements for the spatial changes in distribution of habitat types.

Policy NW-CE-1 is predicted to have a significant positive effect on the benthic and intertidal environment, as it has the potential to address adverse cumulative effects from future proposals.

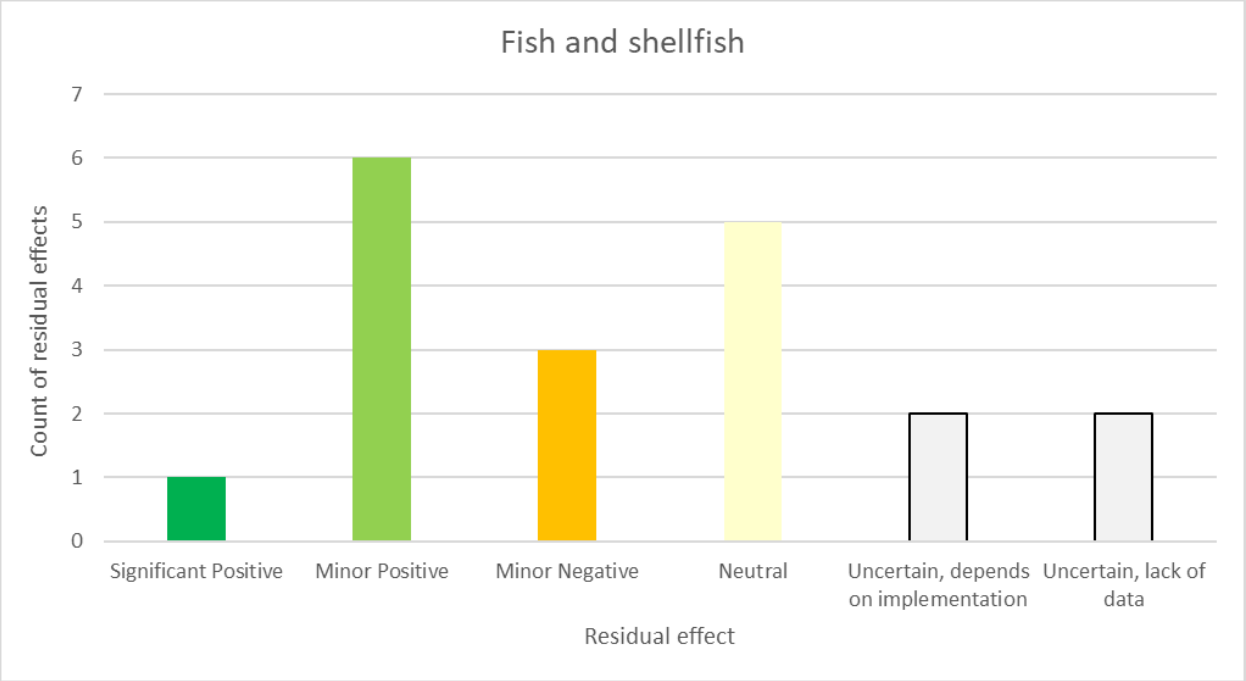
Subtidal sediment and habitats have the potential to be lost as a result of offshore energy production within the north west marine plan areas. Benthic and intertidal environments are also being affected by pollution from oil and gas activity. Policies NW-OG-1 and NW-OG-2 may not directly result in further oil and gas developments within the north west marine plan areas, however there are currently 23 licensed areas and 13 new blocks that have been provisionally awarded as part of the 31st licensing round. The 32nd round is currently in progress and may result in further blocks coming forward. Given that the oil and gas industry in the north west region contributes significantly to the UK overall supplies, it is assumed that these policies will ensure that development will continue. Whether carbon capture usage and storage developments come forward as a result of policies NW-CCUS-1, NW-CCUS-2 and NW-CCUS-3 is currently uncertain. The potential effects of carbon capture usage and storage are not fully known, however, the baseline has stated that these are likely to be similar to oil and gas. It is noted that the Liverpool Bay oil and gas fields project has the potential to adversely affect benthic and intertidal ecology, both within and beyond the plan areas. Therefore, an overall uncertain effect has been recorded.

Benthic and intertidal ecology is being heavily affected by a number of industries within the north west marine plan areas (for example, aggregates, dredging, fishing, cables and recreation). The supporting text for Policy NW-CO-1 aims to help protect habitats and species, but it also aims to protect industries that are damaging to benthic and intertidal habitats. The policy text discusses existing activities. There is no indication within the supporting text whether the protection of industries or the protection of habitats take priority. For these reasons, an uncertain effect has been identified, in relation to the co-existence policy grouping and benthic and intertidal ecology.

NW-DIST-1 does not protect benthic or intertidal habitats; or sessile species from the effects of disturbance, which has the potential to lead to the irreversible loss of benthic and intertidal environments within the north west marine plan areas. An uncertain effect has been recorded in regard to the disturbance policy grouping, as NW-BIO-2 may have the potential to mitigate for this. However, it is uncertain whether this would include the effects of disturbance.

12.2.2 Fish and Shellfish

Figure 26: Effects on the Fish and Shellfish SA Sub-Topic.



The north west marine plan areas include important fish spawning areas for sand eel, cod and whiting, and nursery grounds for sole, herring and spurdog. The invasive non-native species policy grouping has the potential to positively effect native fish and shellfish populations, such as the Bass around Heysham power station. It clearly outlines the need to prevent the introduction and spread of invasive non-native species through transport and construction, which could subsequently compete with native species. For this reason, a significant positive effect has been recorded.

Policy NW-UWN-2, within the underwater noise policy grouping, may allow for developments causing noise due to caveats within the policy, which has potential to disturb fish. Any fish population (not just highly mobile species) may be affected by activities that occur at times or in areas that are crucial to parts of their life-cycle e.g. spawning times. This has the potential to lead to the irreversible loss of populations, such as the spur dog population within the Solway. There are possible mitigation methods for the altering of fish movements, such as changes to the development site or noise frequencies emitted. The timing of noise generating activities could also be restricted to avoid key migration or spawning seasons. As these measures are dependent on implementation, potential effects of the underwater noise policy grouping are uncertain.

The fisheries policy grouping has the potential to cause a positive effect on fish and shellfish within the north west marine plan areas, due to the sustainable fishing practices promoted in NW-FISH-1 and habitat protection stipulated by NW-FISH-3. However, these policies are contained within the fisheries policy grouping, hence it is unclear if NW-FISH-3 applies solely to habitats of commercially fished species.

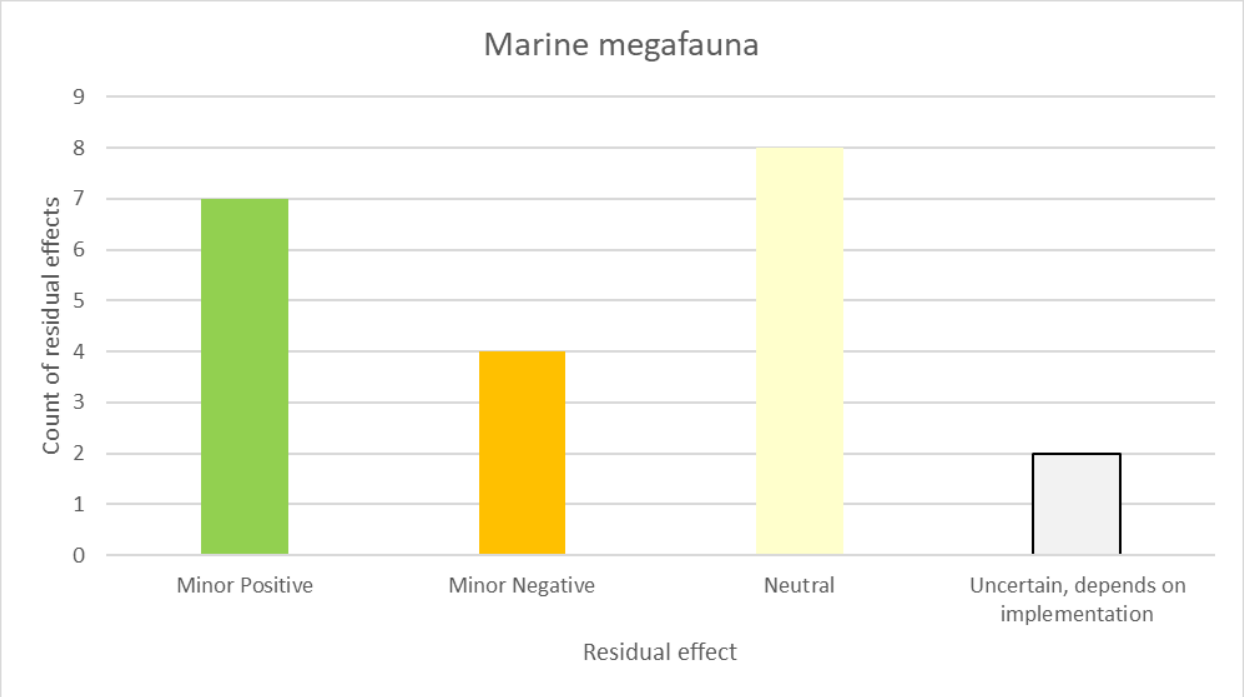
Therefore, an uncertain effect has been recorded as this would depend on implementation.

Sewerage pollution remains a significant challenge for fish and shellfish within the north west marine plan areas. Although it is beyond the jurisdiction of the plan to look at existing issues within the north west marine plan areas, it is not clear whether policy NW-WQ-1 could help to tackle this existing issue, and result in a positive effect on fish and shellfish. For these reasons an uncertain effect has been identified.

An uncertain effect has been identified, in relation to the cables policy grouping. Sub-sea cables have the potential to adversely affect fish species, through disturbance during construction and through electromagnetic fields created during operation. There is potential for electromagnetic fields to alter migration, feeding and navigation in these organisms. However, the impact of electromagnetic fields on fish is not yet fully understood and additional data would be necessary to remove the uncertainty.

12.2.3 Marine Megafauna

Figure 27: Effects on the Marine Megafauna SA Sub-Topic.

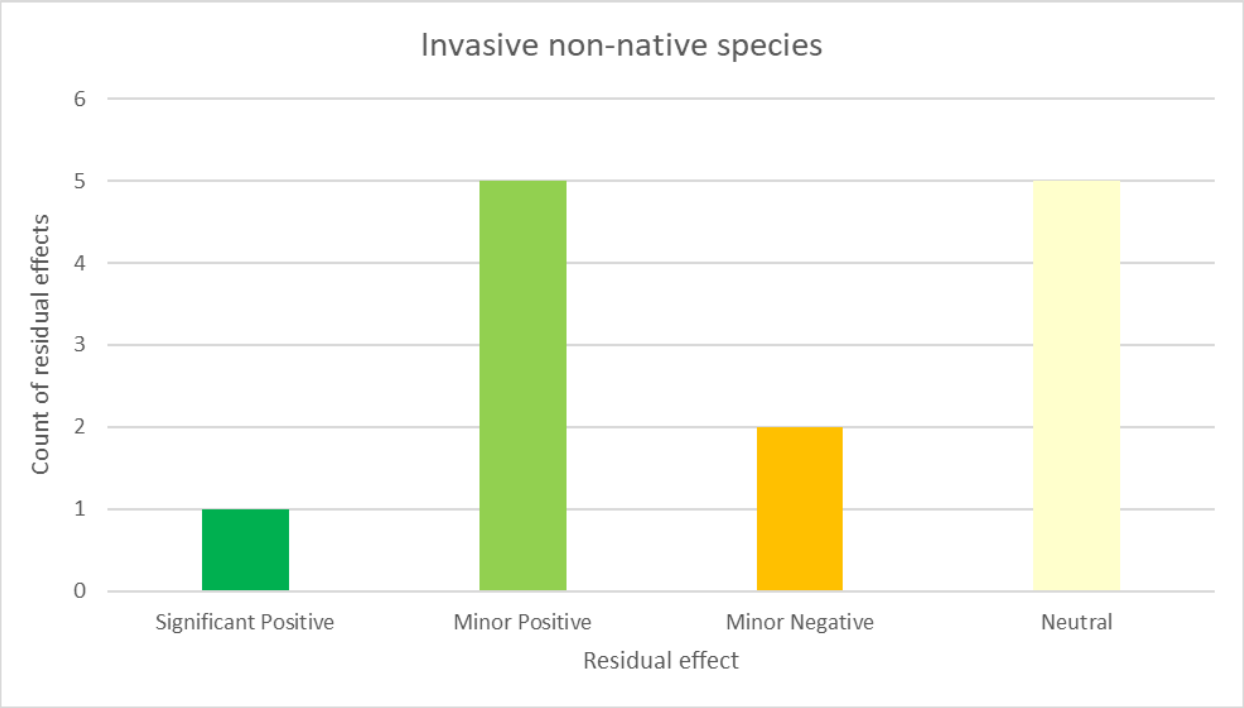


The final clause of policy NW-UWN-2 allows for noise emitting developments to occur in some cases without mitigation, if proposals are able to state the case for proceeding. This has the potential to lead to the altering of megafauna migration pathways, interruption of predation and lead to increased energy expenditure, lowering organism fitness. The best way to prevent harm to marine megafauna from noise emitting activities and developments would be to prevent the development from occurring. However, this may not be practical. There may be opportunities for mitigation such as not developing during breeding seasons which could help to limit the effects of development. More detailed assessment and mitigation would be undertaken as part of the EIA process and therefore and uncertain effect, depending on implementation, remains.

Offshore energy and carbon capture usage and storage development have potential to increase noise, which is likely to be significantly worse during construction. The production of noise in the marine environment can have varying effects on marine mammals, including the altering of feeding behaviour, increased energy expenditure and death due to altered dive patterns. Policies NW-OG-1 and NW-OG-2 may not directly result in further oil and gas developments within the north west marine plan areas, however, there are currently 23 licensed areas and 13 new blocks that have been provisionally awarded as part of the 31st licensing round. The 32nd round is currently in progress and may result in further blocks coming forward. Given that the oil and gas industry in the north west region contributes significantly to the UK overall supplies, it is assumed that these policies will ensure that development will continue, which has the potential to negatively affect marine megafauna within the north west marine plan areas. Whether carbon capture usage and storage developments come forward as a result of policies NW-CC-1 and NW-CCUS-1 is currently uncertain.

12.2.4 Invasive Non-Native Species

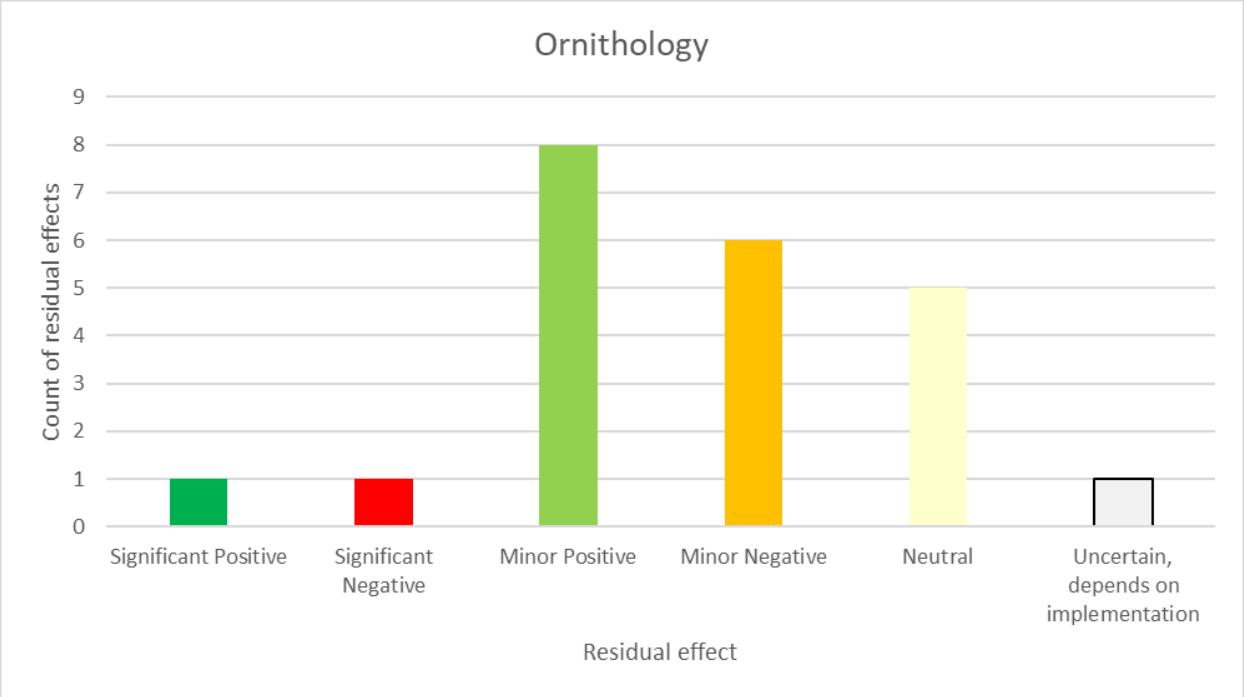
Figure 28: Effects on the Invasive Non-Native Species SA Sub-Topic.



The invasive non-native invasive species policy grouping directly aims to prevent the introduction and increased spread (or increased distribution) of invasive non-native species throughout the north west marine plan areas. Transport of invasive non-native species, as well as areas of potential colonisation are addressed within the invasive non-native species policy grouping, which should help to form a well rounded approach to tackling this issue. For this reason, a significant positive effect has been recorded.

12.2.5 Ornithology

Figure 29: Effects on the Ornithology SA Sub-Topic.

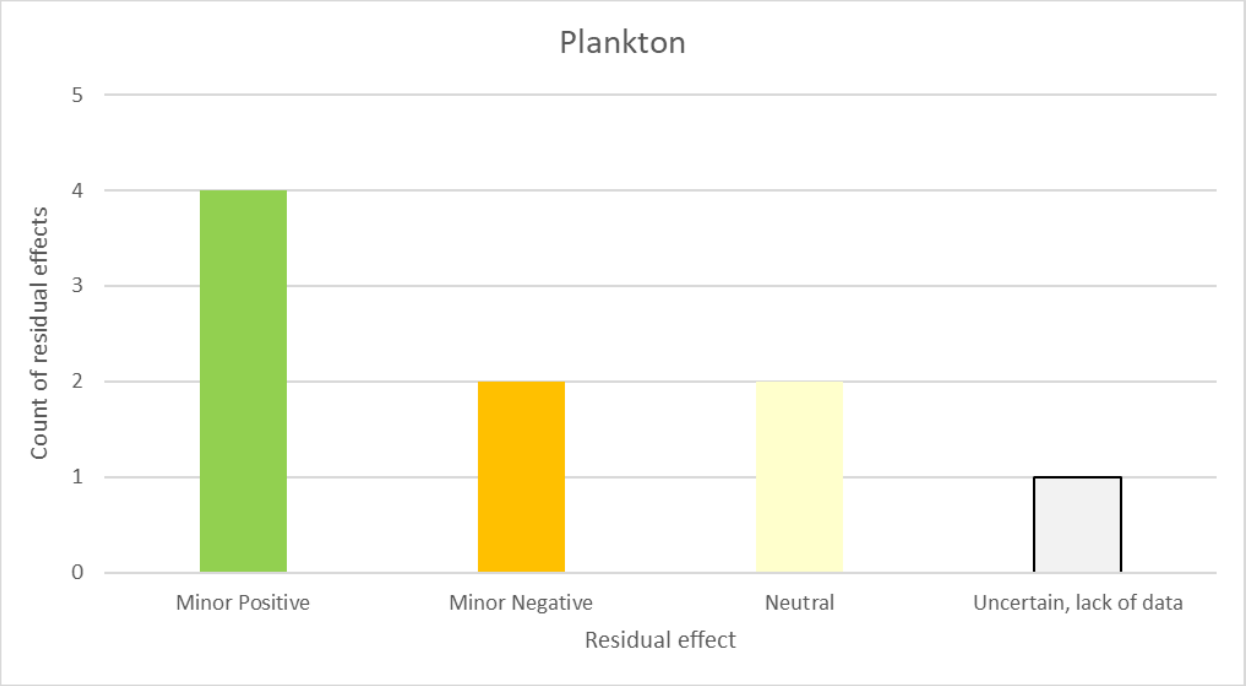


There are a high number of bird habitats within the north west marine plan areas, which should be protected by policy NW-MPA-1, as many are currently designated as marine protected areas. For example, Liverpool Bay SPA, which supports around 50,000 wintering birds. Policies NW-MPA-2 and NW-MPA-3 should aid in ensuring changes in current habitats due to climate change are considered, with marine protected area boundaries adjusted accordingly. It is therefore considered that the marine protected areas policy grouping has the potential to significantly positively affect birds within the north west inshore and offshore marine plan areas.

Shipping activity can negatively affect birds, mainly through disturbance and displacement, whilst associated dredging activity can also displace birds and destroy both feeding and breeding grounds. The ports and harbours policy grouping could result in further shipping activity within the north west inshore marine plan area. Given that the inshore north west marine plan area is one of the most designated and notified sections of the English Coast, there is potential for significant negative effects as a result of the ports and shipping policy grouping, specifically, policies NW-PS1 and NW-PS-4. Although some bird species could be protected through policy NW-DIST-1, not all species will be protected by this policy, hence a significant negative effect has been recorded.

12.2.6 Plankton

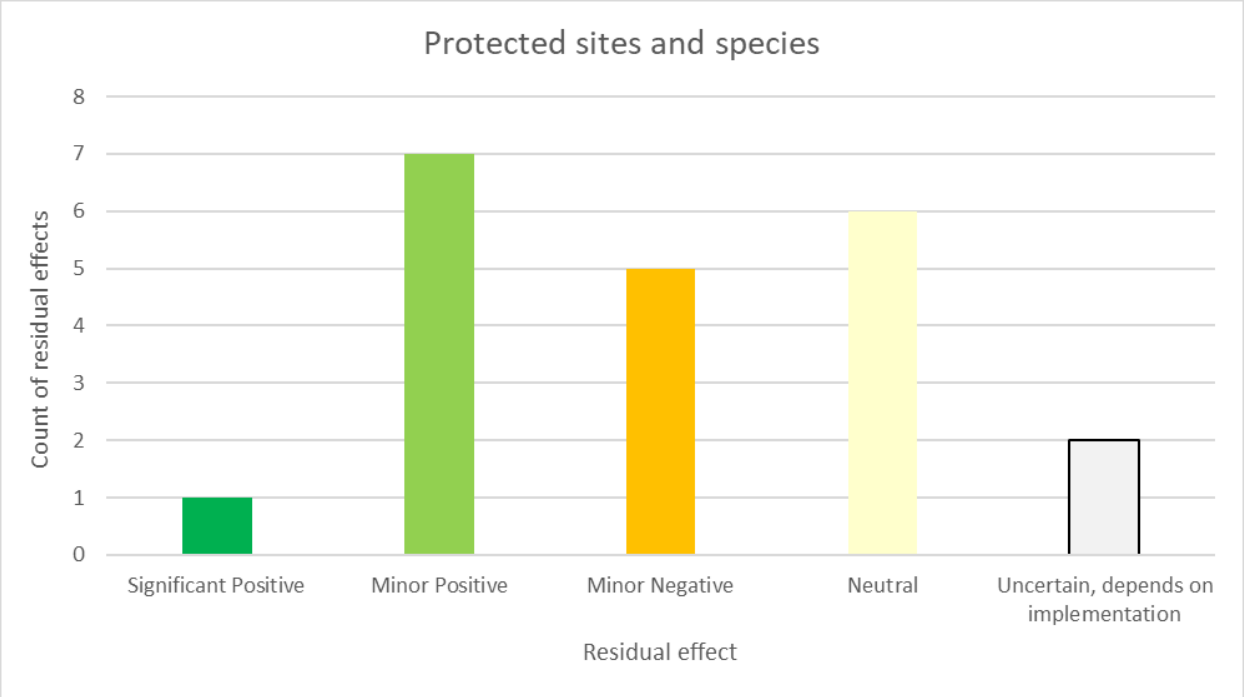
Figure 30: Effects on the Plankton SA Sub-Topic.



There may be indirect positive effects on plankton through renewable energy generation indirectly reducing the effects of climate change, such as changes to water temperature and salinity, and through having the potential to minimise demand on fossil fuel generated energy which could in turn minimise carbon dioxide emissions and subsequent ocean acidification. There is however, a lack of data as to whether marine devices can have an adverse effect on plankton, and the mechanisms by which this may occur. Baseline data indicates that heavy manufacturing which has a coastal or estuarine location can potentially have a number of effects on the environment, including the water environment. During the construction, operation and decommissioning phases of renewable energy developments, there can be increased demand for water, discharges to water and adverse ecological effects resulting from physical modifications to the water environment. Therefore, an uncertain effect has been recorded in relation to the renewables policy grouping, due to a lack of data concerning how renewable infrastructure could affect plankton.

12.2.7 Protected Sites and Species

Figure 31: Effects on the Protected Sites and Species SA Sub-Topic.



The implementation of the cumulative effects policy grouping is predicted to have a significant positive effect on protected sites and species, as cumulative effects resulting from future developments must be addressed and mitigated. The addition of mitigating cumulative effects which may later arise from "reasonably foreseeable proposals" adds strength to the cumulative effects policy grouping and further protection for protect sites and species.

It is unclear from the oil, gas and CCUS policy grouping if protected sites and species or oil and gas proposals would be given priority in the policy hierarchy. Future designations of protected sites could be prevented by the implementation of the oil, gas and CCUS grouping. Existing sites may also be affected by noise or pollution emitted from oil, gas or carbon capture usage and storage sites, such as the Morecambe Bay SPA. For this reason, an uncertain effect has been recorded.

Policy NW-UWN-2 may still allow for developments causing noise due to caveats in the policy and it is therefore uncertain whether an indirect negative effect could occur on protected sites and species. The effects of allowing noise producing developments should be carefully considered. The best mitigation for this effect may be to prevent noise generating activities, however this is unlikely to be practical. Most developments will also be required to perform an EIA, which may further help to mitigate significant adverse effects on protected sites and species. Overall, the potential effect of the underwater noise policy grouping is uncertain and would be dependent on implementation.

13. Cumulative Effects Assessment

13.1 Introduction

The SEA Regulations require an assessment of cumulative effects. Cumulative effects arise where:

- several individual effects of the plan have a combined effect on a single receptor
- where several plans and policies each have insignificant effects but together have a significant effect

The significance of cumulative effects resulting from a range of activities, or multiple incidences of one activity, may vary based on factors such as the nature of the projects proposed and the sensitivity of the receiving communities and environment.

The cumulative effects assessment therefore includes:

- consideration of how different aspects of the North West Marine Plan may interact to cause cumulative effects on a receptor
- how the North West Marine Plan can cause cumulative effects in association with other programmes, plans, policies and projects

Potential cumulative effects of different elements of the North West Marine Plan which may have a combined effect are reported in Section 13.2.

Potential cumulative effects of the North West Marine Plan in association with other programmes, plans, policies and projects are presented in Section 13.3.

13.2 Potential Cumulative Effects of all Policy Groupings

Should multiple proposals from within a single sector or from a combination of sectors come forward which would be located within relatively close proximity to one another, there is the potential for negative cumulative effects on SA topics. The damage which may be incurred as a result of potential cumulative effects would have the potential to vary, dependent on:

- the nature (susceptibility to damage) and spatial extent of the features in question
- the installation methods opted for
- the proximity of future developments to designated sites or features
- the type and number of proposals, policies or developments which may come forward
- how different policies address common issues
- the preference given to certain policies

Cumulative effects which have been identified as having potential to occur on features within the north west marine plan areas as a result of proposals from various industries have been described below and are summarised in Table 2. If an SA topic or sub-topic does not appear within Table 2, there have been no significant cumulative effects identified which could affect this particular SA topic/sub-topic.

Table 2: Summary of Significant Cumulative Effects.

	Policy Grouping																											
SA Topic/SA Sub-topic	**Access**	**Aggregates**	**Air Quality**	**Aquaculture**	**Biodiversity**	**Cables**	**Climate change**	**Co-existence**	**Cross-border co-operation**	**Cumulative effects**	**Defence**	**Disturbance**	**Dredging and Disposal**	**Employment**	**Fisheries**	**Heritage Assets**	**Infrastructure**	**Invasive non-native species**	**Marine Litter**	**Marine Protected Areas**	**Oil, Gas and CCUS**	**Ports and Harbours**	**Renewables**	**Seascape and Landscape**	**Social benefits**	**Tourism and recreation**	**Underwater Noise**	**Water Quality**
Seascape and Landscape																												
Effects on seascape and landscape																								+ +				
Economy																												
Aggregate extraction																											?	
Energy generation and infrastructure development																											?	
Marine manufacturing																		?									?	
Ports and shipping																											?	
Biodiversity																												
Protected sites and species					++																							

13.2.1 Seascape and Landscape

The seascape and landscape policy grouping may work in combination with the marine protected areas and heritage assets policy groupings to produce a significant positive cumulative effect on the seascape and landscape of the north west marine plan areas.

13.2.2 Economy

There is potential for an uncertain cumulative effect from the underwater noise policy grouping as a result of the potential expansion of the marine protected areas designations, or expansion of fisheries and aquaculture activities. This could restrict ports and shipping operations due to the generation of, or sensitivity to, underwater noise. Ports in the north west marine plan areas which could be affected include Liverpool. However, the potential for the cumulative effect occurring is uncertain. A similar uncertain cumulative effect resulting from the underwater noise and marine protected areas, fisheries, biodiversity and aquaculture policy groupings could prevent marine manufacturing developments.

An uncertain cumulative effect is also identified in relation to whether the underwater noise policy grouping could prohibit aggregate extraction and energy generation projects in areas of high biological interest or environmental value. These potential cumulative effects may not be mitigated, however this may be considered to be acceptable should environmental protection be considered a priority in the areas affected.

An uncertain cumulative effect on marine manufacturing may result from the cumulative effect of the invasive non-native species policy grouping with the marine protected areas, biodiversity, disturbance and underwater noise policy groupings. These may restrict marine manufacturing developments due to the damaging effects on the environment. However the potential significance of these cumulative effects is uncertain. It is possible that cumulative effects will not be possible to be mitigated in all circumstances. This may have to be accepted as an inevitable effect of protecting the environment. However, some groupings do contain caveats, to allow for development where required. For example, policy grouping Disturbance contains a caveat within policy NW-DIST-1, which allows for development that can provide mitigation for significant adverse effects.

13.2.3 Biodiversity

There is potential for a significant positive cumulative effect to arise from the biodiversity policy grouping working in combination with the marine protected areas policy grouping to support, protect and enhance protected sites and species.

13.3 Cumulative Effects from Existing Plans and Policies

The SA Database in Technical Appendix A was reviewed for plans and policies which may give rise to significant effects as follows:

- international plans, policies and strategies
- national plans, policies and strategies
- regional plans, policies and strategies

Legislation from the database is not included in the review as it is assumed that this will be complied with. The MPS was also not included separately as it requires implementation of the marine plans. Effects from other marine plans are included so effects of the MPS have been identified at a regional level. Local Plans are considered cumulatively, but beyond this level of planning, individual local or area action plans are not identified individually. This is because, given the spatial scale of the broad policies and geographic areas identified in the plan, it is more appropriate to identify the higher tier plans and policies which identify the same effects, but at a regional or national level. It should also be noted that at the strategic level, this list is not exhaustive and cumulative effects arising from individual projects and plans should be revisited as part of their assessment at the application stage.

Further, the MMO conducted a sub-national policy analysis exercise which aimed to take into account interactions between terrestrial and marine planning. This analysis formed part of the evidence base when developing policies for the north west marine plan areas within this assessment and should therefore help mitigate any adverse effects or conflicts caused by the marine plans in combination with terrestrial planning.

Table 3 presents the reviewed plans, policies and strategies and identifies potential cumulative effects that could result from them in combination with the North West Marine Plan.

The majority of the policies and plans assessed in Table 3 will result in positive cumulative effects. This is because they strengthen environmental protection, for example by reducing greenhouse gas emissions, improving air or water quality, protecting designated sites for nature conservation, landscape or the historic environment. However, there is potential for development to cause negative cumulative effects, particularly where development in adjacent terrestrial or marine areas can act in-combination to affect receptors. There are a number of policies within the North West Marine Plan which do help to mitigate these effects:

- Cumulative Effects Policy NW-CE-1
- Co-existence Policy NW-CO-1
- Cross-border co-operation Policy NW-CBC-1
- environmental protection policies
- economic development (including fisheries) policies

In addition, cumulative impact assessments undertaken as part of the consenting and EIA processes would also address and mitigate for potential cumulative effects of projects

Table 3: Potential Cumulative Effects with other Plans, Policies and Strategies

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
International				
Draft Sectoral Marine Plan for Offshore Wind Energy, The Scottish Government, 2019	This draft Plan aims to identify the most sustainable options for the future development of commercial-scale offshore wind energy in Scotland. It seeks to contribute to the achievement of Scottish and UK climate change policy objectives and targets through the provision of a spatial strategy.	Biodiversity; Economy; Seascape and Landscape; Communities.	The draft plan states that any potential cumulative effects associated with the proposed options for offshore wind energy projects outwith Scottish waters would need to be addressed within project-level assessment.	Neutral
Scotland's National Marine Plan: a single framework for managing our seas, The Scottish Government, 2015	This Plan covers both Scottish inshore waters (out to 12 nautical miles) and offshore waters (12 to 200 nautical miles). It also applies to the exercise of both reserved and devolved functions. This National Marine Plan sets out strategic policies for the sustainable development of Scotland's marine	All	Scotland's Marine Plan provides marine planning and similar policies in the areas neighbouring the North West Marine Plan. Policies for environmental protection may give rise to positive cumulative effects with the Plan. However, policies for aggregates, offshore renewables	Significant positive/Significant negative

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	resources out to 200 nautical miles or exclusive economic zone. It is required to be compatible with the UK Marine Policy Statement and existing marine plans across the UK, in particular where there is interaction between England inshore and offshore marine plans and Northern Ireland Marine Plans.		energy, oil and gas, sea fisheries, shipping, ports and harbours, cables may give rise to cumulative negative effects with similar policies in the marine plan.	
Emerging National Planning Framework 4, the Scottish Government (draft due to be consulted in Parliament in September 2020)	The NPF is a long term spatial plan for Scotland that sets out where development and infrastructure is needed to support sustainable and inclusive growth. NPF4 will look at Scotland in 2050 and for the first time will incorporate Scottish National Planning Policy (SPP) and will take on enhanced status as part	All	There may be negative cumulative effects where economic or housing development has negative effects in combination with Scotland's National Marine Plan policies and policies within the North West Marine Plan, for example, energy or port development on water quality, designated landscapes, seascapes,	Uncertain

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	of the statutory development plan.		coastal biodiversity or historic environment.	
National Planning Framework 3, The Scottish Government, 2014	This is the current spatial plan for Scotland until it is replaced by an adopted NPF4. It identifies national developments and other strategically important development opportunities in Scotland. Statutory development plans must have regard to the NPD. National and Regional Marine Plans should also be taken into account where relevant. The Framework relates to terrestrial and coastal planning in Scotland. It promotes sustainable development and protection of biodiversity and the environment. The Framework supports coastal communities, ports, aquaculture, offshore renewable	All	Cross-border working with neighbouring authorities in England is supported focusing on opportunities for tourism, transport connections and business development across the region as a whole. The potential cumulative effects of individual projects will be addressed at the project level. However, there may be negative cumulative effects where economic or housing development has negative effects in combination with Scotland's National Marine Plan policies and policies within the North West Marine Plan, for example, energy or port development on water quality, designated	Uncertain

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	energy generation and oil and gas developments. It aims to achieve at least an 80% reduction in greenhouse gas emissions by 2050.		landscapes, seascapes, coastal biodiversity or historic environment.	
Irish National Marine Planning Framework (NMPF) Consultation Draft 2019	In 2014 the European Parliament and the Council of the European Union adopted Directive 2014/89/EU. This directive established a framework for MSP and details the main goals (Article 5) and minimum requirements (Article 6). The Marine Spatial Plan must be in place by March 2021. A Draft of the NMPF was consulted on between 12 November 2019 and 30 April 2020. The Draft NMPF sets out a single National Marine Plan applying to Ireland's entire maritime area,	Air Quality, Biodiversity, Climate, Communities, Health and Wellbeing, Cultural Heritage, Economy, Geology, Substrates and Coastal Processes, Water.	Alignment of marine planning with other planning, regulation and management bodies is necessary in order to manage pressures, further environmental health and achieve sustainable development across the coastal areas of the north west. There is the potential for cumulative positive effects in relation to the NMPF Activity-specific or Sectoral Marine Planning Policies and Overarching Marine Planning Policies relating to, inter alia, coexistence, biodiversity, coastal and	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	including internal waters (sea area), territorial seas, Exclusive Economic Zone and Continental Shelf. Ireland's final NMPF will be the key consideration for decision makers on all marine consents within these areas.		island communities, infrastructure. The UK MPS states that marine plans are required to co-ordinate planning across administrative boundaries and to sit alongside existing terrestrial planning regimes. The National Planning Policy Framework states: 'In coastal areas, planning policies and decisions should take account of the UK MPS and marine plans. Integrated Coastal Zone Management should be pursued across local authority and land/sea boundaries, to ensure effective alignment of the terrestrial and marine planning regimes.'	
Emerging Clyde Marine Plan Statement of Public Participation (SPP), Clyde	The Clyde Marine Planning Partnership is working to create a	Climate, Economy, Biodiversity, Water.	It is considered unlikely that a framework for management of	Uncertain

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
Marine Planning Partnership, 2018	Regional Marine Plan for the Clyde in response to the Marine Scotland Act 2010 which allows for the creation of Scottish Marine Regions. The Plan will create a framework for integrated, sustainable and co-ordinated planning and management of the Clyde Marine Region's environmental, economic and community resource.		environmental, economic and community resources within the Clyde Marine Planning area will result in potential cumulative effects, however, until the a draft of the Clyde Marine Plan Statement is available, an uncertain cumulative effect is recorded.	
Welsh National Marine Plan (WNMP) 2019	WNMP sets out the policy for the next 20 years for the sustainable use of Welsh seas. Welsh Ministers are the planning authority for the Welsh: • inshore region (out to 12 nautical miles) • offshore region (12 to 200 nautical miles). Marine planning will:	All	Alignment of marine planning with other planning, regulation and management bodies is necessary in order to manage pressures, further environmental health and achieve sustainable development across the coastal areas of the north west. There is the potential for cumulative positive effects in relation to the general and sector	Significant Positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	• support our vision for clean, healthy, safe and diverse seas • guide future sustainable development • support the growth of marine space and natural resources (’blue growth’).		policies within the WNMP. The UK MPS states that marine plans are required to co-ordinate planning across administrative boundaries and to sit alongside existing terrestrial planning regimes. The National Planning Policy Framework states: ‘In coastal areas, planning policies and decisions should take account of the UK MPS and marine plans. Integrated Coastal Zone Management should be pursued across local authority and land/sea boundaries, to ensure effective alignment of the terrestrial and marine planning regimes.’	
International Maritime Organisation, 2018, Initial	The initial strategy envisages for the first	Climate	The “levels of ambition” in the Strategy would	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
Strategy on the reduction of greenhouse gas emissions from ships	time a reduction in total greenhouse gas emissions from international shipping which, it says, should peak as soon as possible and to reduce the total annual greenhouse gas emissions by at least 50% by 2050 compared to 2008, while, at the same time, pursuing efforts towards phasing them out entirely. The strategy includes a specific reference to “a pathway of carbon dioxide emissions reduction consistent with the Paris Agreement temperature goals”.		seek to reduce greenhouse gas emissions and benefit emissions from ports and shipping under the North West Marine Plan.	
National				
Clean Growth Strategy 2017	The Emissions Intensity Ratio (EIR): This measures the amount of greenhouse gases (tonnes of carbon dioxide equivalent) produced for each unit of Gross	Air Quality, Climate.	Renewable energy offers the potential for significant broad-scale environmental benefits through mitigating greenhouse gas	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	Domestic Product (GDP) created. Currently the EIR is 270 tonnes/£ million and it was 720 tonnes/£ million in 1990. By 2032, the UK expect the EIR will need to be nearly as low as 100 tonnes/£ million to meet their ambitions.		emissions from energy production.	
Clean Air Strategy 2019	The government is committed to driving down emissions from ships and reducing the effect of emissions from the maritime sector on the environment and public health. In 2016, domestic shipping (ships that start and end their journey in the UK) accounted for 10% of the UK's total domestic NOx emissions, 2% of PM2.5 and 7% of SO_2.	Air Quality, Climate.	Production of Air Quality Strategies by all major English ports by May 2019 should reduce emissions across the port estate including ship and shore activities which will benefit emissions from ports and shipping under the North West Marine Plan.	Significant positive
Maritime 2050, Navigating the Future, Department for Transport, 2019	Maritime 2050 sets out the government's vision and ambitions for the future of the British	Air Quality, Climate, Economy.	In addition to positive effects on economic policies for Ports and Shipping, there will also	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	maritime sector. It is built on seven high level themes: the UK's competitive advantage, environment, infrastructure, people, security, technology and trade.		be cumulative benefits for air quality and climate. The strategy includes targets for greenhouse gas emissions – by 2050, the UK will actively drive the transition to zero emission shipping in its waters; in addition to planning for adaptation to climate change – flood risk, tidal surges, extreme weather and coastal erosion.	
National Flood and Coastal Erosion Risk Management Strategy for England, Environment Agency 2020	The strategy builds on existing approaches to flood and coastal risk management and promotes the use of a wide range of measures to manage risk. Risk should be managed in a co-ordinated way within catchments and along the coast and balance the needs of communities, the	Climate, Communities, Economy, Substrates and Coastal Processes, Geology, Biodiversity, Water.	There is the potential for cumulative positive effects in relation to management of flood risk and coastal erosion in coastal areas which affects communities, tourism, biodiversity and economic development in particular. Effects are likely to be limited as the Strategy is aimed at governance and funding.	Minor positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	economy and the environment. This strategy will form the framework within which communities have a greater role in local risk management decisions and sets out the Environment Agency's strategic overview role in flood and coastal erosion risk management (FCERM).			
25 Year Environment Plan, Defra, 2018	The 25 Year Environment Plan sets out government action to help the natural world regain and retain good health.	Biodiversity, Economy, Communities, Water, Natural Capital.	Chapter 5: Securing clean, healthy, productive and biologically diverse seas and oceans seeks to: • implement a sustainable fisheries policy as we leave the EU • achieve good environmental status of our seas while allowing marine industries to thrive, and complete our	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
			ecologically coherent network of well-managed marine protected areas (MPAs) There is potential for cumulative positive effects arising with marine plan policies on fisheries, ecosystem approach, marine protected areas and water quality.	
Blue New Deal Good jobs for coastal communities through healthy seas & action plan of priorities, New Economics Foundation, 2015 & 2016	Aims to deliver stronger economies for UK coastal communities, supporting more and better jobs through a healthier marine environment. It has, so far, identified five key policy areas that offer the opportunity to respond to the different socio-economic and environmental challenges that the UK's coastal communities currently face.	Communities, Economy.	Key focus areas for the Blue New Deal: • sustainable fisheries and aquaculture • renewable energy • responsible tourism, leisure and recreation • innovative coastal management • re-connecting people with nature These have potential for positive cumulative effects in combination	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
			with policies relating to access, fisheries and aquaculture, social benefits, employment, energy, habitats, fisheries, recreation and tourism.	
Sporting Future: A New Strategy for an Active Nation; Department for Digital; Culture, Media and Sport, 2015	The Government sports strategy 'Sporting Future: A New Strategy for an Active Nation' contains targets in relation to the social effect of sport along with policies around elite sport. The strategy states that the Government will aim to ensure the potential for natural capital to meet physical activity needs is realised.	Communities	Potential for positive effects on policies associated with recreation and tourism. Effects are likely to be limited as the Strategy is aimed at governance and funding.	Minor positive
National Planning Policy Framework, 2019	The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-	Air Quality, Climate, Communities, Cultural Heritage, Economy, Geology, Seascape and Landscape, Water.	There is potential for positive cumulative effects with NPPF policies for climate change, conserving the natural and historic environment, promoting a strong economy and	Significant positive /significant negative

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	prepared plans for housing and other development can be produced.		healthy communities. However, there may also be negative cumulative effects where economic or housing development has negative effects in combination with marine plan policies for example, energy or port development on water quality, designated landscapes, seascapes, coastal biodiversity or historic environment.	
The Crown Estate 2018/2019 Marine Aggregate Round	Eight areas of seabed have been selected as potentially suitable for the extraction of marine aggregates, seven of which lie within English waters, with one area overlapping English and Welsh waters. The shortlist was announced following a bid assessment process undertaken by The Crown Estate.	Biodiversity, Cultural Heritage, Economy, Geology, Seascape and Landscape, Substrates and Coastal Processes, Water	One site is located within the north west marine plan areas, on the border with Wales, which could result in aggregate activity within the marine plan areas. Development could result in significant negative cumulative effects on biodiversity, cultural heritage, geology, seascape, coastal processes, water	Significant positive/significant negative

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
			and seascape and landscape. There is potential for positive cumulative effects on economic SA topics.	
The Crown Estate Round 4, Offshore Wind Leasing	The following regions were announced as not being taken forward to Round 4 in November 2018: • South West • Bristol Channel (English and Welsh) • West Isle of Wight Development areas taken forward in November 2018 include; South East, East Anglia, Dogger Bank, North Wales, Irish Sea and Southern North Sea.	Biodiversity, Cultural Heritage, Economy, Geology, Seascape and Landscape, Substrates and Coastal Processes, Water	Developments within North Wales and the Irish Sea that are being brought forward as part of Round 4, could affect the north west marine plan areas. This could result in offshore wind developments taking place within the offshore plan area, which has potential to have positive cumulative effects on economic topics, particularly renewables. Conversely, development could also result in significant negative cumulative effects on biodiversity, ports and shipping, coastal processes, heritage and seascape and landscape.	Significant positive/Significant negative

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
Regional & Local				
Shoreline Management Plans (SMPs): • Great Ormes Head to Scotland	SMPs in the UK provide a large scale assessment of the risks associated with coastal processes that result in both flooding and erosion and presents a policy framework to reduce these risks.	Climate, Geology, Biodiversity, Communities.	Provision of long term coastal defence, including planning for hold the line, no active intervention or managed retreat will enable better planning of coastal activities associated with the marine plan.	Significant positive
Local Plans in the north west: • Wirral Development Plan (adopted February 2000) • Chester West and Chester Local Plan (Part one) Strategic Policies (adopted January 2015) • Chester West and Chester (Part two) Land Allocations and Detailed Policies (adopted July 2019) • Halton Core Strategy Local Plan (adopted April 2013) • Warrington Local Plan Core Strategy (adopted July 2014) • Warrington Proposed Submission Version Local	Local plans are prepared by the Local Planning Authority (LPA), usually the Council or the national park authority for the area. They provide a vision for the future of each area and a framework for addressing housing needs and other economic, social and environmental priorities. Current versions are provided here but it should be noted that Local Plan development takes several years and	Air Quality, Climate Cultural Heritage, Communities, Seascape and Landscape, Economy.	There is potential for positive cumulative effects with local plan policies for climate change, conserving the natural and historic environment, promoting a strong economy and healthy communities. There is also potential for negative cumulative effects from coastal development in local plans and marine plan from transport and energy emissions, local air quality effects, heritage assets and landscape/seascape,	Significant positive /Significant negative

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
Plan 2017-2037, March 2019 • Liverpool Core Strategy (Submission draft 2012) 2018 Pre Submission Draft Local Plan • Sefton Local Plan (adopted April 2017) • West Lancashire Local Plan 2012-2027 (adopted October 2013) • South Ribble Local Plan 2012-2026 (adopted July 2015) • Preston Local Plan 2012-26 (adopted July 2015) • Fylde Local Plan to 2032 (adopted October 2018) • Blackpool Local Plan Part 1: Core Strategy 2012-2027 (adopted January 2016) • Wyre's Local Plan 2011-2031 (adopted February 2019) • Lancaster District new Local Plan 2020-2031 (including a Strategic Policies & Land Allocations	iterations, so cumulative effects will also apply to other versions.		loss of biodiversity, water quality.	

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
DPD and Development Management DPD (adopted July 2020) • South Lakeland Local Development Framework Core Strategy (adopted October 2010) • Barrow in Furness/Barrow Borough Local Plan 2016-2031 (adopted June 2019) • Copeland Local Plan 2013-2028 Core Strategy and Development Management Policies (adopted December 2013) • Allerdale Local Plan Part 1- Strategic and Development Management Policies (adopted July 2014), Local Plan Part 2 – Site Allocations (adopted 22 July 2020) • Carlisle District Local Plan 2015-2030 (adopted November 2016)				
AONB Management Plans: • Solway Coast 2020-25 • Arnside & Silverdale 2019-24	AONB Management Plans set the overall strategy for achieving the primary purpose of	Cultural Heritage, Landscape & Seascape	Potential for positive cumulative effects on seascape, access and tourism.	Minor positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	AONB designation: conserving and enhancing landscape.			
Eel Management Plans North West.	Eel Management Plans (EMPs) implemented within the 14 UK River Basin Districts (RBDs) in accordance with Article 9 of Regulation No 1100/2007.	Biodiversity	Potential for positive cumulative effects on biodiversity from environmental protection of migratory species.	Minor positive
The North East Atlantic Environment Strategy, OSPAR 2010 and Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic, OSPAR, 2014	OSPAR Strategy by 2020 is to substantially reduce marine litter in the OSPAR maritime area to levels where properties and quantities of marine litter do not cause harm to the coastal and marine environment. The OSPAR Marine Litter Regional Action Plan brings together a large number of actions, with target dates, that have been assigned to lead parties (countries) to lead. These focus on actions to combat marine	Water	There is potential for positive cumulative effects on water quality, particularly through policies reducing marine litter.	Significant positive

Policy/Plan/Programme	Description	Related SA Topic(s)	Potential cumulative effects with NW Marine Plan	Likely significant effect (scoring)
	sources of litter, terrestrial sources of litter, removal actions and education and outreach.			

14. Mitigation

The preferred policies were assessed in detail May-September 2019 and mitigation was proposed for any significant negative or uncertain effects. The MMO reviewed the proposed mitigation and this informed the drafting of the final policies.

Responses to the mitigation have been provided, and further detail will be provided within the SA Adoption Statement which will be prepared at the marine plan adoption stage to demonstrate how the SA has influenced the development of the plan. The proposed mitigation for the preferred plan policies is included within the assessment spreadsheets within Technical Appendix B. Table 4 sets out the residual significant negative effects and uncertainties identified in the assessment of the final policies, any mitigation suggested to offset these effects and the responses provided by the MMO.

Table 5: Mitigation of Significant or Uncertain Effects.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-AGG-1 NW-AGG-2 NW-AGG-3	Uncertain, depends on implementation No significant cumulative effect	Geology, Substrates and Coastal Processes	Seabed substrates and bathymetry	Supporting text for polices NW-AGG-1, NW-AGG-2, NW-AGG-3 should be amended to include the potential negative effects aggregates pose to seabed substrate and bathymetry. A separate seabed substrate and bathymetry policy could also be considered. It is assumed that all new aggregate proposals would be subject to an EIA which would assess the potential effect on seabed substrate and bathymetry. The Crown Estate leasing process also	Policy NW-CE-1 could also provide mitigation for the cumulative effects.	Discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. It's implicit in the use of the plan, and discussed in section 2.3 of the marine plan, that the plan must be taken as a whole and no policy should be taken in isolation.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				ensures that environmental receptors are taken into account during these processes and conditions frequently applied to limit effects.		
NW-AGG-1 NW-AGG-2 NW-AGG-3	Uncertain, depends on implementation No significant cumulative effect	Geology, Substrates and Coastal Processes	Coastal features and processes	Policy wording does not specifically address the issues relating coastal features and processes. It is recommended that the supporting text of the aggregates policy grouping is amended to address the issues identified. It is assumed that all new aggregate proposals would be subject to an EIA which would assess the potential effect on coastal features and	Policy wording does not address issues relating to coastal change, however, policies NW-CC-2 and NW-CC-3 should provide adequate mitigation. Policy NW-CE-1 could also provide mitigation for the cumulative effects.	Discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. It's implicit in the use of the plan, and discussed in section 2.3 of the marine plan, that the plan must be taken as a whole and no policy should be taken in isolation. NW-MPA-4 now makes reference to Geological Conservation Review Sites.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				processes. The Crown Estate leasing process also ensures that environmental receptors are taken into account during these processes and conditions frequently applied to limit effects. This could mitigate both potential negative effects and cumulative effects arising from development. Policy NW-MPA-4 could provide some protection, however, supporting text could be strengthened by making reference to Geological Conservation Review sites.		

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-CAB-1 NW-CAB-2 NW-CAB-3	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets within marine plan areas	If cable development is undertaken, the potential negative effects on heritage assets will need to be addressed through the EIA process (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant environmental effects, be located in a sensitive area and is above the threshold specified in the EIA regulations). This could include an additional archaeological and cultural heritage effect assessment. In some instances the	Policy NW-HER-1 could provide some protection for buried heritage assets, however, it doesn't completely prevent development, nor address the potential effect cables pose.	Discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. It's implicit in the use of the plan, and discussed in section 2.3 of the marine plan, that the plan must be taken as a whole and no policy should be taken in isolation. NW-HER-1 should therefore provide adequate mitigation, as proposals will consider their impacts on the significance of heritage assets and avoid, minimise and mitigate those impacts as appropriate.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				loss of heritage assets may not be mitigatable.		
NW-CAB-1 NW-CAB-2 NW-CAB-3	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets adjacent to marine plan areas	If cable development is undertaken, the potential negative effects on heritage assets will need to be addressed through the EIA process (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant environmental effects, be located in a sensitive area and	Policy NW-HER-1 could provide some protection for buried heritage assets, however, it doesn't completely prevent development, nor address the potential effect cables pose.	Discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. It's implicit in the use of the plan, and discussed in section 2.3 of the marine plan, that the plan must be taken as a whole and no policy should be taken in isolation. NW-HER-1 should therefore provide adequate mitigation.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				is above the threshold specified in the EIA regulations). This could include an additional archaeological and cultural heritage effect assessment. In some instances the loss of heritage assets may not be mitigatable.		
NW-CAB-1 NW-CAB-2 NW-CAB-3	Uncertain, lack of data No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Fish and shellfish	The potential uncertain effect has been identified due to a lack of data. If further data became available, clearly evidencing the potential or lack of potential for effects on marine organisms, then a more clear positive or negative effect could be identified.	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-CO-1	Uncertain, depends on implementation No significant cumulative effect	Water	Pollution and water quality	Supporting text for Policy NW-CO-1 could expand on 'declines in environmental condition', and include the potential effects on water quality.	Policies NW-WQ-1 and NW-WQ-3 are likely to mitigate the potential cumulative effects of coalescing developments on water quality within the plan area.	Changes have been made to supporting text but the effect will depend on implementation, therefore no further action required.
NW-CO-1	Uncertain, depends on implementation No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Benthic and intertidal ecology	Policy authors need to check whether NW-BIO-1, NW-BIO-2 and NW-BIO-3 provide adequate mitigation for potential effects on benthic and intertidal ecology.	There is no indication within the supporting text whether the protection of industries or the protection of habitats take priority. NW-BIO-1, NW-BIO-2 and NW-BIO-3 provide some mitigation but do not specifically reference benthic and intertidal ecology.	Noted. It would have to be assessed on a case by case basis, taking other policies in the plan into account as well. Discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. It's implicit in the use of the plan, and discussed in section 2.3 of the marine plan, that the plan must be taken as a whole and no policy should be

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
						taken in isolation. NW-BIO-1, NW-BIO-2 and NW-BIO-3 should therefore still provide mitigation.
NW-DIST-1	Uncertain, depends on implementation No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Benthic and intertidal ecology	The policy should seek to minimise the effects of disturbance on all marine species wherever practicable rather than focusing solely on the protection of highly mobile species. It is therefore recommended that the policy covers adverse effects on all species and not just highly mobile species. It is also recommended that	Whilst some mitigation of these effects may occur through policy NW-BIO-2, it is uncertain that this policy would specifically encompass the effects of disturbance.	No further action required. This is intended as the evidence base only supports the protection of highly mobile species in NW-DIST-1. The mitigation hierarchy has also been updated and clarified.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				the supporting text of NW-BIO-2 clarifies that the avoidance/minimisation of significant adverse effects specifically as a result of disturbance are encompassed within this policy.		
NW-DD-1 NW-DD-2 NW-DD-3	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets within marine plan areas	Applications for dredging development which have the potential for negative effects on heritage assets will need to be addressed through the EIA process (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant	Policy NW-HER-1 aims to provide protection to heritage assets, however, it does not specifically address the issues relating to dredging and disposal. It is recommended that the policy supporting text is amended to address the issues identified. Policy NW-CE-1 could also provide mitigation for the cumulative effects.	Discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. It's implicit in the use of the plan, and discussed in section 2.3 of the marine plan, that the plan must be taken as a whole and no policy should be taken in isolation. NW-HER-1 should therefore provide adequate mitigation.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				environmental effects, be located in a sensitive area and is above the threshold specified in the EIA regulations). This could include an additional archaeological and cultural heritage effect assessment. This could mitigate the cumulative effects identified, however, In some instances the loss of heritage assets may not be mitigatable.		
NW-DD-1 NW-DD-2 NW-DD-3	Uncertain, depends on implementation No significant cumulative effect	Geology, Substrates and Coastal Processes	Seabed substrates and bathymetry	Wording for each of the three policies does not specifically address the issues relating dredging and disposal to seabed substrates and bathymetry. It is assumed that all	Policy NW-CE-1 could provide mitigation for the cumulative effects.	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				new dredging proposals would be subject to an EIA (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant environmental effects, be located in a sensitive area and is above the threshold specified in the EIA regulations), which would assess the potential effect on seabed substrate and bathymetry. This could help to mitigate both negative and cumulative effects.		

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-FISH-1 NW-FISH-2 NW-FISH-3	Uncertain, lack of data No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Fish and shellfish	The addition of clarity to this policy grouping surrounding the species and habitats which would be protected is required. It is recommended that these policies are altered to include all fish species and habitats, rather than only those of commercial importance.	N/A	The extent of habitat protection is determined by the evidence available to the MMO, and does not only include commercially important species. The supporting text will be updated to clarify how it is determined which habitats are protected.
NW-HER-1	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets within marine plan areas	The uncertain effect identified could be mitigated through a strengthening of policy wording for NW-HER-1. Stronger consideration of the effects of altering the settings of heritage assets and challenges at the marine/terrestrial interface for cultural heritage within the	N/A	The policy wording of NW-HER-1 has been agreed with heritage stakeholders, including Historic England.
NW-HER-1	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets adjacent to marine plan areas			

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				policy wording could help to modify the identified uncertain effect to a positive effect.		
NW-INNS-1 NW-INNS-2	Minor Negative Potential cumulative effect	Economy	Marine manufacturing	It is likely that cumulative effects will not be possible to be mitigated in all circumstances. This may have to be accepted as an inevitable effect of protecting the environment. However, some groupings do contain caveats, to allow for development where required. For example, policy grouping Disturbance contains a caveat within policy NW-DIST-1, which allows for	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				development that can provide mitigation for significant adverse effects.		
NW-MPA-1 NW-MPA-2 NW-MPA-3 NW-MPA-4	Uncertain, lack of data No cumulative effect	Economy	Marine manufacturing	Mitigation may be sought through close working with the port, however as manufacturing is already occurring here opportunities may be limited. It may be that the loss or damage to habitats close to Barrow Port will have to be accepted, with alternative sites given more protection instead. This may still result in the loss of the habitats currently protected under the MPA designations.	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-MPA-1 NW-MPA-2 NW-MPA-3 NW-MPA-4	Uncertain, lack of data No cumulative effect	Economy	Energy generation and infrastructure development	Mitigation may not be possible. To fully protect and mitigate against adverse effects on energy generation, MPAs would have to be allocated around them. This however, may not protect the most vulnerable or valuable habitats. It may be possible to make small alterations in sites selections or operating procedures, but this may not fully adhere to this policy grouping.	N/A	No further action required.
NW-OG-1 NW-OG-2 NW-CCUS-1 NW-CCUS-2 NW-CCUS-3	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets within marine plan areas	If oil, gas and carbon capture usage and storage development are undertaken, the potential negative effects on heritage assets will need to be addressed through	Policy NW-HER-1 could provide some protection, for heritage assists, however there is still a potential for development to occur.	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				the EIA process. This could include an archaeological and cultural heritage effect assessment. In some instances the loss of heritage assets may not be mitigatable.		
NW-OG-1 NW-OG-2 NW-CCUS-1 NW-CCUS-2 NW-CCUS-3	Uncertain, lack of data No cumulative effect	Cultural Heritage	Heritage Assets adjacent to marine plan areas	If oil, gas and carbon capture usage and storage development are undertaken, the potential negative effects on heritage assets will need to be addressed through the EIA process. This could include an archaeological and cultural heritage effect assessment. In some instances the loss of heritage assets may not be mitigatable.	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-OG-1 NW-OG-2 NW-CCUS-1 NW-CCUS-2 NW-CCUS-3	Uncertain, depends on implementation No cumulative effect	Seascape and landscape	Effects on seascape and landscape	If oil, gas and carbon capture usage and storage development is undertaken, the potential negative effects on landscape and seascape will need to be addressed through the EIA process. Policy NW-SCP-1 supporting text could reference potential effect that oil, gas and carbon capture usage and storage development may have, and the policy could be strengthened by removing the option of demonstrating public benefits.	NW-SCP-1 has potential to protect the seascape and landscape and has been strengthened as part of the revisions following consultation which now goes further to mitigate potential effects from this policy. Policy NW-CE-1 could also provide mitigation for the cumulative negative effects.	No further action required.
NW-OG-1 NW-OG-2 NW-CCUS-1 NW-CCUS-2	Uncertain, depends on implementation	Biodiversity, Habitats, Flora and Fauna	Protected sites and species	An EIA would need to be performed to fully identify, address and mitigate adverse	NW-MPA-1 and NW-DIST-3 may help to mitigate some of these effects, however, the	Noted. It would have to be assessed on a case by case basis, taking other policies

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-CCUS-3	No cumulative effect			effects of oil, gas and carbon capture usage and storage on protected sites and species (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant environmental effects, be located in a sensitive area and is above the threshold specified in the EIA regulations). However, to fully mitigate these effects, it may be that development of oil, gas, carbon capture usage and storage should be prevented.	hierarchy of policies is unclear. It is therefore uncertain if these policies would outweigh the oil, gas and CCUS policy grouping.	in the plan into account as well

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-OG-1 NW-OG-2 NW-CCUS-1 NW-CCUS-2 NW-CCUS-3	Uncertain, lack of data No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Benthic and intertidal ecology	Supporting text to policy NW-BIO-2, should be amended to highlight the importance of benthic and intertidal habitats. If oil, gas or carbon capture usage and storage development is undertaken, the potential negative effects on benthic and intertidal habitats will need to be addressed through the EIA process.	Policies NW-BIO-2 and NW-BIO-3 could provide some protection to benthic and intertidal ecology. Policy NW-CE-1 could also provide mitigation for the cumulative negative effects identified.	NW-BIO-2 and NW-BIO-3 ensure all significant impacts are avoided, minimised or mitigated in that order of preference. In the case where significant impacts cannot be mitigated they will be compensated for. Benthic and intertidal habitats are also protected by NW-BIO-2 and NW-BIO-3 where relevant.
NW-OG-1 NW-OG-2 NW-CCUS-1 NW-CCUS-2 NW-CCUS-3	Uncertain, depends on implementation No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Marine megafauna	If new oil, gas or carbon capture usage and storage development is undertaken, the potential negative effects on marine megafauna will need to be addressed through the EIA	Policies NW-UWN-1 and NW-UWN-2 could help to provide some protection from underwater noise generated. However, this policy does not prevent all noise emitting development, and so may not mitigate all predicted effects.	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				process.	Policy groupings MPAs and Biodiversity could also help to protect marine megafauna, some of which are protected species. Policy NW-CE-1 could also provide mitigation for the cumulative negative effect.	
NW-PS-1 NW-PS-2 NW-PS-3 NW-PS-4	Significant Negative No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Ornithology	It is assumed that an EIA would be undertaken if future ports and shipping developments were to come forward (for schedule 2 developments as classified by the EIA regulations, it is assumed that an EIA will be undertaken should the project be likely to give rise to significant environmental effects, be located in a sensitive area and	Policy NW-DIST-1 could offer some protection to birds, although not all may be afforded protection by this policy. MPAs and BIO policies could also help to protect specific bird species and their associated habitats from the effects of ports and shipping activity.	Sustainable expansion of ports is to be determined by the decision-maker on a case by case basis. Relevant assessments including an EIA and HRA (which would require an appropriate assessment on the likely significant effects on protected sites and features of those sites, such as birds) would also further mitigate the

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				is above the threshold specified in the EIA regulations). This could result in protection for birds. The accompanying supporting text to Policy NW-PS-1, needs to define what is meant by 'sustainable expansion' and how this could affect ornithology. It is recommended that MMO consider whether adequate protection will be given with relation to the potential effects on ornithology from activities at ports and harbours or whether supporting text needs to be strengthened.		impact. This is also highlighted in the supporting text of the policy.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-REN-1 NW-REN-2 NW-REN-3	Uncertain, depends on implementation No cumulative effect	Cultural Heritage	Heritage Assets within marine plan areas	Renewable energy projects and their potential effect on heritage assets will need to be addressed through the EIA process. This could include an additional archaeological and cultural heritage effect assessment. In some instances the loss of heritage assets may be permanent and irreversible, and unmitigable. The Crown Estate leasing process also ensures that sensitive receptors are taken into account during these processes and conditions frequently applied to limit effects.	Mitigation of cumulative effects on heritage assets could be provided by Policy NW-HER-1. Policy NW-CE-1 could also provide mitigation for the cumulative negative effects.	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-REN-1 NW-REN-2 NW-REN-3	Uncertain, lack of data No cumulative effect	Geology, Substrates and Coastal Processes	Coastal features and processes	If future renewable energy proposals were to come forward, the potential negative effects on coastal features and processes will need to be addressed through the EIA process. The Crown Estate leasing process also ensures that sensitive receptors are taken into account during these processes and conditions frequently applied to limit effects.	N/A	No further action required.
NW-REN-1 NW-REN-2 NW-REN-3	Uncertain, lack of data No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Plankton	If future renewable energy proposals were to come forward, the potential negative effects on plankton will need to be addressed through the EIA process.	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				The Crown Estate leasing process also ensures that sensitive receptors are taken into account during these processes and conditions frequently applied to limit effects. More data is needed on the potential effects of marine renewable energy devices on the water column and subsequently on plankton.		
NW-UWN-1 NW-UWN-2	Uncertain, depends on implementation No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Protected sites and species	The effects of allowing noise producing developments should be carefully considered. The best mitigation for this effect may be to prevent noise	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				generating activities, however this is unlikely to be practical. Alternatively, if these developments are approved then the policy wording could be altered to ensure that the timing of noise related activities avoids key breeding seasons. Most developments will also be required to perform an EIA, which may further help to mitigate significant adverse effects on protected sites and species.		
NW-UWN-1 NW-UWN-2	Uncertain, depends on implementation	Biodiversity, Habitats, Flora and Fauna	Fish and shellfish	There are possible mitigation methods for the altering of fish movements, such as changes to the	N/A	Currently, the evidence base only supports the protection of highly mobile species in

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
	No cumulative effect			development site or noise frequencies emitted. The timing of noise generating activities could also be restricted to avoid key migration or spawning seasons. The removal of the term "highly mobile" from the policy wording could help to give greater protection to a larger number of taxa.		NW-DIST-1. As the evidence base develops the policy will be reviewed. This policy also directly aligns with 2 out of the 11 qualitative descriptors of the UK Marine Strategy, D1 and D4.
NW-UWN-1 NW-UWN-2	Uncertain, depends on implementation No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Marine megafauna	The best way to prevent harm to marine megafauna from noise emitting activities and developments would be to prevent the development from occurring. However, this may not be practical. There may be some mitigation such as not	Policy groupings MPAs and Biodiversity could also protect marine megafauna, some of which are protected species.	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				developing during breeding seasons which could help to limit the effects of development, and other mitigation could arise as a result of EIAs which lessen or remove the identified negative effects.		
NW-UWN-1 NW-UWN-2	Minor Negative Potential cumulative effect	Economy	Ports and shipping	Potential cumulative effects may not be mitigated, however this may be considered to be acceptable should environmental protection or fisheries expansion be a priority in the area.	N/A	No further action required.
NW-UWN-1 NW-UWN-2	Minor Negative Potential cumulative effect	Economy	Marine manufacturing	A clear stance on marine manufacturing should be included within the supporting text of this policy, to direct future decisions. It may be that a negative effect	N/A	It's implicit in the use of the plan, and discussed in section 2.3, that the plan must be taken as a whole and no policy should be taken in isolation. The

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
				on industry would need to be accepted due to the protection this would provide to habitats and species.		interaction between the various marine manufacturing policies (including but not limited to EMP, REN, AGG, PS, CAB) is therefore assessed on a case by case basis, taking the strength of the various policies into account and considering the plan as a whole. No direct reference to marine manufacturing is therefore needed in the UWN policies.
NW-UWN-1 NW-UWN-2	Minor Negative Potential cumulative effect	Economy	Aggregate extraction	There may be not mitigation for this cumulative effect. Instead, it may have to be accepted as an effect of implementing policies which will protect the environment.	N/A	No further action required.

Policy Code	Residual Effects	SA Topic	SA Sub-topic	Mitigation	Mitigation already provided by plan policies	MMO Response
NW-UWN-1 NW-UWN-2	Minor Negative Potential cumulative effect	Economy	Energy generation and infrastructure development	It may be that this cumulative effect cannot be mitigated, but must be accepted as an inevitable result of protecting the natural environment. There may be other alternative sites for energy generation, or the judgement may be that the need for energy outweighs the need to conserve the natural environment.	N/A	No further action required.
NW-WQ-1	Uncertain, depends on implementation No cumulative effect	Biodiversity, Habitats, Flora and Fauna	Fish and shellfish	Policy supporting text needs to better highlight the issues relating to sewerage and fish and shellfish.	N/A	Sewage as a point source of pollution and the importance of good water quality for fish and shellfish is referenced within the supporting text of NW-WQ-1. The effect will depend on implementation, therefore no further action required.

15. Monitoring of Residual Effects

The SEA Regulations require that the significant environmental effects of plans and programmes be monitored. This intends to allow the early identification of unforeseen adverse effects so that appropriate remedial action can be taken. Therefore, monitoring undertaken for the North West Marine Plan as part of the SA, and as part of the implementation and monitoring of the adopted North West Marine Plan, should help to:

- monitor the significant effects of the final North West Marine Plan
- track whether the North West Marine Plan has had any unforeseen effects
- ensure that action can be taken to reduce/offset the significant negative effects of the plan

The requirements of the SEA regulations focus on monitoring the significant negative and unforeseen effects of the Marine Plan. Therefore, monitoring within these reports is only discussed within the context of residual effects which are significantly negative or uncertain.

The North West Marine Plan process itself includes a comprehensive monitoring programme which is focused on the achievement of the plan policies contribution towards the marine plan objectives, which in the case of the South West, South East North East and North West Marine Plans are the Marine Policy Statement high level marine objectives. This monitoring programme will enable the MMO to track the success of policies and also to monitor the baseline environmental, economic and social conditions of the marine plan areas. The monitoring also contributes to the three-yearly reporting to parliament, which in turn provides a mechanism for reviewing and amending the plan or individual policies.

The monitoring programme will, as outlined in section 2.6 of the North East, North West, South East and South West Approach to Monitoring, also meet the requirements of the SEA regulations in order to identify any undesirable effects and the need for remedial action, based on the residual significant negative effects and uncertain effects identified within the SA.

The North East, North West, South East and South West Approach to Monitoring provides a framework to monitoring of the English marine plans. It uses the Marine Policy Statement high level marine objectives to provide consistency between marine plans allowing monitoring activities to be set in a common context. Indicators will be developed to allow process, outcome and contextual monitoring. Process monitoring examines the development and implementation of marine plans, outcome monitoring measures progress towards real world change resulting from the marine planning process, and contextual monitoring recognises that marine plan monitoring must consider changes in the wider operating context.

The Annex of Indicators will be developed following the publication of the North East, North West, South East and South West Approach to Monitoring and, once completed will be available on request from the Marine Management Organisation.

The SA topics and sub-topics for which residual significant negative or uncertain effects have been identified in the assessment of the final policies are presented in Table 1. Suggested indicators to monitor these effects will be presented in the SA Adoption Statement. During the development of the Annex of Indicators, these suggestions will, if practicable, be integrated into the monitoring programme or new indicators will be created to assess these effects.

Data will be collected, based on these indicators, which will be used to inform the reporting requirements under the Marine and Coastal Access Act 2009 Section 54 and 61, as well as the monitoring requirements under the SEA regulations. Due to the iterative nature of the marine planning process the monitoring programme will be refined over time.

16. Next Steps

The North West Marine Plan and this final SA Report will be submitted to the Secretary of State in November 2020 and the intention is for the Government to adopt the North West Marine Plan in 2021. The adopted North West Marine Plan will be accompanied by an SA Adoption Statement as required by the SEA Regulations.