North West

Environment

Policy groupings:

- Air Quality
- Biodiversity
- Climate Change
- Cumulative Effects
- Disturbance
- Marine Litter
- Marine Protected Areas
- Non Native Invasive Species
- Underwater Noise
- Water Quality

HLMOs addressed by policies:

Living within environmental limits

- Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
- Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
- Our oceans support viable populations of representative, rare, vulnerable, and valued species.

Promoting good governance

- The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance

Ensuring a strong, healthy and just society

- The use of the marine environment is benefitting society as a whole, contributing to resilient and cohesive communities that we can adapt to coastal erosion and flood risk, as well as contributing to physical and mental wellbeing
- The marine environment plays an important role in mitigating climate change

See also individual policies linked in templates. This is summarised on the cover page of each group of policies

Plan area	North West		
Grouping	Air Quality		
Related High Level Marine Objectives (HLMO).	**Ensuring a strong, healthy and just society** The use of the marine environment is benefiting society as a whole, contributing to resilient and cohesive communities that we can adapt to coastal erosion and flood risk, as well as contributing to physical and mental wellbeing. **Living within environmental limits** Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.		
Other relevant policies	NE-PS-1 NE-PS-2 NE-CC-1		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-AIR-1

HLMO	Ensuring a strong, healthy and just society and Living within environmental limits	**Sub bullet(s)**	The use of the marine environment is benefiting society as a whole, contributing to resilient and cohesive communities that we can adapt to coastal erosion and flood rick, as well as contributing to physical and mental wellbeing. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Air	**Code**	NW-AIR-1

Policy

NW-AIR-1
Proposals that support a reduction in air pollution will be supported.

Proposals must demonstrate consideration of their contribution to air pollution, both direct and cumulative.

Where proposals are likely to result in or facilitate increased air pollution, proposals should demonstrate that they will, in order of preference:
a) avoid b) minimise c) mitigate air pollution.

What is air pollution?

1. Air pollution is defined as a mixture of gases and particles that have been emitted into the atmosphere by man-made processes. Many substances can pollute the air. Some of these are very harmful and their sale and use is strictly regulated. Others are not immediately harmful, but are released in thousands or millions of tonnes per year nationally as by-products of transport, energy production, chemicals manufacture, domestic combustion and farming. When released into the air these substances have gradual but significant impacts on health and the environment (Clean Air Strategy 2018).

2. Air quality is a measure of how polluted the air we breathe is. When air quality is poor, pollutants in the air may be hazardous to people, particularly those with lung or heart conditions.

Where does air pollution occur in the north west marine plan areas?

3. The major contributing industries to air pollution in the north west marine plan area are ports and shipping. The main shipping routes in the north west plan areas are on the Marine Information System, see shipping and navigation layer.

4. The north west marine plan areas have several population centres close to the coasts, including Liverpool, Blackpool and Lancaster. Liverpool is the largest industrialised settlement, with several large ports.

5. Major ports and their main uses in the north west inshore marine plan area include:
    - Port of Liverpool, one of the largest ports in the UK, with new and upcoming proposals to extend its capacity
    - Fleetwood – fishing and ferries to Isle of Man
    - Heysham – ferry and freight
    - Barrow – shipwork and steelworks

6. There are also numerous smaller ports servicing smaller vessels all along the inshore area.

7. Air quality is not routinely monitored at offshore sites, though regular air quality monitoring is carried out by local authorities at coastal areas. Road transport is a significant contribution of emissions to air pollution, so local authorities assess and review air quality in their area. If national air quality objectives will not be achieved local authorities must declare an Air Quality Management Area and put together a Local Air Quality Action Plan for the area.

8. There are a number of Air Quality Management Areas in place in the north west marine plan area:
    - Liverpool city – whole of the city of Liverpool – 229
    - Sefton No.1 Crosby Road North – 151
    - Sefton No.2 Princess way – 152
    - Sefton No.3 Miller Bridge and Derby Road – 153
    - Halton Widnes No.1 Deacon Road – 679
    - Halton No.2 Milton Road – 681
    - Warrington No.2 Central Warrington – 310
    - South Ribble No.1 Priory Lane and Cop Lane – 273
    - South Ribble No.3 Leyland Road and Brownedge Road– 275
    - South Ribble No.4 Station Road– 276
    - Preston No.1 Church Street and Percy Street – 483
    - Preston No.2 Blackpool Road and Plungington Road – 484
    - Preston No.3 Garstang Road – 1010
    - Preston No.4 New Hall – 1009
    - Preston No.5 London Road – 1029
    - Blackpool Town Centre – 186
    - Wyre Chapel Street – 150
    - Lancaster Galgate – 443

- Lancaster city of Lancaster – 441
- Lancaster Camforth – 442
- A number of road transport routes between Liverpool, Preston and Manchester

9. Any further developments from the construction and expansion of the Port of Liverpool will further impact on air pollution in the north west inshore marine plan area.

When does air pollution occur in north west marine plan areas?

10. Air pollution from ports and shipping in the north west marine plan area can occur all year round from a number of contributing factors.

Why is air pollution important to the north west marine plan areas?

11. Clean air is a basic requirement of a healthy environment for us all to live in, work, and bring up families. Air quality has improved significantly in recent decades, but there are some parts of our country where there are unacceptable levels of air pollution.

12. The Irish Sea is a busy shipping area and includes International Maritime Organisation (IMO) traffic seperation schemes in the plan area near to the entrance to Liverpool and Mersey ports. The major ports listed below are where the focus should be with regards to anaylsing air quality impacts. Liverpool is ranked the 6th busiest port in the UK and has potential to double its capacity. As well as the impacts on human health from air pollution it is important that possible impacts on marine protected areas are considered.

13. The Clean Air Strategy 2018 stated that major ports must have air quality strategies. The major ports in the north west inshore marine plan area with air quality strategies are:
    - Port of Liverpool
    - Manchester (via Manchester Ship Canal)
    - Fleetwood
    - Heysham
    - Barrow in Furness

14. Ports should follow the National Policy Statement for Ports when considering air quality and emissions.

15. Air pollution has direct impacts on the natural environment, contributing to climate change, reducing crop yields and polluting oceans. Cleaner air will directly benefit animals and habitats as well as creating a better environment for everyone to live, work and thrive in (Clean Air Strategy 2018).

Who is this of interest to?

16. This policy is of interest to all those developing proposals in the north west marine plan areas.

17. It is also of interest to public authorities making decisions that affect the north west marine plan area directly or indirectly including local planning authorities and those authorities granting permits or licenses for activity in those areas such as:
    - Distribution network operators (Electricity North West in the north west)

- Port and harbour authorities
- Public authorities with Air Quality Management Areas
- Public authorities with strategic planning functions
- Planning Inspectorate when approving local authority plans

How should this policy be applied?

18. NW-AIR-1 applies to the both of the north west inshore and offshore marine plan areas.

19. Decision-makers should support proposals that incorporate measures to reduce air pollution in the north west marine plan areas. This may include novel designs, smart technology, proposals or collaboration between developers, public authorities and distribution network operators. Proposals must comply with relevant legislation and other marine plan policies.

20. Proposals should demonstrate that they will, in order of preference, avoid, minimise or mitigate air pollution - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc. To achieve this, they should consider best available evidence and guidance to avoid or reduce air pollution. Where the proposal will result in or facilitate increased air pollution, the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement.

21. Proposals must demonstrate that they have considered the interaction between sectors, particularly in relation to indirect and cumilative consequences on air pollution, such as:
    - port developments to attract more vessels – see all NW-PS policies
    - developments to increase short sea shipping – see NW-PS-4
    - indirectly increasing road or vessel transit
    - greater travelling distances of vessels from placement of new marine infrastructure resulting in increased fuel consumption and in turn air pollution - see NW-CC-1.

22. There is no one solution to reducing air pollution. Mitigation could include but is not limited to, one or a combination of the following:
    - providing improved grid facilities to support ports developments of shore-side facilities
    - ports encouraging vessels to reduce emissions through incentives
    - transport assessments and vehicle booking systems
    - providing shore-side electrical power to replace ships' generators while in port (cold-ironing)
    - liquefied natural gas (LNG) power barges
    - use renewable energy to charge vessels whilst in port

23. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans. If a proposal cannot meet these criteria it will only be authorised if there are relevant considerations in line with the Marine and Coastal Access Act 2009(Section 58(1)).

24. Public authorities should request relevant information before proceeding further if it is judged that a proposal has not provided the required information. For example, where inadequate information has been provided to make an informed assessment.

Signposting

25. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Clean Air Strategy 2018
    - 25 Year Environment Plan
    - National Policy Statement for Ports
    - The Air Quality Strategy for England, Scotland, Wales and Northern Ireland
    - Liverpool Air Quality Plan
    - MARPOL Annex VI
    - Prevention of air Pollution from Ships

26. Further information and guidance that may help in implementing the policy include:
    - Air quality: explaining air pollution – at a glance
    - UK Air Information Resource
    - Forthcoming strategy to reduce emissions from shipping - UK Clean Maritime Plan
    - World Port Sustainability Program
    - Environmental ship index

Plan area	North West		
Grouping	Biodiversity		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Our oceans support viable populations of representative, rare, vulnerable, and valued species. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.		
Other relevant policies	NE-MPA-1 NE-MPA-2 NE-MPA-3 NE-MPA-4 NE-MPA-6. NE-NIS-1 NE-NIS-2		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-BIO-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Species	**Code**	NW-BIO-1

Policy

NW-BIO-1
Proposals that incorporate features that enhance or facilitate species adaptation or migration, natural native habitat connectivity or net environmental gain will be supported.

Proposals that may have significant adverse impacts on native habitat and species adaptation or connectivity, species migration or net environmental gain must demonstrate that they will, in order of preference:
a) avoid
b) minimise
c) mitigate significant adverse impacts on species adaptation or migration, native habitat connectivity or net environmental gain..

What is native habitat and species adaptation and connectivity?

1. Native habitats are those which occur within their natural range in line with prevailing physiographic, geographic and climatic conditions. Adaptation is the ability of native habitats, species and populations to respond to changes in the environment. Adaptation includes the natural succession of habitats and range shifts in response to climatic and other environmental changes. The ability of habitats and species to adapt to climate change is also addressed by policies regarding climate change.

2. Species connectivity allows the movement of individuals, juveniles and groups preventing individual or group isolation. Habitat connectivity allows the movement of nutrients and supports species connectivity through the presence of continuous suitable habitat.

What is species migration?

3. Migration is the seasonal movement of populations of animals, for example for breeding or feeding purposes. Migration may occur over a small distance or over a much larger, international, distance. Species can migrate within, to and from the north west marine plan areas.

What is net environmental gain?

4. Marine environmental net gain is still an evolving concept. At present there is no working definition and the most applicable definition comes from the National Planning Policy Framework, which extends to mean low water. It describes environmental net gain as contributing to the protection and enhancement of the natural, built and historic environment including making effective use of land, helping to improve biodiversity, using natural resources

prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy. One aim of the 25 Year Environment Plan is to embed an environmental net gain principle for development.

Where are the native habitats and species in the north west marine plan areas?

5. The plan areas support a diverse range of habitats and species, some of which are designated as marine protected areas and some of which lie outside of the marine protected area network. In the north west marine plan areas various priority habitats have been identified, such as coastal saltmarsh and intertidal mudflats as shown in figure XXX. Some priority species distribution also extend into the north west plan areas including but not limited to ocean quahog, common maerl and gooseneck barnacle as shown in figure XXX. Marine protected areas are a key tool for protecting marine biodiversity in the north west marine plan areas and are covered in this plan by policies NW-MPA-1, NW-MPA-2, NW-MPA-3, NW-MPA-4 and NW-MPA-6

6. See the Marine Information System for the location or distribution of broadscale habitats and features of conservation importance. Broadscale habitats and features of conservation importance are species and habitats have been identified as threatened, rare or declining. In addition the Natural Environment and Rural Communities Act (S41), requires the Secretary of State to publish a list of habitats and species of principal importance for the conservation of biodiversity in England. The S41 list and features of conservation importance should be used to prioritise habitats and species.

When does migration occur in the north west marine plan areas?

7. Native habitats in the north west marine plan areas are present all year round and seasonality is restricted to mobile species. The north west marine plan areas are important for different reasons at different times of year, for example breeding seabirds in summer, migratory seabirds in winter and seasonal fish spawning and nursery grounds. Grey seals occur in the north west throughout the year including the breeding population on Walney Island.

8. Migratory routes are variable from year to year both temporally and spatially in spite of the destination remaining the same. Birds migrating to the UK for the breeding season typically arrive during spring and leave in autumn. Bird species which spend the winter in the UK start arriving in October and leave in March.

Why are the native habitats and species important to the north west marine plan areas?

9. NW-BIO-1 ensures habitats and species have the ability to adapt to future change, and protects migration routes and connectivity between important areas for species. NW-BIO-1 also encourages enhancement of the marine natural environment through net environmental gain.

10. The natural environment and associated species are important intrinsically and because of the wider benefits to society and economy. For example in the north west marine plan area:

- Intertidal mudflats such as in Morecambe Bay and Southport which are important feeding areas for wintering and wading birds
- Subtidal sands and gravels which are important habitats for numerous species including scallops, sea urchins and sea cucumbers
- *Sabellaria alveolata* reefs, such as along the southern coast of the Solway estuary, are formed by the honeycomb worm and support diverse ecosystems on shores with strong to moderate wave action
- Healthy coastal habitats and populations of charismatic species can support tourism in coastal areas, for example the resident grey seal population on South Walney

11. Increased levels of development and predicted effects of climate change can affect the north west marine plan areas native habitat and species connectivity, their ability to adapt to change, and species migration routes.

12. The ability of habitats to respond to and adapt to climatic and other environmental changes ensures resilience in the natural environment. Particular species may also need to adapt to changes in their habitats, predation or competition. The ability of habitats and species to adapt to change is important for biodiversity both within and outside of marine protected areas. The restoration of wetland habitats for wading birds around Morecambe Bay is one example of increasing the ability of species to adapt to change.

13. Migratory routes are essential to the success of key life stages of migratory species, such as breeding. Disruption to migratory pathways can negatively affect the success of a population, potentially threatening long term viability. Salmon are one migratory fish species which occur in the north west marine plan areas, migrating from the River Derwent and River Eden as juveniles and back as adults to breed. St Bees Head, for example, is important for migratory seabirds which breed there from April to July.

14. Connectivity between species, habitats and populations (both within and outside of the north west marine plan areas) is important for maintaining genetic diversity and allowing species to undergo seasonal breeding and foraging migrations. Habitat fragmentation and loss as a result of development often has a negative impact such as on population numbers or on the movement of individuals between increasingly isolated populations. This threatens species long term viability.

15. Habitat and species connectivity is particularly relevant for the north west marine plan areas where there are rich marine habitats which support fish, marine mammals and bird species. Renewable energy development, oil and gas extraction and nuclear power generation in the area along with the predicted effects of climate change could potentially lead to habitat fragmentation.

16. Ensuring the connectivity of habitats and species within and outside of the north west marine plan areas is also important as it contributes to the maintenance and cohesion of the existing marine protected area network and surrounding seas.

17. Achieving net environmental gain is important for the north west marine plan areas to support resilient ecosystems which can facilitate native habitat and species adaptation and connectivity and species migration, aiding the maintenance of healthy habitats and populations. Environmental net gain is important to the north west marine plan areas and there are already projects demonstrating it, for example the increase in suitable habitat for wading birds on farmland around Morecambe Bay. Activities such as this can be crucial in enabling populations' reliance to environmental change.

18. NW-BIO-1 contributes to multiple UK policy areas and initiatives. The Marine Strategy Regulations 2010 are part of a set of policies to help the UK meet our aim to achieve clean, healthy, safe, productive and biologically diverse oceans and seas. The directive describes good environmental status in 11 main points which cover all of the important aspects of the marine ecosystem and all of the main human pressures on them. From this a programme of measures for achieving good environmental status was developed in three parts. Marine planning was recognised in the Marine Strategy Part Three: UK Programme of Measures as a measure of addressing habitat and species features specifically through descriptors 1, 4, 6 and 7.

19. Through encouraging net environmental gain this policy supports the 25 year Environment Plan aim to protect and grow natural capital and support environmental enhancement. This policy contributes to the sustainable development aims in the National Planning Policy Framework, including: meeting the challenge of climate change, flooding and coastal change; conserving and enhancing the natural environment; and facilitating the use of sustainable materials.

Who is this of interest to?

20. Developers when preparing proposals which may interact with native habitats and species in the north west marine plan areas.

21. Decision-making public authorities including:
    - Local planning authorities
    - Marine licensing authorities
    - The Planning Inspectorate
    - The Crown Estate
    - Inshore Fisheries and Conservation Authorities
    - Department of Business, Energy and Industrial Strategy
    - Maritime and Coastguard Agency
    - Port and Harbour Authorities

22. Advisory public authorities including:
    - Centre for Environment, Fisheries and Aquaculture Science
    - Joint Nature Conservation Committee
    - Natural England

How should this policy be applied?

23. Decision-makers will support proposals that result in net environmental gain, incorporate measures that enhance or facilitate native habitat and species connectivity, adaptation and migration, enabling the environment to respond

to climate change and development. This may include novel designs, and collaboration between developers and public authorities. Proposals must comply with relevant legislation and other marine plan policies.

24. NW-BIO-1 requires proposals to avoid negative effects which may not enable the functioning of healthy, resilient and adaptable marine and coastal ecosystems.

25. Public authorities should apply these policies proportionally on proposals that will interact with native habitat and species adaptation or connectivity, species migration or net environmental gain. Determination may be informed by a relevant assessment. An assessment to determine how a proposal can be beneficial to habitat and species adaptation, migration and connectivity should:
    - ensure understanding of habitat types within and adjacent to the area of proposal
    - ensure understanding of importance of these habitats to species – important species are migratory, breeding or roosting birds, spawning and migratory fish, and mobile species such as marine mammals
    - consider the ability for habitats to naturally migrate with changing climate and/or if the proposal could assist habitat and species migration

26. Proposals should incorporate measures that enhance or facilitate native habitat and species adaptation and connectivity, species migration and net environmental gain within the north west marine plan areas. Enhancement refers to measures taken which have a positive impact, for example coastal protection works that enhance fish habitat by creating additional saltmarsh. Where artificial structures are used to recreate habitat, these proposals must be in line with policy. Where positive impacts have been identified, proposals must also assess adverse impacts in line with relevant legislation. Enhancement is not a substitute for avoidance, minimisation or mitigation measures.

27. Proposals must demonstrate that they will, in order of preference, avoid, minimise or mitigate any significant adverse impacts on native habitat and species adaptation or connectivity, species migration or net environmental gain within the north west marine plan areas - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc. Measures could include:
    - avoid - siting developments in a location which does not fragment habitats or create a barrier to habitat adaptation, seasonal migrations or species movements
    - minimise - avoiding operational work during seasonal migrations or the use of temporary or floating structures
    - mitigate - the use of soft infrastructure solutions, novel infrastructure design that allows for juvenile fish shelters and corridors for movement

28. Proposals are still required to be in compliance with relevant legislation and regulations including Conservation of Habitats and Species Regulations 2017, Conservation of Offshore Marine Habitats and Species Regulations 2017,

Marine and Coastal Access Act, Environmental Impact Assessment also other national legislation such as The Eels (England and Wales) Regulations 2009, Salmon and Fresh Water Fisheries Act 1975 and National Policy Statements where they apply.

29. It is essential to identify potential for net environmental gain and the location of features and sites within the north west marine plan areas that are important for enabling native habitats to adapt and connect and species to adapt, connect and migrate as well as those important for wider biodiversity, including beyond marine protected areas.

30. Proposals must consider the available evidence and identify any significant adverse impacts on native habitat and species adaptation or connectivity, species migration or net environmental gain.

31. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

32. Proposals having a significant adverse impact on native habitat and species adaptation or connectivity, species migration or net environmental gain must include evidence illustrating consideration of avoiding, minimising or mitigating impacts. This evidence will enable public authorities to make an informed assessment as to whether or not the proposal meets the policies. Evidence to demonstrate consideration could be drawn from sources including the North West Marine Plan and the Marine Information System.

33. It is important to note that where evidence is not available there may still be habitats and species that are sensitive or of conservation concern. Proposals may require additional and more specific evidence.

34. Where new evidence emerges that improves or changes the evidence provided here, this must be used in applying these policies. Both public authorities and proposals should consider this along with any other evidence gathered.

Signposting

35. Existing measures which relate to, and may contribute to the achievement of this policy include:

- Marine Strategy Regulations 2010
- Marine Coastal and Access Act 2009
- 25 Year Environmental Plan
- Climate Change Act 2009
- Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007
- Wildlife and Countryside Act 1981
- Conservation of Habitats and Species Regulations 2017
- Natural Environment and Rural Communities Act 2006
- National Policy Planning Framework
- Town and Country planning (Environmental Impact Assessment) Regulations 2017

36. Further information and guidance that may help in implementing the policy include:

- Biodiversity 2020: A strategy for England's wildlife and ecosystem services
- Conservation Advice Packages
- Estuary Edges: Ecological Design Advice
- Features of Conservation Importance (FOCI) identified by JNCC
- S41 List

37. MIS Data Layers
    - European Marine Sites and Ramsars
        - Special Areas of Conservation
        - Special Protection Areas
        - Ramsar Sites
    - Marine Conservation Zones
    - Sites if Special Scientific Interest (SSSIs)
    - Seabird Density
        - Summer
        - Winter
    - Habitats and Species
        - Species of Conservation Importance (FOCI)
        - Habitats of Conservation Importance (HOCI)
        - Broadscale Habitats
        - Important Bird Areas
    - Seal Density
        - Grey seals at sea (density)
        - Harbour seals at sea (density)
    - Fish habitat
        - Herring spawning potential
        - High intensity fish nursery grounds (No. species)
        - High intensity fish spawning grounds (No. species)

Policy drafting template NW-BIO-3

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Ecosystem approach	**Code**	NW-BIO-3

Policy

NW-BIO-3
Proposals that enhance coastal habitats where important in their own right and/or for ecosystem functioning and provision of ecosystem services will be supported.

Proposals must take account of the space required for coastal habitats where important in their own right and/or for ecosystem functioning and provision of ecosystem services and demonstrate that they will, in order of preference:
a) avoid
b) minimise
c) mitigate for net loss of coastal habitat.

What are coastal habitats and ecosystems?

1. Habitat is defined as the physical surroundings in which organisms live and interact. Coastal habitats occur where land meets sea. Coastal habitats in the north west inshore marine plan area include but are not limited to vegetated shingle, maritime cliffs and slopes, saltmarsh, sand dunes, sandflats, mudflats, seagrass beds, intertidal rocky reefs and intertidal sea caves. An ecosystem is the dynamic complex of plant and animal communities and the surrounding non-living environment that supports them in the north east marine plan areas.

What is ecosystem functioning?

2. The functionality of an ecosystem depends on the relationship within, among and between species and the non-living environment as well as the physical and chemical interactions within the environment. Effective ecosystem function is reliant upon solar energy flow, for example photosynthesis by phytoplankton, mineral and

nutrient cycling such as the absorption of carbon dioxide from the atmosphere such as by saltmarsh, and water cycling.

What are ecosystem services?

3. Ecosystem services are the benefits people obtain from the natural environment. The classification of ecosystem services adopted by the UK National Ecosystem Approach categorises services as follows: regulating, provisioning, cultural and supporting services.
    - regulating services such as flood defence and carbon sequestration services (the process of capturing carbon dioxide from the environment) for example sand dunes which act as natural flood defences
    - provisioning services comprise products obtained from the environment such as food and resources, for example fish stocks targeted by fisheries
    - cultural services are non-physical and connected to human behaviours and values, for example aesthetic values, cultural heritage values and tourism
    - supporting services are necessary for the function of all other ecosystem services. Impacts on humans from supporting services are likely to be indirect or occur over a long period of time. Examples include oxygen production through photosynthesis, soil formation and retention and habitat provision

4. Habitats such as saltmarshes, sand dunes, seagrass beds and mudflats provide a variety of ecosystem services. Saltmarshes and mudflats play an important natural role in protecting the coast from flood events, by reducing wave energy and buffering flood waters. Well-developed sand dune systems act to stabilise sediments, therefore reducing coastal erosion.

5. Saltmarshes and seagrass beds also provide a natural carbon sequestration service. Saltmarsh habitat is one of the most productive ecosystems in the world and as such can sequester a large amount of carbon. Importantly, due to the anoxic (without oxygen) nature of the habitat, the carbon is often shifted from the short term to the long term carbon cycle. This capability is a valuable asset of many of the world's ecosystems.

Where are coastal habitats in the north west inshore marine plan area?

6. Figure xxx shows the distribution of coastal habitats in the north west inshore marine plan area. In addition up-to-date maps of designated coastal sites and marine protected areas are available on the Marine Information System. The Natural Environment and Rural Communities Act (S41), requires the Secretary of State to publish a list of habitats and species of principal importance for the conservation of biodiversity in England. The S41 list and features of conservation importance should be used to prioritise habitats that this policy applies to.

When are coastal habitats present in the north west inshore marine plan area?

7. Coastal habitats are present all year round in the north west inshore plan area and continuously support ecosystem functioning and the provision of ecosystem services.

Why are coastal habitats important to the north west inshore marine plan area?

8. Coastal habitats including but not limited to sand dunes, saltmarsh, sandflats, mudflats and shingle beaches occur throughout the north west inshore marine plan area. The coastal region of the north west inshore marine plan area is characterised

by estuaries including the Solway Firth, Duddon and Esk estuaries in the north, Morecambe Bay, the largest intertidal area in Britain, in the centre and Ribble, Dee and Merseyside estuaries in the south. These estuarine habitats are associated with sandflats, mudflats and saltmarshes. The north west inshore marine plan area is also associated with extensive beaches and sand dune habitats. These habitats support a rich assemblage of species and rely on natural sediment supply and transport to maintain healthy ecosystem function.

9. There are frequent storm surges which, combined with high tides in the area, increase the risk of flooding. Coastal erosion affects some of the shoreline throughout the north west inshore marine plan area and man-made barriers are in place in some areas to protect the coast (Marine Climate Change Impact Partnership). Where fixed landward assets prevent habitat migration or 'roll back', habitat loss is likely to occur due to coastal squeeze. Fixed structures in the marine area can also create barriers to species movement. Sand bars and dunes can and do act as a natural defence against flooding particularly in the southern extent of the plan area.

10. The change or loss of coastal habitats can impact the function of the local ecosystem and the provision of ecosystem services. Dunes, sandflats and mudflats offer natural coastal protection throughout the north west inshore marine plan area whilst saltmarsh habitat absorbs carbon from the atmosphere. The rich diversity of wildlife and natural beauty of marine protected areas in the north west inshore marine plan area offer inspiring places to live, work and visit. The Joint Nature Conservation Committee has explored the components and processes associated with marine and coastal ecosystem services.

11. Coastal habitats are vulnerable to human pressures including climate change. The Joint Nature Conservation Committee has developed a database which aims to understand the relationship between human activities and their associated pressures on the marine and coastal environment. Pressures associated with coastal ecosystems include but are not limited to permanent or temporary physical loss or change in habitat.

12. The north west inshore marine plan area supports internationally significant populations of breeding and overwintering seabirds, wading birds and waterfowl. These, in addition to the numerous beaches (some of which are listed here) and extensive natural scenery associated with the coast make cultural services a draw to the north west inshore marine plan area.

13. Functional coastal ecosystems in the north west inshore marine plan area play a significant role in achieving the UK government's vision clean, healthy, safe, productive and biologically diverse oceans and seas. Coastal habitats comprise part of the UK programme of measures to achieve 'Good Environmental Status' in UK waters under the Marine Strategy Regulations 2010. The main descriptor of 'Good Environmental Status' for coastal habitats is Descriptor one: 'Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions'. These commitments are reinforced through the in the UK Marine Policy Statement through a commitment to healthy marine and coastal habitats. Functional coastal ecosystems also contribute to the UK Marine Policy Statement objective, 'healthy marine and coastal habitats occur across their natural range and

are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems'.

14. The National Planning Policy Framework includes commitments to 'reduce risk from coastal change by avoiding inappropriate development in vulnerable areas and not exacerbating the impacts of physical changes to the coast' (para. 167). The 25 year Environment Plan from the Department for Environment, Food and Rural Affairs commits to reducing risks from flooding and coastal erosion and promotes environmental enhancement. This commitment is also supported by the National flood and coastal erosion risk management strategy for England.

Who is this of interest to?

15. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

16. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

How should this policy be applied?

17. This policy applies to coastal habitats throughout the north west inshore marine plan area.

18. Public authorities will support proposals that enhance coastal habitats in their own right and / or for ecosystem functioning and provision of ecosystem services where it complies with other policies in this plan and other relevant legislation.

19. Public authorities will assess if the proposal affects coastal habitats in their own right and / or ecosystem functioning and provision of ecosystem services on a case-by case basis. Public authorities should apply these policies proportionally on proposals that will interact with coastal habitats in their own right and / or ecosystem functioning and provision of ecosystem services. Determination may be informed by a relevant assessment. An assessment to determine how a proposal can be beneficial to coastal habitats should:
    - ensure understanding of habitat types within and adjacent to the area of proposal
    - ensure understanding of importance of these habitats to ecosystem functioning and ecosystem services
    - consider the space required for effective function of coastal habitats and/or if the proposal could assist coastal habitat enhancement

20. Proposals that enhance coastal habitats should include information demonstrating how this will be achieved. Enhancement refers to measures taken which have a positive impact, for example coastal protection works that enhance fish habitat by creating additional saltmarsh. Where artificial structures are used to recreate habitat, these proposals must be in line with policy, for example NW-NIS-1, NW-NIS-2 and NW-NIS-3. Where positive impacts have been identified, proposals must also assess adverse impacts in line with relevant legislation. Enhancement is not a substitute for avoidance, minimisation or mitigation measures.

21. Proposals must consider the available evidence and identify any significant adverse impacts on coastal habitats. Proposals must demonstrate that they will, in order of preference, avoid, minimise or mitigate the net loss of coastal habitats within the north west inshore plan area – proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) and so on. Inclusion of this information does not indicate that approval of the proposal will follow by default. Approval will also depend on other material considerations taken into account by the decision-maker which may include, for example, other plans.

22. Proposals must still comply with requirements under relevant legislation including the Conservation of Habitats and Species Regulations 2017, the Marine and Coastal Access Act 2009, the Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, and other national legislation.

23. It is important to note that where evidence is not available there may still be habitats and species that are sensitive or of conservation concern. Proposals may require additional and more specific evidence.

24. Where new evidence emerges that improves or changes the evidence provided here, this must be used in applying these policies. Both public authorities and proposals should consider this along with any other evidence gathered.

Signposting

25. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Conservation of Habitats and Species Regulations 2017
    - Marine Coastal and Access Act 2009
    - National Policy Planning Framework
    - Town and Country planning (Environmental Impact Assessment) Regulations 2017
    - 25 Year Environmental Plan

26. Further information and guidance that may help in implementing the policy include:
    - Biodiversity 2020: A strategy for England's wildlife and ecosystem services
    - Conservation Advice Packages
    - Estuary Edges: Ecological Design Advice
    - Features of Conservation Importance (FOCI) identified by JNCC
    - S41 List

27. MIS data layers that may help implement this policy include:
    - European Sites and Ramsars
        - Special Areas of Conservation (SACs)
        - Special Protection Areas (SPAs)
        - Ramsar Sites
    - Marine Conservation Zones
    - Sites of Special Scientific Interest (SSSIs)
    - Habitats and Species
        - Habitats of Conservation Importance (HOCI)
        - Broadscale Habitats
    - Shoreline Management Plans

- Landscape Designations

Policy drafting template – NW-BIO-4

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Species	**Code**	NW-BIO-4

Policy

NW-BIO-4
Proposals that enhance the distribution and net extent of priority habitats and distribution of priority species in the north west marine plan areas will be supported. Proposals must avoid reducing the distribution and net extent of priority habitats and other habitats priority species rely on.

What are priority habitats and species?

1. Priority habitats and species are those recognised as being of 'principal importance' for the conservation of biological diversity in England under the Natural Environment and Rural Communities Act (2006) (Section 41). Priority habitats comprise coastal and offshore habitats including but not limited to intertidal mudflats, subtidal sands and gravels, *Sabellaria* reefs, sea grass beds and sheltered muddy gravels. Priority species include but are not limited to herring gull, common maerl, *Arctica islandica*, native oyster and stalked jellyfish.

2. Priority habitats and species have been identified through additional organisations and legislation. Features of Conservation Importance, including marine habitats, are identified by the Joint Nature Conservation Committee and listed in the Ecological Network Guidance. The Conservation of habitats and Species Regulations and the Conservation of Offshore Marine Habitats and Species Regulations require protection for Annex 1 habitats and Annex II species. The Convention for the Protection of the North-East Atlantic has developed a list of threatened and / or declining species and habitats.

What is Enhancement?

3. Enhancement refers to measures taken which have a positive impact, for example the creation of saltmarsh habitat as part of a coastal realignment scheme which can provide natural flood and erosion defence while acting as important habitat for wading birds. Environmental enhancement aims to improve the condition of natural capital assets, a knock on effect of which is increased value to people through the benefits of the ecosystem services provided by that asset.

Where are priority habitats and species in the north west marine plan areas?

4. Maps of the known distribution of priority habitats and species are available on Marine Information Systems.

5. The north west marine plan areas have a wide range of priority habitats, varying in abundance, extent and condition. Intertidal mudflats occur in numerous estuaries in the north west inshore marine plan area from Esk in the north to Dee in the south. Subtidal sand and gravels are distributed throughout much of the north west inshore

marine plan area and in patches offshore. There is an area of *Sabellaria* reef in the coastal region between Seascale and Braystones.

6. Native oyster beds occur in the north west inshore marine plan area including in the River Mersey Estuary, in Knott End on Sea and in Piel Channel. Common maerl occurs off the coast of Whitehaven. *Arctica islandica*, also a priority mollusc, occurs in deeper waters in the inshore and offshore north west marine plan area. Gooseneck barnacles are found in the north west offshore marine plan area. The leatherback turtle, a large and charismatic marine species, has been sighted in the north west marine plan areas during summer months.

When is this policy relevant in the north west marine plan areas?

7. Priority habitats are present in the north west marine plan areas all year round. The seasonal and temporal variations which exist are species and project dependent and individual projects will need to consider these temporal aspects of priority species. Decision-makers will need to apply the best available evidence and the precautionary principle on a case-by-case basis.

Why are priority habitats and species important to the north west marine plan areas?

8. Priority species are important in their own right for their contribution to biodiversity and can encourage eco-tourism which brings economic prosperity to the north west region.

9. Atlantic salmon is a diadromous species which migrates from freshwater to sea as a juvenile before returning to freshwater to breed as an adult. There are several Atlantic salmon rivers in the north west inshore marine plan area thus both juvenile and adult salmon are likely to occur in the north west marine plan area as they migrate. The herring gull is a priority species which occurs throughout the north west inshore marine plan area all year round whilst the roseate tern is a seasonal visitor, arriving at breeding colonies in May and leaving in August. Native oysters and *Arctica islandica* are priority species of mollusc which occur in the inshore and offshore northwest marine plan areas respectively.

10. Priority habitats in the north west marine plan area include but are not restricted to: intertidal mudflats, sheltered muddy gravels and peat and clay exposures, for example around Morecambe Bay; subtidal sands and gravels along much of the coast of the north west inshore marine plan area; Seagrass beds for example off the coast of Workington in the Solway Firth; and intertidal boulder communities for example off the coast of Rottington.

11. Not all priority habitats and species occur within designated sites. Some habitats and species that are recognised as internationally important are not always present to an internationally significant extent in the north west marine plan areas and are therefore not designated. These habitats and species may still be important at a local level but receive less protection compared to designated features. They are protected under the Conservation of Habitats and Species Regulations 2017 (for inshore areas) and for offshore areas, the Conservation of Offshore Marine Habitats and Species Regulations 2017. This policy also protects non-designated habitats that are important for protected species.

12. The UK Marine Policy Statement states that marine plans will contribute to the achievement of the UK's high level marine objectives, which includes the following: 'Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems' (Marine Policy Statement box 1).

13. NW-BIO-4 contributes to multiple UK policy areas and initiatives. The Marine Strategy Regulations 2010 are part of a set of policies to help the UK meet our aim to achieve clean, healthy, safe, productive and biologically diverse oceans and seas. The directive describes good environmental status in 11 main points which cover all of the important aspects of the marine ecosystem and all of the main human pressures on them. From this a programme of measures for achieving good environmental status was developed in three parts. Marine planning was recognised in the Marine Strategy Part Three: UK Programme of Measures as a measure of addressing habitat and species features specifically through descriptors 1, 4, 6 and 7.

14. Through encouraging environmental enhancement this policy supports the 25 year Environment Plan aim to protect and grow natural capital and support environmental net gain. This policy contributes to the sustainable development aims in the National Planning Policy Framework meeting the challenge of climate change, flooding and coastal change and conserving and enhancing the natural environment.

Who is this of interest to?

15. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

16. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

17. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning
    - land and water management
    - waste management
    - access management
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

18. This policy applies to priority habitats and species, and habitats relied upon by priority species throughout the north west marine plan areas.

19. Public authorities will support proposals that enhance the distribution and net extent of priority habitats and species in the north west marine plan areas where it complies with other policies in this plan and relevant legislation.

20. Proposals that enhance the distribution and net extent of priority habitats and distribution of priority species should include information demonstrating how this will be achieved. Enhancement refers to measures taken which have a positive impact. An example of enhancement could include the removal of hard coastal defence structures in favour of soft engineering which enables habitat roll back.

21. All current available evidence relating to priority habitats, priority species and habitats relied upon by priority species must be taken into account for proposals in the north west marine plan areas.

22. Data and evidence on the location, distribution and extent of priority habitats and species throughout the north west marine plan areas is still developing. The absence of evidence does not mean that there are no priority habitats or species. Additional proposal-specific evidence may be required. It is essential for proposals to identify the location of priority habitats and potential distribution of priority species within the north west marine plan areas that may be affected by the proposal. Where new evidence emerges that improves or changes the evidence provided here, this must be taken account of in applying the policy. Public authorities and proposals should consider this along with any other evidence gathered. NW-BIO-4 relates to all priority habitats and species (including supporting habitat) in the north west marine plan areas.

23. Where positive impacts have been identified, proposals must also assess adverse impacts in line with relevant legislation. Enhancement is not a substitute for avoidance, minimisation or mitigation measures.

24. Proposals must still comply with requirements under relevant legislation including the Conservation of Habitats and Species Regulations 2017, the Conservation of Offshore Marine Habitats and Species Regulations 2017, the Marine and Coastal Access Act 2009, the Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000 and the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, and other national legislation.

25. Proposals must demonstrate that they will avoid reductions in the distribution and net extent of priority habitats and species in the north west marine plan areas. This can be shown through the proposal demonstrating consideration of its location, for example, or of the location of any infrastructure and the effect of any change to habitats or species during construction or operation of the project.

26. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans. Public authorities should implement this policy proportionally on proposals that may reduce priority habitat and species distribution and extent.

Signposting

27. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - The Conservation of Habitats and Species Regulations (2017),
    - Conservation of Offshore Marine Habitats and Species Regulations 2017
    - Wildlife and Countryside Act 1981 (SSSI consenting)

- Natural Environment and Rural Communities Act (2006) (Section 41)
- Marine and Coastal Access Act 2009
- The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017),
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- National Policy Statements

28. Further information and guidance that may help in implementing the policy include:
    - The Marine Strategy Regulations 2010
    - The Environmental Assessment of Plans and Programmes Regulations 2004
    - Marine Works (Environmental Impact Assessment) Regulations 2017
    - National Planning Policy Framework
    - UK Marine Policy Statement
    - National Policy Statements for Energy Infrastructure
    - Designated sites view

29. Key data sets on MIS:
    - Habitats Directive Annex 1 features
    - Habitats and Species
        - Habitats of Conservation Importance
        - Features of Conservation Importance

Policy drafting template – NW-BIO-5

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Ecosystem approach	**Code**	NW-BIO-5

Policy

NW-BIO-5
Proposals must demonstrate that they will in order of preference:
a) avoid
b) minimise
c) mitigate significant adverse effects on marine or coastal natural capital assets, or
d) if it is not possible to mitigate significant adverse effects on marine or coastal natural capital assets proposals should state the case for proceeding.
Proposals should seek to enhance marine or coastal natural capital assets where possible.

What is a marine natural capital asset?

1. Natural capital as defined in the 25 year environment plan, is the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas. Natural assets include soil, water, air and all living things and can be referred to as 'stocks'. These are all elements of nature that either directly or indirectly bring value to people and the country at large. They do this in many ways chiefly by providing us with food, clean air and water, wildlife, energy, wood, recreation and protection from hazards.

2. Natural capital is an emerging concept. The approach to defining, identifying and considering marine natural capital assets in decision-making is in development with the current focus on building a common and shared knowledge base to enable understanding of marine environments in the context of natural capital assets. Until the marine natural capital approach is agreed, the more established ecosystem services approach should be considered when applying this policy.

3. The Ecosystem Approach and Ecosystem Services Approach are important elements of sustainable development. Ecosystem services are the benefits people obtain from the natural environment. The classification of ecosystem services adopted by the UK National Ecosystem Approach categorises services as follows: regulating, provisioning cultural and supporting services.
    - regulating services such as flood defence and carbon sequestration services (the process of capturing carbon dioxide from the environment), for example sand dunes which act as natural flood defences
    - provisioning services comprise products obtained from the environment such as food and resources, for example fish stocks targeted by fisheries
    - cultural services are non-physical and connected to human behaviours and values, for example aesthetic values, cultural heritage values and tourism
    - supporting services are necessary for the function of all other ecosystem services. Impacts on humans from supporting services are likely to be indirect or occur over a long period of time. Examples include oxygen production through photosynthesis, soil formation and retention and habitat provision

What is enhancement?

4. Enhancement refers to measures taken which have a positive impact, for example the creation of saltmarsh habitat as part of a coastal realignment scheme which can provide natural flood and erosion defence while acting as important habitat for wading birds. Environmental enhancement aims to improve the condition of natural capital assets, a knock on effect of which is increased value to people through the benefits of the ecosystem services provided by that asset.

Where are marine natural capital assets in the north west marine plan areas?

5. Approaches to identify marine natural capital assets are in development. The ecosystem services present in the north west marine plan areas include but are not limited to:
    - saltmarshes such as in Morecambe Bay which protect the coast from flooding and are an important carbon sink
    - reefs which comprise important habitats and shelter for numerous species for example the *Sabellaria alveolata* reefs along the northern coast of the north west inshore marine plan area
    - fish stocks which contribute to the provision of food including but not limited to shrimp, Nephrops, cod and sprat
    - cultural value in terms of the maritime history of the areas and coastal environment which makes the north west an attractive place to live and visit

6. The known distribution and location of the habitats can be found in Marine Information Systems.

When are marine natural capital assets present in the north west marine plan areas?

7. Ecosystem services, and therefore natural capital, are functional throughout the year. Natural capital associated with recreation the peak is during the spring and summer months when tourism and recreational activities are greatest.

Why are marine natural capital assets important to the north west marine plan areas?

8. The high number of estuaries in the north west marine plan areas increase the risk of flooding throughout the region. Ecosystem services, and therefore natural capital, in the form of flood protection are important to the area. The northern and southern extents of the inshore marine plan area are at a greater risk of coastal erosion and enhancement of the ecosystem components protecting these regions could benefit the area.

9. Habitats such as saltmarshes, sand dunes and mudflats provide a variety of ecosystem services. Saltmarshes, for example in the Duddon and Dee estuaries, provide a natural carbon sequestration service. Saltmarsh habitat is one of the most productive ecosystems in the world and as such can sequester a large amount of carbon. Importantly, due to a lack of oxygen in saltmarsh habitats, the carbon is often shifted from the short term to the long term carbon cycle. When carbon transitions to the long term carbon cycle it takes much longer to be released back into the atmosphere as carbon dioxide, thus contributing to the reduction of carbon emissions. This capability is a valuable asset of many of the world's ecosystems.

10. Mudflats, for example in the Solway, Morecambe and Ribble esturaries, play an important natural role in protecting the coast from flood events by reducing wave energy and buffering flood waters. Well-developed sand dune systems, such as those on Walney and Foulney Islands, act to stabilise sediments, therefore reducing coastal erosion.

11. Marine species such as fish and shellfish are an important component of provisioning services. In the north west marine plan areas commercially targeted species include but are not limited to mussels, razor clams, sole and sprat. Cultural services in the north west marine plan areas contribute to health and wellbeing, for example the Route 72 of the National Cycle Network which encourages outdoor activities.

12. Supporting services underpin all of the other services and occur throughout the north west marine plan area, these services include primary production by phytoplankton, seagrasses and seaweeds and nutrient cycling, for example the 'mussel mud' formed by blue mussel beds and used a source of nutrients by animals living in the sediment. In the north west marine plan area areas of blue mussel beds include but are not limited to the Piel Channel. Biodiversity is an important component of healthy and resilient ecosystems and is considered fundamental to the success of enhancing natural capital assets.

13. Policy NW-BIO-5 will aid the achievement of Good Environmental Status for Descriptor 1 'Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions' as detailed in the Marine Strategy Part Three: UK Programme of Measures.

14. Policy NW-BIO-5 also contributes to the UK high level marine objectives for living within environmental limits and supports the 25 Year Environment Plan aim to protect and grow natural capital and support environmental enhancement. This policy contributes to the sustainable development aims in the National Planning Policy Framework.

Who is this of interest to?

15. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

16. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

17. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning
    - land and water management
    - waste management
    - access management
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

18. This policy applies to the inshore and offshore marine plan areas.

19. Public authorities should support proposals that enhance marine natural capital assets within the north west marine plan areas where they comply with other policies in this plan and relevant legislation.

20. Public authorities will assess if the proposal affects marine natural capital assets on a case-by-case basis. Decision-makers should seek advice on how to consider marine natural capital from the statutory nature conservation bodies. Where advice states that it is not possible to assess the impact there will be no further requirements for decision-makers to consider marine natural capital assets beyond that which is required by the ecosystem services approach. The requirements on how to consider marine natural capital assets under policy NW-BIO-5 may change if guidance is issued. New and evolving advice will not be applied retrospectively to activities that have already been consented.

21. Proposals that enhance marine natural capital assets should include information demonstrating how this will be achieved. Where positive impacts are identified, proposals must also assess adverse impacts in line with relevant legislation. Enhancement is not a substitute for avoidance, protection or mitigation measures.

22. Proposals must still comply with requirements under relevant legislation including the Conservation of Habitats and Species Regulations 2017, the Conservation of Offshore Marine Habitats and Species Regulations 2017, the Marine and Coastal Access Act 2009, the Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, and other national legislation.

23. Proposals that have significant adverse impacts on marine natural capital assets must demonstrate that they will, in order of preference, avoid, minimise or mitigate any significant adverse impacts on marine natural capital assets within the north west marine plan areas - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) and so on. Actions that can be carried out to avoid, minimise or mitigate significant adverse impacts on marine natural capital assets will be specific to the natural capital asset under consideration. Decision-makers will assess the use of the mitigation hierarchy on a case-by-case basis.

24. Where it is not possible to mitigate, proposals should demonstrate option (d) and state the case for proceeding including how the proposal supports the High Level Marine Objectives, north west plan vision and other north west plan policies.

25. Inclusion of this information does not indicate that approval for the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

26. It is important to note that where evidence is not available there may still be habitats and species that are sensitive or of conservation concern. Proposals may require additional and more specific evidence.

27. Where new evidence emerges that improves or changes the evidence provided here, this must be used in applying these policies. Both public authorities and proposals should consider this along with any other evidence gathered.

Signposting

28. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Marine Strategy Regulations 2010
    - Marine Coastal and Access Act 2009
    - 25 Year Environment Plan
    - Delivering a Golden Legacy: a growth strategy for inbound tourism 2012-2020

29. Further information and guidance that may help in implementing the policy include:
    - Natural England Ecosystem Services Transfer Toolkit
    - Biodiversity 2020: A strategy for England's wildlife and ecosystem services
    - Conservation Advice Packages
    - Features of Conservation Importance (FOCI) identified by JNCC
    - S41 List
    - JNCC Ecosystem Approach

30. Current MIS Data Layers which may help when applying this policy. This list may change as more evidence becomes available. This list provides the distribution of protected sites and some species and habitats in the absence of an ecosystem services or natural capital assets evidence base.
    - European Marine Sites and Ramsars
        - Special Areas of Conservation
        - Special Protection Areas
        - Ramsar Sites
    - Marine Conservation Zones
    - Sites if Special Scientific Interest (SSSIs)

- Habitats Directive Annex I features
    - Annex1 Sandbanks
    - Annex 1 Reefs
- Seabird Density
    - Summer
    - Winter
- Habitats and Species
    - Species of Conservation Importance (FOCI)
    - Habitats of Conservation Importance (HOCI)
    - Broadscale Habitats
- Nature Reserves and Trusts
    - RSPB Reserves
    - National Nature Reserves
    - Important Bird Areas
- Seal Density
    - Grey seals at sea (density)
    - Harbour seals at sea (density)
- Fish habitat
    - Herring spawning potential
    - High intensity fish nursery grounds (No. species)
    - High intensity fish spawning grounds (No. species)
- Landscape Designations
    - Heritage Coast
    - Area of Outstanding Natural Beauty (AONB)
- Recreation Models (all data layers)
- RYA Recreational Boating (all data layers)

Policy drafting template – NW-BIO-6

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species. Biodiversity is protected, conserved and where appropriate recovered and loss has been halted. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Ecosystem approach	**Code**	NW-BIO-6

Policy

NW-BIO-6
Public authorities with functions capable of affecting the north west marine plan areas should take measures to:
a.) avoid
b.) minimise
c.) mitigate significant adverse impacts on marine or coastal natural capital assets and should seek to enhance marine or coastal natural capital assets where possible.

What is a marine natural capital asset?

1. Natural capital, as defined in the 25 year environment plan, is the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas. Natural capital assets include but are not limited to soil, water, air and all living things and can be referred to as 'stocks'. These are all elements of nature that either directly or indirectly bring value to people and the country at large. They do this in many ways chiefly by providing us with food, clean air and water, wildlife, energy, wood, recreation and protection from hazards.

2. Natural capital is an emerging concept. The approach to defining, identifying and considering marine natural capital assets in decision-making is in development with the current focus on building a common and shared knowledge base to enable understanding of marine environments in the context of natural capital assets. Until the marine natural capital approach is agreed, the more established ecosystem services approach should be considered when applying this policy.

3. The Ecosystem Approach and Ecosystem Services Approach are important elements of sustainable development. Ecosystem services are the benefits people obtain from ecosystems. The classification of ecosystem services adopted by the UK National Ecosystem Approach categorises services as follows: regulating, provisioning cultural and supporting services.
    - regulating services for example flood defence and carbon sequestration services (the process of capturing carbon dioxide from the environment), such as sand dunes which act as natural flood defences
    - provisioning services comprise products obtained from the environment such as food and resources, for example fish stocks targeted by fisheries
    - cultural services are non-physical and connected to human behaviours and values, for example aesthetic values, cultural heritage values and tourism
    - supporting services are necessary for the function of all other ecosystem services. Impacts on humans from supporting services are likely to be indirect or occur over a long period of time. Examples include oxygen production through photosynthesis, soil formation and retention and habitat provision such as by reefs

What is enhancement?

4. Enhancement refers to measures taken which have a positive impact, for example the creation of saltmarsh habitat as part of a coastal realignment scheme which can provide natural flood and erosion defence while acting as important habitat for wading birds. Environmental enhancement aims to improve the condition of natural capital assets, a knock on effect of which is increased value to people through the benefits of the ecosystem services provided by that asset.

Where are marine natural capital assets in the north west marine plan areas?

5. Approaches to identify marine natural capital assets is in development. The ecosystem services present in the north west marine plan areas include but are not limited to:
    - saltmarshes such as in Morecambe Bay which protect the coast from flooding and are an important carbon sink
    - reefs which comprise important habitats and shelter for numerous species species for example the *Sabellaria alveolata* reefs along the northern coast of the north west inshore marine plan area
    - fish stocks which contribute to the provision of food
    - cultural value in terms of the maritime history of the areas and coastal environment which makes the north west an attractive place to live and visit

6. The known distribution and location of the habitats can be found in Marine Information Systems.

When are marine natural capital assets present in the north west marine plan areas?

7. Ecosystem services, and therefore natural capital, are functional throughout the year. Natural capital associated with recreation the peak is during the spring and summer months when tourism and recreational activities are greatest.

Why are marine natural capital assets important to the north west marine plan areas?

8. The high number of estuaries in the north west marine plan areas increase the risk of flooding throughout the region. Ecosystem services, and therefore natural capital, in the form of flood protection are important to the area. The northern and southern extents of the inshore marine plan area are at a greater risk of coastal erosion and enhancement of the ecosystem components protecting these regions could benefit the area.

9. Habitats such as saltmarshes, sand dunes and mudflats provide a variety of ecosystem services. Saltmarshes, for example in the Duddon and Dee estuaries, provide a natural carbon sequestration service. Saltmarsh habitat is one of the most productive ecosystems in the world and as such can sequester a large amount of carbon. Importantly, due to a lack of oxygen in saltmarsh habitats, the carbon is often shifted from the short term to the long term carbon cycle. When carbon transitions to the long term carbon cycle it takes much longer to be released back into the atmosphere as carbon dioxide, thus contributing to the reduction of carbon emissions. This capability is a valuable asset of many of the world's ecosystems.

10. Mudflats, for example in the Solway, Morecambe and Ribble esturaries, play an important natural role in protecting the coast from flood events by reducing wave energy and buffering flood waters. Well-developed sand dune systems, such as those on Walney and Foulney Islands, act to stabilise sediments, therefore reducing coastal erosion.

11. Marine species such as fish and shellfish are an important component of provisioning services. In the north west marine plan areas commercially targeted species include but are not limited to mussels, razor clams, sole and sprat. Cultural services in the north west marine plan areas contribute to health and wellbeing, for example the Route 72 of the National Cycle Network which encourages outdoor activities.

12. Supporting services underpin all of the other services and occur throughout the north west marine plan area, these services include primary production by phytoplankton, seagrasses and seaweeds and nutrient cycling, for example the 'mussel mud' formed by blue mussel beds and used a source of nutrients by animals living in the sediment. In the north west marine plan area areas of blue mussel beds include but are not limited to the Piel Channel. Biodiversity is an important component of healthy and resilient ecosystems and is considered fundamental to the success of enhancing natural capital assets.

13. Policy NW-BIO-5 will aid the achievement of Good Environmental Status for Descriptor 1 'Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions' as detailed in the Marine Strategy Part Three: UK Programme of Measures.

14. Policy NW-BIO-5 also contributes to the UK high level marine objectives for living within environmental limits and supports the 25 Year Environment Plan aim to protect and grow natural capital and support environmental enhancement. This

policy contributes to the sustainable development aims in the National Planning Policy Framework.

Who is this of interest to?

15. Public authorities must have regard for this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Decisions related to authorisations and enforcement and their potential to disturb components of the ecosystem that generate natural capital are addressed through policy NW-BIO-5. Public authority functions relevant to NW-BIO-6 include but are not limited to:
    - strategic planning, including strategies which promote natural capital enhancement in the north west marine plan areas
    - shoreline manage
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

16. This policy applies to the inshore and offshore marine plan areas.

17. This policy should be applied by public authorities when carrying out any function capable of affecting natural capital assets. Where possible, public authorities should build in measures to enhance natural capital assets where possible. This could include innovative design for coastal protection works. Public authority functions should not result in significant adverse impacts on natural capital generation in the north west marine plan areas. This could include measures to avoid, minimise or mitigate the impact of tourism through sustainable access management, or by developing tourism strategies that include measures to promote sustainable access.

18. Public authorities should seek advice on how to consider natural capital assets from the statutory nature conservation bodies. Where advice states that it is not possible to assess the impact there will be no further requirements for public authorities to consider natural capital assets. There is no current guidance on how natural capital is considered in the decision-making process. The requirements on how to consider natural capital under policy NE-BIO-6 may change if guidance is issued.

Signposting

19. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Marine Strategy Regulations 2010
    - Marine Coastal and Access Act 2009
    - 25 Year Environment Plan
    - Delivering a Golden Legacy: a growth strategy for inbound tourism 2012-2020

20. Further information and guidance that may help in implementing the policy include:
    - Natural England Ecosystem Services Transfer Toolkit
    - Biodiversity 2020: A strategy for England's wildlife and ecosystem services
    - Conservation Advice Packages
    - Features of Conservation Importance (FOCI) identified by JNCC
    - S41 List
    - JNCC Ecosystem Approach

21. Current MIS Data Layers which may help when applying this policy. This list may change as more evidence becomes available. This list provides the distribution of protected sites and some species and habitats in the absence of an ecosystem services or natural capital assets evidence base.
    - European Marine Sites and Ramsars
        - Special Areas of Conservation
        - Special Protection Areas
        - Ramsar Sites
    - Marine Conservation Zones
    - Sites if Special Scientific Interest (SSSIs)
    - Habitats Directive Annex I features
        - Annex1 Sandbanks
        - Annex 1 Reefs
    - Seabird Density
        - Summer
        - Winter
    - Habitats and Species
        - Species of Conservation Importance (FOCI)
        - Habitats of Conservation Importance (HOCI)
        - Broadscale Habitats
    - Nature Reserves and Trusts
        - RSPB Reserves
        - National Nature Reserves
        - Important Bird Areas
    - Seal Density
        - Grey seals at sea (density)
        - Harbour seals at sea (density)
    - Fish habitat
        - Herring spawning potential
        - High intensity fish nursery grounds (No. species)
        - High intensity fish spawning grounds (No. species)
    - Landscape Designations
        - Heritage Coast
        - Area of Outstanding Natural Beauty (AONB)
    - Recreation Models (all data layers)
    - RYA Recreational Boating (all data layers)

Plan area	North West		
Grouping	Climate Change		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** The marine environment plays an important role in mitigating climate change. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.		
Other relevant policies	NW-CCS-1 NW-CCS-2 NW-OG-1 NW-REN-1 NW-REN-2 NW WIND-2 NW-CO-1 NW-PS-1 NW-PS-2 NW-PS-3 NW-PS-4 NW-BIO-1		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-CC-1

HLMO	Living within environmental limits	**Sub bullet(s)**	The marine environment plays an important role in mitigating climate change. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Climate change – infrastructure Climate change – environment Coastal Change	**Code**	NW-CC-1

Policy

NW-CC-1
Proposals must demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate consequences on other activities from unintended greenhouse gas emissions.

What are consequences leading to unintended greenhouse gas emissions?

1. Consequences leading to unintended greenhouse gas emissions are when a proposal's activities unintentionally result in further greenhouse gas emissions from another activity. This can occur outside the proposal's direct footprint. For example, a proposal seeking to generate renewable energy might find a suitable location between the coast and fishing grounds. Construction may affect fishing activity causing vessels to navigate around the development, resulting in an increase in fuel consumption and associated emissions. This would negate some of the benefit of the proposal in terms of low carbon energy generation, as well as affecting the economic viability of the fishing operation.

2. This policy focuses on indirect contributions as the direct contributions are already managed through existing mechanisms and legislation (see signposting). As a result of these existing mechanisms, the North West Marine Plan can add the most value in managing the indirect contributions to climate change.

Where do unintended emissions occur in the north west marine plan areas?

3. In the north west marine plan areas there is a high density of activity with a focus on energy production (including oil and gas extraction and renewables), various fisheries , and several ferry routes between the UK and Eire alongside a variety of ports and shipping activity. For example, any further expansion of existing wind

farms should apply this policy to ensure no unintended emissions occur as a result of those proposals causing a diversion or extended route either permanently or during construction.

4. Applying these data layers (R3 zones, shipping routes, fishing activity alongside any relevant layers that may be presented in the future) on the marine planning evidence base will provide a more accurate picture of activity in the north west marine plan areas.

When do unintended emissions take place in the north west marine plan areas?

5. There are no temporal constraints on unintended emissions, as they would occur as and when there is an interaction between marine transport (including shipping and fishing vessels) and another constraint upon that transport.

Why are unintended emissions important to the north west marine plan areas?

6. The majority of evidence and scientific projections indicate that the climate will continue to change at pace, well into the 21st century and beyond[1]. UK carbon budgets are set for four year periods as a means of ensuring progress towards the 2050 target. Carbon budgets have been set up to 2027 and require a 50% reduction below baseline by 2025.Carbon emissions have reduced by over 19% since 2012 and are reducing at about 5% year on year, however the majority of reductions are being made in the power sector[2]. Areas which still need to make improvements include marine transport. The transport sector have been addressing consumption intensity over a period of years in response to UK carbon budgets, and the trend is downward for this consumption.

7. The 25 Year Environment Plan sets out the UK government response to carbon emissions through targets including;
    - clean air
    - thriving plants and wildlife
    - mitigating and adapting to climate change

8. Alongside this the Clean Growth Strategy sets out a range of approaches to decarbonise the UK while growing the economy. The 25 Year Environment Plan and the Clean Growth Strategy work together to set out a framework for mitigating climate change and this policy is linked to both of those requirements by reducing emissions which will mitigate climate change and reduce carbon.

9. The Committee on Climate Change sets out policy action to reduce emissions. The North West Marine Plan's contribution to mitigating climate change will be small relative to the scale of the problem. However it is important to address specific issues including the avoidance of unintended consequences on other activities from unintended greenhouse gas emissions..

[1] MCCIP (2017). Marine Climate Change Impacts: 10 years' experience of science to policy reporting. (Eds. Frost M, Baxter J, Buckley P, Dye S and Stoker B) Summary Report, MCCIP, Lowestoft, 12pp.doi: 10.14465/2017.arc10.000-arc http://www.mccip.org.uk/impacts-report-cards/full-report-cards/

[2] https://www.theccc.org.uk/wp-content/uploads/2017/06/2017-Report-to-Parliament-Meeting-Carbon-Budgets-Closing-the-policy-gap.pdf

10. The variety of potential development across the north west coast of England has the ability to affect or divert vessel transits across the north west marine plan areas. Without consideration of other users and existing activity,such as important shipping and ferry routes, a variety of fishing grounds and the biggest offshore windfarm off the coast of Cumbria. Proposals may increase unintended emissions, resulting in adverse impacts on climate change

11. This policy is in line with the Marine Policy Statement (2.6.7) and the National Planning Policy Framework, promoting efficient and effective use of marine space and reduction of conflicts arising from unintended consequences of proposals, such as through displacement, as well as being in line with specific climate change policies.

Who is this of interest to?

12. This policy is of interest to public authorities making decisions that affect the north west marine plan areas directly, including local planning authorities and those authorities granting permits or licenses for activity in those areas. It is also of interest to those developing proposals in the north west marine plan areas.

How should this policy be applied?

13. Proposals must demonstrate that they will, avoid, minimise, mitigate unintended consequences on other activities. To achieve this, they should consider available evidence and identify interactions which may result in indirect greenhouse gas emissions. In addition to evidence on the location, sources could include but are not limited to the Marine Planning Evidence Base.

14. Proposals should demonstrate that they have considered the interaction between sectors, particularly in relation to indirect consequences on carbon emissions, such as greater travelling distances of vessels from placement of new marine infrastructure resulting in increased fuel consumption.

15. Proposals should demonstrate that they will, in order of preference, avoid, minimise or mitigate unintended consequences on other activities resulting in indirect emission increases - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a)

16. An example of avoidance would be to allow access to continue unimpeded through their development, not increasing any emissions.

17. An example of minimisation would be to consider the access through the development but allow access at certain times on the same route.

18. An example of mitigation would be to offset the emissions through available methods or provide devices/technology to reduce emissions such as slow steaming, optimising hull design, propeller optimisation, waste heat recovery, energy storage using batteries or shoreside electrical provision or lower carbon fuels.[3]

19. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans. If a

[3] Charting a low carbon future for shipping: A UK perspective; Conor Walsh, Sarah Mander, Alice Larkin

proposal cannot meet these criteria it will only be authorised if there are relevant considerations in line with the Marine and Coastal Access Act 2009(Section 58(1)).

20. Public authorities should apply this policy proportionally to proposals that have been identified as being likely to affect activities, interests or locations in ways that may increase greenhouse gas emissions. For example competition for space, economic impact, or environmental impacts.

21. Public authorities should not assume that applying this policy to a proposal of low cost or small footprint would always be disproportionate. There may be cases where such proposals have a relatively large effect, for example, in causing a deviation to a busy shipping lane. Public authorities should use the best available advice and evidence in decision-making. For example, local authorities should consult with coastal engineers to consider the interaction between activities and help identify where that may affect emissions.

22. Public authorities should determine on a case-by-case basis which proposals this policy should be applied to, considering the scope of activities and interests affected. The effects should be considered across the proposal's lifetime, so that greenhouse gas emissions are considered cumulatively across the commissioning, operational and decommissioning phases of the proposal rather than at a singular specific point in time. This approach is important as the north east marine plan areas have a variety of activity, which will expand over time.

23. Public authorities should request relevant information before proceeding further if it is judged that a proposal has not provided the required information. For example, where inadequate information has been provided to make an informed assessment.

24. Other related policies include:
    - Energy (NW-CCS-1, NW-CCS-2, NW-OG-1, NW-REN-1, NW-REN-2, NW-WIND-2)
    - Coexistence (NW-CO-1)
    - Ports and Shipping (NW-PS-1, NW-PS-2, NW-PS-3, NW-PS-4, NW-PS-5, NW-PS-6, NW-NAV-1)
    - Other CC policies (NW-CC-2, NW-CC-3, NW-CC-4, NW-CC-5, NW-CC-6)

Signposting

25. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Climate Change Act 2008
    - Clean Growth Strategy
    - 25 Year Environment Plan

26. Further information and guidance that may help in implementing the policy include:
    - UK Climate Projections 09 (UKCP18 in due course)
    - Committee on Climate Change
    - Marine Climate Change Impacts Partnership
    - Marine planning evidence base data sets
        - Ports and shipping activity
        - Fisheries activity
        - Static infrastructure locations

- Areas identified for future activity eg renewables, aggregates

Policy drafting template – NW-CC-2

HLMO	Living within environmental limits Ensuring a strong, healthy and just society	**Sub bullet(s)**	The marine environment plays an important role in mitigating climate change.
Grouping	Climate change – infrastructure Climate change – species Coastal Change - Infrastructure Coastal Change - natural processes	**Code**	NW-CC-2

Policy

NW-CC-2
Proposals should demonstrate for the lifetime of the proposal that they:
1) are resilient to the effects of climate change and coastal change
2) will not have a significant adverse impact upon climate change adaptation measures elsewhere.
In respect of 2) proposals should demonstrate that they will, in order of preference: a) avoid b) minimise c) mitigate the significant adverse impacts upon these climate change adaptation measures.

What is climate change adaptation and resilience?

1. Climate change adaptation measures help developments or activities to reduce or protect against the impact of climate change (Marine Policy Statement (2.6.7). Terrestrial planning policy (NPPF) sets out how adaptation measures may be engineered or may allow a proposal to work with natural processes. Engineered options include relocation of a development, reinforcement of existing dune structures or building a storm surge barrier. All of these adaptation measures increase a proposal's ability to cope with the adverse impacts of climate change. The North West Marine Plan aims to support these measures and not impede terrestrial adaptation and flood defence measures. A range of suggested adaptation methods is set out by the International Panel on Climate Change (IPCC).

2. Resilience to climate change can be generally defined as the capacity for a system or development to absorb stresses and maintain function in the face of external stresses imposed upon it by climate change[1] and adapt, and evolve into more desirable configurations that improve the sustainability of the system, for future climate change impacts[2]. Climate change projections should be considered to make sure the design and operation of a given marine activity and/or proposed management measure (such as a marine protected area designation) are resilient as possible to the effects of climate change, such as coastal change and flooding.

1 Resilience: The emergence of a perspective for social–ecological systems analyses Carl Folke
2 Adaptation to Environmental Change: Contributions of a Resilience Framework Donald R. Nelson, W. Neil Adger and Katrina Brown

Where do the effects of climate change occur in the north west marine plan areas?

3. Any development or proposal that is below or partially below high water mean springs is potentially at risk of flooding or other adverse impacts of climate change. To identify where these areas are more at risk, these have been mapped by the Environment Agency and are available through their flood map for planning. This map also contains information showing existing flood defences which may inform the location of developments or proposals to benefit from those defences. Some of these areas are already protected by existing measures through terrestrial planning. The North West Marine Plan aims to support these existing measures and not impede existing adaptation and flood defence measures and ensure that new proposals fit effectively with the existing measures.

When does climate change adaptation and resilience take place in north west marine plan areas?

4. There are no temporal constraints on climate change adaptation and resilience, as they would occur as and when there is an interaction between a proposal in areas that would likely require an adaptation measure or some resilience to the effect of climate change.

Why is climate change adaptation and resilience important to the north west marine plan areas?

5. Climate change adaptation measures help to reduce proposals' vulnerability and that of other developments and activities to the adverse impacts of climate change within the north west marine plan areas. The links made above to terrestrial measures such as flood defence help to align new proposals to fit with existing measures that help local areas adapt to climate change.

6. This policy will improve the resilience of developments, activities and ecosystems within the north west marine plan areas to the effects of climate change. It will make sure proposals properly consider, and where required, build-in resilience to the effects of climate change. It will also make sure proposals do not compromise other developments, activities and ecosystems (covered in NW-CC-4) in meeting the challenges of climate change. Given the recent flooding in the north west marine plan areas due to coastal inundation and also storm events[3], this policy is highlights how vulnerable this marine plan area is to the impacts of climate change.

7. This policy gives effect to the Marine Policy Statement and supports climate change adaptation measures put in place by public authorities adjoining the north west marine plan areas. It also responds to the requirements set out in the 25 Year Environment Plan which has a targets focussing on mitigating and adapting to climate change.

Who is this of interest to?

8. This policy is of interest to public authorities making decisions that affect the north west marine plan areas directly, including local planning authorities and those authorities granting permits or licenses for activity in those areas. It is also of interest to those developing proposals in the north west marine plan areas.

[3] https://www.metoffice.gov.uk/climate/uk/interesting/december2015

How should this policy be applied?

9. Proposals should demonstrate that they are resilient to the effects of climate change for the lifetime of the proposal. Proposals that are likely to be at risk from climate change and do not include appropriate adaptation measures to make them resilient, should identify existing measures such as flood defences, providing resilience to any adverse impacts of climate change.

10. Proposals should demonstrate that they have consulted with public authorities[4] on matters identified in this policy at the earliest opportunity, particularly in relation to considering how proposals avoid adverse impacts upon existing adaptation measures.

11. Proposals that are likely to have a significant adverse impact on existing climate change adaptation measures, such as those highlighted in reports through the National Adaptation Programme, must demonstrate that they will, in order of preference, avoid, minimise or mitigate significant adverse impacts upon these climate change adaptation measures - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc.

12. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans If a proposal cannot meet these criteria it will only be authorised if there are relevant considerations in line with the Marine and Coastal Access Act 2009 (Section 58(1)).

13. Proposals by risk management authorities that relate to the requirements of Flood and Coastal Erosion Risk Management strategies are likely to meet the requirements of this policy through their obligations under The Flood and Water Management Act 2010.

14. Public authorities should request relevant information before proceeding further, if it is judged that a proposal has not provided the required information. For example where inadequate information has been provided to make an informed assessment.

15. Other related policies include:
    - Coexistence (NW-CO-1)
    - Other CC policies (NW-CC-1, NW-CC-3, NW-CC-4, NW-CC-5, NW-CC-6)

Signposting

16. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - The Flood and Water Management Act 2010
    - Climate Change Act 2008
    - National Adaptation Programme
    - 25 Year Environment Plan

17. Further information and guidance that may help in implementing the policy include:
    - Committee on Climate Change
    - UK Climate Projections 09 (UKCP18 in due course)

[4] Public authorities are likely to include but not limited to; The Environment Agency, local authorities, Regional Flood and Coastal Committees

Policy drafting template – NW-CC-3

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Coastal change	**Code**	NW-CC-3

Policy

NW-CC-3
Proposals in the north west marine plan areas and adjacent marine plan areas that are likely to have a significant adverse impact on coastal change should not be supported.

What is coastal change?

1. Coastal change is defined as 'physical changes to the shoreline for example erosion, coastal landslip, permanent inundation and coastal accretion'[1]. The effects of these climate change processes will be most prevalent in coastal areas of the north west inshore plan area due to changes in waves, wind and tide which alter dominant coastal processes influencing landforms. Changes may pose a risk to coastal areas and activities identified as vulnerable to this change[2] as set out below.

2. Coastal narrowing (or coastal squeeze) is one manageable aspect of coastal change that can be influenced.[3] Areas at risk of coastal erosion have been identified in the north west inshore marine plan area[4]. MMO 1168 (which is in progress) sets out what is defined by 'coastal squeeze'.

Where does coastal change occur in the north west marine plan areas?

3. Coastal change is happening in more vulnerable areas across the north west inshore marine plan area. These are identified by the Environment Agency across the plan area. There are several locations[5] that have been identified along the north west coast. The area in the north west marine plan areas are from Great Orme's head up to the Scottish Border.[6]

When does coastal change occur in the north west marine plan areas?

4. Coastal change can happen at any time in the north west marine plan areas. Coastal change is triggered by a range of natural weather events, storms or man-made occurrences such as activity affecting the integrity of cliffs/other developments. In the

[1] HM Government, Marine Policy Statement (2011) (2.6.8.1)
[2] ibid
[3] Coastal narrowing can be defined as: "A reduction in the coastal zone width caused by human and/or natural process" Doody, J.P 2013
[4] https://www.gov.uk/check-plans-to-stop-coastal-erosion-in-your-area
[5] http://maps.environment-agency.gov.uk/wiyby/wiybyController
[6] http://www.mycoastline.org.uk/info/1/shoreline_management/3/

winter there is a higher risk of coastal change occurring due to increased storminess and the natural tendency for more rainfall. However this does not exclude other times as sudden weather events such as drought, storms or flash flooding could also have adverse impacts.

Why is coastal change important to the north west marine plan areas?

5. Coastal change is a particularly important issue in the north west marine plan areas because a large proportion of the coastline is subject to or vulnerable to change. Coastal change can impact on the people, assets and resources (including natural flood defences such as saltmarsh (see also NW-BIO policies)) in, or dependent on, the marine plan areas as outlined in shoreline management plans. Shoreline management plans identify commerce, people, heritage and culture, transport, ports, and nature conservation as being at risk of coastal change and flooding. This identification of areas of risk applies widely across the north west inshore plan area. Preventing the risks involved to these areas, and dealing with impacts when they occur, requires significant resource. A range of measures are in place to achieve successful management in the face of coastal change. Marine plans play an important part in the management of coastal change, including ensuring decisions in the marine area avoid exacerbating detrimental coastal change and do not compromise, and preferably complement, existing measures.

6. This policy will complement other measures to manage coastal change and also support the need for resilience and adaptation along the coastline of the north west inshore plan area to benefit all users, in line with the Marine Policy Statement (2.6.7 and 2.6.8) and the UK Climate Change Risk Assessment Report[7]. Adaptation measures are covered explicitly through policy NW-CC-2. This policy also gives effect to the Marine Policy Statement (2.6.8.5).

7. A range of existing plans including local plans contain assessments and measures to address coastal change. There is one shoreline management plan, that are relevant to the north west inshore marine plan area and include projections of coastal change over three epochs (20, 50 and 100 years) and how management can respond to these impacts. This policy complements these plans, particularly for locations identified as coastal change management areas. This policy ensures that marine based proposals do not have a significant adverse impact on coastal change on land. Also it coordinates related cross-boundary issues from marine plan area to marine plan area or from the sea to land ensuring that cross boundary proposals are properly planned. Collaborative working within catchment partnership or flood risk management groups will help to provide this coordination.

Who is this of interest to?

8. Public authorities with an interest in coastal protection or flood risk management as well as those developing proposals that may have an effect on coastal change.

How should this policy be applied?

9. This policy recognises changes to the coastline (for example managed realignment) can be beneficial for flood risk management, communities and biodiversity. It does not therefore look to restrain coastal defence or flood risk management proposals

[7] https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/ recommends potential adaptation measures to take forward to reduce the impact of climate change on the coast.

that will stabilise, reinforce or purposefully alter the coastline with the express aim of reducing vulnerability to coastal change.

10. Proposals should demonstrate they have consulted with relevant public authorities[8] [9] [10]. Specifically the Environment Agency, Catchment Partnerships, relevant Coast Protection Authorities, coastal groups and/or lead local flood authorities. Consultation should be carried out at the earliest opportunity, particularly in relation to considering how proposals might help support existing coastal adaptation policies.

11. Proposals should demonstrate they have taken into account existing plans, such as shoreline management plans, estuary management plans and other local level plans such as local flood risk management plans and strategies as well as beach management plans where applicable. Proposals by risk management authorities that relate to the requirements of Flood and Coastal Erosion Risk Management strategies are likely to meet the requirements of this policy through their obligations under The Flood and Water Management Act 2010. Indeed, wider improvements to resilience could be considered mitigating factors to demonstrate that certain coastal management schemes will not have an overall significant adverse impact on coastal change.

12. Proposals should consider relevant shoreline management plan policies to make sure that any impact does not cause unintended consequences further along the coast.

13. Public authorities should always consider this policy when assessing proposals that are likely to have a significant adverse impact on coastal change. This may include large proposals such as those requiring an environmental impact assessment or a strategic environmental assessment. This includes when a proposal affects the vulnerability of other users, or if change is on a scale of, or above, that of shoreline management plan units (where a coastal management decision has been taken).

14. Public authorities should not give consent for proposals which adversely affect areas at risk, or those of high probability of coastal change.[11]

15. Public authorities should also apply this policy to proposals in adjacent terrestrial areas due to the interconnected nature of terrestrial and marine processes.

16. Public authorities and proposals should consider, where appropriate, the wider benefits of soft coastal defence strategies[12] and managed realignment schemes in place of hard defences. Future proposals in the adjacent offshore marine plan areas

[8] Coastal groups comprise all key partners in coastal management, principally those from the Environment Agency, maritime local authorities and port authorities. The North West Marine Plan is covered by the North West Coastal Group.

[9] In two tier local government the district council remains responsible for coast protection, while flooding is managed by the county

[10] Management of Coastal change and flood risk management is the responsibility of the Environment Agency, lead local authorities and others as indicated by relevant Shoreline, Estuary or River Basin Management plans.

[11] Areas at risk include Coastal Change Management Areas in addition to other locations that may be identified in relevant local plans or by relevant local authority and/or Environment Agency coastal managers

[12] Soft defences: coastal defence, actions and strategies that work with natural processes

may have potential significant adverse impacts on coastal change and consideration should be given on a case-by–case basis whether they should be supported.

17. In applying this policy the term adjacent is taken as to be close by, by the side of, or bordering on the marine plan area.

Signposting

18. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - North West Shoreline Management Plan (Scottish Border to Great Orme's Head)
    - UK Climate Change Risk Assessment Report

19. Further information and guidance that may help in implementing the policy include:
    - North West Coastal Group

Policy drafting template – NW-CC-4

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Climate change Coastal change	**Code**	NW-CC-4

Policy

NW-CC-4
Proposals that enhance habitats that provide a flood defence or carbon sequestration will be supported. Proposals that may have a significant adverse impact on habitats that provide a flood defence or carbon sequestration ecosystem service must demonstrate that they will, in order of preference:
a) avoid
b) minimise
c) mitigate significant adverse impacts

What are ecosystem services?

1. Ecosystem services are the benefits people obtain from ecosystems.[1] The classification of ecosystem services adopted by the Millennium Ecosystem Assessment categorises services as follows: provisioning, regulating, cultural and supporting services.[2] Flood defence and carbon sequestration services (the process of capturing carbon dioxide from the environment) are regulating services.

2. Habitats such as saltmarshes, sand dunes, seagrass beds and mudflats, provide a variety of ecosystem services. Saltmarshes and mudflats play an important natural role in protecting the coast from flood events, by reducing wave energy and buffering flood waters. Well-developed sand dune systems act to stabilise sediments, therefore reducing coastal erosion.

3. The habitats that provide these ecosystem services also provide a natural carbon sequestration service. Salt marsh habitat is one of the most productive ecosystems in the world and as such can sequester a large amount of carbon. Importantly due to the anoxic (without oxygen) nature of this habitat, the carbon is often shifted from the short term to the long term carbon cycle. This capability is a valuable asset of many

[1] UK National Ecosystem Assessment (2011) Chapter 12 Marine
[2] UN millennium Ecosystem Assessment (2005) Consequences of Responses for Poverty Reduction, Ecosystem Services and Human Well-being

of the world's ecosystems.[3] Seagrass beds are also considered to be an important carbon sink and sediment stabilising habitat within the marine environment[4].

Where are ecosystem services in the north west marine plan areas?

4. There is a significant amount of saltmarsh areas, sand dunes, seagrass beds and mudflats in the north west marine plan areas. Please see the habitats and species layers on the Marine Information System for their distribution.

When do ecosystem services occur north west marine plan areas?

5. These ecosystem services operate all year round. Seagrass[5] has little variation in capacity or effectiveness throughout the seasons, however salt marsh[6] in UK waters does vary in extent and capacity for carbon sequestration.

Why are ecosystem services important to the north west marine plan areas?

6. Healthy marine ecosystems ensure their own resilience to the effects of climate change, and provide natural resilience for coastal communities. Carbon sequestration by natural habitats is important for the natural carbon cycle and provides a natural carbon sink. Potential future residential and industrial development within and adjacent to the north west inshore plan areas could conflict with habitats and species important for these two regulatory ecosystem services. Some of the north west marine plan areas' mudflat and saltmarsh habitats in particular are considered in poor condition and declining[7]. Set in the context of the north west marine plan area being so busy for a wide variety of activities, these areas are particularly important because of the flood risk to new development in the area alongside natural defences being preferred over man-made.

7. Effective management of marine ecosystems can be considered a climate change adaptation measure necessary to deal with the potential impacts of climate change.[8] Preventing adverse impacts of proposals on habitats that provide natural flood defences can also reduce the need for additional artificial and costly flood defences.[9]

8. Implementing this policy will also complement plan policies and national duties relating to biodiversity such as those outlined in the 25 Year Environment Plan evidence report and the Marine Policy Statement.

9. This policy will also aid in the achievement of Good Environmental Status for descriptor 1 of Marine strategy part one: UK initial assessment and good environmental status and contribute to the UK's high level marine objectives for living within environmental limits.

[3] Nalini S. Rao, et al (2015) Global values of coastal ecosystem services: A spatial economic analysis of shoreline protection values and Barbier, E.B. et al (2011) The value of estuarine and coastal ecosystem services. *Ecological Monographs* 81: 169 – 193

[4] James W. Fourqurean, et Al (2012) Seagrass ecosystems as a globally significant carbon stock Nature Geoscience volume 5, pages 505–509 (2012) and Barbier, E.B. et al (2011) The value of estuarine and coastal ecosystem services. *Ecological Monographs* 81: 169 – 193

[5] Potouroglou, M Assessing the role of intertidal seagrasses as coastal carbon sinks (2017)

[6] Saad, A S and Wade C M Seasonal and Spatial Variations of Saltmarsh Benthic Foraminiferal Communities from North Norfolk, England (2016)

[7] MMO (2018) https://www.gov.uk/government/publications/marine-planning-issues-and-evidence-database

[8] HM Government, Marine Policy Statement (2011), (2.6.7.3)

[9] UK Climate Change Risk Assessment Report

10. Alongside this the Clean Growth Strategy sets out a range of approaches to decarbonise the UK while growing the economy. The 25 Year Environment Plan and the Clean Growth Strategy work together to set out a framework for mitigating climate change and this policy is linked to both of those requirements.

Who is this of interest to?

11. The broad nature of this policy and the many activities and resources it covers means it relates to a range of national policy areas for which different government departments are responsible. Departments with specific responsibilities include:
    - Department for Environment, Food and Rural Affairs – climate change adaptation, flood and coastal risk management, ecosystem services
    - Department for Business, Energy and Industrial Strategy – energy demand reduction in industry, business and the public sector, greenhouse gas emissions and climate change mitigation
    - Ministry of Housing, Communities and Local Government – overlap at the coast with the land-use planning system
    - Department for Transport – relevant to harbour authorities and the Transport and works Act (1992)

12. This policy is also relevant to public authorities making decisions relating to the sectors and resources mentioned above. For example the Environment Agency sets direction for flood and coastal risk management in England. In doing so they work in association with local authorities including through the development and implementation of shoreline management plans.

How should this policy be applied?

13. Proposals must demonstrate that they have considered available evidence and identified any significant adverse impacts on habitats that provide flood defence and/or carbon sequestration ecosystem services. For example, evidence on the location could include the North West Marine Plan and associated documents and the Marine Information System

14. Proposals should identify and describe habitats within the immediate vicinity and determine whether those habitats provide carbon sequestration or flood defence ecosystem services.

15. Proposals must demonstrate that they will, in order of preference, avoid, minimise or mitigate significant adverse impact on habitats that provide a flood defence or carbon sequestration ecosystem service. For example:
    - avoid – through alternative locations
    - minimise – minimising the size of structures (see also policies NW-CO-1 and NW-BIO-1) or the amount of timework is undertaken to make sure natural processes can continue
    - mitigate – innovative engineering design, sediment bypassing to avoid sediment loss or reductions to the overall size and scope of a project

16. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc.

17. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into

account by the decision-maker which may include, for example, other plans. If these criteria cannot be met, proposals will only be authorised if there are relevant considerations in line with the Marine and Coastal Access Act (2009)(Section 58(1)).

18. Where proposals enhance the size and/or extent of functioning habitats that provide a flood defence or carbon sequestration service they should be supported.

    Proposals and public authorities must take into account where relevant, all current publically available evidence relating to habitats providing relevant ecosystem

19. services. The Marine Information System contains information showing habitats of conservation importance and species and habitats that are particularly threatened, rare, or declining. The information also indicates the location of several habitats highlighted within this policy - coastal salt marsh and seagrass bed habitats. The absence of evidence does not mean absence of habitats that provide flood defence and carbon sequestration ecosystem services.

20. Additional proposal specific evidence may be required. Where new evidence emerges that improves or changes the evidence provided here, this must be taken into account in applying the policy.

21. Proposals within Natura 2000 sites will require additional assessment measures. The definitions of avoidance, mitigation and compensation are defined under The National Planning Policy Framework (paragraph 118).

22. Proposals are required to be in compliance with relevant legislation and regulations including The Conservation of Habitats and Species Regulations (2017), The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017), The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017and National Policy Statements where they apply.

23. Public authorities must apply this policy where the best available evidence indicates that it is appropriate to do so.

24. Public authorities must apply this policy proportionally for proposals that will interact with habitats that provide the listed ecosystem services (flood defence and carbon sequestration).

25. Public authorities must request required information where it is judged that this policy has not been sufficiently addressed before proceeding. For example, inadequate information has been provided to make an informed assessment.

Signposting

26. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - The Conservation of Habitats and Species Regulations (2017),
    - The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017),
    - The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - National Policy Statements

- Great Orme's Head to Scotland Shoreline Management Plan

27. Further information and guidance that may help in implementing the policy include:
    - Key data sets on MIS include:
        - European Marine Sites and RAMSAR sites
        - Marine Conservation Zones
        - Sites of Special Scientific Interest (SSSI)
        - Habitats Directive Annex 1 features
        - Habitats and Species

Policy drafting template – NW-CC-5

HLMO	Living within environmental limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Climate Change - Species	**Code**	NW-CC-5

Policy

NW-CC-5
Public authorities with functions capable of affecting the marine area should:
1. consider long-term climate change projections and associated effects, including, but not limited to, the space required for the redistribution of priority habitats and species
2. consider support for people, infrastructure and components of the marine ecosystem that generate natural capital in adapting to change during their lifetime
3. not result in greenhouse gas emissions caused by unintended consequences on other activities
4. not lead to unnecessary increased demand for coastal protection in the future

What are long term climate change projections?

1. Climate change is the process of the planet warming. The Earth has warmed by an average of 1^{o}C during the 20th century. Whilst the overall change is small it has significant impacts for the environment and people everywhere. Rising temperatures and changing climate make the weather more extreme and unpredictable. As temperatures rise, many species will need to find ways to adapt to the changing climate.

2. The main causes are:
    - burning of fossil fuels,
    - farming and methane release from animal farming, and
    - deforestation

3. The impacts of these causes on the climate are:
    - increased storminess (rainfall)
    - changing seasons
    - shrinking sea ice
    - rising sea levels

4. The main considerations in the north west marine plan areas are rising sea level and increased rainfall. These effects are being projected by the UK climate change projections. The projections were last published in 2009 and are currently being revised for publication in 2018.

What is natural capital and adaptation?

5. Natural capital is the sum of our ecosystems, species, freshwater, land, soils, minerals, our air and our seas. These are all elements of nature that either directly or indirectly bring value to people and the country at large. They do this in many ways chiefly by providing us with food, clean air and water, wildlife, energy, wood, recreation and protection from hazards.

6. Adaptation is the ability of habitats, species and populations to respond to changes in the environment. Adaptation includes the natural succession of habitats and range shifts in response to climatic and other environmental changes. The ability of habitats and species to adapt to climate change is also addressed by policies NW-BIO-01, NW-CC-4, NW-CC-1.

What are unintended greenhouse gas emissions? (see also NW-CC-1)

7. Unintended emissions are when any proposal's activities unintentionally result in further greenhouse gas emissions from another activity. This can occur outside any proposal's direct footprint. For example, any proposal seeking to generate renewable energy might find a suitable location between the coast and fishing grounds. Construction may affect fishing activity causing vessels to navigate around the development, resulting in an increase in fuel consumption and associated emissions. This would negate some of the benefit of any proposal in terms of low carbon energy generation, as well as affecting the economic viability of the fishing operation.

What is coastal protection? (see also NW-CC-3)

8. Coastal protection measures address coastal change, which is defined as 'physical changes to the shoreline for example erosion, coastal landslip, permanent inundation and coastal accretion'[1]. The effects of climate change will be most prevalent in coastal areas of the north west inshore plan area due to changes in waves, wind and tide which alter dominant coastal processes influencing landforms. Changes may pose a risk to coastal areas and activities identified as vulnerable to this change[2].

9. Coastal narrowing (or coastal squeeze) is one manageable aspect of coastal change that can be influenced.[3] Areas at risk of coastal erosion have been identified in the south east inshore marine plan area[4]. MMO 1168 (which is in progress) sets out what is defined by 'coastal squeeze'.

Where does climate change occur in the north west marine plan areas?

10. Climate change is a global issue and affects the north west marine plan areas as a whole. Small incremental steps considering the effects of climate change will help to mitigate this world-wide problem. The effects of increased storminess will be felt in areas where coastal change is occurring as shown in the [XXX] layer on the Marine Information System.

When does climate change occur in north west marine plan areas?

11. Climate change is happening now and will continue to affect the north west marine plan areas over the long-term. Due to the time lag in the climate system, even with the most ambitious mitigation efforts, we are likely to experience a further amount of climate change over the coming decades. There are seasonal impacts for example warmer wetter summer causing localised flooding or increased storm outflows into the marine area.

[1] HM Government, Marine Policy Statement (2011) (2.6.8.1)
[2] ibid
[3] Coastal narrowing can be defined as: "A reduction in the coastal zone width caused by human and/or natural process" Doody, J.P 2013
[4] https://www.gov.uk/check-plans-to-stop-coastal-erosion-in-your-area

Why is consideration of the climate change projections important to the north west marine plan areas?

12. Consideration of these projections is vital to ensuring that future developments and approaches to terrestrial activities that could be at risk of the effects of climate change are protected. If these projections are considered effectively, people, infrastructure and components of the marine ecosystem that generate natural capital in adapting to change during their lifetime are protected.

13. Who **is this of interest to?**

- Public authorities with land management or strategic planning functions which allow activities to:
  - affect space required for the redistribution of priority habitats and species,
  - cause unintended emissions
  - affect natural capital
  - require additional coastal protection

- Planning Inspectorate when approving strategic plans that could lead to impacts upon space for priority habitats and species, cause unintended emissions or affect natural capital
- Public authorities that develop River Basin Management Plans and other land management plans capable of affecting the marine area
- Inshore Fisheries and Conservation Authorities – management of commercial fisheries for the purposes of environmental protection

How should this policy be applied?

14. NW-CC-5 applies to the whole of the north west marine plan areas and extends to functions that are carried out in adjacent marine plan areas which are capable of affecting the marine area, including east and Scottish waters across the coast and in estuarine areas.

15. Policy NW-CC-5 aligns with the Marine Policy Statement, the National Planning Policy Framework (2018) and the Marine and Coastal Access Act (section 58 (3)). It also complements the actions of the Marine Strategy.

16. This policy should be considered when developing strategic plans and programmes which may have an impact on priority habitats and species, be a cause of unintended emissions, require additional coastal protections or affect natural capital.

17. Public authorities should consider impacts on priority habitats and species, causes of unintended emissions, or impacts on natural capital when authorising land-based infrastructure. Examples of land-based infrastructure that should be considered include waste water, sewage treatment, housing developments close to coastal or estuarine areas. Infrastructure to support recreational, residential and commercial boating and shipping activities is included. See also NW-INF-1.

18. The North west Marine Plans build on existing measures, consistent with the Marine Policy Statement (2.5.6, 2.6.7 and 3.3.2) and National Planning Policy Framework (2018) (Chapter 14 – climate change, Chapter 15 – natural capital) through ensuring public authorities consider impacts climate change adaptation and mitigation, as well as opportunities to support natural capital.

Signposting

19. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Climate Change Act 2008
    - UKCPC09 Climate change projections(UKCPC18 available in due course)
    - National Planning Policy Framework (Ch 14 and 15)
    - Shoreline management plans

20. Further information and guidance that may help in implementing the policy include:
    - RTPI seven commitments on climate change
    - RTPI guide on planning for climate change
    -

Policy drafting template – NW-CC-6

HLMO	Living within environmental limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted. Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Climate Change – Species Coastal Change - natural processes	**Code**	NW-CC-6

Policy

NW-CC-6
Proposals that reduce or buffer carbon dioxide concentrations in seawater should be supported.

What is reduction or buffering of carbon dioxide?

1. Buffering capacity is the ocean's capacity to soak up acid or alkali. Carbon dioxide concentrations are naturally 'buffered' or reduced by the salts in the seawater. Dissolved carbon dioxide from the atmosphere is balanced with bicarbonate and carbonic acid. Increased emissions from human activity, mainly from burning of fossil fuels, farming and methane release from animal farming have increased carbon dioxide levels in the atmosphere. In turn causing an increase in dissolved carbon dioxide in the world's oceans and as a result of this increase, a change in pH level of oceans.

2. As the concentration of dissolved carbon dioxide increases, the rate of the forward reaction of the buffering system increases until the system reaches a new natural level. This means that an increase in dissolved carbon dioxide causes a slight decrease in pH. The ocean's buffering capacity is very large, but changes to the oceans' pH level - acidification - can have wide ranging impacts habitats and species.

3. Measurements and models indicate that this carbon dioxide uptake has resulted in a global mean pH decrease of 0.1 units in surface waters since pre-industrial times.

4. On current trends, the total mean decrease is projected to reach 0.4 units (an increase of H+ of around 170%) by 2100, with potentially serious consequences for many marine ecosystems.[1]

[1] http://www.oceanacidification.org.uk/Oarp/media/images/PDF/UKOA-Variability_Trends.pdf

Where does ocean acidification occur in the north west marine plan areas?

5. Across the plan areas seawater has a variation in pH depending on its location and how much freshwater enters the system, creating areas of brackish water. The UK Ocean Acidification project states "Seawater pH around the UK is highly variable, both spatially (in three dimensions) and temporally (year-to-year, seasonally and on shorter time-scales); there is now in place a national ocean acidification observing system which needs to be continued on a long-term basis".[2] As a result the carbon dioxide buffering opportunities exist all over the marine plan areas.

When does ocean acidification take place in north west marine plan areas?

6. According to the UK Ocean Acidification project, "acidification is not occurring uniformly everywhere; evidence from the scattered measurements available suggests that surface pH varies substantially. Variations can be on a local and regional space scales; also on daily, seasonal, annual and decadal time-scales, and with water depth. These natural variations form the (changing) 'baseline' against which further human-caused changes may be measured. Acidification that moves the natural system beyond its existing variations is likely to be more damaging than changes that remain within natural bounds."[3] In the north west marine plan areas there is some variation in salinity but as there is limited data it is difficult to identify where these variations occur. There is some broad scale analysis from satellite mapping completed by the UK Ocean Acidification project which helps to identify some of these variations.[4]

Why is reducing ocean acidification important to the north west marine plan areas?

7. Reducing the impact of ocean acidification is important to the north west marine plan areas because of the reliance of many habitats and species and associated industries on sea water with a 'normal' pH level.

8. Species which create shells, skeletons or structures from calcium carbonate are at risk. Species that use aragonite (corals, mussels) or high-magnesium calcite (sea urchins) are especially sensitive to variation in ocean pH. If they are unable to build shells, it may make these organisms more vulnerable to predators. Cold-water corals and shell-forming organisms are thought to be especially vulnerable. Changes in ocean pH also may have other more indirect impacts like changes in metabolism on a variety of habitats and species.[5] Industries that rely on good quality shellfish are most at risk, such as fishing, potting, aquaculture and any related processing of the catch.

Who is this of interest to?

9. Developers when preparing proposals which may affect the carbon buffering cycle in the north west marine plan areas.

10. Decision-making public authorities including:
    - Local planning authorities

[2] http://www.oceanacidification.org.uk/Oarp/media/images/PDF/UKOA-Variability_Trends.pdf
[3] ibid
[4] https://pubs.acs.org/doi/ipdf/10.1021/es504849s Environmental Science and Technology 'Salinity from Space unlocks Satellite-based assessment of Ocean Acidification'.
[5] Fabry et al., ICES Journal of Marine Science 65, 2008.

- Marine licensing authorities
- The Planning Inspectorate
- The Crown Estate
- Inshore Fisheries and Conservation Authorities
- Department of Business, Energy and Industrial Strategy
- Maritime and Coastguard Agency

11. Advisory public authorities including:
    - Centre for Environment, Fisheries and Aquaculture Science
    - Joint Nature Conservation Committee
    - Natural England

How should this policy be applied?

12. Decision-makers should support proposals that incorporate measures that result in a reduction or buffering of carbon dioxide concentrations in the north west marine plan areas' seawater. This may include novel designs of proposals or, and collaboration between developers and public authorities. Proposals must comply with relevant legislation and other marine plan policies.

13. NW-CC-6 requires decision makers to consider supporting proposals that manage any adverse impacts that may affect the pH of seawater in the local area which in turn affect the functioning of marine habitats and species. Policy NW-CC-4 is also relevant here.

14. Determination may be informed by a relevant assessment. An assessment to determine how a proposal can be beneficial to a reduction in carbon dioxide concentrations in seawater.

15. Proposals are still required to be in compliance with relevant legislation and regulations including Conservation of Habitats and Species Regulations 2017, Conservation of Offshore Marine Habitats and Species Regulations 2017, Marine and Coastal Access Act, Environmental Impact Assessment also other national legislation such as The Eels (England and Wales) Regulations 2009, Salmon and Fresh Water Fisheries Act 1975 and National Policy Statements where they apply.

16. It is helpful to identify the location of features and sites within the north west marine plan areas that are most affected by an increase in seawater pH as well as those important for wider biodiversity, including beyond marine protected areas.

17. Proposals should consider the available evidence and identify any significant adverse impacts on habitat and species.

18. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

Signposting

19. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - The Conservation of Habitats and Species Regulations (2017),

- The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017),
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- National Policy Statements

20. Further information and guidance that may help in implementing the policy include:
    - Key data sets on MIS include:
        - European Marine Sites and RAMSAR sites
        - Marine Conservation Zones
        - Sites of Special Scientific Interest (SSSI)
        - Habitats Directive Annex 1 features
        - Habitats and Species
        - Ocean pH level distribution

Plan area	North West		
Grouping	Cumulative Effects		
Related High Level Marine Objectives (HLMO).	**Promoting good governance** The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance		
Other relevant policies	NW-CO-1 NW-GOV-1		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-CE-1

HLMO	Promoting good governance	**Sub bullet(s)**	The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance
Grouping	Cumulative effects	**Code**	NW-CE-1

Policy

NW-CE-1
Proposals which may have cumulative or in-combination effects with other existing or authorised developments or activities must demonstrate that they will, in order of preference, a) avoid, b) minimise, c) mitigate significant cumulative or in-combination effects.

What are cumulative and in-combination effects?

1. Cumulative effects are the combined, similar environmental effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the current proposal. Cumulative effects may extend beyond the geographical site boundaries of proposals. Cumulative effects are made up of additive effects (the magnitude of the combined effects equal the sum of the individual effects) and synergistic effects (combined effects lead to an increased effect, greater than the individual effects).

2. In-combination effects refer to the different additive or synergistic effect from multiple projects or activities on a single receptor or ecosystem. In-combination assessment ensures holistic protection for biodiversity by preventing many different projects or activities causing minor adverse impacts alone, but having a significant overall adverse impact to a habitat or species.

3. The terms “cumulative”, “in combination” and “collective” are effectively intended to achieve the same objective (i.e. describe the overall impact on single or multiple receptors from single or multiple pressures). In legislation these terms are used in the following way:
    a) The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 refer to ‘in-combination effects’ which is commonly understood to mean the same environmental receptor being affected in different ways from one or more schemes. For example, an infrastructure project and a dredging scheme may occur on or around a biogenic reef. The infrastructure project may

remove parts of the reef whilst the dredge projects may increase suspended sediments which have the potential to smother the reef. These effects individually may not adversely affect the feature but together they affect the overall condition of the reef.

b) The Marine Works (Environmental Impact Assessment) Regulations 2017 describes 'cumulative effects' as similar impacts from multiple schemes on the same environmental receptor. For example, multiple offshore wind farms piling at the same time could cause significant disturbance or injury to marine mammals. One or two piling events happening at the same time may not breach the animals' hearing thresholds but many events occurring simultaneously may disturb or injure individuals.

4. Cumulative effects can arise from a range of pressures, such as (but not limited to) disturbance or damage to the seabed, increases in underwater noise, pollution and increases in marine litter. Cumulative effects can occur both spatially and temporally. The effect of such pressures and whether or not they have an impact will depend on the sensitivity of the components of the ecosystem that are affected and the level of exposure to those pressures.

Where do cumulative and in-combination effects occur in the north west marine plan areas?

5. Cumulative effects can occur anywhere throughout the north west marine plan areas but will be more pronounced in areas of high marine activity. The Marine Information System should be consulted to identify local habitats and species in areas that could be at risk to cumulative effects.

When do cumulative and in-combination effects occur in the north west marine plan areas?

6. During the lifetime of the north west marine plan negative effects caused by proposals can accumulate and become amplified. Cumulative effects can intensify at any time of the year depending on when projects are implemented. The intensity of effects may vary seasonally depending on local currents and weather amongst other biotic or abiotic factors.

7. The species and habitats that are impacted, and the extent to which they are impacted, may vary on a temporal scale. For example, the sand habitats of the Ribble Estuary are home to marine snails, worms, shellfish and crabs, which are essential for the survival of overwintering birds, whilst species residing in saltmarshes may be more greatly impacted in the summer months.

Why are cumulative and in-combination effects significant in the north west marine plan areas?

8. The north west is important for energy production, via discrete gas reserves, nuclear power and more recently through renewable energy production. The largest proportion of over-15m fishing vessel activity in England is based in the north west and there are extensive MOD firing areas. Therefore, the local environment is particularly at risk to cumulative effects due to the intensity of marine activity. In accordance with the Marine Policy Statement and the 25 Year Environment Plan it is vital that biodiversity is maintained in order to ensure that resources are sustained in a productive state for use in future as well as achieving protection of nature for its intrinsic value.

9. Singular activities analysed in isolation may have little to no impact upon marine areas. However, the cumulative pressure of multiple activities within or adjacent to marine areas can threaten the maintenance and restoration of favourable conservation status. This policy intends to ensure that cumulative effects are considered in the application and decision making process. It does not matter how small the proposal is, it may induce a tipping point where cumulative effects become critically detrimental.

10. Compared to terrestrial environments, cumulative effects are exaggerated in the marine area due to the lack of physical boundaries. Therefore, it is important for any marine proposal to proactively avoid, minimise or mitigate significant negative cumulative effects to prevent wide ranging negative impacts to the environment both within and adjacent to the north west marine plan areas.

11. As the north west offshore marine plan area shares a border with the Irish Marine Plan area, Welsh Marine Plan (draft) area, and the future Northern Irish Marine Plan area it is even more important to consider cumulative effects at boundary limits and encourage cross boarder planning.

12. As set out in the Marine Policy Statement (2.3.1.6 and 2.3.2.1), marine plans should contribute to considering cumulative impacts, for example 'Marine plans should ... identify how the potential impacts of activities will be managed, including cumulative effects' and 'when considering the potential benefits and adverse effects, decision-makers should also take into account any multiple and cumulative impacts of proposals, in the light of other projects and activities'.

Who is this of interest to?

13. The following government departments have decision-making and regulatory functions that will apply this policy:
    - Department for Environment Food and Rural Affairs
    - Department for Digital, Culture, Media and Sport
    - Ministry of Housing, Communities and Local Government
    - Department for Business, Energy and Industrial Strategy

14. The following authorities are responsible for decision-making in relation to this policy:
    - Port and Harbour Authorities
    - Marine Management Organisation
    - Natural England
    - Environment Agency
    - Planning Inspectorate
    - Local Planning Authorities
    - Offshore Petroleum Regulator for Environment and Decommissioning
    - Oil and Gas Authority

How should this policy be applied?

15. Proposals must demonstrate that they have considered the cumulative and in-combination impacts that they may have on the north west marine areas. Proposals that are likely to have significant cumulative or in combination impacts on marine areas must demonstrate that they will, in order of preference, avoid, minimise or mitigate any adverse significant cumulative or in-combination effects - proposals

cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc.

16. This policy intends to ensure that proposals consider the cumulative and in-combination effects of past and future projects and take the steps needed to restrict or prevent the accumulation or intensification of significant adverse impacts to the environment and sensitive species. The policy is also intended to ensure that all proposals provide consideration of the impact in combination with other projects on all habitats and species whether they are designated or not.

17. When considering such effects, proposals should consider other projects or activities likely to negatively affect habitats and species. Proposers must therefore provide adequate assessment of their impacts in order for decision-makers to make their decision. Proposals must clearly illustrate the negative and/or positive cumulative effects that the project will have.

18. Public authorities should look to make sure that current and future guidance as it becomes available is clearly highlighted, applied and reviewed (where required), working with, for example, the Joint Nature Conservation Committee and Natural England, The Crown Estate and industry.

19. Proposals must consider the natural pressures upon the environment where possible in addition to the proposed activity and any current and forecasted future use of the area and consider the short and long term cumulative and/or in-combination effects of these activities upon marine species and habitats.

20. Proposals should consider how cumulative effects, as a result of the proposed project, have impacts on the Welsh National Marine Plan and Scotland's National Marine Plan.

21. Decision makers should fully assess current and forecasted future use of the marine plan area and consider the short and long term cumulative and/or in-combination effects of these activities upon marine species and habitats.

22. In examining and determining applications for nationally significant infrastructure projects, examining authorities and the secretary of state for The Ministry of Housing, Communities and Local Government must have regard to this policy for nationally significant infrastructure projects that may have cumulative or in-combination effects with other existing or authorised developments or activities.

Signposting

23. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Marine and Coastal Access Act 2009
    - Planning Act 2008
    - The Marine Strategy Regulations 2010
    - Energy Act 2016
    - Wildlife and Countryside Act 1981
    - Environmental Protection Act 1990
    - The Environmental Assessment of Plans and Programmes Regulations 2004
    - The Conservation of Habitats and Species Regulations 2017

- Conservation of Offshore Marine Habitats and Species Regulations 2017
- Marine Works (Environmental Impact Assessment) Regulations 2017
- National Planning Policy Framework
- The UK Marine Policy Statement
- National Policy Statements for Energy Infrastructure

Policy drafting template – NW-CE-2

HLMO	Promoting good governance	**Sub bullet(s)**	The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance
Grouping	Cumulative effects	**Code**	NW-CE-2

Policy

NW-CE-2

Proposals should provide information to address the cumulative effects arising from the proposed project upon the environment within and adjacent to the marine plan area.

What are cumulative effects?

1. Cumulative effects are the combined environmental effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the current proposal. Cumulative effects may extend beyond the geographical site boundaries of proposals. Cumulative effects are made up of additive effects (the magnitude of the combined effects equal the sum of the individual effects) and synergistic effects (combined effects lead to an increased effect, greater than the individual effects).

2. The Marine Works (Environmental Impact Assessment) Regulations 2017 describes 'cumulative effects' as similar impacts from multiple schemes on the same environmental receptor. For example, multiple offshore wind farms piling at the same time could cause significant disturbance or injury to marine mammals. One or two piling events happening at the same time may not breach the animals' hearing thresholds but together they may disturb or injure individuals.

3. Cumulative effects can arise from a range of pressures, such as (but not limited to) disturbance or damage to the seabed, increases in underwater noise, pollution and increases in marine litter. Cumulative effects can occur both spatially and temporally. The effect of such pressures and whether or not they have an impact will depend on the sensitivity of the components of the ecosystem that are affected and the level of exposure to those pressures.

Where do cumulative effects occur in the north west marine plan areas?

4. Cumulative effects can occur anywhere throughout the north west marine plan areas but will be more pronounced in areas of high marine activity. The Marine Information

System should be consulted to identify local habitats and species in areas that could be at risk to cumulative effects.

When do cumulative effects occur in the north west marine plan areas?

5. During the lifetime of the north west marine plan negative effects caused by proposals can accumulate and become amplified. Cumulative effects can intensify at any time of the year depending on when the project is implemented. The intensity of effects may vary seasonally depending on local currents and weather amongst other biotic or abiotic factors.

6. The species and habitats that are impacted, and the extent to which they are impacted, may vary on a temporal scale. For example, the sand habitats of the Ribble Estuary are home to marine snails, worms, shellfish and crabs, which are essential for the survival of overwintering birds whilst species residing in saltmarshes may be more greatly impacted in the summer months.

Why is information on cumulative effects important in the north west marine plan areas?

7. The north west is important for energy production, via discrete gas reserves, nuclear power and more recently through renewable energy production The largest proportion of over-15m fishing vessel activity in England is based in the north west and there are extensive MOD firing areas. Therefore, the local environment is particularly at risk to cumulative effects due to the intensity of marine activity. In accordance with the Marine Policy Statement and the 25 Year Environment Plan it is vital that biodiversity is maintained in order to ensure that resources are sustained in a productive state for use in future as well as achieving protection of nature for its intrinsic value.

8. There is limited knowledge and data on cumulative effects so it is important to actively collect information to establish baseline data on the subject.

9. Cumulative effects are important to address as it is difficult to demonstrate that while each single proposal may result in a negligible impact, the accumulation of these individual proposals over time may constitute a major impact. Therefore, there is a need for proposals to provide information on cumulative effects in order to start producing data and sufficient evidence that may be used in an attempt to address them.

10. Singular activities analysed in isolation may have little to no impact upon marine areas. However, the cumulative pressure of multiple activities can threaten the maintenance and restoration of favourable conservation status, even if each activity is analysed on its own does not. It does not matter how small the proposal is, it may have induce a tipping point where cumulative effects become critically detrimental.

11. Compared to terrestrial environments, cumulative effects are exaggerated in the marine area as a result of the boundry-less characteristic of the marine environment.

12. As set out in the Marine Policy Statement (2.3.1.6 and 2.3.2.1), marine plans should contribute to considering cumulative impacts, for example ‘Marine plans should ... identify how the potential impacts of activities will be managed, including cumulative effects’ and ‘when considering the potential benefits and adverse effects, decision-

makers should also take into account any multiple and cumulative impacts of proposals, in the light of other projects and activities'.

Who is this of interest to?

13. The following government departments have decision-making and regulatory functions that will apply this policy:
    - Department for Environment Food and Rural Affairs
    - Department for Digital, Culture, Media and Sport
    - Ministry of Housing, Communities and Local Government
    - Department for Business, Energy and Industrial Strategy

14. The following authorities are responsible for decision-making in relation to this policy:
    - Port and Harbour Authorities
    - Marine Management Organisation
    - Natural England
    - Environment Agency
    - Planning Inspectorate
    - local planning authorities
    - Offshore Petroleum Regulator for Environment and Decommissioning
    - Oil and Gas Authority

How should this policy be applied?

15. Proposals should identify and provide information on how the potential impacts of activities upon the environment will be managed, including cumulative effects. Close working across plan boundaries will enable the marine plan authority to take account of the cumulative effects of activities at plan boundaries. The consideration of cumulative effects alongside other evidence may enable limits or targets for the area to be determined in the Marine Plan, if it is appropriate to do so.

16. Currently projects that meet a certain criteria or threshold for potential impact are assessed under the Marine Works (Environmental Impact Assessment) Regulations 2017 and proposals that are likely to have a significant effect on a designated site are assessed under the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017. These statutory assessments are therefore only required for certain proposals and only assess certain habitats and species.

17. Proposals should consider how cumulative effects, as a result of the porposed project, have impacts on neghbouring plan areas such as the Scottish National Marine Plan and the Welsh National Marine Plan.

18. As proposals provide information on cumulative effects, issues may be mapped on the Marine Information System providing baseline data on cumulative effects that can be considered in future proposals.

19. Proposals that provide information on cumulative effects or attempt to address them will be supported.

20. In examining and determining applications for nationally significant infrastructure projects, examining authorities and the secretary of state for The Ministry of Housing, Communities and Local Government must have regard to this policy for nationally

significant infrastructure projects that may cause cumulative effects upon the environment within and adjacent to the marine plan area.

Signposting

21. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Marine and Coastal Access Act 2009
    - Planning Act 2008
    - The Marine Strategy Regulations 2010
    - Energy Act 2016
    - Wildlife and Countryside Act 1981
    - Environmental Protection Act 1990
    - The Environmental Assessment of Plans and Programmes Regulations 2004
    - The Conservation of Habitats and Species Regulations 2017
    - Conservation of Offshore Marine Habitats and Species Regulations 2017
    - Marine Works (Environmental Impact Assessment) Regulations 2017
    - National Planning Policy Framework
    - The UK Marine Policy Statement
    - National Policy Statements for Energy Infrastructure
    - Scottish National Marine Plan
    - Welsh National Marine Plan

22. Further information and guidance that may help in implementing the policy include:
    - Marine Information System – habitats and species.

Plan area	North West		
Grouping	Disturbance		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. Our oceans support viable populations of representative, rare, vulnerable, and valued species.		
Other relevant policies	NE-CE-1 NE-CE-2. NE-UWN-1 NE-UWN-2. NE-MPA-1 NE-MPA-2 NE-MPA-3 NE-MPA-4 NE-MPA-6		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-DIST-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Disturbance	**Code**	NW-DIST-1

Policy

NW-DIST-1
Proposals within the north west marine plan areas and adjacent plan areas must demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate significant disturbance to, or displacement of, highly mobile species.

What are highly mobile species?

1. Highly mobile species are those that range over large distances and include fish, birds, marine mammals and turtles. Individuals are often part of more widespread international populations and may only be present in the north west marine plan areas on a seasonal basis or for part of their life cycle.

2. Highly mobile species occurring in the north west marine plan areas include seabirds, fish, marine mammals and turtles. The Natural Environment and Rural Communities Act (S41), requires the Secretary of State to publish a list of habitats and species of principal importance for the conservation of biodiversity in England. The S41 list and features of conservation importance should be used to prioritise species when applying this policy.

What is disturbance and displacement?

3. Disturbance is when species spends extra time or energy to avoid a human activity or output. The expenditure of extra energy affects the ability of a species to survive, breed, rear or nurture young or it affects the local distribution or abundance of the species. Displacement is when the number of highly mobile species in an area is suppressed due to a human activity. Highly mobile species are displaced such that they cannot access habitats essential to their success, such as foraging areas or breeding grounds.

4. Sources of displacement and disturbance include but are not limited to the physical presence of vessels or offshore structures, lighting on offshore structures and underwater noise for example during construction activities.

Where are highly mobile species in the north west marine plan areas?

5. This policy applies to the inshore and offshore marine plan areas. Maps of the distribution of some highly mobile species are available on the Marine Information System.

6. The north west marine plan areas are seasonally home to breeding, migrating and over wintering seabirds, waders and waterfowl. Grey seals occur in the marine and coastal areas of the north west marine plan area. There are several haul out sites including in the Dee and Solway estuaries and Walney Island which is home to a breeding population of grey seals. Cetaceans occurring in the north west marine plan areas include harbour porpoise, short-beaked common dolphin and bottlenose dolphin.

7. Basking sharks are a seasonal visitor to the north west marine plan areas as neighbouring Isle of Man is a global hotspot for the species. Low densities of basking shark occur in the north west marine plan areas from May to August. Leatherback turtles are the only turtle species adapted to occur in UK waters. This species are most likely to be sighted in the summer months in the north west marine plan areas albeit at low numbers.

8. There are high intensity fish spawning and nursery grounds in the north west marine plan area. Atlantic salmon migrate through the north west marine plan area as they move to and from their river habitats as adults and juveniles respectively. Similarly, adult sea lamprey and river lamprey occur in the north west marine plan areas but little is known about their at sea distribution.

When is disturbance a consideration in the north west marine plan areas?

9. When considering mobile species there are seasonal considerations due to migration, spawning and foraging behaviour; for example, basking sharks and leatherback turtles are unlikely to occur in the north west marine plan areas in winter whereas the grey seal breeding season starts in September on Walney Island.

10. Human activity in the north west marine plan areas occurs year-round. Tourism and recreation at the coast reaches its peak in the summer months. Marine development both on and offshore occur year-round and will therefore need to consider their impact to mobile species.

11. Sources of displacement and disturbance include but are not limited to the physical presence of vessels or offshore structures, lighting on offshore structures and underwater noise for example during construction activities.

Why are highly mobile species important to the north west marine plan areas?

12. Highly mobile species are resident or regular visitors to waters of the north west marine plan areas. Many highly mobile species are charismatic and bring value for tourism and recreation through wildlife watching and employment at reserves, while appropriate recreation and tourism may bring opportunities for protection of species through increased public awareness and additional funding. Basking sharks, grey seals and seabirds are prominent highly mobile species in the north west marine plan area that could be negatively affected by disturbance.

13. Tourism and recreation is important to the economy in the north west marine plan areas and are highlighted in this policy because they can exert significant disturbance, as noted in the Marine Policy Statement. Tourism and recreational activities are often not subject to the same statutory regulation compared to other types of proposals as many activities can take place without having to apply for an authorisation or consent. Tourism that could interact with highly mobile species in the north west marine plan areas includes birdwatching for example at St Bees Head and sailing, for example in Morecambe Bay. Disturbance from tourism and recreation can be particularly problematic for water birds and marine mammals. In localised areas there are also issues of collision with recreational sea users.

14. Marine development, including coastal development and offshore industry is important to the north west economy and promotes investment in the region. Offshore energy, renewable and gas, is an important activity in the north west marine plan areas. Such developments have the potential to disturb mobile species if not managed appropriately, for example from disturbance caused by construction, underwater noise and lighting.

15. The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 prohibit the deliberate disturbance of birds and cetaceans, particularly during periods of breeding, rearing, hibernation and migration. However, disturbance induced from tourism and recreation activities is rarely deliberate in the UK and other mechanisms are required to manage these impacts.

16. Disturbance can affect the viability of a population or habitat and continued disturbance can result in a loss of habitat or population resilience. The Joint Nature Conservation Committee has developed advice for offshore industries most likely to disturb to highly mobile species. The Oslo Paris Convention has developed a pressure matrix which details the risk to cetaceans associated with different types of pressure including but not limited to barriers to movement and underwater noise.

17. Highly mobile species in the north west marine plan areas play an important role in achieving the UK government's vision clean, healthy, safe, productive and biologically diverse oceans and seas. Highly mobile species comprise part of the UK programme of measures to achieve 'Good Environmental Status' in UK waters under the Marine Strategy Regulations 2010. The main descriptor of 'Good Environmental Status' for highly mobile species is Descriptor one: 'Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions'. These commitments are reinforced through the in the UK Marine Policy Statement through a commitment to 'support viable populations of representative, rare, vulnerable and valued species'.

18. The 25 year Environment Plan from the Department for Environment, Food and Rural Affairs commits to achieving good environmental status in our seas while allowing marine industries to thrive.

19. The following policies in the north west marine plan areas seek to reduce disturbance: NW-DIST-3, NW-DIST-4. Cumulative and in-combination effects are considered in policies NW-CE-1 and NW-CE-2. Disturbance associated with underwater noise is discussed further in NW-UWN-1 and NW-UWN-2.

Who is this of interest to?

20. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

21. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

22. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning, including strategies which may increase disturbance of highly mobile species
    - access management, including access to habitats for important life stages
    - flood and erosion risk management
    - fisheries management including bycatch management and reporting

How should this policy be applied?

23. Proposals must demonstrate that they will, in order of preference, avoid, minimise or mitigate adverse impacts of physical disturbance and include supporting information that is proportionate to the proposal. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) and so on.

24. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

25. If these criteria cannot be met by a proposal, where it requires an authorisation decision, it will only be authorised if there are relevant considerations in line with the Marine and Coastal Access Act (Section 58(2)).

26. Public authorities should manage activities that require authorisation, such as energy development or aggregates dredging, through existing assessments that are required under national legislation, including but not limited to Habitats Regulations Assessments, Marine Conservation Zone Assessments and Environmental Impact Assessments. These will identify conditions that need to be placed on a licence or permit.

27. The safeguarding of human health is of primary importance for decision makers when considering consent conditions for offshore structures. The standards for marking and lighting must be adhered to for all exposed offshore structures. If extra lighting is required for safe operations on the platform, beyond the minimum requirements set out in the guidance issued by the Maritime Coastguard Agency, the decision maker must consider the effects of this on known bird populations.

Signposting

28. Existing measures which relate to, and may contribute to the achievement of this policy include:

- Conservation of Habitats and Species Regulations 2017
- Conservation of Offshore Marine Habitats and Species Regulations 2017
- Marine and Coastal Access Act 2009
- Harbours Act 1964
- Town and Country Planning Act 1990
- Planning Act 2008
- The Marine Strategy Regulations 2010
- Wildlife and Countryside Act 1981
- Environmental Protection Act 1990
- The Environmental Assessment of Plans and Programmes Regulations 2004
- National Planning Policy Framework
- UK Marine Policy Statement
- Natural Environment and Rural Communities Act 2006

29. Further information and guidance that may help in implementing the policy include:
    - The deliberate disturbance of marine European Protected Species
    - Joint Nature Conservation Committee guidelines for minimising the risk of injury to marine mammals from geophysical surveys
    - Joint Nature Conservation Committee Guidelines for minimising the risk of injury to marine mammals from using explosives
    - Standard Marking Schedule for Offshore Installations
    - Maritime Coastguard Agency Marine Guidance Note MGN 371
    - National Policy Statements for Energy Infrastructure
    - Guidelines to reduce the impact of offshore installations lighting on birds in the OSPAR maritime area

30. MIS Data Layers:
    - Seabird Density
        - Seabird Density - summer
        - Seabird Density - winter
    - Fish Habitat
        - High intensity fish nursery grounds (no. species)
        - High intensity fish spawning grounds (No. species)
    - Seal Density

Policy drafting template – NW-DIST-3

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Disturbance	**Code**	NW-DIST-3

Policy

NW-DIST-3
Proposals, including those that increase access to the north west marine plan areas, must demonstrate that they will, in order of preference:
a) avoid
b) minimise
c) mitigate adverse impacts on priority habitats.

What are priority habitats?

1. Priority habitats are those recognised as being of 'principal importance' for the conservation of biological diversity in England. To deliver commitments under the Convention on Biological Diversity and Section 41 of the Natural Environment and Rural Communities Act the UK has developed a list of habitats and species of principle importance for the conservation of biodiversity in England. The list includes marine habitats such as intertidal seagrass beds, rocky reefs, sandflats, mudflats and saltmarsh. Further offshore, habitats include estuarine rocks, *Saballeria* reefs and sheltered muddy gravels.

2. Priority habitats have been identified through additional organisations and legislation. Features of Conservation Importance, including marine habitats, are identified by the Joint Nature Conservation Committee and listed in the Ecological Network Guidance. The Conservation of habitats and Species Regulations and the Conservation of Offshore Marine Habitats and Species Regulations require protection for Annex 1 habitats. The Convention for the Protection of the North-East Atlantic has developed a list of threatened and / or declining species and habitats.

3. The best examples of these habitats are often protected by statutory designations and are addressed by policies NW-MPA-1, NW-MPA-2, NW-MPA-3, NW-MPA-4 and NW-MPA-5. Many of these habitats, however, are not protected. This policy applies to priority habitats that are not a designated feature of a marine protected area.

Where are priority habitats in the north west marine plan areas?

4. This policy concentrates on priority habitats that are not a designated feature of a marine protected area. The Joint Nature Conservation Committee Marine Protected Area mapper is an interactive resource containing information on the marine protected areas designated in UK waters. The network of marine protected areas is

likely to change over the period of this plan and the most up to date information should be used when applying this policy.

5. The potential features to consider when applying policy NW-DIST-3 are restricted to Features of Conservation Importance identified by the Joint Nature Conservation Committee listed in the Ecological Network Guidance, Annex 1 habitats, habitats and species included in the Natural Environment and Rural Communities Act Section 41 list, and the Oslo/Paris Convention List of Threatened and/or Declining Species and Habitats. The best available evidence with advice from the statutory nature conservation bodies for the location of these features within the north west marine plan areas should be used when applying this policy.

When should this policy be applied?

6. Habitats in the north west marine plan areas are present year round with limited to no seasonality. Human activity in the north west marine plan areas occur all year round although tourism and recreation, and associated access, peak in the summer months.

7. The seasonal and temporal variations which exist are habitat, project and activity dependent and individual projects will need to consider these. Decision-makers will need to apply the best available evidence and the precautionary principle on a case-by-case basis.

Why are priority habitats important to the north west marine plan areas?

8. Priority habitats play a significant role in achieving the UK government's vision clean, healthy, safe, productive and biologically diverse oceans and seas. They are vital to functioning of ecosystems in the north west marine plan areas. The change or loss of priority habitats can impact the local ecosystem and the services it provides. Dunes, sandflats and mudflats offer natural coastal protection throughout the north west inshore marine plan area whilst saltmarsh habitat absorbs carbon from the atmosphere. The rich diversity of wildlife and natural beauty of priority habitats in the north west inshore marine plan area offer inspiring places to live, work and visit. Coastal habitats are particularly vulnerable to increased human access as coastal areas can be busier than offshore areas. Habitat damage or loss can have a direct impact on protected species that rely on these areas.

9. Priority habitats in the north west marine plan area include but are not restricted to: intertidal mudflats, sheltered muddy gravels and peat and clay exposures, for example around Morecambe Bay; subtidal sands and gravels along much of the coast of the north west inshore marine plan area; Seagrass beds for example off the coast of Workington in the Solway Firth; and intertidal boulder communities for example off the coast of Rottington. Morecambe Bay comprises numerous priority habitats including but not limited to : estuaries; mudflats and sandflats not covered by seawater at low tide; large shallow inlets and bays; perennial vegetation of stony banks; and Atlantic salt meadows.

10. Habitat protection comprises part of the UK programme of measures to achieve 'Good Environmental Status' in UK waters under the Marine Strategy Regulations 2010. The main descriptor of 'Good Environmental Status' for priority habitats is Descriptor one: 'Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions'. These commitments are

reinforced through the in the UK Marine Policy Statement through the objective, 'healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems'. The National Planning Policy Framework includes commitments to 'conserving and enhancing the natural environment', including 'maintaining the character of the undeveloped coast, while improving public access to it where appropriate' (para. 170 (c)).

11. Coastal and marine habitats are vulnerable to human pressures including increased access, particularly from tourism and recreation. The Joint Nature Conservation Committee has developed a database which aims to understand the relationship between human activities and their associated pressures on the marine and coastal environment. Pressures associated with coastal and marine ecosystems include but are not limited to permanent or temporary physical loss or change in habitat.

Who is this of interest to?

12. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

13. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

14. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning
    - land and water management
    - waste management
    - access management
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

15. Proposals that have adverse impacts on priority habitats must demonstrate that they have, in order of preference, avoided, minimised or mitigated adverse impacts. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a), and so on.

16. Inclusion of this information does not indicate that approval of the proposal will follow by default. Approval will also depend on other material considerations taken into account by the decision-maker which may include, for example, other plans.

17. When assessing proposals, decision makers should consider Features of Conservation Importance listed in the Ecological Network Guidance, Annex 1 habitats, habitats and species included in the Natural Environment and Rural Communities Act Section 41 list, and the Oslo/Paris Convention List of Threatened and/or Declining Species and Habitats.

Public authorities should have regard to this policy when carrying out functions capable of affecting the north west marine plan areas. The Section 41 list should be used to guide public authorities in implementing their duty under the Natural Environment and Rural Communities Act (Section 41), to have regard to the conservation of biodiversity in England when carrying out their functions.

Signposting

18. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Ecological Network Guidance
    - Annex 1 habitats
    - Section 41 list
    - OSPAR list of Threatened and/or Declining Species and Habitats
    - Natural Environment and Rural Communities Act 2006
    - UK Marine Strategy Part Three: UK programme of measures
      National Planning Policy Framework

19. Further information and guidance that may help in implementing the policy include:
    - Joint Nature Conservation Committee Marine Protected Area mapper

20. MIS Layers:
    - European Marine Sites & Ramsars
    - Marine Conservation Zones
    - Sites of Special Scientific Interest
    - Habitats Directive Annex 1 features
    - Species of Conservation Importance (FOCI)
    - Habitats of Conservation Importance (HOCI)
    - Broadscale Habitats

Plan area	North West		
Grouping	Marine Litter		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.		
Other relevant policies	NW-INF-1 NW-TR-1 NW-EMP-1 NW-EMP-2 NW-ACC-2 NW-ML-2 NW-WQ-3.		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-ML-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Litter	**Code**	NW-ML-1

Policy

NW-ML-1
Public authorities with functions capable of releasing litter into the marine area must provide adequate provision and waste management for the prevention, re-use, recycling, recovery and disposal of waste.

What is waste?

1. Waste is defined as "…any substance or object which the holder discards or intends or is required to discard…". To dispose of waste correctly to avoid it becoming litter the waste hierarchy should be applied. Solid waste in the marine environment is commonly referred to as marine litter.

2. An increase in waste created by human use, the growing dependence upon plastics and poor waste management has led to a rise in litter in the marine environment. Supported by recent research and evidence the issue of marine litter has risen on the global platform and is being debated at many levels. Marine plans can contribute towards addressing the sources of marine litter and encouraging the removal of marine litter though collaborative efforts.

What is marine litter?

3. Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Marine litter consists of items that have been made or used by people and deliberately discarded into the sea or rivers or on beaches; brought indirectly to the sea with rivers, sewage, storm water or winds; accidentally lost, including material lost at sea in bad weather (fishing gear, cargo); or deliberately left by people on beaches and shores (United Nations Environment Programme 'Marine Litter an Analytical overview').

4. Marine litter includes processed food items and excludes seaweed, twigs or other biological debris which contribute to maintaining the local ecosystem.

5. Evidence shows that the majority of marine litter found on beaches comes from land, specifically public littering[1,6]. Plastic is the main material of marine litter[1,6].

Where does marine litter occur in the north west marine plan areas?

6. In general, marine litter can be found on the seabed, drifting within the water column and on coastline and beaches. Marine litter originates from both land and sea based sources, including fisheries, sewerage outflows, fly-tipping, industry, and litter[1,2].

7. Specific data about the distribution and sources of marine litter is improving, however is not currently sufficient to give detailed spatial information about where marine litter occurs in the north west inshore marine plan area[3].

8. Limited data for the north west inshore marine plan area indicates a higher than average concentration of public litter[1,5].

When are the north west marine plan areas impacted by marine litter?

9. A recent analysis of beach clean data revealed that the north west inshore marine plan area has its highest marine litter levels in the autumn. This is generally consistent with most marine plan areas and may be due to an increase in bad weather and rough seas bringing more marine litter ashore.

Why is reducing marine litter important to the north west marine plan areas?

10. The issues in the north west marine plan area included concerns about negative impacts from marine litter such as:
    - entanglement or ingestion by wildlife
    - transportation of invasive non-native species
    - increasing costs to local authorities to keep beaches clean
    - dangers to recreational users

11. The north west stakeholders also recognised an opportunity to develop a market for the re-use and recycling of recovered marine litter.

12. Marine litter is unsightly and can cause harm to marine wildlife through entanglement and ingestion, and through smothering of the seabed. Litter also causes economic effects through clean-up costs to local communities, lost tourism and costs to fishermen through lost catch and damaged gear. It can pose a hazard to seafarers through fouling of ship propellers and it can provide a pathway for non-native species to spread to new areas. Reducing litter in rivers, estuaries and at the coast will aid in the overall reduction of marine litter.

13. Plastics are the main type of litter found both on beaches and offshore, including increasing quantities of microscopic pieces of plastics resulting from degradation of

[1] Nelms et al (2017) ['Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data', https://www.sciencedirect.com/science/article/pii/S0048969716325918]

[2] Hastings & Potts (2013) [title, reference, and URL]

[3] Marine Strategy Part 3: Programme of Measures [URL]

[5] Litter monitoring results Thames21 (2017) [https://www.thames21.org.uk/thames-river-watch/litter-monitoring-results/]

[6] Jordi Blanch Molina (2016) Analysis of spatial and temporal trends of marine litter in England beaches and the potential influencing factors [http://teamsites/sites/MMOTeams2/ev/RefLib/planning-team-references/2016_IMEC_Blanch_J_Report.pdf]

[7] Luke Howard (2018) An investigation into marine litter levels across local authorities in England [Not sure of location with evidence team]

larger plastic products in the sea. These may act as a vector for transferring toxic chemicals to the food chain. There is, therefore, widespread recognition that current and future measures to reduce marine and coastal litter will bring ecological, economic and social benefits (Marine strategy part one: UK initial assessment and good environmental status).

14. The 25 Year Environment Plan states that 'The UK is committed to leading efforts to protect the marine environment. To tackle marine pollution, we will pursue a sustainable, international and transboundary approach that prioritises reducing global reliance on plastics, increases economically viable recycling processes, and promotes maritime practices that prevent harmful matter entering the seas'.

15. This policy supports the intent of the Litter Strategy for England. The Litter Strategy makes particular reference to marine litter and the need to work together to 'reduce the amount of litter entering the marine environment and remove litter that is already there.'

16. The Marine Strategy Regulations 2010 are part of a set of policies to help the UK meet our aim to achieve clean, healthy, safe, productive and biologically diverse oceans and seas. The directive describes good environmental status in 11 main points which cover all the important aspects of the marine ecosystem and all the main human pressures on them. From this a programme of measures for achieving good environmental status was developed in three parts. Marine planning was recognised in the Marine strategy part three: UK programme of measures as a measure of addressing marine litter.

17. To achieve Good Environmental Status for marine litter under Marine strategy part three: UK programme of measures, descriptor 10 states that 'The amount of litter, and its degradation products, on coastlines and in the marine environment are reducing over time and levels do not pose a significant risk to the coastal and marine environment, either as a result of direct mortality such as through entanglement, or by way of indirect impacts such as reduced fecundity or bioaccumulation of contaminants within food chains'. Three targets have been identified to achieve this; the most relevant is an overall reduction in the number of visible litter items within specific categories/types on coastlines (Marine strategy part three: UK programme of measures).

18. The Marine Strategy Regulations 2010 do not include transitional waters (estuaries, rias and rivers) and the Water Environment (Water Framework Directive) (England and Wales) 2017 does not address the issue of marine litter. Therefore marine plans are a tool to apply a consistent approach towards addressing marine litter issues across the whole of the plan areas.

19. A number of policies in the North West Marine Plan support activities that could indirectly increase the amount of litter generated (NW-INF-1, NW-TR-1, NW-EMP-1, NW-EMP-2, NW-ACC-2). See NW-ML-2

20. **Who is this of** interest **to?**
    - Public authorities with waste or land management functions
    - Public authorities with strategic planning functions which enable activities that generate waste that could become coastal or marine litter

- Port and harbour waste management functions including waste reception facilities
- Planning Inspectorate when approving local authority waste management plans and other strategic plans that could lead to increased waste generation
- Maritime Coastguard Agency Pollution Prevention from Ships and Port Receptions Facilities Regulations functions
- Public authorities that develop River Basin Management Plans and other land management plans capable of affecting the marine area
- Water companies with waste water management functions
- Inshore Fisheries and Conservation Authorities – management of commercial fisheries for the purposes of environmental protection

How should this policy be applied?

21. NW-ML-1 applies to the whole of the north west marine plan areas and extends to functions that are carried out in adjacent marine plan areas which are capable of affecting the north west marine plan areas.

22. Policy NW-ML-1 aligns with the Marine Policy Statement (2.5.10 - 2.5.14) and the Marine and Coastal Access Act. Public authorities must have regard for this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009).

23. Reducing waste at source in accordance with the Waste (England and Wales) Regulations 2011 would contribute towards reducing marine litter. Measures to facilitate the re-use and recycling of waste before it becomes marine litter must be implemented. Guidance on applying the Waste Hierarchy must be applied to ensure public authority functions capable of affecting the marine area include measures to avoid the introduction of litter to the marine environment. Guidance on applying the Waste Hierarchy ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (eg landfill). This guidance is produced under regulation 15(1) of the Waste (England and Wales) Regulations 2011 and any person subject to the regulation 12 duty must have regard to it.

24. Avoiding littering and inappropriate disposal of waste is the best way to reduce the amount of debris getting into the environment[3]. Public authorities (as defined in Section 89 (1) of the Environmental Protection Act 1990) have a role in keeping their land free from litter which includes beaches, waterside land and public open spaces as described in the Code of Practice on Litter and Refuse under the Environmental Protection Act 1990. This includes the provision of waste bins and other infrastructure (for example signage and information boards) and provides local authorities with powers to take enforcement action against littering. Public authorities must focus their efforts to support the aims of the Litter Strategy for England, by improving education, enforcement and infrastructure to reduce littering.

25. Public authorities, including local authorities and port and harbour authorities, should have regard to NW-ML-1 when developing waste management plans or any plan which enables activities that generate waste or litter in the north west marine plan areas. Such activities include development, regeneration and tourism.

26. Public authorities responsible for approving waste management plans and strategic plans that could result in an increase of marine litter or litter at the coast should also have regard to NW-ML-1. This includes the Planning Inspectorate when approving local authority plans, and the Maritime Coastguard Agency when approving waste management plans for ports, harbours and vessels.

27. The discharge of litter into the sea is prohibited by the International Convention for the Prevention of Pollution from Ships (MARPOL Annex V) and the Environmental Protection Act 1990. Ports and Harbour authorities must provide waste reception facilities adequate to meet the needs of ships normally using the harbour or terminal in question in accordance with the most up to date Port Waste Reception Facilities Regulations. Ports and harbours working with local authorities and the voluntary sector could improve their waste management processes and cut costs by applying NW-ML-1 through collaborative working.

28. Public authorities developing River Basin Management Plans, and land or waste water management plans (including water companies) that are capable of affecting the north west marine plan area must also have regard to NW-ML-1 and build in measures to avoid the introduction of litter to the marine area. Also see NW-WQ-3.

29. Inshore Fisheries and Conservation Authorities have duties under the Marine and Coastal Access Act (S153) to protect the marine environment from the effects of sea fisheries and seek to ensure the conservation objectives of any Marine Conservation Zones are furthered in their district and should therefore have regard to NW-ML-1 when carrying out these functions.

30. NW-ML-1 applies to the whole of the north west marine plan areas and extends to functions that are carried out in adjacent marine plan areas which are capable of affecting the north west marine plan areas.

31. Policy NW-ML-1 aligns with the Marine Policy Statement (2.5.10 - 2.5.14) and the Marine and Coastal Access Act. Public authorities must have regard for this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009).

32. Reducing waste at source in accordance with the Waste (England and Wales) Regulations 2011 would contribute towards reducing marine litter. Measures to facilitate the re-use and recycling of waste before it becomes marine litter must be implemented. Guidance on applying the Waste Hierarchy must be applied to ensure public authority functions capable of affecting the marine area include measures to avoid the introduction of litter to the marine environment. Guidance on applying the Waste Hierarchy ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (eg landfill). This guidance is produced under regulation 15(1) of the Waste (England and Wales) Regulations 2011 and any person subject to the regulation 12 duty must have regard to it.

33. Avoiding littering and inappropriate disposal of waste is the best way to reduce the amount of debris getting into the environment[3]. Public authorities (as defined in

Section 89 (1) of the Environmental Protection Act 1990) have a role in keeping their land free from litter which includes beaches, waterside land and public open spaces as described in the Code of Practice on Litter and Refuse under the Environmental Protection Act 1990. This includes the provision of waste bins and other infrastructure (for example signage and information boards) and provides local authorities with powers to take enforcement action against littering. Public authorities must focus their efforts to support the aims of the Litter Strategy for England, by improving education, enforcement and infrastructure to reduce littering.

34. Public authorities, including local authorities and port and harbour authorities, should have regard to NW-ML-1 and NW-ML-2 when developing waste management plans or any plan which enables activities that generate waste or litter in the north west marine plan areas. Such activities include development, regeneration and tourism.

35. Public authorities responsible for approving waste management plans and strategic plans that could result in an increase of marine litter or litter at the coast should also have regard to NW-ML-1 and NW-ML-2. This includes the Planning Inspectorate when approving local authority plans, and the Maritime Coastguard Agency when approving waste management plans for ports, harbours and vessels.

36. The discharge of litter into the sea is prohibited by the International Convention for the Prevention of Pollution from Ships (MARPOL Annex V) and the Environmental Protection Act 1990. Ports and Harbour authorities must provide waste reception facilities adequate to meet the needs of ships normally using the harbour or terminal in question in accordance with the most up to date Port Waste Reception Facilities Regulations. Ports and harbours working with local authorities and the voluntary sector could improve their waste management processes and cut costs by applying NW-ML-1 and NW-ML-2 through collaborative working.

37. Public authorities developing River Basin Management Plans, and land or waste water management plans (including water companies) that are capable of affecting the north west marine plan area must also have regard to NW-ML-1 and build in measures to avoid the introduction of litter to the marine area. Also see NW-WQ-3.

38. Inshore Fisheries and Conservation Authorities have duties under the Marine and Coastal Access Act (S153) to protect the marine environment from the effects of sea fisheries and seek to ensure the conservation objectives of any Marine Conservation Zones are furthered in their district and should therefore have regard to NW-ML-1 when carrying out these functions.

Signposting

39. Existing measures which relate to and may contribute to the achievement of this policy include:
    - 25 Year Environment Plan
    - The Litter Strategy for England 2017
    - The Marine Strategy Regulations 2010
    - Marine strategy part three: UK programme of measures
    - OSPAR Regional Action Plan on Marine Litter 2014
    - G7 Action Plan to Combat Marine Litter
    - Environmental Protection Act 1990

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- The Waste (England and Wales) Regulations 2011
- Port Reception facilities Regulations
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40. Further information and guidance that may help in implementing the policy include:
    - River Basin Management Plans covering the north west marine plan areas
    - Guidance on applying the waste hierarchy
    - Seafish Responsible Fishing Scheme
    - WRAP the UK plastics pact
    - National planning policy for waste
    - Operation Clean Sweep – reducing plastic pellet loss to the environment

Policy drafting template – NW-ML-2

HLMO	Living within environmental limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Litter	**Code**	NW-ML-2

Policy

NW-ML-2
Public authorities with waste management functions capable of affecting the marine area must provide adequate provision for the prevention and removal of marine litter.

What is waste?

1. Waste is defined as "…any substance or object which the holder discards or intends or is required to discard…". To dispose of waste correctly to avoid it becoming litter the waste hierarchy should be applied. Solid waste in the marine environment is commonly referred to as marine litter.

2. An increase in waste created by human use, the growing dependence upon plastics and poor waste management has led to a rise in litter in the marine environment. Supported by recent research and evidence the issue of marine litter has risen on the global platform and is being debated at many levels. Marine plans can contribute towards addressing the sources of marine litter and encouraging the removal of marine litter though collaborative efforts.

What is marine litter?

3. Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Marine litter consists of items that have been made or used by people and deliberately discarded into the sea or rivers or on beaches; brought indirectly to the sea with rivers, sewage, storm water or winds; accidentally lost, including material lost at sea in bad weather (fishing gear, cargo); or deliberately left by people on beaches and shores (United Nations Environment Programme 'Marine Litter an Analytical overview').

4. Marine litter includes processed food items and excludes seaweed, twigs or other biological debris which contribute to maintaining the local ecosystem.

5. Evidence shows that the majority of marine litter found on beaches comes from land, specifically public littering[1,6]. Plastic is the main material of marine litter[1,6].

Where does marine litter occur in the north west marine plan areas?

6. In general, marine litter can be found on the seabed, drifting within the water column and on coastline and beaches. Marine litter originates from both land and sea based sources, including fisheries, sewerage outflows, fly-tipping, industry, and litter[1,2].

7. Specific data about the distribution and sources of marine litter is improving, however is not currently sufficient to give detailed spatial information about where marine litter occurs in the north west inshore marine plan area[3].

8. Limited data for the north west inshore marine plan area indicates a higher than average concentration of public litter[1,5].

When are the north west marine plan areas impacted by marine litter?

9. A recent analysis of beach clean data revealed that the north west inshore marine plan area has its highest marine litter levels in the autumn. This is generally consistent with most marine plan areas and may be due to an increase in bad weather and rough seas bringing more marine litter ashore during this season.

Why is reducing marine litter important to the north west marine plan areas?

10. The issues in the north west marine plan area included concerns about negative impacts from marine litter such as:
    - entanglement or ingestion by wildlife
    - transportation of invasive non-native species
    - increasing costs to local authorities to keep beaches clean
    - dangers to recreational users

11. The north west stakeholders also recognised an opportunity to develop a market for the re-use and recycling of recovered marine litter.

12. Marine litter is unsightly and can cause harm to marine wildlife through entanglement and ingestion, and through smothering of the seabed. Litter also causes economic effects through clean-up costs to local communities, lost tourism and costs to fishermen through lost catch and damaged gear. It can also pose a hazard to seafarers through fouling of ship propellers and it can provide a pathway for non-native species to spread to new areas. Reducing litter in rivers, estuaries and at the coast will aid in the overall reduction of marine litter.

13. Plastics are the main type of litter found both on beaches and offshore, including increasing quantities of microscopic pieces of plastics resulting from degradation of

[1] Nelms et al (2017) ['Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data', https://www.sciencedirect.com/science/article/pii/S0048969716325918]

[2] Hastings & Potts (2013) [title, reference, and URL]

[3] Marine Strategy Part 3: Programme of Measures [URL]

[5] Litter monitoring results Thames21 (2017) [https://www.thames21.org.uk/thames-river-watch/litter-monitoring-results/]

[6] Jordi Blanch Molina (2016) Analysis of spatial and temporal trends of marine litter in England beaches and the potential influencing factors [http://teamsites/sites/MMOTeams2/ev/RefLib/planning-team-references/2016_IMEC_Blanch_J_Report.pdf]

[7] Luke Howard (2018) An investigation into marine litter levels across local authorities in England [Not sure of location with evidence team]

larger plastic products in the sea. These may act as a vector for transferring toxic chemicals to the food chain. There is, therefore, widespread recognition that current and future measures to reduce marine and coastal litter will bring ecological, economic and social benefits (Marine strategy part one: UK initial assessment and good environmental status).

14. The 25 Year Environment Plan states that 'The UK is committed to leading efforts to protect the marine environment. To tackle marine pollution, we will pursue a sustainable, international and transboundary approach that prioritises reducing global reliance on plastics, increases economically viable recycling processes, and promotes maritime practices that prevent harmful matter entering the seas'.

15. This policy supports the intent of the Litter Strategy for England. The Litter Strategy makes particular reference to marine litter and the need to work together to 'reduce the amount of litter entering the marine environment and remove litter that is already there.' Further guidance can be found in the Department for Environment, Food and Rural Affairs publication Guidance on applying the Waste Hierarchy.

16. The Marine Strategy Regulations 2010 are part of a set of policies to help the UK meet our aim to achieve clean, healthy, safe, productive and biologically diverse oceans and seas. The directive describes good environmental status in 11 main points which cover all the important aspects of the marine ecosystem and all the main human pressures on them. From this a programme of measures for achieving good environmental status was developed in three parts. Marine planning was recognised in the Marine strategy part three: UK programme of measures as a measure of addressing marine litter.

17. To achieve Good Environmental Status for marine litter under Marine strategy part three: UK programme of measures, descriptor 10 states that 'The amount of litter, and its degradation products, on coastlines and in the marine environment are reducing over time and levels do not pose a significant risk to the coastal and marine environment, either as a result of direct mortality such as through entanglement, or by way of indirect impacts such as reduced fecundity or bioaccumulation of contaminants within food chains'. Three targets have been identified to achieve this; the most relevant is an overall reduction in the number of visible litter items within specific categories/types on coastlines (Marine strategy part three: UK programme of measures).

18. The Marine Strategy Regulations 2010 do not include transitional waters (estuaries, rias and rivers) and the Water Environment (Water Framework Directive) (England and Wales) 2017 does not address the issue of marine litter. Therefore marine plans are a tool to apply a consistent approach towards addressing marine litter issues across the whole of the plan areas.

19. A number of policies in the North West Marine Plan support activities that could indirectly increase the amount of litter generated (NW-INF-1, NW-TR-1, NW-EMP-1, NW-EMP-2, NW-ACC-2). See NW-ML-3

20. Who is this of interest to?

- Public authorities with land management functions (as defined in Section 89 (1) of the Environmental Protection Act 1990)
- Public authorities with waste management functions

- Port and harbour waste management functions including waste reception facilities
- Planning Inspectorate when approving local authority waste management plans and other strategic plans that could lead to increased waste generation
- Maritime Coastguard Agency Pollution Prevention from Ships and Port Receptions Facilities Regulations functions
- Public authorities that develop River Basin Management Plans and other land management plans capable of affecting the marine area
- Water companies with waste water management functions
- Marine Management Organisation – Issues licences for the removal of abandoned, lost and discarded fishing gear
- Inshore Fisheries and Conservation Authorities – management of commercial fisheries for the purposes of environmental protection

How should this policy be applied?

21. NW-ML-2 applies to the whole of the north west marine plan areas.

22. Policy NW-ML-2 aligns with the Marine Policy Statement (2.5.10 - 2.5.14) and the Marine and Coastal Access Act. Public authorities must have regard for this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009).

23. Avoiding littering and inappropriate disposal of waste is the best way to reduce the amount of debris getting into the environment[3] - see NW-ML-1. Removal of marine litter requires a collaborative approach between responsible public authorities and the voluntary sector.

24. Public authorities (as defined in Section 89 (1) of the Environmental Protection Act 1990) have a role in keeping their land free from litter which includes beaches, waterside land and public open spaces as described in the Code of Practice on Litter and Refuse. This includes the provision of waste bins and other infrastructure (for example signage and information boards) and provides local authorities with powers to take enforcement action against littering. Public authorities must focus their efforts to support the aims of the Litter Strategy for England, by improving education, enforcement and infrastructure to reduce littering.

25. A minimum requirement of the Environmental Protection Act 1990 states that amenity beaches identified by local authorities should be kept clear of all types of litter and refuse between 1 May and 30 September inclusive. Due to the warming climate beaches are increasingly being used outside of the traditional bathing season between May and September. It is recommended as good practice that authorities are aware of the different nature of beaches within their area that they carry out a regular monitoring programme of those beaches and develop an appropriate cleansing regime. Through collaborative working with the voluntary sector, public authorities should aim to increase the litter removal provision for non-amenity beaches as required.

26. Collaborative working covers a variety of ways that two or more organisations can work together. Collaborative working between charities, local organisations and

public authorities can play an important role in helping to encourage reduction, re-use and recycling initiatives and to remove marine litter. Groups such as Fishing for Litter and Dive Against Debris remove litter underwater and schemes such as Odyssey Innovation in the south west re-use and recycle marine litter once collected. Public authorities play a key role in facilitating collaboration at a local level and advising other groups on best practice.

27. Ports and Harbour authorities must provide waste reception facilities adequate to meet the needs of ships normally using the harbour or terminal in question in accordance with the most recent Port Waste Reception Facilities Regulations. Ports and harbour authorities should also support efforts where appropriate to remove marine litter from within their defined harbour limit. By working with local authorities and the voluntary sector Port and Harbour Authorities could improve their waste management processes and cut costs through applying NW-ML-2 by working collaboratively.

28. Other Public Authorities capable of affecting the marine area must demonstrate collaborative working to address the issue of marine litter either but not exclusively through:
    - providing infrastructure to reduce marine litter
    - supporting efforts to remove marine litter
    - improving education on marine litter
    - support enforcement action against littering
    - supporting the re-use or recycling of marine litter

29. NW-ML-2 applies to the whole of the north west marine plan areas and extends to functions that are carried out in adjacent marine plan areas which are capable of affecting the north west marine plan areas.

30. Policy NW-ML-2 aligns with the Marine Policy Statement (2.5.10 - 2.5.14) and the Marine and Coastal Access Act. Public authorities must have regard for this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009).

31. Avoiding littering and inappropriate disposal of waste is the best way to reduce the amount of debris getting into the environment[3] - See NW-ML-1. Removal of marine litter requires a collaborative approach between responsible public authorities and the voluntary sector.

32. Public authorities (as defined in Section 89 (1) of the Environmental Protection Act 1990) have a role in keeping their land free from litter which includes beaches, waterside land and public open spaces as described in the Code of Practice on Litter and Refuse. This includes the provision of waste bins and other infrastructure (for example signage and information boards) and provides local authorities with powers to take enforcement action against littering. Public authorities must focus their efforts to support the aims of the Litter Strategy for England, by improving education, enforcement and infrastructure to reduce littering.

33. A minimum requirement of the Environmental Protection Act 1990 states that amenity beaches identified by local authorities should be kept clear of all types of

litter and refuse between 1 May and 30 September inclusive. Due to the warming climate beaches are increasingly being used outside of the traditional bathing season between May and September. It is recommended as good practice that authorities are aware of the different nature of beaches within their area that they carry out a regular monitoring programme of those beaches and develop an appropriate cleansing regime. Through collaborative working with the voluntary sector, public authorities should aim to increase the litter removal provision for non-amenity beaches as required.

34. Collaborative working covers a variety of ways that two or more organisations can work together. Collaborative working between charities, local organisations and public authorities can play an important role in helping to encourage re-use and recycling initiatives and to remove marine litter. Groups such as love my beach demonstrate how collaborative working can help with the issues of marine litter. Public authorities play a key role in facilitating collaboration at a local level and advising other groups on best practice.

35. In accordance with the most recent Port Waste Reception Facilities Regulations, Ports and Harbour authorities must provide waste reception facilities adequate to meet the needs of ships normally using the harbour or terminal in question. Ports and harbour authorities should also support efforts where appropriate to remove marine litter from within their defined harbour limit. Through applying NW-ML-2 by working collaboratively with local authorities and the voluntary sector Port and Harbour Authorities could improve their waste management processes and cut costs.

36. Other Public Authorities capable of affecting the marine area must demonstrate collaborative working to address the issue of marine litter either but not exclusively through:
    - providing infrastructure to reduce marine litter
    - supporting efforts to remove marine litter
    - improving education on marine litter
    - support enforcement action against littering
    - supporting the re-use or recycling of marine litter

Signposting

37. Existing measures which relate to and may contribute to the achievement of this policy include:
    - 25 Year Environment Plan
    - The Litter Strategy for England 2017
    - The Marine Strategy Regulations 2010
    - Marine strategy part three: UK programme of measures
    - OSPAR Regional Action Plan on Marine Litter 2014
    - G7 Action Plan to Combat Marine Litter
    - Environmental Protection Act 1990
    - The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - The Waste (England and Wales) Regulations 2011
    - Port Reception facilities Regulations

38. Further information and guidance that may help in implementing the policy include:

- River Basin Management Plans covering the north west marine plan areas
- Guidance on applying the waste hierarchy
- Seafish Responsible Fishing Scheme
- WRAP the UK plastics pact
- National planning policy for waste
- Operation Clean Sweep – reducing plastic pellet loss to the environment

Policy drafting template – NW-ML-3

HLMO	Living within environmental limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Litter	**Code**	NW-ML-3

Policy

NW-ML-3
Proposals that facilitate waste re-use or recycling, or that reduce marine and coastal litter will be supported.

Proposals that could potentially increase the amount of marine litter that is discharged into the marine area, either intentionally or accidentally, must include measures to:
a) avoid
b) minimise or
c) mitigate the discharges

What is waste?

1. Waste is defined as "…any substance or object which the holder discards or intends or is required to discard…". To dispose of waste correctly to avoid it becoming litter the waste hierarchy should be applied.

2. An increase in waste created by human use, the growing dependence upon plastics and poor waste management has led to a rise in litter in the marine environment. Supported by recent research and evidence the issue of marine litter has risen on the global platform and is being debated at many levels. Marine plans can contribute towards addressing the sources of marine litter and encouraging the removal of marine litter though collaborative efforts.

What is marine litter?

3. Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Marine litter consists of items that have been made or used by people and deliberately discarded into the sea or rivers or on beaches; brought indirectly to the sea with rivers, sewage, storm water or winds; accidentally lost, including material lost at sea in bad weather (fishing gear, cargo); or deliberately left by people on beaches and shores (United Nations Environment Programme 'Marine Litter an Analytical overview').

4. Marine litter includes processed food items and excludes seaweed, twigs or other biological debris which contribute to maintaining the local ecosystem.

5. Evidence shows that the majority of marine litter found on beaches comes from land, specifically public littering[1,6]. Plastic is the main material of beach litter items[1,6].

Where does marine litter occur in the north west marine plan areas?

6. In general, marine litter can be found on the seabed, drifting within the water column and on coastline and beaches. Marine litter originates from both land and sea based sources, including fisheries, sewerage outflows, fly-tipping, industry, and litter[1,2].

7. Specific data about the distribution and sources of marine litter is improving, however is not currently sufficient to give detailed spatial information about where marine litter occurs in the north west inshore marine plan area[3].

8. Limited data for the north west inshore marine plan area indicates a higher than average concentration of public litter[1,5].

When are the north west marine plan areas impacted by marine litter?

9. A recent analysis of beach clean data revealed that the north west inshore marine plan area has its highest marine litter levels in the autumn. This is generally consistent with most marine plan areas and may be due to an increase in bad weather and rough seas bringing more marine litter ashore during this season.

10. Coastal developments can also create marine litter. A number of policies in the North West Marine Plan support activities that could indirectly increase the amount of litter generated (NW-INF-1, NW-TR-1, NW-EMP-1, NW-EMP-2, NW-ACC-2).

Why is reducing marine litter important to the north west marine plan areas?

11. The issues in the north west marine plan area included concerns about negative impacts from marine litter such as:
    - entanglement or ingestion by wildlife
    - transportation of invasive non-native species
    - increasing costs to local authorities to keep beaches clean
    - dangers to recreational users

12. The north west stakeholders also recognised an opportunity to develop a market for the re-use and recycling of recovered marine litter.

13. Marine litter is unsightly and can cause harm to marine wildlife through entanglement and ingestion, and through smothering of the seabed. Litter also causes economic effects through clean-up costs to local communities, lost tourism and costs to fishermen through lost catch and damaged gear. It can also pose a hazard to seafarers through fouling of ship propellers and it can provide a pathway for non-native species to spread to new areas. Reducing litter in rivers, estuaries and at the coast will aid in the overall reduction of marine litter.

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[1] Nelms et al (2017) ['Marine anthropogenic litter on British beaches: A 10-year nationwide assessment using citizen science data', https://www.sciencedirect.com/science/article/pii/S0048969716325918]

[2] Hastings & Potts (2013) [title, reference, and URL]

[3] Marine Strategy Part 3: Programme of Measures [URL]

[5] Litter monitoring results Thames21 (2017) [https://www.thames21.org.uk/thames-river-watch/litter-monitoring-results/]

[6] Jordi Blanch Molina (2016) Analysis of spatial and temporal trends of marine litter in England beaches and the potential influencing factors [http://teamsites/sites/MMOTeams2/ev/RefLib/planning-team-references/2016_IMEC_Blanch_J_Report.pdf]

[7] Luke Howard (2018) An investigation into marine litter levels across local authorities in England [Not sure of location with evidence team]

14. Plastics are the main type of litter found both on beaches and offshore, including increasing quantities of microscopic pieces of plastics resulting from degradation of larger plastic products in the sea. These may act as a vector for transferring toxic chemicals to the food chain. There is, therefore, widespread recognition that current and future measures to reduce marine and coastal litter will bring ecological, economic and social benefits (Marine strategy part one: UK initial assessment and good environmental status).

15. The 25 Year Environment Plan states that 'The UK is committed to leading efforts to protect the marine environment. To tackle marine pollution, we will pursue a sustainable, international and transboundary approach that prioritises reducing global reliance on plastics, increases economically viable recycling processes, and promotes maritime practices that prevent harmful matter entering the seas'.

16. This policy supports the intent of the Litter Strategy for England. The Litter Strategy makes particular reference to marine litter and the need to work together to 'reduce the amount of litter entering the marine environment and remove litter that is already there.' Further guidance can be found in the Department for Environment, Food and Rural Affairs publication Guidance on applying the Waste Hierarchy.

17. The Marine Strategy Regulations 2010 are part of a set of policies to help the UK meet our aim to achieve clean, healthy, safe, productive and biologically diverse oceans and seas. The directive describes good environmental status in 11 main points which cover all the important aspects of the marine ecosystem and all the main human pressures on them. From this a programme of measures for achieving good environmental status was developed in three parts. Marine planning was recognised in the Marine strategy part three: UK programme of measures as a measure of addressing marine litter.

18. To achieve Good Environmental Status for marine litter under Marine strategy part three: UK programme of measures, descriptor 10 states that 'The amount of litter, and its degradation products, on coastlines and in the marine environment are reducing over time and levels do not pose a significant risk to the coastal and marine environment, either as a result of direct mortality such as through entanglement, or by way of indirect impacts such as reduced fecundity or bioaccumulation of contaminants within food chains'. Three targets have been identified to achieve this; the most relevant is an overall reduction in the number of visible litter items within specific categories/types on coastlines (Marine strategy part three: UK programme of measures).

19. The Marine Strategy Regulations 2010 do not include transitional waters (estuaries, rias and rivers) and the Water Environment (Water Framework Directive) (England and Wales) 2017 does not address the issue of marine litter. Therefore marine plans are a tool to apply a consistent approach towards addressing marine litter issues across the whole of the plan areas.

Who is this of interest to?

20. Anyone making a proposal that could potentially increase the amount of marine litter that enters the north west marine plan areas.

Public authorities making any authorisation for proposals that are capable of introducing, managing or preventing the introduction of litter into the north west marine plan areas must make their decision in accordance with NW-ML-3.

21. Including decision-making public authorities such as:
    - Local planning authorities
    - Marine licensing authorities
    - Ports and Harbour authorities
    - The Planning Inspectorate
    - The Crown Estate
    - Inshore Fisheries and Conservation Authorities
    - Maritime and Coastguard Agency

How should this policy be applied?

22. NW-ML-3 applies to the north west inshore and offshore marine plan areas.

23. Decision-makers should support proposals that seek to reduce marine litter through preventative or litter removal measures, where they comply with other policies in the North West Marine Plan.

24. Proposals should demonstrate they have considered the potential for the introduction of litter. Proposals should demonstrate that they will, in order of preference, avoid, minimise or mitigate marine litter - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc. Proposals should demonstrate how they will avoid, minimise, or where this is not possible, mitigate introductions of litter to the marine area during both the construction period and throughout the lifetime of the proposal.

25. The current regulatory regime includes provisions for reducing and removing litter including:
    - Environmental Protection Act 1990
    - Code of Practice on Litter and Refuse
    - The Waste (England and Wales) Regulations 2011
    - National Planning Policy for Waste
    - National Planning Policy Framework
    - National Waste Management Plan for England

26. In addition, licensing requirements for marine related activities are required, where relevant, to put in place a waste management plan, which includes measures to minimise the risk of litter escape.

27. Measures could include:
    - avoid – avoiding the discharge of any items of marine litter during development and once operational via methods outlined in a thorough waste management plan
    - minimise – developers will monitor and remove any items of marine litter from the development and other sources in the area surrounding the development, during development and once operational outlined in a thorough waste management plan
    - mitigate - developers will monitor and remove any items of marine litter from the development or other sources in the area surrounding the development as

well as; once operational support a re-use or recycling scheme for marine litter or extend their clean-up operation further into the surrounding area to leave the marine area cleaner than before their development eg adopt sea bins or financially support coastal clean-up operations – all of which can be outlined in a thorough waste management plan

28. Proposals should include an explanation or evidence of a plan to manage waste during construction and once operational. Licensed marine activities will need to demonstrate consideration of the The Waste (England and Wales) Regulations 2011 and its Waste Hierarchy.

29. Guidance on applying the Waste Hierarchy must be applied to ensure developments capable of affecting the marine area include measures to avoid the introduction of marine litter. Guidance on applying the Waste Hierarchy ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (eg landfill). Measures to facilitate the re-use and recycling of waste before it becomes marine and coastal litter and also once removed from the marine and coastal area should be implemented where appropriate.

Signposting

30. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - 25 Year Environment Plan
    - The Litter Strategy for England
    - The Marine Strategy Regulations 2010
    - Marine strategy part three: UK programme of measures
    - OSPAR Regional Action Plan on Marine Litter
    - G7 Action Plan to Combat Marine Litter
    - Environmental Protection Act 1990
    - The Waste (England and Wales) Regulations 2011

31. Further information and guidance that may help in implementing the policy include:
    - Waste management links
    - River Basin Management Plans covering the north west marine plan areas
    - Guidance on applying the waste hierarchy
    - National planning policy for waste

Plan area	North West		
Grouping	Marine Protected Areas		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Our oceans support viable populations of representative, rare, vulnerable, and valued species. Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.		
Other relevant policies	NW-CC-3 NW-BIO-1 NW-CC-5		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-MPA-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Species	**Code**	NW-MPA-1

Policy

NW-MPA-1
Proposals that support the objectives of marine protected areas and the ecological coherence of the marine protected area network will be supported.

Proposals that may have adverse impacts on the objectives of marine protected areas must demonstrate that they will, in order of preference:
a) avoid,
b) minimise,
c) mitigate adverse impacts, with due regard given to statutory advice on an ecologically coherent network.

What are marine protected areas?

1. Marine protected areas are areas of the sea protected by law for nature conservation purposes. They protect geological features and habitats and species on the sea bed, in the water column, on the sea surface or in the air above.

2. Marine protected areas in the north west marine plan areas include:
    - Ramsar Sites – wetlands of international importance
    - Special Protection Areas (including proposed sites) – rare, vulnerable or threatened birds
    - Special Areas of Conservation (including candidate sites and Sites of Community Importance) – habitats and species in need of conservation
    - Marine Conservation Zones (including recommended sites) – geological features, habitats and species typical of UK waters
    - Sites of Special Scientific Interest – geological features, flora and fauna of special interest

3. Ramsar Sites, Special Protection Areas and Special Areas of Conservation are designated and protected under the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017. Marine Conservation Zones are designated and protected under the Marine and Coastal Access Act 2009. Sites of Special Scientific Interest are designated and protected under the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000.

4. For Special Protection Areas and Special Areas of Conservation, areas outside the designated area that are important to features for which a site has been designated are also protected.

What is an ecologically coherent network?

5. The designations listed above form the English contribution towards a wider ecologically coherent network of marine protected areas in the North East Atlantic. They form the government's contribution to commitments under the Convention for the Protection of the Marine Environment of the North East Atlantic. The UK principles of ecological coherence are laid out in the Joint Administration Statement and are based on guidance produced by the Commission for the Convention for the Protection of the Marine Environment of the North East Atlantic. An ecologically coherent network includes well managed, resilient, and adequately sized marine protected areas that are ecologically connected and which represent a range of replicated marine habitats and species.

Where are the marine protected areas in the north west marine plan areas?

6. The Joint Nature Conservation Committee Marine Protected Area mapper is an interactive resource containing information on the marine protected areas designated in UK waters. The network of marine protected areas is likely to change over the period of this plan and the most up to date information should be used when applying this policy.

7. A large proportion of the north west coastline is protected by numerous marine protected areas.

8. Marine Conservation Zones protect intertidal, inshore and offshore habitats and species. The Cumbria Coast Marine Conservation Zone protects some of the most extensive and important areas of intertidal rocky shore habitats in the otherwise generally sedimentary coastline of the north west. The Allonby Bay Marine Conservation Zone contains large living reefs of Honeycomb Worm which supports a wide range of other marine life. West of Walney and the Flyde make up two large offshore Marine Cosnervation Zones and both are designated for their extensive and productive subtidal sand and mud, typical of the north west marine plan areas.

HOLDING PLACE - Tranche 3 MCZs will also need to be acknowledged when we have more certainty about which sites to include. Awaiting designation outcome in June 2019.

9. The north west marine plan areas also support internationally significant populations of seabird and waterfowl which feed on invertibarates living in the extensive intertidal sand and mudflats. The importance of the area for birds is recognised through Special Protection Areas, and large stretches of the coast are designated as Special Areas of Conservation for a variety of habitats, including sand dunes and salt marsh.

10. A number of marine protected areas in the north west inshore marine plan area extend into adjacent marine plan areas. The Liverpool Bay Special Protection Area extends into the Welsh marine plan area up to Holy Island, protecting important seabird assembles and species such as little tern and red-throated diver. In the north, the Upper Solway Flats and Marshes Special Protection Area extends into the Scottish marine plan area, also protecting assemblages of seabird including grey plover and whooper swan.

11. Mobile species designated as a feature of special protection areas and special areas of conservation are also protected when they are outside the boundary of their site. Seabird and seal density maps are available on the Marine Information System. The

evidence base for mobile marine species is continuously developing. The most up to date information and conservation advice should be used when applying this policy.

The boundaries of marine protected areas in the north west marine plan areas may change in the future in response to natural range shifts caused by climate change, and additional marine protected areas may be designated. Policy NW-MPA-1 will apply to new and amended areas as they develop.

When should this policy be applied?

12. NW-MPA-1 applies year round and throughout the lifetime of the North West Marine Plan. Marine protected areas are a static designation but the features of an individual site may be more sensitive to pressures at specific times. Geological features and habitats are generally present year round with limited to no seasonality. Mobile species, such as birds, seals and cetaceans, follow predictable seasonal patterns.

13. The most up to date information and conservation advice should be used when applying this policy to determine temporal considerations. Natural England produces conservation advice packages for inshore marine protected areas within 12nm through the Designated Sites View. The Joint Nature Conservation Committee produces conservation advice packages for marine protected areas between 12-200nm through the Site Information Centres. The packages include statutory advice on the qualifying features of a site and their conservation objectives, including advice on the seasonality of mobile features. They advise how to further the conservation objectives, and they identify activities that are capable of affecting the qualifying features and the processes they depend upon.

Why are marine protected areas important to the north west marine plan areas?

14. Marine protected areas in the north west marine plan areas are an important tool for protecting biodiversity, ecosystem services and natural capital assets, and to prevent habitat loss. They benefit rare, vulnerable and threatened habitats and species, as well as those typical to UK waters. They support the local economy, provide opportunities for research, health and well-being, and provide inspirational places to live, work and visit.

15. As stated in the Joint Administration Statement, linking the marine protected areas in the north west marine plan areas 'together in an ecologically coherent network, supported by wider environmental management measures will achieve benefits more effectively than individual marine protected areas can alone.'

16. The marine protected areas in the north west marine plan areas play a significant role in achieving the UK government's vision for clean, healthy, safe, productive and biologically diverse oceans and seas. They contribute to targets in the United Nations Convention on Biological Diversity to protect 10% of the world's coastal and marine areas by 2020, and are part of the UK programme of measures to achieve Good Environmental Status in UK waters under the Marine Strategy Regulations 2010. These commitments are reinforced in the UK Marine Policy Statement through a commitment to 'complete an ecologically coherent network as part of a broad based approach to nature conservation' (3.1.2). The National Planning Policy Framework includes commitments to enhance the natural environment by 'minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and

future pressures' (para.170(d)). The 25 Year Environment Plan from the Department for Environment, Food and Rural Affairs commits to increasing the proportion of protected and well-managed seas, and better management of existing protected sites.

Who is this of interest to?

17. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

18. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

19. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning
    - land and water management
    - waste management
    - access management
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

20. This policy applies to individual marine protected areas throughout the north west marine plan areas, and areas outside marine protected areas that are important to features for which a marine protected area has been designated.

21. Public authorities will support proposals that support the conservation objectives of a marine protected areas and the ecological coherence of the network where it complies with other policies in this plan and other relevant legislation.

22. Public authorities will assess if the proposal affects the ecological coherence of the network on a case-by-case basis. Decision-makers should seek advice on how to consider the ecological coherence of the marine protected area network in decision-making from the statutory nature conservation bodies. Where advice states that it is not possible to assess the impact there will be no further requirements for decision-makers to consider the network. Current guidance provides advice on how marine protected areas are considered in the decision-making process. The requirements on how to consider impacts on the ecological coherence of the marine protected network under policy NW-MPA-1 may change if new guidance is issued. New and evolving advice will not be applied retrospectively to activities that have already been consented.

23. Proposals that support the objectives of marine protected areas should include information demonstrating how this will be achieved. The conservation objectives for individual sites are provided by the statutory nature conservation bodies through the Designated Sites View for sites within 12nm and through the Site Information

Centres for sites between 12-200nm. The conservation objectives describe whether the condition of features for which the site is designated should be maintained or restored. Where positive impacts are identified, proposals must also assess adverse impacts in line with relevant legislation. Enhancement is not a substitute for avoidance, protection or mitigation measures.

24. Proposals must still comply with requirements under relevant legislation including the Conservation of Habitats and Species Regulations 2017, the Conservation of Offshore Marine Habitats and Species Regulations 2017, the Marine and Coastal Access Act 2009, the Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, and other national legislation.

25. Proposals that have adverse impacts on the objectives of marine protected areas must demonstrate that they have, in order of preference, avoided, minimised or mitigated adverse impacts on individual sites in accordance with statutory monitoring requirements, such as Habitats Regulations Assessment, Marine Conservation Zone Assessment, Sites of Special Scientific Interest Assessment, and the conservation objectives set out by the statutory nature conservation bodies. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a), and so on.

26. Inclusion of this information does not indicate that approval of the proposal will follow by default. Approval will also depend on other material considerations taken into account by the decision-maker which may include, for example, other plans.

27. Where proposals cannot avoid, minimise or mitigate adverse impact but are in the public interest, they must state the case for proceeding with details of how measures of equal environmental benefit will be achieved. Guidance on mitigating impacts, what to consider in decisions on whether the public benefit of a proposal outweighs damage to the environment, and applying a risk-based approach to measures of equivalent environmental benefit is available in Guidance on the duties on public authorities in relation to Marine Conservation Zones (Note 2) and Marine conservation zones and marine licensing.

28. Where proposals provide ‘like for like’ compensation to address residual impacts, compensation should be provided in the affected marine protected areas as the preferred option. The requirements of NW-MPA-1 may also be satisfied where ‘like for like’ compensation is provided outside of the affected marine protected areas.

29. Where ‘like for like’ compensation is not achievable, or if compensation can only be offered in an area not currently designated as part of the marine protected area network, the proposed compensation measures may result in an impact on the ecological coherence of the network. The statutory nature conservation bodies will advise on the effect of residual impacts, after compensation, on the ecological coherence of the network. Where the statutory nature conservation bodies advise that it is not possible to assess the impact, there will be no further requirements for proposals or decision-makers to consider the network.

30. Public authorities should apply this policy when carrying out any function capable of affecting the north west marine plan areas, including strategic planning and enforcement decisions, and should refer to site conservation objectives and advice

from the statutory nature conservation bodies. Public authorities must also consider cumulative, combined or synergistic effects which their functions, authorisations and enforcement may have, with regards to any advice issued by the statutory nature conservation bodies.

31. Consideration of impacts at the network level should also be undertaken at a strategic level, addressed through mechanisms such as:
    - Environmental Impact Assessments
    - Regional environmental assessments, eg marine aggregate regional environmental assessments
    - Strategic Environmental Assessments
    - Assessments and measures to achieve Good Environmental Status with regard to support of the Marine Strategy Regulations 2010

Signposting

32. Existing measures which relate to and may contribute to the achievement of this policy include:
    - Conservation of Habitats and Species Regulations 2017
    - Conservation of Offshore Marine Habitats and Species Regulations 2017
    - Marine and Coastal Access Act 2009
    - Wildlife and Countryside Act 1981
    - Countryside and Rights of Way Act 2000
    - North West Inshore Fisheries and Conservation Authority byelaws

33. Further information and guidance that may help in implementing the policy include:
    - Statutory conservation advice packages for marine protected areas 0-12nm (Natural England)
    - Statutory conservation advice packages for marine protected areas 12-200nm (Joint Nature Conservation Committee)
    - Joint Nature Conservation Committee Marine Protected Area mapper

34. MIS layers:
    - European Marine Sites & Ramsars
    - Marine Conservation Zones
    - Sites of Special Scientific Interest
    - Habitats Directive Annex 1 features
    - Seabird density

Policy drafting template – NW-MPA-2

HLMO	Living within environmental limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted. Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Species	**Code**	NW-MPA-2

Policy

NW-MPA-2

Proposals that enhance a marine protected area's ability to adapt to climate change, enhancing the resilience of the marine protected area network will be supported. Proposals that may have adverse impacts on an individual marine protected area's ability to adapt to the effects of climate change and so reduce the resilience of the marine protected area network, must demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate adverse impacts.

What are marine protected areas?

1. Marine protected areas are areas of the sea protected by law for nature conservation purposes. They protect geological features and habitats and species on the sea bed, in the water column, on the sea surface or in the air above.

2. Marine protected areas in the north west marine plan areas include:
    - Ramsar Sites – wetlands of international importance
    - Special Protection Areas (including proposed sites) – rare, vulnerable or threatened birds
    - Special Areas of Conservation (including candidate sites and Sites of Community Importance) – habitats and species in need of conservation
    - Marine Conservation Zones (including recommended sites) – geological features, habitats and species typical of UK waters
    - Sites of Special Scientific Interest – geological features, flora and fauna of special interest

3. Ramsar Sites, Special Protection Areas and Special Areas of Conservation are designated and protected under the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017. Marine Conservation Zones are designated and protected under the Marine and Coastal Access Act 2009. Sites of Special Scientific Interest are designated and protected under the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000.

4. For Special Protection Areas and Special Areas of Conservation, areas outside the designated area that are important to features for which a site has been designated

are also protected, for example birds that are protected by a Special Protection Area are also protected when they are outside the boundary of the site.

What is resilience and the ability to adapt to climate change?

5. Resilience is defined in guidance by the Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic as "the ability of an ecosystem to recover from disturbances within a reasonable timeframe". A resilient ecosystem can absorb, resist or recover from damage and disturbance caused by human activities and natural change, including climate change, and continues to provide ecosystem services. They are more likely to recover from or withstand environmental fluctuations and unexpected events, and can potentially replenish other damaged populations.

6. Responding to the effects of climate change requires global action. This policy highlights the importance of adaptive management for the protection of habitats and species, and protects the integrity of the marine protected area network design principles. The design principles of the marine protected area network as laid out in the Joint Administration Statement promote the resilience of marine ecosystems through:
    - inclusion of replicates of representative habitats within the network
    - connectivity between sites
    - ensuring sites are of a viable size
    - effective protection of features

7. It is too early to determine if the network in its current state is sufficient to achieve full resilience, for example sites may be too far apart for some species depending on their dispersal strategies. Adaptive management is essential to help mitigate the effects of climate change and to maintain the coherence of the marine protected area network in the north west marine plan areas.

Where in the north west marine plan areas are marine protected areas affected by climate change?

8. Up to date information on the location of marine protected areas in the north west marine plan areas can be found on the Joint Nature Conservation Committee Marine Protected Area mapper which is an interactive resource containing information on the marine protected areas designated in UK waters. The network of marine protected areas is likely to change over the period of this plan and the most up to date information should be used when applying this policy.

9. Conservation advice packages and Information on the condition of marine protected areas, including those affected by climate change, is provided by Natural England for inshore marine protected areas within 12nm through the Designated Sites View. The Joint Nature Conservation Committee provides conservation advice and condition information for marine protected areas between 12-200nm through the Site Information Centres. Conservation advice packages include statutory advice on the qualifying features of a site and their conservation objectives, including advice on seasonality of mobile features. They advise how to further the conservation objectives, and they identify activities that are capable of affecting the qualifying features and the processes they depend upon.

10. Coastal habitats including sand dunes, saltmarsh, sandflats, mudflats, shingle beaches and maritime cliffs are particularly sensitive to the effects of climate change and can be found throughout the north west inshore marine plan area. They experience changes in rainfall, temperature, storminess and wave energy, but also habitat loss due to erosion and sea-level rise. These habitats support a rich assemblage of marine species and rely on natural sediment supply and transport to maintain their natural, dynamic state.

11. The Marine Climate Change Impacts Partnership reports that natural sea defence provided by sand dunes, saltmarsh and shingle in the inshore north west marine area may face increasing erosional pressure due to sea level rise and an increase in storm events.

12. Coastal habitats can, and do, adapt to change, but an increase in coastal flood and erosion events in the inshore north west marine plan area has led to a reliance on coastal protection assets. Where fixed landward assets prevent habitat migration or 'roll back', habitat loss is likely to occur due to coastal squeeze. Fixed structures within the marine area can also create barriers to species movement.

13. The north west marine plan areas support internationally significant populations of breeding and overwintering seabirds. The Marine Climate Change Impacts Partnership 2017 Report Card states that the breeding success of seabirds are strongly linked to temperature rises and changes in fish prey populations such as sandeels. Short term weather events such as severe summer storms are also having a severe negative effect on the breeding performance of some species. It is predicted that there will be a continuing shift northwards in habitat suitability and prey availability for many species over the coming century.

14. Evidence of long-term shifts in the distribution and abundance of marine species due to higher temperatures is now discernible (UK Climate Change Risk Assessment 2017). These shifts are expected to continue and become more widespread, with some species potentially benefiting, but others losing suitable space.

When should this policy be applied?

15. NW-MPA-2 applies year round and throughout the lifetime of the North West Marine Plan.

16. Marine protected areas in the north west marine plan areas are already being affected by climate change (Sustainability Appraisal Scoping Report for the North West Marine Plans). Seabird breeding populations increased in the UK over the last century, but breeding success has declined over the same period. The Marine Climate Change Impacts Partnership considers climate change to be the main driver of this decline. Coastal erosion is already effecting much of the shoreline throughout the inshore north west marine plan area, while much of the shoreline remains protected with defence work or artificial beaches (Marine Climate Change Impacts Partnership). Climate change will continue to affect marine protected areas in the north west marine plan areas over the long-term. Due to the time lag in the climate system, even with the most ambitious mitigation efforts, we are likely to experience further climate change over the coming decades.

Why are resilient marine protected areas important to the north west marine plan areas?

17. The loss of coastal habitats can impact the integrity of an individual marine protected area and the local ecosystem, but it can also impact the ecological coherence of the wider network, especially if the design principles of the network are compromised. This is particularly relevant for sensitive habitats that are not formally protected but which may need to be designated in the future to maintain the coherence of the network. Habitat loss could also have a direct impact on the species that rely on the habitat.

18. In addition to protecting internationally significant marine biodiversity, marine protected areas in the north west marine plan areas provide natural capital assets and ecosystem services that offer social and economic benefits. Seagrass and saltmarsh habitat absorbs carbon from the atmosphere, dunes, rocky reefs and sand and mudflats offer natural coastal protection, while the rich diversity of wildlife and natural beauty of marine protected areas in the north west marine plan areas offer inspiring places to live, work and visit.

19. As stated in the Joint Administration Statement, linking the marine protected areas in the north west marine plan areas 'together in an ecologically coherent network, supported by wider environmental management measures will achieve benefits more effectively than individual marine protected areas can alone.'

20. Marine protected areas in the north west marine plan areas play a significant role in achieving the UK government's vision for clean, healthy, safe, productive and biologically diverse oceans and seas. They contribute to targets in the United Nations Convention on Biological Diversity to protect 10% of the world's coastal and marine areas by 2020, and are part of the UK programme of measures to achieve 'Good Environmental Status' in UK waters under the Marine Strategy Regulations 2010. These commitments are reinforced in the UK Marine Policy Statement through a commitment to 'complete an ecologically coherent network as part of a broad based approach to nature conservation' (3.1.2). Marine plans should build in sufficient flexibility to take account of climate change impacts, for example by 'changing or moving current uses/spatial allocations, or safeguarding areas for future uses' (2.6.7.8).

21. The National Planning Policy Framework includes commitments to enhance the natural environment by 'minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures' (para.170(d)). The 25 Year Environment Plan from the Department for Environment, Food and Rural Affairs commits to increasing the proportion of protected and well-managed seas, and better management of existing protected sites.

22. Adapting to the effects of climate change is promoted through the Department for Environment, Food and Rural Affairs National flood and coastal erosion risk management strategy for England and the Climate Change Act 2008.

Who is this of interest to?

23. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

24. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

25. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning
    - land and water management
    - waste management
    - access management
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

26. This policy applies to marine protected areas throughout the north west marine plan areas and any areas required to support the adaptation of marine protected areas to the effects of climate change.

27. Public authorities will support proposals that enhance the ability of a marine protected area to adapt to the effects of climate change where it complies with other policies in this plan and relevant legislation.

28. Proposals that enhance the ability of a marine protected area to adapt to the effects of climate change should include information demonstrating how this will be achieved. Enhancement refers to measures taken which have a positive impact. An example of enhancement could include the removal of hard coastal defence structures in favour of soft engineering which enables habitat roll back.

29. Where positive impacts have been identified, proposals must also assess adverse impacts in line with relevant legislation. Enhancement is not a substitute for avoidance, minimisation or mitigation measures.

30. Proposals must still comply with requirements under relevant legislation including the Conservation of Habitats and Species Regulations 2017, the Conservation of Offshore Marine Habitats and Species Regulations 2017, the Marine and Coastal Access Act 2009, Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, and other national legislation.

31. Proposals that may have adverse impacts on the ability of a marine protected area to adapt to the effects of climate change must demonstrate that they will, in order of preference, avoid, minimise or mitigate these impacts. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a), and so on. If these criteria cannot be met it will only be authorised if there are relevant considerations in line with the Marine and Coastal Access Act Section 58(2)).

32. Adaptation could be recovery (where impact has occurred), opportunity for habitat migration if necessary (for example due to sea level rise) or amendment to site

boundaries in response to climate driven range shifts which is enabled through policy NW-MPA-3.

33. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

34. Where proposals cannot avoid, minimise or mitigate adverse impact but are in the public interest, they must state the case for proceeding with details of how compensation of equal environmental benefit will be achieved.

35. Public authorities must consider and account for adaptation in the face of potential impacts from climate change. Public authorities must also take into account other relevant projects, programmes and plans, and matters including those outlined in the Marine Policy Statement 2.6.8.

36. The Marine Policy Statement (2.6.7.5) sets out that decisions on and proposals for marine and coastal developments should take account of climate change projections. There are a number of sources of advice available, including the Climate Change Risk Assessment, UK Climate Projections and Marine Climate Change Impact Partnership reports.

37. For Special Areas of Conservation and Special Protection Areas the impact can be considered in the determination of 'likely significant effect' and subsequent appropriate assessment if required.

Signposting

38. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Conservation of Habitats and Species Regulations 2017
    - Conservation of Offshore Marine Habitats and Species Regulations 2017
    - Marine and Coastal Access Act 2009
    - Wildlife and Countryside Act 1981
    - Countryside and Rights of Way Act 2000
    - Coastal Change Management Areas
    - National flood and coastal erosion risk management strategy for England
    - Climate Change Act 2008

39. Further information and guidance that may help in implementing the policy include:
    - Statutory conservation advice packages for marine protected areas 0-12nm (Natural England)
    - Statutory conservation advice packages for marine protected areas 12-200nm (Joint Nature Conservation Committee)
    - Joint Nature Conservation Committee Marine Protected Area mapper
    - UK Climate Change Risk Assessment
    - UK Climate Projections (UKCP18)
    - Marine Climate Change Impacts Partnership
    - Shoreline Management Plans

40. MIS layers:
    - European Marine Sites & Ramsars

- Marine Conservation Zones
- Sites of Special Scientific Interest
- Habitats Directive Annex 1 features

Policy drafting template – NW-MPA-3

HLMO	Living Within Environmental Limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Marine Protected Areas 'B'	**Code**	NW-MPA-3

Policy

NW-MPA-3
Where statutory advice states that a marine protected area site condition is deteriorating or that features are moving or changing due to climate change, a suitable boundary change to ensure continued protection of the site and coherence of the overall network should be considered.

What are marine protected areas?

1. Marine protected areas are areas of the sea protected by law for nature conservation purposes. They protect geological features and habitats and species on the sea bed, in the water column, on the sea surface or in the air above.

2. Marine protected areas in the north west marine plan areas include:
    - Ramsar Sites – wetlands of international importance
    - Special Protection Areas (including proposed sites) – rare, vulnerable or threatened birds
    - Special Areas of Conservation (including candidate sites and Sites of Community Importance) – habitats and species in need of conservation
    - Marine Conservation Zones (including recommended sites) – geological features, habitats and species typical of UK waters
    - Sites of Special Scientific Interest – geological features, flora and fauna of special interest

3. Ramsar Sites, Special Protection Areas and Special Areas of Conservation are designated and protected under the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017. Marine Conservation Zones are designated and protected under the Marine and Coastal Access Act 2009. Sites of Special Scientific Interest are designated and protected under the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000.

4. For Special Protection Areas and Special Areas of Conservation, areas outside the designated area that are important to features for which a site has been designated are also protected.

What is site condition?

5. Site condition is the condition of the qualifying features of a marine protected area. Condition may be reported as favourable (maintained or recovered), unfavourable (recovering, no change or declining), or destroyed (partially or completely). Site condition is monitored by statutory nature conservation bodies who provide advice to government and other public authorities in relation to marine protected areas. The most up-to-date information on site condition for marine protected areas in the north

west inshore marine plan area can be found on the Designated Sites View. Condition for sites in the north west offshore marine plan area can be found through the Site Information Centres.

6. Climate change can affect and impact the condition of site features, particularly if the ability of habitats and species to shift their ranges in response to climate change is limited by human activities. The loss or movement of features from a site, or a decline in their condition due to climate change, may result in unfavourable condition. Boundary changes are an important consideration for adaptive management to maintain the integrity of the site.

Where in the north west marine plan areas is site condition affected by climate change?

7. Up to date information on the location of marine protected areas in the north west marine plan areas can be found on the Joint Nature Conservation Committee Marine Protected Area mapper which is an interactive resource containing information on the marine protected areas designated in UK waters. The network of marine protected areas is likely to change over the period of this plan and the most up to date information should be used when applying this policy.

8. Conservation advice packages and Information on the condition of marine protected areas, including those affected by climate change, is provided by Natural England for inshore marine protected areas within 12nm through the Designated Sites View. The Joint Nature Conservation Committee provides conservation advice and condition information for marine protected areas between 12-200nm through the Site Information Centres. Conservation advice packages include statutory advice on the qualifying features of a site and their conservation objectives, including advice on seasonality of mobile features. They advise how to further the conservation objectives, and they identify activities that are capable of affecting the qualifying features and the processes they depend upon.

When should this policy be applied?

9. NW-MPA-3 applies throughout the entire north west marine plan areas. The policy applies when the Department for Environment, Food and Rural Affairs accepts statutory advice (based on condition assessments) from the statutory nature conservation bodies that a boundary change is required to ensure the continued protection of site features if they have altered as a result of climate change. Advice may include deselection of an existing site and selection of a replacement site.

10. Climate change will continue to affect marine protected areas in the north west marine plan areas over the long-term. Due to the time lag in the climate system, even with the most ambitious mitigation efforts, we are likely to experience further climate change over the coming decades. Evidence of long-term shifts in the distribution and abundance of marine species due to higher temperatures is now discernible (UK Climate Change Risk Assessment 2017). These shifts are expected to continue and become more widespread, with some species potentially benefiting, but others losing suitable space.

Why is a flexible management approach for marine protected area boundaries in response to climate change important to the north west marine plan areas?

11. There is a high number of overlapping marine protected areas in the north west marine plan areas. A change in the natural range of habitats and species will likely result in the displacement of another habitat or species which may also be a protected feature. The number of overlapping sites, many of which are large with extensive boundaries, means marine protected areas in the north west marine plan areas are particularly susceptible to feature migration or loss caused by climate change.

12. Coastal habitats are particularly vulnerable. Coastal squeeze resulting in loss of intertidal habitats and species, including birds, may affect the extent or quality of protected sites and/or the features for which they have been designated. This may require new compensatory habitat to be created and/or designated in coastal areas.

13. Site condition monitoring is important to understand how the condition of a marine protected area and its qualifying features are changing over time and to inform adaptive management.

14. The UK Marine Policy Statement states that marine plans should build in "sufficient flexibility to take account of climate change impacts, for example by introducing appropriate criteria for selection or de-selection of protected marine areas, seeking the advice of statutory advisors, changing or moving current uses/spatial allocations, or safeguarding areas for future uses" (2.6.7.8). Marine plans will endeavour to achieve this but will not seek to duplicate existing regimes, for example, the role of the Department for Environment Food and Rural Affairs in designating marine protected areas.

Who is this of interest to?

15. The statutory nature conservation bodies monitor and assess the condition of marine protected areas and they should clearly state when the condition of a feature is changing or deteriorating due to climate change. This policy should also be considered when recommending and designating new marine protected areas to ensure that boundaries allow for adaptive management if necessary.

16. The Department for Environment, Food and Rural Affairs should consider this policy when designating, amending or de-selecting marine protected areas.

17. Public authorities who manage and regulate the placement of hard constraints (for example coastal defences) in the marine area may also need to consider the future need for adaptive management in line with policy NW-MPA-2.

How should this policy be applied?

18. This policy applies to marine protected areas throughout the north west marine plan areas and any areas required to support the adaptation of marine protected areas to the effects of climate change.

19. One aspect of managing a marine protected area is enabling the features for which a site is designated to adapt to climate change, for example through a boundary change or even a new site location. It is important to raise the potential for such changes as the process of identifying, designating and providing conservation advice for sites is still underway.

20. The statutory nature conservation bodies will flag condition assessments which show that a protected feature has changed its location due to a shift in range, or an increase or decrease in its extent, abundance or assemblage. If climate change is found to be the causing factor, a suitable boundary change should be considered. A boundary change will not be supported where the condition of a site has deteriorated due to pressures from human activities, as this should be addressed through revised site management measures.

21. Where it is not possible to alter a site boundary due to hard constraints (for example a sea wall), public authorities should consider actions to remove barriers where possible to enable the features of the site to adapt. It will be necessary to consult relevant Shoreline Management Plans.

22. In certain cases the removal of barriers will not be possible due to their usage as flood and coastal erosion protection. This policy supports use of soft defences in preference to hard defences where coastal defence is necessary. Soft defences enable boundary changes should the need occur through condition assessments. Further consideration regarding the removal of barriers to enable range shifts and boundary changes to occur should be applied in light of policy NW-CC-3.

23. This policy focuses on deterioration of site condition and the potential future requirement for suitable boundary changes. This should be considered alongside policy NW-MPA-2 which details the consideration required to ensure individual marine protected areas have the ability to adapt to climate change.

Signposting

24. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Conservation of Habitats and Species Regulations 2017
    - Conservation of Offshore Marine Habitats and Species Regulations 2017
    - Marine and Coastal Access Act 2009
    - Wildlife and Countryside Act 1981
    - Countryside and Rights of Way Act 2000

25. Further information and guidance that may help in implementing the policy include:
    - Statutory conservation advice packages for marine protected areas 0-12nm (Natural England)
    - Statutory conservation advice packages for marine protected areas 12-200nm (Joint Nature Conservation Committee)
    - Joint Nature Conservation Committee Marine Protected Area mapper
    - Cell 1 Shoreline Management Plans

26. MIS layers:
    - European Marine Sites & Ramsars
    - Marine Conservation Zones
    - Sites of Special Scientific Interest
    - Habitats Directive Annex 1 features

Policy drafting template – NW-MPA-4

HLMO	Living Within Environmental Limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Marine Protected Areas 'B'	**Code**	NW- MPA-4

Policy

NW- MPA-4
Until the ecological coherence of the marine protected area network is confirmed, proposals should demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate adverse impacts on features that may be required to complete the network, d) if it is not possible to mitigate adverse impacts, proposals should state the case for proceeding.

What is a marine protected area network features?

1. Marine protected area network features are those habitats, species, ecological processes, geological or geomorphological features listed as requiring protection and enhancement through the designation of a marine protected area.

2. The government is committed to completing an ecologically coherent network of marine protected areas to contribute towards commitments under the Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic and requirements of the Marine Policy Statement (3.1.2). This aim is supported by targets in the Department for Environment, Food and Rural Affairs 25 Year Environment Plan to increase the proportion of protected and well-managed seas, and better manage existing protected sites.

3. To support the development of the marine protected area network as described in the Marine and Coastal Access Act (Section 123(2)) it is important to protect potential locations for further marine protected areas which may be needed to complete the network in the future. Potential features should remain in sufficient condition to merit designation.

4. Ecological coherence of the UK marine protected area network is currently assessed at a bio-geographical, regional sea scale. Coherence within UK Secretary of State covered waters has been assessed by the statutory nature conservation bodies and potential gaps in the network have been identified in advice to the Department for Environment, Food and Rural Affairs.

Where are potential marine protected area network features in the north west marine plan areas?

5. This policy concentrates on areas beyond protected sites that may need to be designated in the future. The Joint Nature Conservation Committee Marine Protected Area mapper is an interactive resource containing information on the marine protected areas designated in UK waters. The network of marine protected areas is likely to change over the period of this plan and the most up to date information should be used when applying this policy.

6. The potential features to consider when applying policy NW-MPA-4 are restricted to Features of Conservation Importance identified by the Joint Nature Conservation Committee listed in the Ecological Network Guidance, Annex 1 habitats, habitats and species included in the Natural Environment and Rural Communities Act Section 41 list, and the Oslo/Paris Convention List of Threatened and/or Declining Species and Habitats. The best available evidence with advice from the statutory nature conservation bodies for the location of these features within the north west marine plan areas should be used when applying this policy.

7. The north west marine plan areas are recognised for supporting internationally significant habitats and populations of marine life. While much of the plan areas are protected with marine protected areas, large areas remain undesignated. Coastal habitats are particularly vulnerable to habitat loss due to coastal squeeze and other effects of climate change which could have a direct impact on protected species that rely on these areas. This is particularly relevant for sensitive habitats that are not formally protected but important to the coherence of the network, and/or may be needed to fill gaps in the network in the future.

When should this policy be applied?

8. NW-MPA-4 applies year round and throughout the lifetime of the North West Marine Plan, or until the network as described in the Marine and Coastal Access Act (Section 123(2)) is complete, thereby completing the government's contribution towards an ecologically coherent network.

9. There are limited temporal considerations when considering the location of potential marine protected area network features in the north west marine plan areas. Geological features and habitats are generally present year round with limited to no seasonality. Mobile species, such as birds, seals and cetaceans, follow predictable seasonal patterns.

Why are potential marine protected area network features important to the north west marine plan areas?

10. Marine protected areas in the north west marine plan areas are an important tool for protecting biodiversity, ecosystem services and natural capital assets, and to prevent habitat loss. They benefit rare, vulnerable and threatened habitats and species, as well as those typical to UK waters. They support the local economy, provide opportunities for research, health and well-being, and provide inspirational places to live, work and visit.

11. As stated in the Joint Administration Statement, linking the marine protected areas in the north west marine plan areas 'together in an ecologically coherent network, supported by wider environmental management measures will achieve benefits more effectively than individual marine protected areas can alone.'

12. Protecting a representative range of features that are connected and replicated in more than one site are principles of an ecologically coherent network. The marine protected areas in the north west marine plan areas play a significant role in achieving the UK government's vision for clean, healthy, safe, productive and biologically diverse oceans and seas. They contribute to targets in the United Nations Convention on Biological Diversity to protect 10% of the world's coastal and marine areas by 2020, and are part of the Marine Strategy Part Three: UK

programme of measures to achieve Good Environmental Status in UK waters under the Marine Strategy Regulations 2010, particularly for Descriptior 1 – biodiversity and Descriptor 6 – seafloor integrity. These commitments are reinforced in the Marine Policy Statement through a commitment to 'complete an ecologically coherent network as part of a broad based approach to nature conservation' (3.1.2).
The Marine Policy Statement (3.1.7) also highlights the aim to halt biodiversity loss and the potential to identify additional areas for future designation to complete the network as described in the Marine and Coastal Access Act (Section 123(2)).
The National Planning Policy Framework includes commitments to promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species (174(b)). The 25 Year Environment Plan from the Department for Environment, Food and Rural Affairs commits to increasing the proportion of protected and well-managed seas, and better management of existing protected sites.

Who is this of interest to?

13. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

14. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

15. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning
    - land and water management
    - waste management
    - access management
    - flood and erosion risk management
    - fisheries management

How should this policy be applied?

16. This policy applies throughout the north west marine plan areas.

17. As highlighted in policy NW-MPA-1, considering an ecologically coherent network in decision-making is yet to be agreed. Until such time, characteristics of a marine protected area network have been set out in the marine conservation zone consultation document. It highlights the need to consider wider network coherence in addition to considering the objectives of individual sites. This is based on principles agreed by the UK.

18. Until the network as described in the Marine and Coastal Access Act (Section 123(2)) is complete, thereby completing the government's contribution towards an ecologically coherent network, proposals should demonstrate, in order of preference, that they will avoid, minimise or mitigate adverse impacts on features that may need to be included in the future - proposals cannot proceed to (b) unless they have first

demonstrated why they cannot meet (a) etc. This aligns with requirements set out in the Marine Policy Statement (2.3.1.2). When the network is complete, proposals will no longer be required to demonstrate compliance with S-MPA-4, but should be aware of broader biodiversity requirements under NW-BIO-1. Proposals should take note of the following paragraphs to understand what public authorities will consider when assessing proposals.

19. Until the network is complete, when assessing proposals public authorities should apply precaution within an overall risk-based approach, taking account of the best available evidence and with regard to advice from the statutory nature conservation bodies. Decision-making should be reasonable and proportionate, with a focus on features that are more sensitive to pressures (for example affects from climate change). Concentrating on these will allow easier assessment of where more immediate action is needed to complete the network.

20. When assessing proposals, public authorities should consider Features of Conservation Importance listed in the Ecological Network Guidance, Annex 1 habitats, habitats and species included in the Natural Environment and Rural Communities Act Section 41 list, and the Oslo/Paris Convention List of Threatened and/or Declining Species and Habitats The Natural Environment and Rural Communities Act (Section 41), requires the Secretary of State to publish a list of habitats and species of principal importance for the conservation of biodiversity in England.

21. Public authorities should also use the Section 41 list to identify which habitats and species should be given priority when applying NW-BIO-1, and the requirements of section 15 of the National Planning Policy Framework to create, protect, enhance and manage networks of biodiversity.

22. Public authorities should consider cumulative impacts arising from multiple proposals on the potential future inclusion of features within the marine protected area network.

23. Where it is not possible to mitigate significant adverse impacts, proposals should state the case for proceeding, including how the proposal supports the North West Marine Plan vision and other plan policies. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

24. Public authorities should have regard to this policy when carrying out functions capable of effecting the north west marine plan areas. The Section 41 list should be used to guide public authorities in implementing their duty under the Natural Environment and Rural Communities Act (Section 40), to have regard to the conservation of biodiversity in England when carrying out their functions.

Signposting

25. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Ecological Network Guidance
    - Annex 1 habitats
    - Section 41 list

- OSPAR list of Threatened and/or Declining Species and Habitats
- Conservation of Habitats and Species Regulations 2017
- Offshore Marine Conservation Regulations (amendment) 2007
- Marine and Coastal Access Act 2009
- Natural Environment and Rural Communities Act 2006
- UK Marine Strategy Part Three: UK programme of measures
- Marine Strategy Regulations 2010
  National Planning Policy Framework
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017
- Environmental Assessment of Plans and Programmes Regulations 2004

26. Further information and guidance that may help in implementing the policy include:
    - Joint Nature Conservation Committee Marine Protected Area mapper

27. MIS Layers:
    - European Marine Sites & Ramsars
    - Marine Conservation Zones
    - Sites of Special Scientific Interest
    - Habitats Directive Annex 1 features
    - Species of Conservation Importance (FOCI)
    - Habitats of Conservation Importance (HOCI)
    - Broadscale Habitats

Policy drafting template – NW-MPA-6

HLMO	Living Within Environmental Limits	**Sub bullet(s)**	Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
Grouping	Marine Protected Areas 'D'	**Code**	NW-MPA-6

Policy

NW-MPA-6
Proposals must demonstrate that they will, in order of preference:
a) avoid
b) minimise
c) mitigate significant adverse impacts on designated geodiversity

What is designated geodiversity?

1. Geodiversity is the term used to describe the variety of landforms, rocks, minerals, fossils, soils and natural processes that underlie and determine the character of our landscape and seascape. The UK's rich geodiversity tells the story of Earth's complicated past, providing evidence of past life and environmental conditions stretching back over 2,800 million years. The UK's changing coastline provides an unparalleled slice through our geodiversity as the action of the sea and waves continuously exposes new rocks and sediments.

2. There is an intimate relationship between geodiversity and biodiversity. Geodiversity and the way it influences landscapes, sediments and climate is fundamental to the distribution of habitats and species, for example, intertidal rocky shores and subtidal sands and gravels each support their own unique assemblages of marine plants and animals.

3. Geodiversity receives statutory protection in the English marine area through the designation and protection of:
    - Sites of Special Scientific Interest under the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000
    - Marine Conservation Zones under the Marine and Coastal Access Act 2009
    - National Parks under the National Parks and Access to the Countryside Act 1949 and Areas of Outstanding Natural Beauty under the Countryside and Rights of Way Act 2000.

4. Non-statutory conservation of geodiversity is provided through the designation and protection of Regionally Important Geological/Geomorphological Sites. These sites are designated through local site selection procedures and are considered the most important places in the UK for Earth science outside of the statutory sites. Heritage Coast designations are another non-statutory landscape designation that may include important geodiversity.

Where are designated geodiversity sites in the north west marine plan areas?

5. Cumbria Geoconservation provides information about important geological features on the Cumbria coast, and a Geodiversity Action Plan for the area outlines the principle aims and objectives for Cumbria's geodiversity. The Lancashire

Geodiversity Action plan discusses some of the geological history in the area, and further information is provided by the GeoLancashire Group.

6. The Geological Conservation Review Series is a public record of over 3,000 Sites of Special Scientific Interest that represent the range of geomorphological features in Britain. The Geological Conservation Database is an inventory of each site and contains basic information and some full site reports. The information is administered by the Joint Nature Conservation Committee who also provide a UK map of Geological Conservation Review Sites.

7. The Designated Sites View provides information, including conservation objectives, on Sites of Special Scientific Interest and Marine Conservation Zones and the activities that are likely to cause damage. The Site of Special Scientific Interest Impact Risk Zone and Marine Conservation Zone data provides information to carry out an initial assessment of potential risks posed by a proposal.

When should this policy be applied?

8. NW-MPA-6 applies year round and throughout the lifetime of the North West Marine Plan. Geodiversity in the north west marine plan areas has formed over millions of years and natural change happens slowly over long timescales. There are no specific seasonality or temporal considerations that need to be considered for geological features throughout the north west marine plan areas.

Why is geodiversity important to the north west marine plan areas?

9. For its size, the UK is regarded as one of the most geodiverse places in the world. The practice of Earth science was developed in the UK and many periods of geological time were first defined and named here. The north west inshore marine is significant for the Island of Walney, the largest barrier island in England. During the post-glacial period significant sand dune systems were also formed in this area as a result of the distribution of glacial material along the coast.

10. Geodiversity is finite and sensitive to change. Understanding and valuing geodiversity is critical to understanding the planet and how the decisions made influence the future of our environment. Geodiversity in the north west marine plan areas has an important role to play in ensuring that the natural environment continues to provide important ecosystem services.

11. Geodiversity supports our economy and influences where we live. Its sustainable use is critical to the future well-being of our environment and for the ecosystem services that it provides. Our geological past can be used to predict changes in our environment, offering insights into climate change and how it might affect our lives. Minerals and aggregates are a major economic resource. Protected landscapes are valued for tourism, while coastal processes influenced by geodiversity can provide natural protection from flood and coastal erosion, such as the sand dune systems in the north west inshore marine plan area. Geodiversity provides a wide range of habitats that in turn support a rich assemblage of marine life, including coastal cliffs which support thousands of seabirds throughout the north east inshore marine plan area.

12. The Marine Policy Statement states “development should aim to avoid harm to marine ecology, biodiversity and geological conservation interests (including geological and morphological features), including through location, mitigation and

consideration of reasonable alternatives" (2.6.1.3). Also, that "development proposals may provide, where appropriate, opportunities for building-in beneficial features for marine ecology, biodiversity and geodiversity as part of good design" (2.6.1.4).

13. The National Planning Policy Framework states that "Planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils" (170).

14. The UK Geodiversity Action Plan provides an agreed framework for geodiversity action across the UK. Objective 6 seeks "to conserve and manage our geodiversity through appropriate recognition at international, national and local levels." Objective 7 seeks "to maintain and enhance our geodiversity through the management of sites, areas and wider landscapes."

Who is this of interest to?

15. This policy applies to any organisation or individual putting forward a proposal including, but not restricted to, those applying for an authorisation. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

16. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

17. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Such functions include but are not limited to:
    - strategic planning, including aggregate and minerals planning
    - flood and erosion risk management
    - access management
    - fisheries management
    - byelaw development for Sites of Special Scientific Interest - National Parks and authorities that manage National Nature Reserves have powers to develop byelaws to protect Sites of Special Scientific Interest within their jurisdiction under Section 28R of the Wildlife and Countryside Act 1981

How should this policy be applied?

18. This policy applies to all statutory and non-statutory designated geodiversity sites throughout the north west marine plan areas.

19. Proposals that have significant adverse impacts on geological features of Sites of Special Scientific Interest, Marine Conservation Zones or Regionally Important Geological Sites must demonstrate that they have, in order of preference, avoided, minimised or mitigated such impacts in accordance with statutory monitoring requirements, such as Marine Conservation Zone Assessment, Sites of Special Scientific Interest Assessment, and the conservation objectives set out by the statutory nature conservation bodies. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a), and so on.

Inclusion of this information does not indicate that approval of the proposal will follow by default. Approval will also depend on other material considerations taken into account by the decision-maker which may include, for example, other plans.

20. Consideration of impacts to geodiversity sites should also be undertaken at a strategic level, addressed through mechanisms such as:
    - Environmental Impact Assessments
    - Regional environmental assessments, eg marine aggregate regional environmental assessments
    - Strategic Environmental Assessments

Signposting

21. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Sites of Special Scientific Interest byelaws
    - UK Geodiversity Action Plan
    - Geodiversity Action Plan
    - Lancashire Geodiversity Action plan
    - Wildlife and Countryside Act 1981
    - Countryside and Rights of Way Act 2000
    - Marine and Coastal Access Act 2009
    - National Parks and Access to the Countryside Act 1949

22. Further information and guidance that may help in implementing the policy include:
    - UK map of Geological Conservation Review Sites
    - Geological Conservation Review Series
    - Geological Conservation Database
    - British Geological Society Geology of Britain Maps
    - Marine Protected Area Mapper
    - Designated Sites View
    - SSSI Impact Risk Zone and Marine Conservation Zone data

Plan area	North West		
Grouping	Invasive Non-Natives		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Our oceans support viable populations of representative, rare, vulnerable, and valued species.		
Other relevant policies	NW-BIO-1 NW-CC-5		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-NIS-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Invasive non-native species	**Code**	NW-NIS-1

Policy

NW-NIS-1
Proposals that reduce the risk of spread and/or introduction of non-native invasive species within the north west marine plan areas and adjacent plan areas should be supported.

Proposals must put in place appropriate measures to avoid or minimise significant adverse impacts that would arise through the introduction and transport of non-native species, particularly when: 1) moving equipment, boats or livestock (for example fish or shellfish) from one water body to another 2) introducing structures suitable for settlement of non-native invasive species, or the spread of non-native invasive species known to exist in the area.

What are non-native and non-native invasive species?

1. Non-native (sometimes referred to as non-indigenous) species are those introduced outside of their natural past or present distribution which might survive and subsequently reproduce. In many cases non-native species do not cause harm to the local environment or economy. The Great Britain Non-Native Species Secretariat describes non-native invasive species as any non-native species that has the ability to spread, causing damage to the environment, economy, human health or the way we live.

2. Non-native species can become 'invasive' when they cause significant adverse impacts. For example, the Leathery sea squirt (*Styela clava*) is established from the Clyde in Scotland around the coast of England as far as the Humber on the east coast. It attaches to solid surfaces in shallow water, especially in harbours and marinas, but also on wrecks and natural rock. It can smother oysters and mussels and compete for food, and it can foul boat hulls, buoys, moorings, ropes and harbour and marina infrastructure. Highly invasive species often reproduce quickly, can adapt quickly to a broad range of situations (water quality, food availability), have a diverse gene pool, and/or are associated with human activities.

3. The North Western Inshore Fisheries and Conservation Authority Biosecurity Plan reports the following marine non-native invasive species in the north west inshore marine plan area:
    - Acorn barnacle *Elminius modestus*
    - Chinese mitten crab *Eriocheir sinensis*
    - Common cord grass *Spartina anglica*
    - Green sea fingers *Codium fragile*
    - Japanese skeleton shrimp *Caprella mutica*

- Leathery sea squirt *Styela clava*
- Orange tipped sea-squirt *Corella eumyota*
- Pacific oyster *Crassostrea gigas*
- Tube worm *Ficopomatus enigmaticus*
- Wakame *Undaria pinnatifida*
- Wireweed *Sargassum muticum*

4. There may be a different assemblage of species present in other parts of the north west marine plan areas, or species yet to be discovered and recorded. The assemblage and geographical range of species may change over the period covered by this plan. Looking at areas beyond the north west marine plan areas can provide an idea of the species that may become a problem in the future. The most up to date evidence should be used when applying this policy. The National Biodiversity Network Atlas aggregates data from multiple sources and shows were species have been recorded in the UK.

5. High-risk species that may move into the north west marine plan areas in the future are identified in the North Western Inshore Fisheries and Conservation Authority Biosecurity Plan and in the Solway Firth Partnership report on marine invasive species in the Solway. They are high risk due to their proximity and include:
    - Slipper limpet *Crepidula fornicata*
    - Carpet sea squirt *Didemnum vexillum*
    - Asian shore crab *Hemigrapsus sanguineus*
    - Killer shrimp *Dikerogammarus villosus*
    - Zebra mussel *Dreissena polymorpha*

Where in the north west marine plan areas are non-native invasive species likely to establish?

6. The distribution of many non-native invasive species is currently limited by water temperature (Marine Climate Change Impacts Partnership: Science Review), but species are spreading and becoming established through a combination of climate change, migration and human introduction. The semi-enclosed nature of the Irish Sea and proximity to other marine plan areas makes the north west marine plan areas particularly vulnerable to the introduction of new species.

7. Non-native invasive species are most likely to establish in areas where activities known to spread and/or introduce invasive species occur. Such activities are referred to as pathways of spread and introduction. High risk pathways in the north west marine plan areas include:
    - Commercial and recreational boating (through hull fouling)
    - Trans-shipment through ship ballast water discharge
    - Aquaculture (unintentional escape of species, of conditions become favourable for species establishment)
    - Port, harbour and marina infrastructure (species can colonise structures and equipment)
    - Coastal protection infrastructure (species can colonise structures)
    - Offshore structures (species can colonise structures)
    - Commercial and recreational fishing (fouling of gear and equipment)
    - Recreational water activities (fouling of equipment)
    - Relocation of structures and equipment
    - Marine litter and debris (species attached to floating material)

- Aquariums (escape of plants and animals)
- 'Hitchhiking' of species with goods transported for trade

8. The presence of Chinese mitten crab (*Eriocheir sinensis*) makes estuarine river banks particularly vulnerable due to the burrowing nature of this species. At present there are very few records of the species in the north of the plan area, with most record occurring south of Formby (National Biodiversity Network Atlas, 2018).

9. The Futures Analysis for the North West Marine Plan Area suggests that freight and passenger shipping and offshore structures are the highest risk pathways in the north west marine plan areas due to the high level of these activities compared to other pathways like recreational boating and aquaculture.

10. The ports at Liverpool and Heysham account for majority of the shipping traffic that occurs in the north west marine plan areas. A large proportion of the shipping in this area follows well-defined routes to and from the ports, but vessels engaged in other activities, such as fishing and leisure, tend to navigate more freely within the area.

11. Oil and gas platforms are present throughout the north west marine plan area and provide artificial structures where non-native species can colonise. Offshore wind infrastructure can act in the same way and is also present across the plan areas.

12. Sea angling by boat and shore occurs along the north west coast with particular concentrations around Liverpool Bay, Blackpool, Morecambe and Barrow-in-Furness making. Marinas and slipways are more concentrated between Barrow-in-Furness and Liverpool compared to further north, but the highest levels of recreational boating occur out of Liverpool and Whitehaven.

13. Registered aquaculture businesses in the north west marine plan areas produce Native oyster, Pacific oyster, mussel and Manila clam with the main activity off Morecambe Bay in the area between Fleetwood and Barrow-in-Furness. While aquaculture is present in the plan areas, activity is low compared to other marine plan areas.

14. Aquaculture sites, together with the locations of ports, harbours, marinas and slipways in the north west inshore marine plan area can be found on the Marine Information System. Maps showing recreational and commercial vessel activity are also available, along with areas of current and potential offshore wind, oil and gas activities.

When should this policy be applied?

15. NW-NIS-1 applies year round and throughout the lifetime of the North West Marine Plan. Non-native invasive species are already present in the north west marine plan areas. Due to increasing temperatures associated with climate change and an expected increase in marine activities that are potential pathways for introduction (Futures Analysis for the North West Marine Plan Area) there is a high risk of other invasive species moving into the north west during the twenty year lifetime of the North West Marine Plan. The way in which the policy is applied may therefore change over the lifetime of the plan dependant on the species present.

Why is management of non-native invasive species important in the north west marine plan areas?

16. There is a high risk of non-native invasive species being introduced and spread within the north west marine plan areas over the period covered by the plan due to climate change and an expected increase in high risk pathways. This risk is further exacerbated in the north west marine plan area due to the semi-enclosed nature of the Irish Sea and the close proximity to other marine plan areas. The Invasive Non-Native Species Framework Strategy for Great Britain encourages a stronger sense of shared responsibility across government, key stakeholder organisations, land managers and the general public for actions and behaviours that will reduce the threats posed by non-native invasive species and the impacts they cause.

17. The north west plan area is a major manufacturing base and key area for UK exports which receives a large amount of shipping traffic. The total freight traffic by tonnage handled by ports in the north west was around eleven percent of the total of all ports in England with the majority transported through Liverpool and Heysham (Department for Transport, 2016[1]). There are several international passenger route from Liverpool and numerous commercial shipping routes across the region with international connections. The Port of Barrow is also capable of accommodating large cruise ships. The Superport Project is an integration or port, road, rail and air logistics that will deliver faster, greener global market access for business to and from the northern UK and Ireland via an enlarged deep water container terminal at Liverpool. Increased international shipping could increase the risk of introduction and spread of non-native species.

18. Coastal marina berths in the inshore north west marine plan area represent four percent of all coastal berths in England (British Marine Federation Tourism, 2014[2]). Charter boats for sea fishing represent two percent of the total across England as a whole (Department for Environment, Food and Rural Affairs, 2012[3]). Although the north west marine plan areas have the smallest number of marina berths and sea fishing charter boats of all of the marine plan areas, it does have a relatively high proportion of cruise passengers with sixteen percent of the English total visiting north west ports. The total level of freight and passenger ships and the relatively well-connected nature of the Irish Sea make the north west marine plan areas particularly vulnerable to non-native invasive species.

19. The north west marine plan areas has a high number of offshore structures compared to other marine plan areas due to wind energy generation and oil and gas installations which could be used as 'stepping stones' for the spread of non-native invasive species. Large areas of the north west marine plan areas are also identified as areas of potential for future oil and gas installation and for wind energy generation.

[1] Department for Transport (2016). Port Freight Statistics: 2015 final figures https://www.gov.uk/government/statistics/port-freight-statistics-2015-final-figures

[2] British Marine Federation Tourism (2014). Economic Benefits of UK Boating Tourism https://www.britishmarine.co.uk/Resources/Publications/2014/January/Economic-Benefits-of-UK-Boating-Tourism-2014

[3] Sea Angling 2012 – a survey of recreational sea angling activity and economic value in England http://randd.defra.gov.uk/Document.aspx?Document=12025_SeaAngling2012synthesisreportFINAL.pdf

20. The Futures Analysis for the North West Marine Plan Area suggests that aquaculture production in the north west poses a lower risk lower compared to other marine plan areas based on the expected level of future activity. Although there is potential for expansion of the oyster production sector, this primarily occurs in the south east and south west marine plan areas due to the shorter growing times related to warmer sea temperatures.

21. While the activities above provide high risk pathways for the spread and/or introduction of non-native invasive species, they are also important economic activities for the north west and are promoted through this plan. The risk associated with these activities also makes them particularly vulnerable to the impacts caused by non-native invasive species and highlights the importance of management. Invasive species can have an adverse impact on or outcompete commercially valuable species. They can affect fish and shellfish directly through competition, predation or by bringing disease and parasites, or indirectly by affecting food sources or the availability of habitat. They can also smother vessels and equipment associated with intakes and out falls, marinas, ports, harbours and aquaculture. Control methods, where applied to nuisance species, are fairly ineffective, can be costly, and no non-native marine species has yet been successfully eradicated from British waters.

22. Invasive species can also cause significant adverse impacts on local biodiversity, making ecosystems less resilient to change. Through lack of natural predators, competition for space, food or other factors, non-native species can impact local food webs, replace or prey on native species in the area, or introduce diseases to a local system, to which native species are not resistant. The north west marine plan areas support a diverse range of internationally significant habitats and species which are potentially vulnerable to the introduction of non-native invasive species. An investigation into the impacts of non-native invasive species on marine protected areas found that Morecambe Bay Special Area of Conservation and Morecambe Bay Special Protection Area support a number of habitats that are susceptible to the colonisation of non-native invasive species (Natural England, 2016[4]).

23. The Convention on Biological Diversity acknowledges non-native invasive species as one of the most significant threats to marine biodiversity, especially in light of climate change and increasing global trade, transport and tourism. This threat is recognised by a wide range of international and UK legislation.

24. Due to the difficulties in managing non-native invasive species once they establish in the marine area, the Invasive Non-Native Species Framework Strategy for Great Britain promotes the importance of early prevention. The Convention on Biological Diversity details prevention, detection/surveillance and control/eradication as the three main ways of dealing with invasive species, with prevention given the highest priority. These aims are supported by the Department for Environment, Food and Rural Affairs 25 Year Environment Plan which highlights the importance of early pre-emptive action, and the development of action plans for all high-priority pathways of introduction. The Wildlife and Countryside Act 1981 also includes measures to prevent the spread of non-native species.

[4] Natural England Commissioned Report NECR223 Investigating the Impacts of Marine Invasive Non-Native Species http://publications.naturalengland.org.uk/publication/5091100843311104

25. The Marine Strategy Part Three: UK programme of measures recognises that marine planning will make a positive contribution towards the achievement of Good Environmental Status and has the potential to contribute to all descriptors, including Descriptor 2 – non-indigenous species. Due to the expected increased risk and impacts caused by non-native invasive species policies NW-NIS-1 and NW-NIS-2 will contribute towards the prevention of further introduction and spread caused by human activities.

Who is this of interest to?

26. NW-NIS-1 is of interest to a wide range of public authorities and organisations to ensure shared responsibility and a co-ordinated approach to the management of non-native invasive species[5].

27. NW-NIS-1 applies to any organisation r individual putting forward a proposal including, but not restricted to, those applying for an authorisation or consent. A proposal can be for a new activity or a change to an existing activity that is subject to management by public authorities.

28. Proposals that could potentially reduce the risk of spread and/or introduction of non-native species include, but are not limited to:
    - diversification of aquaculture businesses who decide to cultivate native species rather than non-native species
    - removal or management of non-native invasive species
    - monitoring and surveillance of non-native invasive species
    - installation of facilities to help manage the risk of spread and/or introduction of non-native invasive species, such as cleaning facilities to wash down vessels and water equipment

29. Proposals that could potentially provide high risk pathways for the introduction or spread of non-native invasive species in the north west marine plan areas may be associated with, but are not limited to:
    - recreational boating and watersports
    - angling
    - aquaculture, particularly of species that are not native to the north west marine plan areas and are known to be invasive
    - placement of hard structures that can create 'stepping stones'

30. This policy does not apply to ballast water management which is regulated through the International Maritime Organization International Convention for the Control and Management of Ships' Ballast Water and Sediments. The convention provides a framework to address the issues of ballast water and the spread of non-native species.

31. Public authorities must take any authorisation or enforcement decisions in accordance with this policy. Authorisation and enforcement decisions are defined under Section 58(4) of the Marine and Coastal Access Act 2009.

[5] Invasive Non-Native Species Framework Strategy for Great Britain (2008)

32. Public authorities must also have regard to this policy when exercising any function capable of affecting the north west marine plan areas, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Public authority functions and the prevention of non-native invasive species are addressed by policy NW-NIS-2.

How should this policy be applied?

33. This policy applies throughout the north west marine plan areas. In applying this policy the term adjacent is taken as to be close by, by the side of, or bordering on the marine plan area.

34. Public authorities should support proposals that reduce the risk of spread and/or introduction of non-native species within the north west marine plan areas and adjacent plan areas where they comply with other policies in this plan and other relevant legislation.

35. Proposals that reduce the risk of spread and/or introduction of non-native species should include information demonstrating how this will be achieved.

36. Proposals related to high risk pathways must demonstrate how they will avoid or minimise significant adverse impacts on the marine area from the introduction and transport of non-native species, or the spread of non-native invasive species known to exist in the area. This should be achieved through improved management of high risk pathways and the development of action plans.

37. Examples of how to avoid or minimise the risk of introduction, transportation and/or spread of non-native invasive species include, but are not limited to:
    - biosecurity action planning, implementation and monitoring during the operational stages of a proposal
    - providing freshwater wash-down facilities in new marinas, clubs and training centres with appropriate training facilities
    - maintaining boat hulls clear of fouling organisms, particularly when moving to and from different areas
    - cleaning boats and equipment (for example. aquaculture cages, fouled buoys and lines) before transporting them from one water body to another
    - cleaning and drying recreational gear (for example dive and fishing gear) after use minimising the amount of vessel traffic to offshore platforms
    - using power wash or brush systems for in-water cleaning if boats are not regularly moved. In-water cleaning which results in a deposit will require a separate Marine Licence

38. The UK Marine Pathways Project has developed guidance and best practice to reduce the risk of introduction and spread of non-native invasive species, and a number of training tools on biosecurity planning. Marine Biosecurity Planning Guidance for Wales and England (Natural England and Natural Resources Wales 2015) also provides guidance on writing of biosecurity plans.

39. Proposals are required to be in compliance with relevant legislation and regulations including the Aquatic Animal Health (England and Wales) Regulations, Marine and Coastal Access Act, Water Environment Regulations Assessment, Habitats

Regulations Assessment, Environmental Impact Assessment, the Ballast Water Management Convention and National Policy Statements where they apply.

40. Public authorities must assess new proposals for measures to avoid or minimise significant adverse impacts on the marine area from the introduction and transport of non-native species, or the spread of non-native invasive species known to exist in the area.

41. Monitoring and management of non-native invasive species in the north west marine plan areas poses significant challenges due to the different ways in which species are introduced and spread. Public authorities should use the best available evidence and apply the precautionary principle as a way of approaching decision making in the absence of full scientific certainty in line with the Convention on Biological Diversity Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that threaten Ecosystems, Habitats or Species.

42. Proposals considered under NW-BIO-1 which incorporate features that enhance or facilitate natural habitat and species adaptation, migration and connectivity must comply with policy NW-NIS-1.

Signposting

43. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - International Convention for the Control and Management of Ships' Ballast Water and Sediments
    - Aquatic Animal Health (England and Wales) Regulations
    - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - Invasive Non-Native Species Framework Strategy for Great Britain
    - Marine Strategy Part Three: UK programme of measures
    - Check, Clean Dry campaign
    - North Western Inshore Fisheries and Conservation Authority Biosecurity Plan
    - Solway Firth Partnership report on marine invasive species in the Solway

44. Further information and guidance that may help in implementing the policy include:
    - Marine Biosecurity Planning guidance and tools
    - Clearing the Waters for All
    - Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that threaten Ecosystems, Habitats or Species
    - Biosecurity guidance for ribs, sports boats and outboard engines
    - Biosecurity for boat and kayak users

Policy drafting template – NW-NIS-2

HLMO	Living within environmental limits	**Sub bullet(s)**	Our oceans support viable populations of representative, rare, vulnerable, and valued species.
Grouping	Invasive non-native species	**Code**	NW-NIS-2

Policy

NW-NIS-2
Public authorities with functions to manage activities that could potentially introduce, transport or spread non-native invasive species in the north west marine plan areas should implement adequate biosecurity measures to avoid or minimise the risk of introducing, transporting or spreading non-native invasive species.

What are non-native and non-native invasive species?

1. Non-native (sometimes referred to as non-indigenous) species are those introduced outside of their natural past or present distribution which might survive and subsequently reproduce. In many cases non-native species do not cause harm to the local environment or economy. The Great Britain Non-Native Species Secretariat describes non-native invasive species as any non-native species that has the ability to spread, causing damage to the environment, economy, human health or the way we live. Non-native species can become 'invasive' when they cause significant adverse impacts. For example, the Leathery sea squirt (*Styela clava*) is established from the Clyde in Scotland around the coast of England as far as the Humber on the east coast. It attaches to solid surfaces in shallow water, especially in harbours and marinas, but also on wrecks and natural rock. It can smother oysters and mussels and compete for food, and it can foul boat hulls, buoys, moorings, ropes and harbour and marina infrastructure. Highly invasive species often reproduce quickly, can adapt quickly to a broad range of situations (water quality, food availability), have a diverse gene pool, and/or are associated with human activities.

2. The North Western Inshore Fisheries and Conservation Authority Biosecurity Plan reports the following marine non-native invasive species in the north west inshore marine plan area:
    - Acorn barnacle *Elminius modestus*
    - Chinese mitten crab *Eriocheir sinensis*
    - Common cord grass *Spartina anglica*
    - Green sea fingers *Codium fragile*
    - Japanese skeleton shrimp *Caprella mutica*
    - Leathery sea squirt *Styela clava*
    - Orange tipped sea-squirt *Corella eumyota*
    - Pacific oyster *Crassostrea gigas*
    - Tube worm *Ficopomatus enigmaticus*
    - Wakame *Undaria pinnatifida*
    - Wireweed *Sargassum muticum*

3. There may be a different assemblage of species present in other parts of the north west marine plan areas, or species yet to be discovered and recorded. The assemblage and geographical range of species may change over the period covered by this plan. Looking at areas beyond the north west marine plan areas can provide an idea of the species that may become a problem in the future. The most up to date evidence should be used when applying this policy. The National Biodiversity Network Atlas aggregates data from multiple sources and shows were species have been recorded in the UK.

4. High-risk species that may move into the north west marine plan areas in the future are identified in the North Western Inshore Fisheries and Conservation Authority Biosecurity Plan and in the Solway Firth Partnership report on marine invasive species in the Solway. They are high risk due to their proximity and include:
    - Slipper limpet *Crepidula fornicata*
    - Carpet sea squirt *Didemnum vexillum*
    - Asian shore crab *Hemigrapsus sanguineus*
    - Killer shrimp *Dikerogammarus villosus*
    - Zebra mussel *Dreissena polymorpha*

Where in the north west marine plan areas are non-native invasive species likely to establish?

5. The distribution of many non-native invasive species is currently limited by water temperature (Marine Climate Change Impacts Partnership: Science Review), but species are spreading and becoming established through a combination of climate change, migration and human introduction. The semi-enclosed nature of the Irish Sea and proximity to other marine plan areas makes the north west marine plan areas particularly vulnerable to the introduction of new species.

6. Non-native invasive species are most likely to establish in areas where activities known to spread and/or introduce invasive species occur. Such activities are referred to as pathways of spread and introduction. High risk pathways in the north west marine plan areas include:
    - Commercial and recreational boating (through hull fouling)
    - Trans-shipment through ship ballast water discharge
    - Aquaculture (unintentional escape of species, of conditions become favourable for species establishment)
    - Port, harbour and marina infrastructure (species can colonise structures and equipment)
    - Coastal protection infrastructure (species can colonise structures)
    - Offshore structures (species can colonise structures)
    - Commercial and recreational fishing (fouling of gear and equipment)
    - Recreational water activities (fouling of equipment)
    - Relocation of structures and equipment
    - Marine litter and debris (species attached to floating material)
    - Aquariums (escape of plants and animals)
    - ‘Hitchhiking’ of species with goods transported for trade

7. The presence of Chinese mitten crab (*Eriocheir sinensis*) makes estuarine river banks particularly vulnerable due to the burrowing nature of this species. At present there are very few records of the species in the north of the plan area, with most record occurring south of Formby (National Biodiversity Network Atlas, 2018).

8. The Futures Analysis for the North West Marine Plan Area suggests that freight and passenger shipping and offshore structures are the highest risk pathways in the north west marine plan areas due to the high level of these activities compared to other pathways like recreational boating and aquaculture.

9. The ports at Liverpool and Heysham account for majority of the shipping traffic that occurs in the north west marine plan areas. A large proportion of the shipping in this area follows well-defined routes to and from the ports, but vessels engaged in other activities, such as fishing and leisure, tend to navigate more freely within the area.

10. Oil and gas platforms are present throughout the north west marine plan area and provide artificial structures where non-native species can colonise. Offshore wind infrastructure can act in the same way and is also present across the plan areas.

11. Sea angling by boat and shore occurs along the north west coast with particular concentrations around Liverpool Bay, Blackpool, Morecambe and Barrow-in-Furness making. Marinas and slipways are more concentrated between Barrow-in-Furness and Liverpool compared to further north, but the highest levels of recreational boating occur out of Liverpool and Whitehaven.

12. Aquaculture businesses in the north west marine plan areas produce Native oyster, Pacific oyster, mussel and Manila clam with the main activity off Morecambe Bay in the area between Fleetwood and Barrow-in-Furness. While aquaculture is present in the plan areas, activity is low compared to other marine plan areas.

13. Registered aquaculture sites, together with the locations of ports, harbours, marinas and slipways in the north west inshore marine plan area can be found on the Marine Information System. Maps showing recreational and commercial vessel activity are also available, along with areas of current and potential offshore wind, oil and gas activities.

When should this policy be applied?

14. NW-NIS-2 applies year round and throughout the lifetime of the North West Marine Plan. Non-native invasive species are already present in the north west marine plan areas. Due to increasing temperatures associated with climate change and an expected increase in marine activities that are potential pathways for introduction (Futures Analysis for the North West Marine Plan Area) there is a high risk of other invasive species moving into the north west during the twenty year lifetime of the North West Marine Plan. The way in which the policy is applied may therefore change over the lifetime of the plan dependant on the species present.

Why is management of non-native invasive species important in the north west marine plan areas?

15. There is a high risk of non-native invasive species being introduced and spread within the north west marine plan areas over the period covered by the plan due to climate change and an expected increase in high risk pathways. This risk is further exacerbated in the north west marine plan area due to the semi-enclosed nature of the Irish Sea and the close proximity to other marine plan areas. The Invasive Non-Native Species Framework Strategy for Great Britain encourages a stronger sense of shared responsibility across government, key stakeholder organisations, land managers and the general public for actions and behaviours that will reduce the threats posed by non-native invasive species and the impacts they cause.

16. The north west plan area is a major manufacturing base and key area for UK exports which receives a large amount of shipping traffic. The total freight traffic by tonnage handled by ports in the north west was around 11% of the total of all ports in England with the majority transported through Liverpool and Heysham (Department for Transport, 2016[1]). There are several international passenger route from Liverpool and numerous commercial shipping routes across the region with international connections. The Port of Barrow is also capable of accommodating large cruise ships. The Superport Project is an integration or port, road, rail and air logistics that will deliver faster, greener global market access for business to and from the northern UK and Ireland via an enlarged deep water container terminal at Liverpool. Increased international shipping could increase the risk of introduction and spread of non-native species.

17. Coastal marina berths in the inshore north west marine plan area represent 4% of all coastal berths in England (British Marine Federation Tourism, 2014[2]). Charter boats for sea fishing represent 2% of the total across England as a whole (Department for Environment, Food and Rural Affairs, 2012[3]). Although the north west marine plan areas have the smallest number of marina berths and sea fishing charter boats of all of the marine plan areas, it does have a relatively high proportion of cruise passengers with 16% of the English total visiting north west ports. The total level of freight and passenger ships and the relatively well-connected nature of the Irish Sea make the north west marine plan areas particularly vulnerable to non-native invasive species.

18. The north west marine plan areas has a high number of offshore structures compared to other marine plan areas due to wind energy generation and oil and gas installations which could be used as 'stepping stones' for the spread of non-native invasive species. Large areas of the north west marine plan areas are also identified as areas of potential for future oil and gas installation and for wind energy generation.

19. The Futures Analysis for the North West Marine Plan Area suggests that aquaculture production in the north west poses a lower risk lower compared to other marine plan areas based on the expected level of future activity. Although there is potential for expansion of the oyster production sector, this primarily occurs in the south east and south west marine plan areas due to the shorter growing times related to warmer sea temperatures.

20. While the activities above provide high risk pathways for the spread and/or introduction of non-native invasive species, they are also important economic activities for the north west and are promoted through this plan. The risk associated with these activities also makes them particularly vulnerable to the impacts caused by non-native invasive species and highlights the importance of management. Invasive species can have an adverse impact on or outcompete commercially valuable species. They can affect fish and shellfish directly through competition,

[1] Department for Transport (2016). Port Freight Statistics: 2015 final figures https://www.gov.uk/government/statistics/port-freight-statistics-2015-final-figures

[2] British Marine Federation Tourism (2014). Economic Benefits of UK Boating Tourism https://www.britishmarine.co.uk/Resources/Publications/2014/January/Economic-Benefits-of-UK-Boating-Tourism-2014

[3] Sea Angling 2012 – a survey of recreational sea angling activity and economic value in England http://randd.defra.gov.uk/Document.aspx?Document=12025_SeaAngling2012synthesisreportFINAL.pdf

predation or by bringing disease and parasites, or indirectly by affecting food sources or the availability of habitat. They can also smother vessels and equipment associated with intakes and out falls, marinas, ports, harbours and aquaculture. Control methods, where applied to nuisance species, are fairly ineffective, can be costly, and no non-native marine species has yet been successfully eradicated from British waters.

21. Invasive species can also cause significant adverse impacts on local biodiversity, making ecosystems less resilient to change. Through lack of natural predators, competition for space, food or other factors, non-native species can impact local food webs, replace or prey on native species in the area, or introduce diseases to a local system, to which native species are not resistant. The north west marine plan areas support a diverse range of internationally significant habitats and species which are potentially vulnerable to the introduction of non-native invasive species. An investigation into the impacts of non-native invasive species on marine protected areas found that Morecambe Bay Special Area of Conservation and Morecambe Bay Special Protection Area support a number of habitats that are susceptible to the colonisation of non-native invasive species (Natural England, 2016[4]).

22. The Convention on Biological Diversity acknowledges non-native invasive species as one of the most significant threats to marine biodiversity, especially in light of climate change and increasing global trade, transport and tourism. This threat is recognised by a wide range of international and UK legislation.

23. Due to the difficulties in managing non-native invasive species once they establish in the marine area, the Invasive Non-Native Species Framework Strategy for Great Britain promotes the importance of early prevention. The Convention on Biological Diversity details prevention, detection/surveillance and control/eradication as the three main ways of dealing with invasive species, with prevention given the highest priority. These aims are supported by the Department for Environment, Food and Rural Affairs 25 Year Environment Plan which highlights the importance of early pre-emptive action, and the development of action plans for all high-priority pathways of introduction. The Wildlife and Countryside Act 1981 also includes measures to prevent the spread of non-native species.

24. The Marine Strategy Part Three: UK programme of measures recognises that marine planning will make a positive contribution towards the achievement of Good Environmental Status and has the potential to contribute to all descriptors, including Descriptor 2 – non-indigenous species. Due to the expected increased risk and impacts caused by non-native invasive species policies NW-NIS-1 and NW-NIS-2 will contribute towards the prevention of further introduction and spread caused by human activities.

Who is this of interest to?

25. NW-NIS-2 is of interest to a wide range of public authorities and organisations to ensure shared responsibility and a co-ordinated approach to the management of non-native invasive species[5].

[4] Natural England Commissioned Report NECR223 Investigating the Impacts of Marine Invasive Non-Native Species http://publications.naturalengland.org.uk/publication/5091100843311104

[5] Invasive Non-Native Species Framework Strategy for Great Britain (2008)

26. Public authorities must have regard to this policy when exercising any function capable of affecting the north west marine plan area, but which are separate from authorisation and enforcement decisions (Section 58(3) of the Marine and Coastal Access Act 2009). Decisions related to authorisations and enforcement and non-native invasive species are addressed by policy NW-NIS-1.

27. Public authority functions related to the management of activities that could potentially introduce and/or spread non-native species include but are not limited to:
    - strategic planning
    - land management
    - aquaculture regulation and monitoring
    - coastal protection
    - access management
    - provision and management of commercial and recreational boating infrastructure and equipment, including for watersports and angling
    - ballast water transfer

28. This policy does not apply to ballast water management which is regulated through the International Maritime Organization International Convention for the Control and Management of Ships' Ballast Water and Sediments. The convention provides a framework to address the issues of ballast water and the spread of non-native species.

How should this policy be applied?

29. This policy applies throughout the north west marine plan area to public authorities that manage activities known to spread and/or introduce non-native invasive species but which are not managed through formal authorisations or consents.

30. Public authorities with functions to manage activities associated with high risk pathways, particularly activities within ports, harbours, marinas, slipways and offshore installations, are encouraged to raise awareness of non-native invasive species prevention amongst users. Public authorities responsible for offshore installations must also have regard to this policy. This should include awareness of the potential for artificial structures to become platforms or 'stepping stones' that can facilitate the settlement or spread of non-native species, and the potential risks from moving equipment between water bodies. Measures can also include the promotion of codes of conduct such as the Check, Clean Dry campaign for recreational anglers and boat users, or the development of biosecurity management plans and monitoring.

31. Authorities responsible for shoreline management should also be aware of the risks posed by the placement of hard structures on the coastline and build in adequate biosecurity measures during strategic planning. Biosecurity measures associated with individual coastal protection schemes are addressed by policy NW-NIS-1.

32. The UK Marine Pathways Project has developed guidance and best practice to reduce the risk of introduction and spread of non-native invasive species, and a number of training tools on biosecurity planning. Marine Biosecurity Planning Guidance for Wales and England (Natural England and Natural Resources Wales 2015) has been produced to guide the writing of biosecurity plans.

33. Monitoring and management of non-native invasive species can be challenging due to the different ways in which species are introduced and spread. The Convention on Biological Diversity Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that threaten Ecosystems, Habitats or Species discuss the precautionary principle as a way of approaching decision making in the absence of full scientific certainty.

34. Public authorities should apply this policy to functions that are capable of effecting adjacent marine plan areas due to the transboundary nature of non-native invasive species.

Signposting

35. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - International Convention for the Control and Management of Ships' Ballast Water and Sediments
    - Aquatic Animal Health (England and Wales) Regulations
    - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - Invasive Non-Native Species Framework Strategy for Great Britain
    - Marine Strategy Part Three: UK programme of measures
    - Check, Clean Dry campaign
    - North Western Inshore Fisheries and Conservation Authority Biosecurity Plan
    - Solway Firth Partnership report on marine invasive species in the Solway

36. Further information and guidance that may help in implementing the policy include:
    - Marine Biosecurity Planning guidance and tools
    - Clearing the Waters for All
    - Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that threaten Ecosystems, Habitats or Species
    - Biosecurity guidance for ribs, sports boats and outboard engines
    - Biosecurity for boat and kayak users

Plan area	North West		
Grouping	Underwater noise		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.		
Other relevant policies	NW-DIST-1 NW-DIST-3 NW-CE-1 NW-CE-2		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-UWN-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Disturbance	**Code**	NW-UWN-1

Policy

NW-UWN-1
Proposals generating impulsive sound must contribute data to the UK Marine Noise Registry as per any currently agreed requirements. Public authorities must take account of any currently agreed targets under the UK Marine Strategy part one descriptor 11.

What is impulsive sound?

1. All marine activities introduce sound into the marine environment to a greater or lesser extent during construction, operation or decommissioning. Underwater noise occurs either as non-impulsive noise (including shipping propulsion, operational vibrational noise, induced turbulence) or as impulsive noise (discrete impulsive sounds including explosives, seismic surveys or construction piling).

2. There are natural sources of impulsive and non-impulsive sound in the marine environment, such as communication by marine fauna, lightning and wave action, but growing human use has increased background, non-impulsive noise levels over the last 50 years. While impulsive sound has also increased, less is known about its temporal and spatial distribution and the magnitude of trends.

3. Noise is often used to describe unwanted anthropogenic sound, however, for the purposes of this plan, sound and noise are deemed to have the same meaning and therefore are used interchangeably.

Where does underwater noise occur in the north west marine plan areas?

4. There are current oil and gas awarded licensing blocks throughout both the inshore and offshore marine plan areas, this means that there is an increased likelihood of seismic surveys being undertaken to explore the geology of the seabed. The offshore area features large military exercise and practice areas run by the Ministry of Defence which have the potential to cause underwater noise through, for example, detonation of explosives. Offshore wind resource areas are distributed throughout the inshore and offshore areas indicating the potential for development in the future. Offshore energy projects often involve geophysical surveys, piling and detonation of unexploded ordnance which emit impulsive noise. There is also the potential for port and harbour development along the north west coast within the inshore plan area. The north west marine plan areas have some of significant shipping traffic activity,

ferry routes across the Irish Sea,alongside noise caused by other activities such as dredging and piling for offshore developments.

When does underwater noise take place in north west marine plan areas?

5. Much of the development is along the coastline and there is little seasonality to impulsive noise from construction. Offshore construction is often restricted by sea state and sensitive periods for over wintering birds, therefore, construction occurs mainly in summer months. This policy applies for any impulsive noise occurring year-round within the north west marine plan areas.

Why is contributing to the underwater noise registry important in the north west marine plan areas?

6. Underwater noise resulting from activities and developments can have adverse impacts on marine life and is a growing concern. Chronic noise disturbance has the potential to result in long-term negative impacts particularly for highly mobile species including fish, birds, marine mammals and turtles.[1] Ambient noise impacts may include masking communication, disruption of navigational ability, impaired hunting ability and disorientation. At higher levels, noise may change behaviour resulting in avoidance of areas including important feeding and breeding areas or present chronic stress. Impulsive sounds may also cause temporary or permanent hearing damage to individuals and at high intensities can result in death.

7. The noise registry aims to monitor man-made impulsive noise to quantify the pressure on the environment by making available an overview of relevant impulsive sound sources, throughout the year. This in turn will aid in the definition of a baseline level for impulsive noise in UK waters and ensure presures are managed effectively.

8. Marine noise has the potential to mask biologically relevant signals; it can lead to a variety of behavioural reactions, affect hearing organs and injure or even kill marine life (Marine Policy Statement 2.6.3).. Management of noise and its sources can bring additional benefits, for example making the human working environment less dangerous and improving the efficiency, integrity and life of vessels and structures.[2]

9. In UK law the Marine Strategy Regulations (2010) set out the requirements for Good Environmental Status in UK waters. The management of underwater noise is a key component of this. The Government has published a UK Marine Strategy that sets how this will achieve or maintain Good Environmental Status in UK waters. Part 3 of the Marine Strategy (Programme of Measures) recognises that marine planning will make a positive contribution towards the achievement of Good Environmental Status including underwater noise. Regulations to begin toaddressunderwater noise in this way, represents a growing concern over the addition of noise in the marine environment from human activity. Considerable uncertainty exists around the spatial and temporal elements of noise as well as the magnitude of it and resulting impacts.

10. Implementation of this policy will help make sure these collective pressures are considered in line with the UK Marine Strategy and the Marine Strategy Regulations(2010).

[1] As set out in the Marine strategy part three: UK programme of measures

[2] ibid

Who is this of interest to?

11. Government with specific responsibilities include:
    - Department for Environment Food and Rural Affairs
    - Ministry of Housing, Communities and Local Government – local authorities
    - Department for Transport – harbour authorities
    - Department for Business, Energy and Industrial Strategy – oil and gas installations, offshore renewables over 100MW

12. This policy will be of interest to public authorities. This includes authorities that make decisions relating to the sectors and resources mentioned above and decisions on activities that interact with those sectors and resources. This policy also applies to those with a wider interest, for example in taking account of the marine plans in their own planning. Examples include but is not restricted to the Joint Nature Conservation Committee that leads the Marine Noise Registry which supports the UK's implementation of descriptor 11 of the Marine Strategy Regulations 2010.

How should this policy be applied?

13. The UK Marine Strategy outlines the measures that contribute to the achievement and maintenance of good environmental status in UK seas by 2020. It sets a target 'to establish a noise registry' to 'record, assess, and manage the distribution and timing of anthropogenic sound sources'. The contribution of data to the Marine Noise Registry on impulsive noise will help determine current baseline levels of impulsive noise, including providing the spatial and temporal distribution of impulsive noise generating activities.

14. Proposals must provide information to the Marine Noise Registry on the projected noise generated from the proposed activity prior to it taking place. Following the completion of the activity, the actual noise generated, in line with the requirements of the consenting regime under which the proposals are approved, or on a voluntary basis where no consenting process is currently in place. The Marine Noise Registry sets out a simple process for how to do this. For example, it is a condition of the consent issued by the Department for Business, Energy and Industrial Strategy for any geological survey undertaken by the oil, gas and carbon capture and storage sectors that, following completion of the survey, survey logs and a close out report must be submitted and this data informs the Noise Registry.

15. Proposals must define expected noise types, levels and dates, considering all stages of the development.

16. Public authorities must take account of any currently agreed targets under the UK Marine Strategy part one descriptor 11 and ensure any proposals being consented are in line with these targets before providing any authorisation.

17. In examining and determining applications for nationally significant infrastructure projects, examining authorities and the secretary of state for The Ministry of Housing, Communities and Local Government must have regard to this policy for nationally significant infrastructure projects that may have significant adverse impacts on existing landing facilities.

Signposting

18. Existing measures which relate to, and may contribute to the achievement of this policy include:

- Marine and Coastal Access Act 2009
- Planning Act 2008
- National Planning Policy Framework
- UK Marine Policy Statement
- Marine Strategy Part 3: UK programme of measures

19. Further information and guidance that may help in implementing the policy include:
    - Marine Noise Registry
    - Managing underwater noise in European waters (JNCC)

Policy drafting template – NW-UWN-2

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Disturbance	**Code**	NW-UWN-2

Policy

NW-UWN-2
Proposals that generate impulsive or non-impulsive noise must demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate significant adverse impacts on highly mobile species, d) if it is not possible to mitigate significant adverse impacts, proposals must state the case for proceeding.

What is underwater noise?

1. All marine activities introduce sound into the marine environment to a greater or lesser extent during construction, operation or decommissioning. Noise generally refers to anthropogenic sound. Underwater noise occurs either as non-impulsive noise (including ambient noise, shipping propulsion, operational vibrational noise,) or as discrete impulsive sounds (including detonation of explosives, seismic surveys or construction piling).

2. There are natural sources of sound in the marine environment, such as communication between marine fauna, wave action and lightening, but growing human use has increased background non-impulsive noise levels over the last 50 years. While impulsive sound has also increased, less is known about its temporal and spatial distribution and the magnitude of trends.

Where does underwater noise occur in the north west marine plan areas?

3. The north west marine plan areas are home to several ports and harbours which have the potential for maintenance and expansion and therefore increased noise inputs. Coastal construction is likely to involve production of impulsive underwater noise in the inshore area. The north west offshore marine plan area is a hub for offshore energy including some offshore wind farms (for example Robin Rigg and Walney) and oil and gas exploration and licence areas. Such energy projects often involve geophysical surveys, piling and detonation of unexploded ordnance which emit impulsive noise.

When does underwater noise occur in the north west marine plan area?

4. When considering noise in relation to those affected by it, there are seasonal considerations due to migration, spawning and foraging behaviour.

5. Human activity in the north west marine plan area occurs year-round. Tourism and recreation at the coast reaches its peak in the summer months. Marine development

both on and offshore occur year-round and will therefore need to consider their impact to mobile species.

Why are noise impacts on highly mobile speciesimportant to the north west marine plan area?

6. Underwater noise resulting from activities and developments can have adverse impacts on marine life and is a growing concern. Chronic noise disturbance has the potential to result in long-term negative impacts particularly for highly mobile species including fish, birds, marine mammals and turtles.[1] Ambient noise impacts may include masking communication, disruption of navigational ability, impaired hunting ability and disorientation. At higher levels, noise may change behaviour resulting in avoidance of areas including important feeding and breeding areas or present chronic stress. Impulsive sounds may also cause temporary or permanent hearing damage to individuals and at high intensities can result in death.

7. Marine noise has the potential to mask biologically relevant signals; it can lead to a variety of behavioural reactions, affect hearing organs and injure or even kill marine life (Marine Policy Statement 2.6.3). Management of noise and its sources can bring additional benefits, for example making the human working environment less dangerous and improving the efficiency, integrity and life of vessels and structures.

8. In UK law the Marine Strategy Regulations (2010) set out the requirements for Good Environmental Status in UK waters. The management of underwater noise is a key component of this. The Government has published a UK Marine Strategy that sets how this will achieve or maintain Good Environmental Status in UK waters. Part 3 of the Marine Strategy (Programme of Measures) recognises that marine planning will make a positive contribution towards the achievement of Good Environmental Status including underwater noise. The addressing of underwater noise in this way, represents a growing concern over the addition of noise in the marine environment from human activity. Considerable uncertainty exists around the spatial and temporal elements of noise as well as the magnitude of it and resulting impacts. The north west marine plan area is home to busy areas for shipping, coastal and marine development and dredging.

Who is this of interest to?

9. Government with specific responsibilities include:
    - Department for Environment Food and Rural Affairs
    - Ministry of Housing, Communities and Local Government – local authorities
    - Department for Transport – harbour authorities
    - Department for Business, Energy and Industrial Strategy – oil and gas installations, offshore renewables over 100MW

10. This policy will be of interest to public authorities. This includes authorities that make decisions relating to the sectors and resources mentioned above and decisions on activities that interact with those sectors and resources. This policy also applies to those with a wider interest, for example in taking account of the marine plans in their own planning. Examples include but are not restricted to the Environment Agency that leads on the Water quality management; and the Joint Nature Conservation Committee that leads the Marine Noise Registry which supports the UK's implementation of Good Environmental Status in relation to underwater noise.

[1] As set out in the Marine strategy part three: UK programme of measures

How should this policy be applied?

11. Proposals must demonstrate that they will, in order of preference, avoid, minimise or mitigate significant adverse impacts of underwater noise on highly mobile species - proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) throughout the hierarchy.

12. Where it is not possible to mitigate, proposals must state the case for proceeding including how the proposal supports the north west marine plan vision, objectives and other plan policies. Inclusion of this information does not indicate that approval of the proposal will follow by default. That will also depend on other material considerations to be taken into account by the decision-maker which may include, for example, other plans.

13. For impulsive noise, measures could include:
    - avoid – marine mammal observers or passive acoustic monitoring that can stop noise generation while sensitive species are present. Not generating impulsive noise generating during sensitive periods (such as breeding, rearing, hibernation, migration)
    - minimise – eliminating or controlling noise at source, for example using alternative quieter approaches like drilling foundations instead of pilling
    - mitigate – soft start piling allowing sensitive species to avoid the area or attenuation measures, for example bubble curtains or pile collars

14. For non-impulsive noise, these measures could include:
    - avoid – change vessel routing away from sensitive species or areas
    - minimise – design specifications to reduce operational vibration (for example, in vessels or infrastructure) or imposing speed restrictions in sites of sensitivity that reduce noise generated
    - mitigation – use attenuation measures, for example acoustic baffles

15. Proposals and public authorities should use best available evidence and, where knowledge gaps exist, expert judgement.

16. In determining the proposal, public authorities will take account of a range of relevant considerations including compliance with legislation and regulations and potential impacts highlighted in project level assessments. Public authorities should be aware that in some cases noise is used as a mitigation measure for other pressures, for example the use of pingers in in some fisheries to reduce bycatch.

17. Responsibility for regulation of noise resides with the licensing authority. For example the Department for Business, Energy and Industrial Strategy regulate noise associated with oil and gas activities and carbon capture and storage. The Marine Management Organisation regulates noise for marine licences and deemed marine licences including renewable energy.

18. In examining and determining applications for nationally significant infrastructure projects, examining authorities and the secretary of state for The Ministry of Housing, Communities and Local Government must have regard to this policy for nationally significant infrastructure projects that may have significant adverse impacts on existing landing facilities.

Signposting

19. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Marine and Coastal Access Act 2009
    - Planning Act 2008
    - The Marine Strategy Regulations 2010
    - Wildlife and Countryside Act 1981
    - Environmental Protection Act 1990
    - The Environmental Assessment of Plans and Programmes Regulations 2004
    - National Planning Policy Framework
    - UK Marine Policy Statement

20. Further information and guidance that may help in implementing the policy include:
    - JNCC piling guidelines
    - JNCC seismic guidelines
    - Managing underwater noise in European waters (JNCC)
    - Marine noise registry

21. Further information and guidance that may help in implementing the policy includes datasets on the Marine Information System, including, but not limited to:
    - seal density
    - habitats and species
    - seabird density
    - fish habitat

Plan area	North West		
Grouping	Water Quality		
Related High Level Marine Objectives (HLMO).	**Living within environmental limits** Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.		
Other relevant policies	NW-INF-1 NW-CAB-1 NW-AGG-4 NW-DD-1 NW-ML-1 NW-ML-2		
Are these policies consistent across other plan areas?	**NE** ✓	**SE** ✓	**SW** ✓

Policy drafting template – NW-WQ-1

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Water quality	**Code**	NW-WQ-1

Policy

NW-WQ-1
Proposals that may have significant adverse impacts upon water quality, including upon habitats and species beneficial to water quality must demonstrate that they will, in order of preference:
a) avoid
b) minimise
c) mitigate significant adverse impacts

What is water quality?

1. Water quality is a measure of the condition of water and its suitability to sustain a range of uses for both biotic and human benefits. Good water quality is important in meeting the UK government's vision for clean, healthy, safe, productive and biologically diverse seas and oceans (Marine Policy Statement). Water quality in respect of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 is defined by specific biological, physico-chemical and hydromorphological criteria. The objectives of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 to protect and improve water quality, set ambitious environmental goals and actions which are implemented by River Basin Management Plans. This policy seeks to complement these objectives and River Basin Management Plan implementation.

What causes poor water quality in the north west marine plan areas?

Poor water quality refers to the presence of pollutants in water. These pollutants may include oil, sedimentation, sewage, nutrients, heavy metals. Water pollution can come from either diffuse (unlicensed sources) or point sources (regulated sources).

2. In the north west inshore marine plan area there are issues for water pollution from historic contaminants from industrialisation, storm overflows and agricultural run-off in the form of sheep grazing on saltmarsh. Dredging around ports and silting of rivers also causes some concerns regarding suspension of sediments.

3. Water quality is also affected by:
    - physical modifications to water ways
    - changes to the natural flow and level of water
    - negative effects of invasive non-native species
    - resuspension of sediment
    - extreme weather such as drought followed by intense rainfall

- seasonal population variation

4. Developments within the marine area can contribute towards poor water quality. A number of policies in the North West Marine Plan support activities that could have adverse impacts upon water quality including (NW-INF-1, NW-CAB-1, NW-AGG-4, NW-DD-1).

5. The following aspects of any proposal needs to be considered:
    - water body (or bodies) potentially affected, including adjacent water bodies
    - duration of the activity
    - location
    - physical footprint with respect to the water body size
    - scale of impact
    - mitigation measures that could reduce any potentially adverse impact
    - presence of sensitive habitats
    - presence of contaminated sediments

6. The expected increase in the number and diversity of developments and marine users within the north west inshore marine plan area poses additional risk towards meeting Good status for ecological and chemical objectives in accordance with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and Good Environmental Status in accordance with The Marine Strategy Regulations 2010.

Where is water quality important in the north west marine plan areas?

7. Water quality in the north west marine plan area is important in rivers, estuaries and coastal waters. These areas play a vital role in the areas economy through providing essential fish habitats and supporting commercial shell fisheries, whilst providing safe and attractive bathing waters for residents and tourists alike.

8. Water quality faces challenges in many areas of the north west inshore marine plan, notably; run off from agricultural land towards the north of the plan area, in particular from sheep grazing on saltmarsh; diffuse pollution and waste water management from the large catchment areas of Preston and Blackpool. All the above can also be exacerbated by periods of heavy rainfall.

9. The location of the north west marine plan area in the Irish sea and its proximity to Ireland and Wales means as well as being a busy marine plan area, the semi-enclosed nature of the sea means that measures to improve water quality require a coordinated effort between England, Wales, The Republic of Ireland and Northern Ireland.

10. Contaminated sediment from industrialisation in the Mersey catchment requires careful management with regards to future proposals in the area. The north west inshore plan area is more affected by poor water quality than the offshore area due to the proximity to population centres, farmland and storm overflows.

Why is water quality important to the north west marine plan areas?

11. Good water quality is required for shellfish and fish, to protect nutrient sensitive areas and maintain bathing waters. The north west marine plan areas rely on good water quality to support a number of sectors.

12. Aquaculture is a growing sector in the north west, the areas where this is currently supported include:
    - cockles and mussels – Duddon Estuary
    - cockles and mussels - Morcambe Bay
    - razor clams – Leasowe
    - pacific oysters - Morcambe Bay
    - pacific oysters – Solway Firth

13. As well as supporting commercial fishing and aquaculture, good water quality in the north west is also important for the increasing tourism industry. Blackpool and the Lake District attract the most coastal tourism in the area.

14. There are two River Basin Management Plan areas within the inshore north west marine plan area; Dee River Basin district (Natural Resources Wales) and North West River Basin district. Through these river basin management plans the Environment Agency maintain, review and keep an up to date register of the protected areas of water lying within each district. These include;
    - drinking water protected areas
    - shellfish waters (commercial shellfish harvesting)
    - bodies of water designated as recreational waters
    - nutrient sensitive areas
    - areas designated for the protection of habitats or species where water quality is an important factor in their protection

15. The North West River Basin district covers approximately 13,200km^2. It extends from Cumbria in the north and includes parts of Staffordshire to the south, parts of North Yorkshire in the east and Merseyside to the west.

16. In total, nearly 7 million people live and work in the North West and the district includes large urban areas such as Liverpool and Manchester.
    The North West river basin district has a rich diversity of wildlife and habitats, supporting many species of global and national importance. These include migratory salmon rivers with native white clawed crayfish and pearl mussel populations and lakes containing the Arctic char and the rare vendace.

17. The Dee River Basin district is home to over 500,000 people and covers an area of 2,251 square kilometres of North East Wales, Cheshire, Shropshire and the Wirral. The district consists of a single river basin; the River Dee, its tributaries and estuary.

18. The River Basin District is characterised by a varied landscape. It ranges from the mountains and lakes of the Snowdonia National Park in the upper part of the basin, through the Vale of Llangollen in the middle reaches, to the open plains of Cheshire and the mudflats of the Dee Estuary in the lower basin.

19. As a cross border River Basin District, responsibility for planning the future of the Dee River Basin District is shared jointly between Natural Resources Wales and the Environment Agency.

20. Water quality at areas recognised as bathing waters is important to human health. The Environment Agency classifies designated bathing waters to help people to

decide where is safe to swim. Using the Environment Agency classification The Blue Flag and Seaside awards by Keep Britain Tidy also inform the public about well managed beaches with good water quality. There are approximately only 26 beaches in the south east plan area that have 'designated bathing waters' and currently no blue flag beaches. The North West has the highest proportion of inshore waters categorised as poor ecological water quality (Bathing water statistics).

Who is this of interest to?

21. Any applicants preparing proposals that may have significant adverse impacts upon water quality, including upon habitats and species beneficial to water quality, in the north west marine plan areas.

22. The environmental objectives summarised within River Basin Management Plans are legally binding under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. All public bodies must have regard to these objectives when making decisions that could affect the quality of the water environment. Including decision-making public authorities such as:
    - Marine Management Organisation
    - Environment Agency
    - Local planning authorities
    - Marine licensing authorities
    - Ports and Harbour authorities
    - The Planning Inspectorate
    - The Crown Estate
    - Inshore Fisheries and Conservation Authorities
    - Maritime and Coastguard Agency

How should this policy be applied?

23. All water bodies, including estuarine (transitional waters) up to 1 nautical mile from shore are protected under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 which requires that the licensed project or activity does not 'cause or contribute to deterioration in water body status' or 'jeopardise the water body achieving good status'.

24. Application of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 is enacted through River Basin Management Plans and the catchment based approach through catchment partnerships, as well as current water company controls and regulations. Other regulations should be taken into consideration, when appropriate, such as Nitrate Vulnerable Zones.

25. Proposals should demonstrate they have considered any effects the proposal may have upon water quality or habitats and species beneficial to water quality in the catchment area. The Catchment data explorer can be used to identify which water body your activity is in and any linked water bodies it could affect. See also NW-WQ-2 for habitats and species beneficial to water quality.

26. Using guidance called Clearing the Waters for All applicants can assess the impact of the proposal on estuarine (transitional) and coastal waters for the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. This assessment helps applicants and regulators to understand:

- the impact your activity may have on the immediate water body and any linked water bodies
- whether your activity complies with the river basin management plan (RBMP)

27. Proposals may be required to undertake a relevant assessment as required by Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 as part of obtaining regulatory consent for their activity. Being exempt from the need to undertake an assessment does not exempt proposals from policy NW-WQ-1.

28. Contaminated sediment from industrialisation in the Mersey catchment requires careful management with regards to future proposals in the area including the requirement to test sediment as part of licence conditions.

29. Similarly, although a (Water Framework Directive) Assessment can contribute to demonstrating compliance with these policies, there may be impacts outside of the requirements of Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 that still need to be addressed to demonstrate compliance with policies NW-WQ-1.

30. Proposals should demonstrate how they will avoid, minimise, or mitigate significant adverse impacts upon water quality, or habitats and species beneficial to water quality during the construction period and throughout the lifetime of the proposal. Proposals cannot proceed to (b) unless they have first demonstrated why they cannot meet (a) etc.

31. The North West Marine Plan builds on existing measures, consistent with the Marine Policy Statement (2.5.13) and addresses water quality issues through ensuring proposals and public authorities consider impacts on water quality, including habitats and species that provide water filtration, nutrient assimilation and hazardous chemical sequestration services, and look for opportunities to improve water quality. The plan policies are not restricted to the inshore marine plan area as there is the potential for offshore sources to affect inshore water quality.

32. Examples of how to avoid, minimise or mitigate significant adverse impacts include but are not limited to:
    - avoid – identify and avoid siting proposals at locations where adverse impacts might occur, ensuring outputs of proposal do not indirectly impact these locations
    - minimise - limiting the overall development footprint or the amount of time activities that disturb sediments occurs
    - mitigation - using bioremediation around infrastructure (such as mussel ropes or microalga mats) or creating compensatory habitat

33. Proposals and activities, such as recreation, not covered by the Clearing the Waters for all guidance have the potential to adversely impact water quality. Other guidance for such activities includes The Maritime and Coastguard Agency's Pleasure Vessels – UK Regulations, and the Royal Yachting Association's 'The Green Blue' guidance on sewage and waste. Such impacts may be managed locally by byelaws.

Signposting

34. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - River Basin Management Plans
    - Clearing the Waters for All guidance on how to assess the impact of your activity in estuarine (transitional) and coastal waters for Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - Catchment data explorer to identify which water body your activity is in and any linked water bodies it could affect

35. Further information and guidance that may help in implementing the policy include:
    - Marine Management Organisation's Environmental Remediation to Improve Water Quality report
    - Nitrate Vulnerable Zones
    - Catchment based approach
    - Diffuse pollution - The unseen threat to water quality

Policy drafting template – NW-WQ-2

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Water quality	**Code**	NW-WQ-2

Policy

NW-WQ-2
Proposals delivering improvements to water quality, or enhancing habitats and species which can be of benefit to water quality should be supported.

What is water quality?

1. Water quality is a measure of the condition of water and its suitability to sustain a range of uses for both biotic and human benefits. Good water quality is important in meeting the UK government's vision for clean, healthy, safe, productive and biologically diverse seas and oceans (Marine Policy Statement). Water quality in respect of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 is defined by specific biological, physico-chemical and hydromorphological criteria. The objectives of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 to protect and improve water quality, and set ambitious environmental goals and actions are implemented by River Basin Management Plans. This policy seeks to complement these objectives and River Basin Management Plan implementation.

What causes poor water quality in the north west marine plan areas?

2. Poor water quality refers to the presence of pollutants in water. These pollutants may include oil, sedimentation, sewage, nutrients, heavy metals. Water pollution can come from either diffuse (unlicensed sources) or point sources (regulated sources). In the north west inshore marine plan area there are issues for water pollution from historic contaminants from industrialisation, storm overflows and agricultural run-off in the form of sheep grazing on saltmarsh. Dredging around ports and silting of rivers also causes some concerns regarding suspension of sediments.

3. Water quality is also affected by:
    - physical modifications to water ways
    - changes to the natural flow and level of water
    - negative effects of invasive non-native species
    - resuspension of sediment
    - extreme weather such as drought followed by intense rainfall
    - seasonal population variation

4. Developments within the marine area can contribute towards poor water quality. A number of policies in the North West Marine Plan support activities that could have adverse impacts upon water quality including (NW-INF-1, NW-CAB-1, NW-AGG-4, NW-DD-1).

5. The following aspects of any proposal needs to be considered:
    - water body (or bodies) potentially affected, including adjacent water bodies
    - duration of the activity
    - location
    - physical footprint with respect to the water body size
    - scale of impact
    - mitigation measures that could reduce any potentially adverse impact
    - presence of sensitive habitats
    - presence of contaminated sediments

6. The expected increase in the number and diversity of developments and marine users within the north west inshore marine plan area poses additional risk towards meeting Good status for ecological and chemical objectives in accordance with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and Good Environmental Status in accordance with The Marine Strategy Regulations 2010

Where is water quality important in the north west marine plan areas?

7. Water quality faces challenges in many areas of the north west inshore marine plan, notably; run off from agricultural land towards the north of the plan area, in particular from sheep grazing on saltmarsh; diffuse pollution and waste water management from the large catchment areas of Preston and Blackpool. All the above can also be exacerbated by periods of heavy rainfall.

8. The location of the north west marine plan area in the Irish sea and its proximity to Ireland and Wales means as well as being a busy marine plan area, the semi-enclosed nature of the sea means that measures to improve water quality require a coordinated effort between England, Wales, The Republic of Ireland, Northern Ireland, the Isle of Man and Scotland.

9. Contaminated sediment from industrialisation in the Mersey catchment requires careful management with regards to future proposals in the area. The north west inshore plan area is more affected by poor water quality than the offshore area due to the proximity to population centres, farmland and storm overflows.

Why is water quality important to the north west marine plan areas?

10. Good water quality is required for shellfish and fish, to protect nutrient sensitive areas and maintain bathing waters. The north west marine plan areas rely on good water quality to support a number of sectors.

11. Aquaculture is a growing sector in the north west, the areas where this is currently supported include:
    - cockles and mussels Duddon Estuary
    - cockles and mussels Morcambe Bay
    - razor clams Leasowe
    - pacific oysters Morcambe Bay

- pacific oysters Solway Firth

12. As well as supporting commercial fishing and aquaculture, good water quality in the north west is also important for the increasing tourism industry. Blackpool and the Lake District attract the most coastal tourism in the area.

What improves water quality in the north west marine plan areas?

13. Water filtration, nutrient assimilation and hazardous chemical sequestration are ecosystem services essential to achieving and maintaining a long term improvement in water quality. Ecosystem services can be defined as 'the benefits provided by ecosystems that contribute to making human life both possible and worth living' (UK National Ecosystem Assessment).

14. Coastal saltmarsh habitats, reed beds and intertidal mudflats aid in reducing turbidity and sedimentation and in the longer term can remove through isolation hazardous chemicals and nutrients. Seagrass beds play a role in the removal of nitrogen and can reduce turbidity. There is also evidence that seagrasses are effective in the removal of hazardous chemicals from the water column. Filter feeding shellfish, such as blue mussels, filter water and absorb nutrients (particularly nitrogen) from the water column thereby improving water quality.

15. Ecosystem services fall into one of four sub categories depending on their contributions: provisioning, regulatory, cultural or supporting services. Marine ecosystem services paper (NECR088) identifies the types of habitats and species that can be of benefit to water quality by providing regulatory ecosystem services such as:
    - water filtration is the physical process of removing contaminants from water flowing through a system
    - nutrient assimilation is the result of actions to enhance and accelerate the ability of the ambient environment to accept nutrients (phosphorus and nitrogen) and still meet water quality standards
    - hazardous chemical sequestration is the capture and long-term storage of chemicals that might degrade water quality standards in line with reporting for the Water Framework Directive objectives
16. See also policy SW-CC-4.

Who is this of interest to?

17. Any applicants when preparing proposals which may benefit water quality, including enhancing habitats and species beneficial to water quality, in the north west marine plan areas.

18. A catchment based approach to water quality encourages a stronger sense of shared responsibility across government, key stakeholder organisations, land managers, developers and the general public for actions and behaviours that will improve water quality. This policy is therefore also of interest to a wide range of public authorities and organisations.

19. The environmental objectives summarised within River Basin Management Plans are legally binding under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. All public bodies must have regard to these objectives when making decisions that could affect the quality of the water environment. Including decision-making public authorities such as:

- Marine Management Organisation
- Environment Agency
- Local planning authorities
- Marine licensing authorities
- Ports and Harbour authorities
- The Planning Inspectorate
- The Crown Estate
- Inshore Fisheries and Conservation Authorities
- Maritime and Coastguard Agency

How should this policy be applied?

20. NW-WQ-2 aligns with the Marine Policy Statement (2.6.4.1). It complements actions of the The Marine Strategy Regulations 2010 and the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

21. The North West Marine Plan builds on existing measures, consistent with the Marine Policy Statement (2.5.13) and addresses water quality issues through ensuring proposals consider impacts on water quality, including habitats and species that provide water filtration, nutrient assimilation and hazardous chemical sequestration services, and look for opportunities to improve water quality.

22. Proposals should demonstrate they have considered any effects the proposal may have upon water quality or habitats and species beneficial to water quality in accordance with NW-WQ-1.

23. Proposals can use the Marine Information System in scoping locations and habitats with the potential to provide relevant ecosystem services which benefit water quality. Several examples of these habitats are found in protected areas within the north west marine plan areas and may require additional consideration. Relevant issues and threats for each habitat and species assemblage can be accessed via the statutory nature conservation bodies (Marine Protected Areas in the UK).

24. Proposals delivering improvements to water quality, will benefit water quality, or enhance habitats and species which can be of benefit to water quality, should be supported, when in alignment with other plan policies.

25. NW-WQ-2 aims to support activities that will improve water quality, or enhance habitats and species which benefit water quality. Activities, that may be achieved through steps such as voluntary measures, may include but are not limited to:
    - activities undertaken by water authorities such as waste water treatment and water infrastructure provision
    - habitat restoration works
    - provision of natural sediment settling areas
    - building in beneficial features as part of good design, for example that enhance habitat and species assemblages that provide regulatory services
    - development of bioremediation sites such as those suggested by the Marine Management Organisation's Environmental Remediation to Improve Water Quality report

26. Proposals should note that identifying positive impacts or enhancement of an ecosystem service is not a substitute for avoidance, minimisation or mitigation of significant adverse impacts.

27. Early discussion with public authorities and catchment partnerships is advised when implementing NW-WQ-2 as it may help identify where best to direct resource to achieve the greatest benefit. Public authorities should assess proposals compliance with other relevant policy and legislation.

28. The Catchment Partnerships in the north west marine plan area are:
    - Derwent (NW)
    - South West Lakes
    - Kent / Leven
    - Lune
    - Wyre
    - Ribble
    - Douglas
    - Alt / Crossens
    - Mersey estuary
    - Weaver / Gowy
    - Upper Mersey
    - Tidal Dee
    - Middle Dee

Signposting

29. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - River Basin Management Plans
    - The Marine Strategy Regulations 2010

30. Further information and guidance that may help in implementing the policy include:
    - Clearing the Waters for All guidance on How to assess the impact of your activity in estuarine (transitional) and coastal waters for Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.
    - Marine Management Organisation's Environmental Remediation to Improve Water Quality report
    - Catchment based approach
    - Catchment data explorer to identify which water body your activity is in and any linked water bodies it could affect
    - Marine ecosystem services paper (NECR088)
    - Coastal Blue Carbon in Practise
    - Capturing and conserving natural coastal carbon

Policy drafting template – NW-WQ-3

HLMO	Living within environmental limits	**Sub bullet(s)**	Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
Grouping	Water quality	**Code**	NW-WQ-3

Policy

NW-WQ-3

Public authorities with functions capable of affecting water quality in the marine area should seek to enhance water quality where possible.

Public authorities with functions capable of affecting water quality in the marine area (including river catchments) must build in measures to, in order of preference: a) avoid b) minimise or c) mitigate significant adverse impacts to water quality in the marine area.

What is water quality?

1. Water quality is a measure of the condition of water and its suitability to sustain a range of uses for both biotic and human benefits. Good water quality is important in meeting the UK government's vision for clean, healthy, safe, productive and biologically diverse seas and oceans (Marine Policy Statement). Water quality in respect of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 is defined by specific biological, physico-chemical and hydromorphological criteria. Poor water quality refers to the presence of pollutants in water. These pollutants may include oil, sedimentation, sewage, nutrients, heavy metals.

2. Pollution can come from either diffuse (unlicensed sources) or point sources (regulated sources).

Point source water pollution	**Diffuse water pollution**
developments within the marine area	contaminated run-off from roads
waste water	drainage from housing estates
sewage treatment	accidental chemical and oil spills
storm overflows	agricultural run-off
industrial waste	pollution from abandoned mines
discharge from vessels (licensed)	discharge from vessels (unlicensed)
aggregate extraction	Micro plastics

Where is water quality important in the north west marine plan areas?

3. The large urban settlements of Manchester and Liverpool were both heavily modified during the industrial revolution and have been left with a number of challenges in restoring the water quality of the rivers in the region. Water quality in the north west

inshore marine plan area is important in rivers, estuaries and coastal waters. These areas play a vital role in the areas economy through providing essential fish habitats and supporting commercial shell fisheries, whilst providing safe and attractive bathing waters for residents and increasing tourism.

4. The Mersey and Ribble estuaries have seen substantial industry and development though continue to support species and habitats of conservation importance. Good water quality is required to support biodiversity.

5. Water quality needs to be monitored at coastal locations popular for swimming to ensure that beach users are protected from pollution in 'designated bathing waters'.

What causes poor water quality in the north west marine plan areas?

6. In the north west inshore marine plan area there are issues for water pollution from storm overflows, diffuse pollution and agricultural run-off.

Storm overflows

7. Storm overflows or combined sewer overflows play an important role in preventing flooding. During periods of heavy rainfall particularly following long dry spells, the sewer system can become full and back up. Permitted by the Environment Agency water companies can use storm overflows to allow a mixture of dilute untreated sewage and rain water to be re-directed into the sea. The Environment Agency encourages an urban pollution management and partnership approach to managing surface water in wet weather to limit pollution from storm overflows.

Diffuse pollution

8. Diffuse sources of pollution are pollutants from many small scale sources carried into water bodies by rainwater run-off from urban and rural land. The Environment Agency consider that diffuse pollution is now a bigger threat to river water quality than point source pollution (the unseen threat to water quality).

9. Diffuse water pollution includes:
    - agricultural run-off (covered in more detail below)
    - contaminated run-off from roads
    - drainage from urban areas
    - accidental chemical and oil spills that find their way into drainage systems

10. Taking a catchment based approach and education are key to addressing diffuse pollution.

Agricultural run-off

11. Agriculture is still a major source of water pollution in the UK. (25 Year Environment Plan). The leading pollutants from agriculture and wastewater are sediment, chemicals, nitrate and phosphorus. Agriculture is currently the largest sector responsible for significant pollution events to water (The state of the environment: water quality). The Department for Environment, Food and Rural Affairs along with the Environment Agency introduced Rules for farmers and land managers to prevent water pollution to prevent manure, fertiliser and soil getting into watercourses.

12. Water quality is also affected by:
    - physical modifications to water ways

- changes to the natural flow and level of water
- negative effects of invasive non-native species
- resuspension of sediment
- extreme weather such as drought followed by intense rainfall
- seasonal population variation

Abandoned mines

13. Abandoned mines are a pollution threat to the water quality in the north west inshore marine plan area. Both abandoned coal mines in the North West and Dee river basin districts (effect 26 water bodies) and non-coal mines (metals and minerals) (effect 21 water bodies) will all have an impact affecting water courses with heavy metals and other pollutants.

14. The expected increase in the number and diversity of developments and marine users within the north west marine plan area poses additional risk towards meeting Good status for ecological and chemical objectives in accordance with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and Good Environmental Status in accordance with The Marine Strategy Regulations 2010.

Why is water quality important to the north west marine plan areas?

15. Good water quality is required for shellfish and fish, to protect nutrient sensitive areas and maintain bathing waters. The north west marine plan areas rely on good water quality to support a number of sectors.

16. Aquaculture is a growing sector in the north west, the areas where this is currently supported include:
    - cockles and mussels – Duddon Estuary
    - cockles and mussels - Morcambe Bay
    - razor clams – Leasowe
    - pacific oysters - Morcambe Bay
    - pacific oysters – Solway Firth

17. As well as supporting commercial fishing and aquaculture, good water quality in the north west is also important for the increasing tourism industry. Blackpool and the Lake District attract the most coastal tourism in the area.

18. There are two River Basin Management Plan areas within the inshore north west marine plan area; Dee River Basin district (which is also under Welsh jurisdiction) and North West River Basin district. Through these river basin management plans the Environment Agency maintain, review and keep an up to date register of the protected areas of water lying within each district. These include;
    - drinking water protected areas
    - shellfish waters (commercial shellfish harvesting)
    - bodies of water designated as recreational waters
    - nutrient sensitive areas
    - areas designated for the protection of habitats or species where water quality is an important factor in their protection

19. The North West River Basin district covers approximately 13,200km^2. It extends from Cumbria in the north and includes parts of Staffordshire to the south, parts of North Yorkshire in the east and Merseyside to the west.

20. In total, nearly 7 million people live and work in the North West and the district includes large urban areas such as Liverpool and Manchester.

21. The North West river basin district has a rich diversity of wildlife and habitats, supporting many species of global and national importance. These include migratory salmon rivers with native white clawed crayfish and pearl mussel populations and lakes containing the Arctic char and the rare vendace.

22. Around 80% of the river basin district is rural, with the majority of land being used for agriculture. Livestock farming is the most common rural land use, which has shaped much of the landscape. The Lake District and Lancashire coast are tourism centres and make a significant contribution to the local economy.

23. As a cross border River Basin District, responsibility for planning the future of the Dee River Basin District is shared jointly between Natural Resources Wales and the Environment Agency.

24. The Dee River Basin district is home to over 500,000 people and covers an area of 2,251 square kilometres of North East Wales, Cheshire, Shropshire and the Wirral. The district consists of a single river basin; the River Dee, its tributaries and estuary.

25. The River Basin District is characterised by a varied landscape. It ranges from the mountains and lakes of the Snowdonia National Park in the upper part of the basin, through the Vale of Llangollen in the middle reaches, to the open plains of Cheshire and the mudflats of the Dee Estuary in the lower basin.

26. Chester and Wrexham are the major urban centres, but the land is mainly rural with rough grazing and forestry in the upper catchment and arable and dairy farming on the Cheshire Plain. The Dee and its tributaries are renowned for their excellent fishing and there is an important cockle fishery in the estuary. There is an EU designated bathing water at West Kirby and a number of other non-EU bathing waters managed by Local Authorities around the estuary. The river Dee is popular for canoeing and the National Whitewater Centre is located on the Afon Tryweryn near Bala.

27. The importance of the landscape of the Dee catchment, its biodiversity, geodiversity, heritage and the importance for recreation, access and culture are recognised through a range of designations.

Coastal bathing waters

28. Water quality at areas recognised as bathing waters is important to human health. The Environment Agency classifies designated bathing waters help people to decide where is safe to swim. Using the Environment Agency classification The Blue Flag and Seaside awards by Keep Britain Tidy also inform the public about well managed beaches with good water quality. There are approximately 26 beaches in the south east plan area that have 'designated bathing waters' and no blue flag beaches. The

North West has the highest proportion of inshore waters categorised as poor ecological water quality (Bathing water statistics).

What improves water quality in the north west marine plan areas?

29. There are natural and man-made ways to improve water quality. For example natural coastal habitats such as saltmarshes, reed beds, seagrass and intertidal mudflats all aid in the reduction of turbidity by increasing sedimentation and can remove hazardous chemicals and nutrients. Filter feeding shellfish, such as blue mussels, filter water and absorb nutrients (particularly nitrogen) from the water column in turn improving water quality.

30. Water filtration, nutrient assimilation and hazardous chemical sequestration are ecosystem services essential to achieving and maintaining a long term improvement in water quality. Ecosystem services can be defined as 'the benefits provided by ecosystems that contribute to making human life both possible and worth living' (UK National Ecosystem Assessment).

31. Other activities, that support improvements to water quality, may include but are not limited to:
    - activities undertaken by water authorities such as waste water treatment and water infrastructure provision
    - habitat restoration works
    - provision of natural sediment settling areas
    - building in beneficial features as part of good design, for example that enhance habitat and species assemblages that provide regulatory services
    - development of bioremediation sites

32. All strategies and developments are best considered through a catchment based approach. The Catchment Partnerships in the north west marine plan area are:
    - Derwent (NW)
    - South West Lakes
    - Kent / Leven
    - Lune
    - Wyre
    - Ribble
    - Douglas
    - Alt / Crossens
    - Mersey estuary
    - Weaver / Gowy
    - Upper Mersey
    - Tidal Dee
    - Middle Dee

Who is this of interest to?

33. The following government departments have decision making and regulatory functions that will apply this policy:
    - Environment Agency – Environmental permits and exemptions, River Basin Management Plans,
    - Natural England – catchment sensitive farming
    - Natural Resources Wales – River Basin Management Plans

- Ministry of Housing, Communities and Local Government – town and country planning
- Department for Business, Energy and Industrial Strategy – energy developments and associated development
- Department for Digital, Culture, Media and Sport – tourism and recreation
- Ministry of Defence

34. The environmental objectives summarised within River Basin Management Plans are legally binding under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. All public bodies must have regard to these objectives when making decisions that could affect the quality of the water environment.

35. Public authorities including:
    - public authorities with waste, waste water or land management functions including but not limited to local authorities
    - public authorities with strategic planning functions which enable activities that generate pollution that could impact upon water quality
    - water companies with waste water management functions
    - lead local flood authorities
    - flood and coastal erosion risk management groups (FCERM)

    - Port and harbour waste management functions – pollution from vessels
    - Public authorities that develop River Basin Management Plans and other land management plans capable of affecting the marine area

How should this policy be applied?

36. NW-WQ-3 applies to both the inshore and offshore north west marine plan areas and extends to functions that are carried out in adjacent marine plan areas which are capable of affecting water quality in the north west marine plan area.

37. Policy NW-WQ-3 aligns with the Marine Policy Statement (2.6.4.1 - 2.6.4.4) and the Marine and Coastal Access Act (section 58 (3)). It complements the actions of The Marine Strategy Regulations 2010 and the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

38. Application of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 is enacted through River Basin Management Plans and the catchment based approach through catchment partnerships, as well as current water company controls and regulations.

39. This policy should be considered when developing strategic plans and programmes which may have an impact on water quality in the marine environment. Collaborative working through catchment partnerships is the most effective way to apply this policy. The Catchment data explorer can be used to identify which water body your activity is in and any linked water bodies it could affect. Other regulations should be taken into consideration, when appropriate, such as Nitrate Vulnerable Zones.

40. Public authorities must consider water quality when planning land-based infrastructure. Examples of land-based infrastructure that should be considered include land-based handling and disposal facilities for refuse, waste water and sewage treatment. Also infrastructure to support recreational, residential and

commercial boating and shipping activities is included. See also NW-INF-1, NW-ML-1 and NW-ML-2.

41. Public authorities must build in measures to avoid, minimise or mitigate any adverse effects to the marine area caused by but not limited to:
    1. increased inputs of nutrients, especially to nitrate vulnerable zones
    2. pollution
    3. agricultural run off
    4. plastics, including micro plastics (See NW-ML-1 and NW-ML-2)

42. Examples of how to avoid, minimise or mitigate significant adverse impacts include but are not limited to:
    - avoid – avoid supporting functions which may lead to adverse impacts on water quality
    - minimise – consider the impacts of all future developments upon water quality and include mitigation such as sustainable drainage systems, natural waste water treatments, best available technology or collaborative working such as catchment sensitive farming
    - mitigation - creating or enhancing compensatory habitat that provides an ecosystem service to improve water quality

43. Developments or activities which could be of benefit to water quality may include:
    - sustainable drainage systems (SUDs)
    - improvements to sewage treatment works
    - natural flood management
    - minimising diffuse water pollution through applying Rules for farmers and land managers to prevent water pollution
    - collaborative working such as catchment sensitive farming and the love my beach campaign
    - creating or enhancing compensatory habitats that improve water quality

44. The North west Marine Plan builds on existing measures, consistent with the Marine Policy Statement (2.5.13) and addresses water quality issues through ensuring public authorities consider impacts on water quality, including habitats and species that provide water filtration, nutrient assimilation and hazardous chemical sequestration services, and look for opportunities to improve water quality. The plan policies are not restricted to the inshore marine plan area as there is the potential for offshore sources to affect inshore water quality.

Signposting

45. Existing measures which relate to, and may contribute to the achievement of this policy include:
    - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
    - The Bathing Water Regulations 2013
    - River Basin Management Plans
    - The state of the environment: water quality
    - Urban Waste Water Treatment (England and Wales) Regulations 1994
    - The Marine Strategy Regulations 2010
    - Rules for farmers and land managers to prevent water pollution
    - Nitrate Vulnerable Zones

- The drainage and waste water management strategies
- The Water Industry National Environment Programme – updated every 5 years
- The Nitrate Pollution Prevention Regulations 2015
- International Convention for the Prevention of Pollution from Ships (MARPOL)
- Port Reception Facilities Directive

46. Further information and guidance that may help in implementing the policy include:
    - Clearing the Waters for All guidance on How to assess the impact of your activity in estuarine (transitional) and coastal waters for Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.
    - Marine Management Organisation's Environmental Remediation to Improve Water Quality report
    - Catchment data explorer to identify which water body your activity is in and any linked water bodies it could affect
    - Catchment based approach
    - Waste water treatment in the UK
    - Stockholm Convention on Persistent Organic Pollutants