Department
for Environment
Food & Rural Affairs

Marine strategy part three: 2025 UK programme of measures

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marine.strategy@defra.gov.uk

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Llywodraeth Cymru
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Department of
Agriculture, Environment
and Rural Affairs
www.daera-ni.gov.uk

The Scottish
Government
Riaghaltas na h-Alba

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Introduction

The UK is legally required to take measures to achieve or maintain Good Environmental Status (GES) for our seas, and to do this through development and implementation of a UK marine strategy (UKMS) as set out in the Marine Strategy Regulations 2010. This sets out the combined commitments of the 4 UK governments to work together to monitor and protect some of the most biologically diverse and productive seas in Europe.

Achieving GES is about protecting the marine environment, preventing its deterioration, and restoring it where practical, while allowing sustainable use of marine resources. GES means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas, which are clean, healthy, and productive within their intrinsic conditions. The use of the marine environment should be at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations.

At present, the UKMS consists of a 3-part cycle, which renews around every 6 years. The UK government works closely with the policy makers from devolved governments and scientists in delivering these 6 yearly reviews. The strategy is made up of 3 components:

1. Part one assesses the status of UK seas and sets the criteria, targets, and indicators to be used for the following 6 years.
2. Part two sets out the monitoring programmes.
3. Part three sets out the policy measures required to achieve or maintain GES for UK seas.

This document, the updated UKMS part three, details the measures the UK will use to support progress towards Good Environmental Status (GES).

Several of the measures referred to in this document are still in the process of being developed. In addition to the measures, we have also set out where there are uncertainties or knowledge gaps and where possible, our plans to address these gaps. This report has been produced by Defra, the Department of Agriculture, Environment and Rural Affairs in Northern Ireland (DAERA), the Welsh Government and the Scottish Government.

Section 1: Context

1.1 The UK marine strategy

1.1.1 Overview

You can read an overview description of Good Environmental Status (GES) and the geographical extent of the UKMS on the marine online assessment tool.

1.2 Our approach

1.2.1 – Summary of our approach

The UKMS is an ecosystem-based management programme that is designed to evolve over time. This updated programme of measures provides a snapshot of the measures we currently have in place to address the key pressures that impact our seas. These interventions are expected to help move the marine environment towards the revised objectives and targets set out in the UKMS part one (updated in 2019), and towards achieving GES.

When considering the measures that are required for each descriptor, how they act together on the whole ecosystem has also been considered. This is to ensure that pressures are sufficiently covered under the individual descriptors and that policies that affect the marine environment are working together to improve the whole ecosystem.

Where a descriptor is in or has largely reached GES, the approach is to maintain the existing measures and continue with the monitoring programmes detailed in the UKMS part two.

Over each 6-year cycle, we take account of changing pressures and international developments. Over time, there will be changes to the drivers that affect the marine environment, ranging from the way in which we use the ocean to the pace of climate change. This underlines the importance of reviewing and updating the UKMS at regular intervals, which allows us to evolve our approach as the implications of these changes become clearer.

In response to feedback, the approach we have taken in updating this Programme of Measures is to streamline the content. Given the broad spectrum of measures and initiatives implemented by the UK government and the devolved governments, for each descriptor we have set out a short summary of the main measures we expect to have the greatest impact. Where measures were in place in 2015, rather than repeat this information we refer the reader back to the 2015 programme of measures. A full list of the new measures since 2015 for each descriptor can be found in the annex. Measures (M) and actions (A) in the annex have been allocated a ‘M’ or ‘A’ number for referencing purposes.

1.2.2 – Coordination across the UK

The development of the UKMS part three is a collaborative effort by the UK government and the devolved governments within the UK. It has been developed with input from scientific experts and policy makers across each administration at a scale appropriate for each descriptor.

Where possible, measures have been implemented at the UK scale. However, due to the nature of devolution, and the differing pressures faced across the UK marine environment, this is not always appropriate. Some measures are coordinated across the UK but are implemented individually by each government, whereas others are not centrally coordinated and implemented by one or more government.

1.2.3 – International collaboration

UK waters sit in 2 regional seas, the Greater North Sea, and the Celtic Seas. The ecosystems of these seas, and their various uses extend beyond the boundaries of the UK. Similarly, some of the habitats and species, particularly mobile species such as cetaceans, fish and seabirds, range over wide areas of the North-East Atlantic. For this reason, it is important that we coordinate with our close neighbours, particularly those within our marine regions (in the Greater North Sea – France, Belgium, the Netherlands, Germany, Denmark, Sweden, and Norway. In the Celtic Seas – Ireland and France).

Our main forum for regional cooperation is through the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). Where possible, we have used the OSPAR working structures to coordinate the development of our programme of measures with these other countries to ensure that they are coherent and can address regional pressures affecting the North-East Atlantic. In addition, there is good coordination between the UK and the Republic of Ireland through the British-Irish Council. Several additional mechanisms are also in place to ensure good cooperation and coordination between the Republic of Ireland and Northern Ireland.

1.2.4 – Looking to the future

Over the next reporting cycle, we will gather the evidence to look at the potential for reforms of the Marine Strategy Regulations that would enhance and streamline the delivery of the objectives of the UKMS and ensure ecologically diverse and dynamic oceans and seas, which are clean, healthy, and productive.

1.3 – Cost of the programme of measures

The Marine Strategy Regulations 2010 set a requirement to consider the social and economic impacts of proposed new measures when developing the UKMS part three. As a result, a review was undertaken to collate the socio-economic assessments for those new measures which had already been assessed and identify those measures which would be

subject to assessment in the future. We took the approach of collating existing assessments rather than conducting a new overall socio-economic assessment for this programme of measures. Measures that have been introduced since 2015 are either updates to existing measures or subject to individual economic assessments.

Section 2: Programme of measures used to achieve or maintain GES

How to understand the ecosystem elements and descriptors sections

To make clear the link between the 2019 updated UKMS part one assessments and this programme of measures we have covered all 11 descriptors, and descriptor 1 has been split into the relevant species and habitats. Each entry has a summary of the following:

Overview and targets

The updated UKMS part one assessment, published in 2019, provided the status of the descriptor or ecosystem component in 2018 and the relevant high-level objective, criteria, and targets.

Read the summary of progress towards good environmental status for more information.

Measures to achieve targets

This section provides a summary of the key measures for each descriptor that have been amended or developed over the current cycle of the UKMS or are completely new measures in the 2025 UKMS part three.

These can either be UK wide or devolved government-specific and include measures that we have introduced since 2015 and those that we plan to take in the coming years for which funding has already been committed. A full list of the new measures since 2015 for each descriptor can be found in the annex. Measures (M) and actions (A) in the annex have been allocated a ‘M’ or ‘A’ number for referencing purposes.

Exceptions

Under Regulation 15 of the Marine Strategy Regulations 2010, an exception may be applied for several reasons. This section will state whether an exception is being applied for that descriptor and, if so, set out the reasons why.

Existing measures which continue to be relevant to achieving GES

The measures that were included in the 2015 programme of measures remain in place and continue to contribute to the achievement or maintenance of GES. They can be found either by referring back to the 2015 programme of measures or in annex 3. Changes have been

made to relevant legislation since the 2015 publication. These changes ensure their ongoing operability, following the UK leaving the EU.

2.1 – Cetaceans (D1 and D4)

GES partially achieved. Stable situation since 2012.

2.1.1 – Overview and targets

Targets used to assess progress

The UK Marine Monitoring and Assessment Strategy (UKMMAS) targets for cetaceans are that:

- there should be no significant decrease in abundance caused by human activities
- population ranges are not significantly lower than favourable reference values for the species
- the long-term viability of cetacean populations is not threatened by incidental bycatch

Overview

The 2018 assessment concluded that the current status for GES for cetaceans was uncertain. It highlighted that additional information was needed to be able to assess impacts in a meaningful way, including a greater understanding of the impact of human pressures at local, regional, and North-East Atlantic scale.

Key pressures for this descriptor include bycatch and entanglement, noise disturbance, and pollution. In addition to the key pressures, the following knowledge gaps have been highlighted as areas requiring action if GES is to be achieved:

- food-webs – impacts on cetaceans, and their reliance on forage fish and other prey species
- climate change – impacts of sea warming and resulting potential for population shifts associated with limits of cetacean range and cetacean prey species
- site-based protection – whether there is a need for additional site-based protection for cetaceans (particularly bottlenose dolphins)
- disturbance from increasing vessel movements, including relating to tourism and recreation

2.1.2 – Measures to achieve targets

In addition to the measures already established through the 2015 programme of measures, there are 17 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 18 additional areas of action aimed at reducing our uncertainty on the status of cetacean populations,

which will support the development of measures over the longer term. These are set out in the annex.

The following UK-wide measures and actions are expected to further our progress towards achieving GES for cetaceans.

The implementation of the UK Cetacean Conservation Strategy (M1.1) will help achieve favourable conservation status for our most commonly found species of dolphin and porpoise. It will do this through identifying actions to address key pressures, including bycatch, entanglement, cumulative noise impacts and pollutants, plastics and biotoxins

Stakeholder-led research through Clean Catch UK (M1.9) and other initiatives has already led to the roll-out of a bycatch self-reporting mobile app, trials of technologies to reduce cetacean bycatch, and the development of an online bycatch mitigation hub (M1.8)

Through the marine wildlife bycatch mitigation initiative (BMI), fisheries policy authorities have set out policy objectives and potential actions to contribute to the achievement of The Fisheries Act 2020 ecosystem objective. This contains an objective that 'incidental catches of sensitive marine species are minimised and, where possible, eliminated.' Each fisheries policy authority is responsible for setting out how they will take action on bycatch, for example, through implementation plans (M1.6)

The UK government and devolved governments are considering or have under development programmes exploring and developing mechanisms to enable delivery of the government's offshore wind ambition while still protecting the marine environment. Further detail on the government's offshore wind programme can be found in Section 3 on cross-cutting measures

Further detail on UK government and devolved government-specific measures for cetaceans is listed in the annex.

2.1.3 – Exceptions

No exception is applied for this descriptor.

2.2 – Seals (D1 and D4)

GES partially achieved. Improving situation since 2012.

2.2.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for seals are that:

- the long-term viability of seal populations is not threatened by incidental bycatch

- population abundance and distribution are consistent with favourable conservation status
- grey seal pup production does not decline substantially in the short or long-term

Overview

The 2018 assessment concluded that GES had been achieved for grey seals but was uncertain for harbour seals. While there is evidence of declines in the abundance of harbour seals in the Celtic Seas, the evidence is not definitive. In the Greater North Sea, the abundance of harbour seals was stable or increasing along most of the English coast but had declined along the Scottish coast.

The cause of possible harbour seal decline is unclear, although several potential factors such as fisheries bycatch have been ruled out.

Further measures are necessary to support the achievement and maintenance of GES for seals. Threats to seals include:

- fisheries – bycatch, entanglement in abandoned, lost, or discarded fishing gear and methods liable to lead to bycatch
- noise – continuous, impulsive, and cumulative impacts of noise
- pollution and toxins – prevalence of pollutants (for example, Polychlorinated Biphenyls (PCBs) and other persistent organic pollutants (POPs) in the environment and cetaceans and from harmful algal blooms (HAB)

2.2.2 – Measures to achieve targets

In addition to the measures already taken through the 2015 programme of measures, there are 17 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 15 additional areas of action aimed at reducing our uncertainty on the status of our seal populations. These are set out in the annex.

The following measures and actions are expected to deliver further progress towards achieving GES for seals.

Through the Marine Wildlife Bycatch Mitigation Initiative, fisheries policy authorities have set out policy objectives and potential actions to meet part of the Fisheries Act 2020 ecosystem objective that ‘incidental catches of sensitive marine species are minimised and, where possible, eliminated’. Each fisheries policy authority is responsible for setting out how they will take action on bycatch, for example, through implementation plans.

There are a range of awareness-raising initiatives implemented by the UK government and the devolved governments to reduce impacts from human disturbance. These include:

- Give Seals Space (M2.8)

- the Scottish Marine Wildlife Watching Code (M2.11)
- the Welsh Regional Codes (for example, Ceredigion, Pembrokeshire, Gwynedd marine codes) (M2.12)
- Operation Seabird (M2.14)
- the Marine and Coastal Wildlife Code (M2.15)

The UK government and the devolved governments are using evidence that may arise from stakeholder-led research and management into the decision-making processes, to further enable key pressures to be addressed such as bycatch and entanglement (M2.5, M2.7 and M2.10), displacement and collision risk and plastics and biotoxins.

The UK government and the devolved governments are considering or have under development programmes exploring and developing mechanisms to enable delivery of the government's offshore wind ambition while still protecting the marine environment. Further detail on the government's offshore wind programme can be found in section 3 on cross-cutting measures.

Further detail on UK government and devolved government-specific measures for seals is listed in the annex.

2.2.3 – Exceptions

No exception is applied for this descriptor.

2.3 – Birds (D1 and D4)

GES not achieved. Declining situation since 2012.

2.3.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for birds are that:

- the long-term viability of marine bird populations is not threatened by deaths caused by incidental bycatch in mobile and static fishing gear
- the population size of marine bird species has not declined substantially since 1992 because of human activities
- widespread lack of breeding success in marine birds caused by human activities should occur in no more than 3 years in 6
- there is no significant change or reduction in population distribution of marine birds caused by human activities
- reduce risks to island seabird colonies from non-native mammals (operational target)

Overview

The 2018 assessment concluded that the UK achieved its aim of GES for non-breeding waterbirds in the Greater North Sea but not in the Celtic Seas. Breeding seabirds had not achieved GES. The 2018 assessment concluded that GES had not been achieved for seabirds and that it was a mixed picture for waterbirds. The 6 indicators used to determine the status of birds were unable to distinguish human impacts from the effects of prevailing environmental conditions.

Further measures on fisheries, including methods liable to lead to bycatch, and entanglement in abandoned, lost, or otherwise discarded fishing gear (ALDFG), are necessary to support the achievement and maintenance of GES for birds.

2.3.2 – Measures to achieve targets

In addition to the measures already established through the 2015 programme of measures, there are 19 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 11 additional areas of action which will support the development of measures over the longer term. These are set out in the annex.

The following key UK-wide measures and actions are expected to further our progress towards achieving GES for birds.

The UK government and devolved governments have commenced programmes that will help better understand the stressors and actions needed to improve the status of our seabirds:

In England, Defra have commissioned Natural England to assess the vulnerability of seabird species because of the pressures they are facing and to propose actions to address them (M3.2).

In Northern Ireland, DAERA is developing the Northern Ireland Seabird Conservation Strategy. It will assess the distribution of seabirds in Northern Ireland and highlight particular areas, pressures, and activities where there is a high degree of overlap and vulnerability of seabird species in marine and colony habitats. Recommendations will be made to limit the impact of pressures and to improve knowledge of the seabirds in the marine area (M3.3).

In Scotland, the Scottish Government is working with partners to develop the Scottish Seabird Conservation Strategy. The Strategy will identify actions to reduce human pressures and their impacts that are currently driving the declines in Scotland’s seabird populations drawing on the outcomes of vulnerability assessments. In August 2023, the Scottish Wild Bird Highly Pathogenic Avian Influenza (HPAI) response plan was published which sets out the approach that the SG and its agencies will take to response to an outbreak of HPAI in wild birds, including seabirds in Scotland.

In Wales, the Welsh Government (M3.5) is working closely with Natural Resources Wales (NRW) and the Joint Nature Conservation Committee (JNCC) to develop the Welsh Seabird Conservation Strategy. Vulnerability assessments are being undertaken to identify the key pressures and threats to Welsh seabirds. When complete, the strategy will set out actions which will be taken to address them.

There are also awareness raising programmes to reduce impacts from human disturbance (M3.15 and M3.16):

Through the Marine Wildlife Bycatch Initiative, fisheries policy authorities have set out policy objectives and potential actions to meet part of the Fisheries Act 2020 ecosystem objective that 'incidental catches of sensitive marine species are minimised and, where possible, eliminated'. Each fisheries policy authority is responsible for setting out how will take action on bycatch, for example, through implementation plans.

Including evidence that may arise from stakeholder-led research and management into decision-making processes, to further enable key pressures to be addressed such as bycatch, entanglement, displacement and collision risk and plastics and biotoxins.

The UK government and devolved governments are considering, or have under development, programmes that explore and develop mechanisms to enable delivery of the government's offshore wind energy ambition while still protecting the marine environment. Further detail on the UK government's offshore wind programme can be found in section 3 on cross-cutting measures.

Further detail on UK government and devolved government-specific measures for birds is listed in the annex.

2.3.3 – Exceptions

The UKMS part one (updated in 2019) sets out that milder winters have affected where waterbirds forage and that the lower availability of small fish has affected breeding seabirds. Both impacts are partly driven by climate change and are likely to be affecting population size and condition.

The UK government and devolved governments are taking strong action to tackle climate change domestically and internationally, including through legislation that commits us to a legally binding target of net zero emissions by 2050 (2045 in Scotland). Measures to address forage fish population resilience are set out under the sections on fish (D1 and D4) and commercial fish and shellfish (D3).

While the environmental effects of climate change, such as warming sea temperatures, can be reduced, this cannot be achieved without a global effort. However, some of the impacts of climate change on seabirds can be addressed directly to increase the resilience of seabirds to climate change by reducing the cumulative impacts of other pressures. In doing

so we can aid the adaptation of marine bird populations in the UK to an inevitably changing climate.

Nevertheless, in the face of global prevailing conditions, these efforts may not prove enough for us to achieve GES as currently defined in the targets in the UKMS part one. The UK is therefore applying an exception for birds (D1, D4) under Regulations 15(2)(a) and 15(2)(e) of the Marine Strategy Regulations 2010, respectively as follows:

(a) action or inaction for which the United Kingdom is not responsible.
(e) natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Although we are applying an exception, the UK is still legally committed to taking appropriate measures that aim to make progress towards achieving GES and that prevent further deterioration of the affected marine waters or species.

2.4 – Fish (D1 and D4)

GES not achieved. Improving situation since 2012.

2.4.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for fish are that:

- incidental bycatch is below levels which threaten long-term viability and recovery of fish populations
- the population abundance of sensitive species is not decreasing due to anthropogenic activities and long-term viability is ensured
- for each fish species protected under The Conservation of Habitats and Species Regulations 2017 or the Conservation of Offshore Marine Habitats and Species Regulations 2017 (M4.6), population abundance and geographic distribution meets established favourable reference values
- for listed fish species the area and the quality of the habitat is sufficient

Overview

Fish biodiversity is recovering from over-exploitation. Projections suggest that it may be some time before GES can be achieved for all fish communities due to existing anthropogenic pressures, as well as natural factors which affect rates of recovery. Fish biodiversity is impacted by activities including energy and industrial infrastructure, material extraction, and coastal and flood defence.

For this descriptor, building a better understanding of how different pressures affect pelagic fish in various environments is important. Assessments were limited to the scale of the

entire UKMS sub-regions, or to the survey area, but assessments at a finer scale would help better inform management.

2.4.2 – Measures to achieve targets

In addition to the measures already in place through the 2015 programme of measures, there are 6 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 7 additional areas of action aimed at reducing uncertainty regarding the status of fish populations, which will support the development of measures over the longer term. These actions are set out in the annex.

The following suite of measures and actions are expected to deliver further progress towards achieving GES for fish:

The application of the sustainability, precautionary and ecosystem objectives within the Fisheries Act 2020 (M4.1). This is the main piece of legislation which will facilitate achieving GES for D1 and D4 fish in UK seas.

A Joint Fisheries Statement (JFS) developed by all 4 UK fisheries administrations was published in November 2022. The JFS sets out the policies to achieve or contribute to achieving the fisheries objectives in the Fisheries Act 2020. Fisheries Management Plans (FMPs) – a key delivery tool – are evidence-based action plans designed to manage fishing activity to restore and/or maintain fish stocks at sustainable levels. Using an ecosystem-based approach, FMPs will also support the achievement of GES for commercial fisheries. The first FMPs were published in 2023, followed by a sixth in 2024.The plans, together with the JFS and other policies will help us achieve or contribute to the achievement of the fisheries objectives set out in the Fisheries Act 2020.

For 2023, 40% of Total Allowable Catches (TACs) were consistent with International Council for the Exploration of the Sea (ICES) advice, compared to 34% in 2022. This is the biggest improvement since 2020 when this metric was first used. This assessment is more robust, transparent and covers a wider range of TACs than any assessment carried out previously. This allows managers to monitor the sustainability of TACs set each year, which will be beneficial to helping to achieve GES for fish.

Highly Protected Marine Areas (HPMAs) are areas of the sea (including the shoreline) that allow extensive marine ecosystem recovery by protecting habitats and species from damaging human activities. By setting aside some areas of sea in England with high levels of protection, HPMAs will allow nature fully to recover to a more natural state, allowing the ecosystem to thrive.

Marine Protected Areas (MPAs) and HPMAs, (M4.2) will make contributions to management measures for achieving GES. Monitoring activities such as Marine Protected Area Management and Monitoring (MarPAMM), an environment project to develop tools for monitoring and managing several protected coastal marine environments in Ireland,

Northern Ireland, and Western Scotland, concluded in 2022, and helped to close data gaps and uncertainty on the efficacy of management measures. DAERA is currently undertaking a review of their MPA strategy will help to close data gaps and uncertainty on the efficacy of management measures (A4.3).

To increase understanding of the environmental impacts of offshore wind and support strategic solutions to manage and mitigate impacts, a strategic data collection programme will update spatial models and map risks, including risks to sensitive fish species, from offshore wind development (A4.9)

In Scotland, the Scottish Marine Energy Research programme (ScotMER) identifies the evidence needs for consenting and planning of offshore wind and specifically identifies the need relating to noise across several receptors (benthic, fish and fisheries, diadromous fish, marine mammals) and facilitates strategic research for the highest priority areas (A4.8)

Further detail on UK government and devolved government-specific measures for fish is listed in the annex.

2.4.3 – Exceptions

It will take several years or more for stocks to respond to the various existing and planned measures to reduce exploitation rates and protect fish and shellfish species, and to achieve the desired length, or biomass. As well as by fishing pressure, the recovery of fish communities is also affected by biological and climatic conditions, which are beyond the control of fisheries managers.

Given the need for international agreement and the slow response times of some fish populations to measures, exceptions are applied for this descriptor under regulations 15(2)(a) and 15(2)(e) of the Marine Strategy Regulations 2010, as follows:

(a) action or inaction for which the United Kingdom is not responsible.
(e) natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Implementation of the new legal framework under the Fisheries Act 2020 will lead to healthier fish populations and reductions in unwanted catches. Whilst the UK will seek to set sustainable catch limits, informed by the best available science, the Total Allowable Catches (TACs) for many stocks will be subject to negotiations through annual fisheries consultations with the EU and other coastal states. For shared non-quota stocks without TAC limits, the UK and EU are working to develop multi-year strategies to improve fisheries management and the evidence and data gathering which underpins this. Therefore, the UK will not be able to unilaterally achieve the targets without international cooperation.

2.5 – Pelagic habitats (D1 and D4)

GES partially achieved. Stable situation since 2012.

2.5.1 – Overview and targets

Targets used to assess progress

The UKMMAS target for pelagic habitats is that:

- the structure, function, composition, and abundance of the plankton community is not significantly adversely influenced by anthropogenic drivers

Overview

The 2018 assessment concluded that prevailing environmental conditions are likely to be driving the observed changes in plankton communities, but human activities cannot be ruled out and it is uncertain whether GES has been achieved.

The detailed assessment in 2018 largely confirmed the 2012 findings that, although there was clear evidence of regional-scale change in the composition and abundance of plankton communities linked to rising sea temperatures, overall plankton were considered healthy and subject to few direct anthropogenic pressures.

Work is underway to improve our understanding and reduce uncertainty about the extent to which natural variability, climate change, ocean acidification and impacts from anthropogenic activities may be contributing to change. Understanding the impact of rising temperatures on plankton biomass, distribution life cycles and changing physical processes, such as water currents and more variable riverine inputs, will become a paramount concern for the future. All food webs rely on planktonic health, so undermining the base of the food-chain will have significant implications for all other parts of the trophic pyramid.

The following issues will inform future research, reduce uncertainty, and support an effective programme of measures for this descriptor:

- consistency in spatial and temporal distribution of sampling
- information on parts of the food web (for example, picoplankton) and some nearshore hydrodynamic features (for example, large estuary 'plumes')
- addressing data paucity in some less accessible regions, such as offshore and coastal areas in the west of Scotland

2.5.2 – Measures to achieve targets

In addition to the measures already established through the 2015 programme of measures, there are 6 new measures that have either been put in place since 2015 or will be implemented during the period covered by this programme of measures. There is also additional action aimed at reducing uncertainty on the status of pelagic habitats, which will support the development of measures over the longer term. This is set out in the annex.

Measures taken forward under other ecosystem components of the programme of measures that will contribute to GES targets for pelagic habitats include:

Progress has been made towards establishing a coherent and representative network of MPAs that will contribute towards the stabilisation of marine biodiversity, maintenance of food web functioning and restoration of species and habitats in the long term. The aim is for HPMAs to further augment this network in England and assist with the restoration of pelagic habitats. The UK has also committed to a legally binding target of net zero emissions by 2050 (Scotland by 2045)

The measures and actions that the UK government and each devolved government has taken to tackle climate change and adapt to its impacts will contribute to achieving GES targets for plankton habitats through reducing ocean acidification and ocean warming (which causes changes in the marine environment such as stratification, circulation, and their consequences)

Progress has also been made on measures related to achieving the targets under the descriptors on commercial fish (D3) and eutrophication (D5)

Further detail on UK government and devolved government-specific measures for pelagic habitats is listed in the annex.

2.5.3 – Exceptions

No exception was applied for this descriptor.

2.6 – Benthic habitats (D1 and D6)

GES not achieved. Stable situation since 2012.

2.6.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for benthic habitats are that:

- the physical loss of each seabed habitat type caused by human activities is minimised, and where possible reversed
- habitat loss of sensitive, fragile, or important habitats caused by human activities is prevented, and where feasible reversed
- the extent of habitat types adversely affected by physical disturbance caused by human activity should be minimised
- the extent of adverse effects caused by human activities on condition, function and ecosystem processes of habitats is minimised

Overview

The 2018 assessment concluded that the extent to which GES has been achieved is uncertain for intertidal and soft sediment habitats. The status of soft sediment habitats to

the west of the Celtic Seas is consistent with the achievement of GES in UK waters, but not in the Celtic Seas or in the Greater North Sea.

Making progress towards GES will include fisheries management, protecting areas of the seabed against future damage, funding restoration projects and gathering data to help improve understanding of benthic habitats and influence their management.

2.6.2 – Measures to achieve targets

In addition to the measures already in place through the 2015 programme of measures, there are 6 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 8 additional areas of action aimed at reducing uncertainty on the status of benthic habitats, which will support the development of measures over the longer term. These are set out in the annex.

Given the wide variety of benthic habitats around the UK, the following suite of measures and actions is mostly administration-specific and is expected to further the UK's shared progress towards achieving GES for benthic habitats.

In Scotland, fisheries management measures are being developed for MPAs where they are not already in place and protective management measures are also being developed for the 11 benthic priority marine features most impacted by bottom-contacting mobile fishing gear outside of MPAs (M6.3). These were consulted on in 2024. The Scottish Government will also ensure more effective compliance by extending the requirement for Vessel Tracking and Monitoring Systems across the whole commercial fishing fleet within the period covered by this programme of measures (M6.11).

In Northern Ireland, DAERA have prohibited certain gear types in some Northern Irish MPAs (M6.4) and are in the process of reviewing Northern Ireland's MPA Strategy (M6.8) and developing a Blue Carbon Action Plan (M6.9).

In Wales, the Welsh Government have committed to designating further Marine Conservation Zones (MCZs) in Wales focusing on benthic features identified within habitat gap analysis. Potential sites have been identified primarily in the Welsh offshore region, with a view to designating smaller areas within this. A consultation is expected to launch in 2024. Supporting this is the Welsh MPA management framework, accompanied by a grant scheme, to fund actions to address pressures and threats, and improve understanding (A6.1).

In England, following a consultation in summer 2022 on 5 candidate HPMA sites, Defra designated the first 3 HPMAs in English in summer 2023, Northeast of Farnes Deep, a modified version of Allonby Bay, and a modified version of Dolphin Head. Delivering on the commitments set out in the UK government's Environmental Improvement Plan 2023 for England (EIP), HPMAs will enable nature fully to recover by banning damaging extractive, destructive and depositional activities including fishing, construction, and dredging,

increasing marine biodiversity, and supporting climate-resilient ecosystems to thrive. Offshore, several Vulnerable Marine Ecosystems (VMEs) have been designated for protection against bottom-contacting mobile fishing gear in England nearly 60% of our 178 MPAs have management measures in place to protect features from damaging fishing activity, including byelaws in 2022 in the first 4 offshore sites, which ban bottom-towed gear over sensitive habitats (M6.2). A further 13 sites are now protected by the Marine Protected Areas Bottom Towed Fishing Gear Byelaw. Defra is considering next steps for further restrictions in the context of our domestic and international nature conservation obligations.

Underpinned by objectives in The Fisheries Act 2020 to mitigate the impact of fishing activity on benthic habitats, the UK fisheries policy authorities have set out relevant policies in the JFS and FMPs. This will help ensure fishing practices do not compromise the overall achievement of GES through impacting on other elements of GES such as biodiversity or seabed integrity.

England is also working directly with industry stakeholders and international partners to focus on identifying practical, achievable actions to reduce pressure on habitats most at risk or most extensively impacted for example the supporting the establishment of the Seafish UK Gear forum (M6.12)

We are exploring the potential of a focused benthic impact working group that would complement existing groups considering pressures on benthic habitats. Its proposed aim would be to identify and implement measures that can reduce the impact of fishing activity on the seabed. Its members would be drawn from regulators, managers, scientists, and key stakeholders including Environmental Non-Governmental Organisations (ENGOs) and the fishing sector

To protect against future biodiversity losses from development proposals, from 2023, most applicants submitting a development proposal in England will be required to demonstrate how the proposal will provide a measurable increase in the biodiversity value on the proposed site for development (A6.5). This will apply to most development that occurs down to the low water mark and any onshore components of offshore schemes

The Scottish Biodiversity Strategy sets an ambition for Scotland to be nature positive by 2030, and to have restored and regenerated biodiversity across the country by 2045. Developing management of sustainable fishing will form a crucial part of protecting and restoring biodiversity in marine waters to help achieve those goals. As part of this the Scottish Government has also committed to introduce a Natural Environment Bill to put in place key legislative changes that will restore and protect nature, including, but not restricted to, targets for nature restoration, and an effective, statutory, target-setting monitoring, enforcing, and reporting framework

The Environment Act (Wales) 2016 requires biodiversity to be sustained and enhanced in Wales, which will benefit benthic habitats. Measures linked to climate change mitigation and adaptation, particularly those on the protection of blue carbon, will also contribute to our targets around physical disturbance and habitat loss (A6.7)

The UK government and devolved governments are considering or have under development programmes exploring and developing mechanisms to enable delivery of the government's offshore wind ambition while still protecting the marine environment and to minimise the overall impacts from offshore wind developments on the seabed and on benthic habitats. Further detail on the government's offshore wind programme can be found in section 3 on cross-cutting measures

Further detail on UK government and devolved government-specific measures for benthic habitats is listed in the annex.

2.6.3 – Exceptions

An exception is applied for this descriptor under regulation 15(2)(e) of the Marine Strategy Regulations 2010, as follows:

(e) natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Measures coming into force over the next few years are expected to contribute significantly to the achievement of GES for benthic habitats, alongside existing measures. However, an exception is requested as there is insufficient time for these measures to have the desired effect on recovery of benthic habitats to achieve GES by 2024. The traits of benthic habitats and benthos mean that recovery of these species and habitats is variable and often slow, particularly for cold water and deep-sea species. As a result, the collective impact of measures and actions won't be immediate but will be seen over the years to come.

2.7 – Non-indigenous species (NIS – D2)

GES not achieved. Stable situation since 2012.

2.7.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for non-indigenous species are that:

- the number of newly introduced non-indigenous species (NIS) is minimised and where possible reduced to zero
- the rate of spread of invasive NIS, because of human activities is minimised and reduced where possible

Overview

While the 2018 assessments concluded the UK had not yet achieved its aim of GES for NIS, progress has since been made in our ability to detect new non-indigenous species. Measures have been taken to help prevent the introduction of NIS, including Biosecurity Action Plans and the accession to the Ballast Water Management Convention, which will

have a positive impact. The number of new records of NIS did not change significantly between 2003 and 2014, though data limitations meant an accurate assessment of NIS spread was not possible. An agreed baseline of the level of acceptable NIS presence is needed so as accurately to assess and focus effort to reduce NIS introduction and spread.

The predominant pressures impacting the achievement of GES for NIS are shipping by hull fouling and ballast water, recreational boating, fishing, aquaculture, industrial practices and infrastructure, litter, and intentional and non-intentional releases. Marine NIS are also a particular challenge to remove once established. Climate change continues to exacerbate pathways of introduction and the spread of NIS and offshore installations act as stepping stones for NIS.

2.7.2 – Measures to achieve targets

In addition to the measures already established through the 2015 programme of measures, there are 7 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. Several research and development projects are underway to develop our understanding of NIS introduction, spread and impact. These are set out in the annex.

The following key UK-wide measures and actions are expected to further our progress towards achieving GES for NIS:

The UK acceded to the Ballast Water Management Convention (BWMC) in 2022, and UK domestic regulations entered into force the same year, titled ‘The Merchant Shipping (Control and Management of Ships’ Ballast Water and Sediments) Regulations 2022’ M7.8) These developments represent an important step towards reducing the risk of introduction and spread of marine NIS due to shipping.

Contingency plans for species that have yet to arrive in domestic British waters are in preparation by the GB Non-Native Species Secretariat and future progress will be achieved in part by developing and implementing species action plans, pathway action plans, and biosecurity plans (M7.1 to M7.5).

Furthermore, bringing together industry, regulating bodies and policy makers for initiatives such as the British-Irish Council’s Biosecurity in Aquaculture Working Group will help promote uptake of this guidance by industry, ensuring that the messaging is effective and that the protocols are achievable and well communicated.

Further detail on UK government and devolved government-specific measures for non-indigenous species is listed in the annex.

2.7.3 – Exceptions

Exceptions are applied for this descriptor under regulations 15(2)(a) and 15(2)(e) of the Marine Strategy Regulations 2010, as follows:

(a) action or inaction for which the United Kingdom is not responsible.
(e) natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Our ability to control introductions of NIS to the UK's waters is limited, given the transboundary nature of introductions, such as through ships in the Greater North Sea and Celtic Seas that do not implement ballast water management.

Once established, marine NIS are often very challenging to remove in a cost-effective manner and within the timeframes set out by our previous targets. Additionally, UK seas are subject to transboundary ingress of NIS due to climate change. It is extremely challenging to differentiate between the increase in range accessible to NIS because of climate change (which is not intended to be included in the indicator for this descriptor) and those introduced to non-native sites via human-mediate pathways.

There are, however, actions we are taking to work towards achieving GES for NIS. We have acceded to the BWMC in the UK and are taking measures to address the spread of NIS at a regional level.

2.8 – Commercial fish and shellfish (D3)

GES not achieved. Improving situation since 2012.

2.8.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for commercially exploited fish and shellfish are that:

- the fishing mortality rate of populations of commercially exploited species is at or below levels which can produce the Maximum Sustainable Yield (MSY) or equivalent metrics
- the Spawning Stock Biomass of populations of commercially exploited species are above biomass levels capable of producing the MSY

Overview

The 2018 assessment of GES reported that for some commercially exploited fish stocks the UK is achieving its aim of GES. This represents an increase of 33% and 46% in the percentage of fish stocks of UK interest being harvested below MSY since 1990 in the Greater North Sea and Celtic Seas, respectively.

However most national shellfish stocks have either not yet achieved GES, or their status is uncertain. The environmental status of commercial fish and shellfish is predominantly affected by the seafood industry, habitat loss or modification, natural drivers, and climate

change. Nevertheless, marine fish (quota) stocks are demonstrating recovery in reproductive capacity and reductions in fishing pressure in all areas.

2.8.2 – Measures to achieve targets

In addition to the measures already established through the 2015 programme of measures, there are 5 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures.

There are also 6 additional areas of action aimed at reducing uncertainty on the status of our commercial fish and shellfish populations, which will support the development of measures over the longer term. These are set out in the annex.

Recognising the gap between the assessment status of shellfish in 2018 and GES, a range of measures have been introduced to address unsustainable harvesting of shellfish (M8.5). These are set out in the annex.

The Fisheries Act 2020 (M8.1) is the fundamental piece of legislation responsible for facilitating achieving GES for Commercial Fish and Shellfish (D3) in UK seas. It provides a regulatory framework to manage commercial fishing activity.

The Fisheries Act contains precautionary, ecosystem and sustainability objectives which align closely with and will contribute significantly to the UKMS targets and GES, through ensuring that ‘exploitation of marine stocks restores and maintains populations of harvested species above biomass levels capable of producing maximum sustainable yield,’ as an example from the precautionary objective.

A Joint Fisheries Statement from the UK government and the devolved governments was published in November 2022. This sets the out how the Fisheries Policy Authorities will contribute to the delivery the Fisheries Act 2020 objectives alongside assisting in the delivery of GES. The JFS sets out how the Fisheries Policies Authorities will manage stocks at sustainable levels. Fisheries Management Plans, including those for non-quota shellfish stocks like crab and lobster, will act as evidence-based action plans with the purpose of delivering sustainable fisheries for current and future generations.

As set out in in the 2015 UKMS programme of measures and the annex, we continue to take steps to ensure fishing is at or below MSY and to deliver management that conserves stocks so that they remain at MSY. Measures introduced or updated since 2015 include:

- the Lobsters and Crawfish (Prohibition of Fishing and Landing) (Amendment) (England) Order 2017
- the Whelk Fishing (Wales) Order 2019
- the Edible Crabs (Conservation) Regulations (Northern Ireland) 2020
- the Marking of Creels (Scotland) Order 2020
- the UK National North Sea Cod Avoidance Plan (All in M8.5)

This reflects our commitments not only within the UKMS, but also our obligations under the Convention on Biological Diversity (M8.6) to ensure that all fish are harvested sustainably.

Due to the nature of the impacts of commercial fishing on the marine environment, many of the new measures adopted since the UKMS programme of measures review in 2015 can be viewed as having cross-cutting relevance and significance. For example, fisheries management measures which will be introduced in MPAs and HPMAs will make fundamental contributions to achieving GES, alongside new monitoring activities which will help to close data gaps and uncertainty on the efficacy of management measures (A8.2).

Other new measures such as the Clean Catch Bycatch Mitigation Hub (M8.4) are relevant across descriptors, with cetaceans and other sensitive marine species benefiting from this new activity. The bycatch mitigation hub has been built to host information about bycatch mitigation in one place, searchable by gear type, species and mitigation type. It serves as a record of mitigation measures trialled in different fisheries around the world, and whether they have been successful or not.

Finally, to increase understanding of the environmental impacts of offshore wind and support strategic solutions to manage and mitigate impacts, the UK government and devolved governments are considering or have under development programmes exploring and developing mechanisms to enable delivery of the UK government's offshore wind ambition while still protecting the marine environment including risks to sensitive fish species, from offshore wind development.

Further detail on UK government and devolved government-specific measures for commercial fish and shellfish is listed in the annex.

2.8.3 – Exceptions

It will take several years or more for stocks to respond to the various existing and planned measures to reduce exploitation rates and protect fish, elasmobranch, and shellfish species, and to achieve the desired length, or biomass of such species. As such, exceptions are being applied for this descriptor under regulations 15(2)(a) and 15(2)(e) of the Marine Strategy Regulations 2010, as follows:

(a) action or inaction for which the United Kingdom is not responsible.
(e) natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Fish

There is a high degree of confidence that the new legal framework under the Fisheries Act 2020 will lead to healthier fish populations and reductions in unwanted catches. Whilst the UK will seek to set sustainable catch limits, informed by the best available science, the TACs for quota stocks will be subject to negotiation through annual fisheries consultations with the EU and other coastal states. For shared non-quota stocks without TAC limits, the UK and EU are working to develop multi-year strategies to improve fisheries management and the evidence and data gathering which underpins this. Therefore, the UK will not be able unilaterally to achieve the targets without international cooperation.

Crabs and lobsters

Lack of robust data and understanding of the underlying biology of shellfish populations presents challenges to determining sustainable reference points, including safe biological limits and the age and size distribution of a healthy stock. Research and monitoring programmes are on-going to tackle these challenges.

A crab and lobster FMP for England was published in 2023 and a crab and lobster FMP for Welsh waters is due in 2026. Lobsters and 2 crab species (edible and velvet) will also be included in the Northern Ireland Inshore FMP, also due in 2026. Stock assessments by the Scottish Government indicate that crab and lobster in many areas are being exploited at close to or above recommended levels.

The Scottish Government has progressively worked to implement tighter landing controls and complement this with a tailored management approach via the Regional Inshore Fisheries Group network. This network is actively engaged with inshore fishing businesses prosecuting these resources, facilitating co-managing fisheries improvement projects, including temporal and spatial controls on fishing effort.

Scallops

It can be challenging to determine whether all scallop stocks are fished at sustainable levels and whether additional measures are required, as relevant data is limited for these stocks. However, monitoring programmes are in place, and we are taking forward further initiatives to improve our understanding of stock status. Most prominent amongst these activities is the development of the king scallop FMP for England and Wales (2023) and queen scallop FMP for England (due to be published in 2025). In Northern Ireland, the inshore FMP will also include king and queen scallop fisheries.

2.9 – Food webs (D4)

GES partially achieved. Improving situation since 2012.

2.9.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for food webs are that:

- the species composition and relative abundance within representative feeding guilds are indicative of a healthy marine food web
- the balance of abundance between representative feeding guilds is indicative of a healthy food web
- the size structure of fish communities is indicative of a healthy marine food web
- productivity of each of the representative feeding guilds, characterised by key species, is indicative of a healthy marine food web

Overview

The 2018 assessment concluded that the extent to which GES has been achieved for food webs is uncertain: plankton communities are changing, some fish communities are recovering, but others are not, breeding seabird populations are in decline, grey seal numbers are increasing and trends in cetacean populations are unclear. It is known that components of the marine food web are changing, but it is not clear what is causing them or how they are affecting each other.

Changes in both predator-prey interactions and plankton communities have been documented. Prevailing oceanographic and climatic conditions are likely to be driving these changes, particularly at the base of the food web. However, it is unknown what the full extent of changes in predator-prey interactions will be, or how climatically driven changes in plankton will affect the rest of the food web. In addition, the cumulative effects of pressure from human activities on the food web are unclear.

The uncertainty regarding the attainment of GES for this descriptor would be reduced by:

- working with other countries to develop suitable indicators which will provide a robust assessment of food web health
- increased evaluation of the efficacy of GES measures and their impact on Food Web GES targets
- implementation of cohesive and coordinated monitoring, for example, between inshore and offshore, to collect data on the right species at the right time, to enable more comprehensive assessments
- expertise and evidence to distinguish between human activity and climatically driven changes impacting plankton and benthic food webs
- improved understanding of the extent of changes in predator-prey interactions, including adoption and refinement of zooplankton indicators to link to feeding condition of forage fish and incorporation of top predators into fisheries food web models

As monitoring improves for ecosystem components of GES, the relationships between trophic levels will become clearer. Using refined ecosystem models, we aim to evaluate food web status under different environmental and management scenarios.

2.9.2 Measures to achieve targets

In addition to measures already in place, the main new measures to address the targets for food webs have been outlined elsewhere in this document, particularly under the biodiversity, commercial fisheries, and eutrophication descriptor sections. There are also 2 significant new cross-cutting measures for food webs.

The Fisheries Act 2020, which establishes a regulatory framework to manage commercial fishing activity in the UK. The Act includes an ecosystem objective that fish and aquaculture

activities should be managed using an ecosystem-based approach to ensure their negative impacts on marine ecosystems are minimised and, where possible, reversed (M9.1).

We are using historical fish data to establish a baseline from which to measure ecosystem change. We are cooperating within OSPAR, and through the EURO-MARINE and ICES networks, to make best use of data previously collected and identify gaps for future data collection (A9.2).

Sandeel Natural Capital Account for the North Sea, led by Natural England for the marine Natural Capital Ecosystem Approach programme (mNCEA) in its proof-of-concept year (2021 to 2022). This demonstrated how a reduced or nil Sandeel catch could lead to wider ecological benefits for other parts of the ecosystem, including other commercial fish, marine mammals, and seabirds (A9.5).

Following a public consultation by Defra in 2023, fishing for sandeel in English waters of the North Sea has been prohibited indefinitely from 26 March 2024. The Scottish Government is also prohibiting fishing for sandeel in all Scottish waters following the outcome of a public consultation in 2023; with the measures coming into force from the same date (M9.3).

Further detail on UK government and devolved government-specific measures for food webs is listed in the annex.

2.9.3 – Exceptions

No exception is being applied for this descriptor. Though exceptions have been applied for components of the food web, too much uncertainty surrounds the status of food webs as a whole to determine whether an exception is necessary.

2.10 – Eutrophication (D5)

GES achieved. Stable situation since 2012.

2.10.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for eutrophication are that:

- nutrient concentrations are below the levels which could lead to harmful eutrophication effects
- Chlorophyll-a concentrations are below levels which could lead to harmful eutrophication effects
- dissolved oxygen content in coastal waters are above levels which could lead to harmful eutrophication effects

Overview

The 2018 assessments concluded the UK has largely achieved GES for eutrophication. A small number of eutrophication problems remain in coastal and estuarine waters with limited water circulation, representing 0.03% of the total UK Exclusive Economic Zone, and 0.41% of estuarine and coastal waters.

National measures will address most of the small number of areas identified as eutrophic, however in some cases other localised measures may also be required and will be set out in the River Basin Management Plans (RBMPs) (M10.5).

One of the difficulties is that these small areas frequently contain substantial reservoirs of nitrogen and phosphorus locked in sediments, which can take decades to dissipate long after measures have been put in place.

2.10.2. Measures to achieve targets

In addition to the measures already implemented through the 2015 programme of measures, there are 17 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. Research on nutrient ratios will be carried out to identify if additional measures are needed. These are set out in the annex.

The suite of measures which will contribute to the maintenance of GES for eutrophication include:

- future environmental land management schemes which will pay for sustainable farming practices, create habitats for nature recovery and make landscape-scale environmental changes (M10.6)
- regulations that have been adopted to prevent water pollution from Agriculture (M10.3, M10.4 and M10.5) and, using powers under the Environment Act 2021, an agriculture water target has been set for England (M10.2)
- a range of UK-wide approaches to support rural development that are being piloted and established (M10.7)
- a major cross-border programme of work aimed at improving water quality in the shared waters between Northern Ireland and Ireland through enhanced wastewater treatment (M10.13) has been introduced
- Scotland’s River Basin Management Plans, published in December 2021, set objectives aiming to improve the number of waterbodies at good status or better for water quality from 86% (2020) to 92% by 2027
- the framework for Finfish aquaculture in Scotland has been strengthened and includes requirements to protect the marine environment from nutrients discharged from aquaculture (M10.16)

Several new freshwater river bodies in England have also been designated as sensitive under Urban Waste Water Treatment (England and Wales) Regulations 1994. Water companies will be required to put in place additional treatment at qualifying sewage treatment works within 7 years of designation, to reduce nutrient (phosphorus) discharge into the environment (M10.15). Using powers under the Environment Act 2021, a wastewater target has been set for England to reduce phosphorus loadings from wastewater discharges into freshwater by 80% by end 2038 (against a 2020 baseline), with an interim target to reduce loadings by 50% by 2028 (M10.2).

In areas particularly affected by nutrient pollution, we are going even further. The Levelling-up and Regeneration Act 2023 created a new duty for water companies in designated catchments, to ensure wastewater treatment works serving a population equivalent over 2,000 meet specified nutrient removal standards. In January 2024, we designated catchments in which water companies are required to upgrade wastewater treatment works before 1 April 2030.

Further detail on UK government and devolved government-specific measures for eutrophication is listed in the annex.

2.10.3 – Exceptions

No exception is being applied for this descriptor.

2.11 – Hydrographical conditions (D7)

GES achieved. Stable situation since 2012.

2.11.1 – Overview and targets

Targets used to assess progress

The UKMMAS target for hydrographical conditions is that all significant marine infrastructure developments must meet licensing conditions to ensure they do not adversely affect the marine ecosystem

Overview

The 2018 assessment concluded that the UK had achieved its aim of GES for hydrographical conditions. However, we are mindful that the expansion of marine infrastructure is likely to place increasing pressure on GES for this descriptor. Increasing our understanding of cumulative pressures could enhance environmental protections in spatial prioritisation processes and marine regulation.

2.11.2 – Measures to achieve targets

The UK will maintain its achievement of GES for hydrographical conditions by continued use of the measures set out the 2015 programme of measures. The hydrographical conditions descriptor does not have indicators. Its target centres around compliance and relies on regulation and licensing to prevent or mitigate adverse impacts. Planning frameworks, including marine planning under the:

- Marine and Coastal Access Act 2009
- Marine (Scotland) Act 2010
- Marine Act (Northern Ireland) 2013
- Planning Act 2008
- Planning Act (Northern Ireland) 2011
- Planning etc. (Scotland) Act 2006
- National Policy Statements (England and Wales)
- National Planning Framework (Scotland)

They ensure coordinated regulation and provide large scale assessment of the risks associated with coastal processes, supporting sustainable management and development.

2.11.3 – Exceptions

No exception is being applied for this descriptor.

2.12 – Contaminants (D8)

GES achieved. Improving situation since 2012.

2.12.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for contaminants are that:

- concentrations of contaminants measured in water, sediment or marine biota comply with appropriate threshold values
- biological or ecological effects on sea life due to contaminants are below thresholds agreed by OSPAR
- occurrence and extent of significant acute pollution events are minimised
- the adverse effects of significant acute pollution events on the health of species and on the condition of habitats (such as their species composition and relative abundance) are minimised and, where possible, eliminated

Overview

The 2018 assessment concluded the UK has largely achieved its aim of GES for contaminants. Concentration of hazardous substances and their biological effects are generally meeting agreed target thresholds. Highly persistent legacy chemicals are the cause of the few failures, mainly in coastal waters close to polluted sources.

Whilst GES has been achieved, with the situation improving, there is uncertainty about polybrominated diphenyl ethers (PBDEs) in biota and in sediment. GES for contaminants is subject to harmful or hazardous substances being put into the marine environment, primarily because of agricultural, urban, and industrial activities, wastewater treatment and disposal, restructuring of the seabed (for example, by dredging or depositing materials), from transport, or extraction of oil and gas and its infrastructure.

Actions to address the following would support the maintenance of GES related to Contaminants (D8) and the further safeguarding of the UK marine environment:

- legacy chemicals in sediment and biota
- new chemicals or groups of chemicals with the potential to adversely impact sea life and human health that are continually being identified (for example, per- and polyfluoroalkyl substances: PFAS)

2.12.2 – Measures to achieve targets

In addition to the measures already set through the 2015 programme of measures, there are 8 measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures and actions that will be taken to identify and monitor emerging contaminants. These are set out in the annex.

This suite of measures will contribute to the maintenance of GES for contaminants and the further safeguarding of the UK marine environment. This will be achieved in part through

- protecting the environment from anthropogenic emissions of mercury and mercury compounds (M12.2 and M12.3)
- preventing discharges of oil and chemicals into the sea by ships (M12.7 to M12.9)
- reducing the impact of Combined Storm Overflows (CSO) on water quality including through increased monitoring and the development of a new Storm Overflow Assessment Framework (SOAF) in Wales (M12.5)
- the development of a Storm Overflows Discharge Reduction Plan in England (M12.6) which requires water companies to secure the largest infrastructure programme in water company history – £56 billion capital investment over 25 years
- Drainage and Wastewater Management Plans for Wales published by water companies in 2022 and the new Storm Overflow Assessment Framework (SOAF) that use CSO monitoring data to identify ‘high’ spilling assets (more than 60 annual spills) on inland waters and target them for remedial work

- the Shared Waters Enhancement and Loughs Legacy (SWELL) project, which aims to improve water quality in the shared waters between Northern Ireland and Ireland through enhanced wastewater treatment
- Scotland's River Basin Management Plans, published in December 2021, set objectives aiming to improve the number of waterbodies at good status or better for water quality from 86% (2020) to 92% by 2027 and 98% in the long-term and the framework for Finfish aquaculture in Scotland has been strengthened and includes requirements to protect the marine environment from nutrients discharged from aquaculture
- work is being conducted nationally and through OSPAR to identify and monitor chemicals of emerging concern and the risk that they pose to the marine environment (A12.1 and A12.3), this will enable us to determine if further measures are required

Further detail on UK government and devolved government-specific measures for contaminants is listed in the annex.

2.12.3 – Exceptions

An exception is to be applied for this descriptor under regulation 15(2)(e) of the Marine Strategy Regulations 2010, as follows:

> (e) natural conditions which do not allow timely improvement in the status of the marine waters concerned

In the updated UKMS part one (2019), we stated that whilst there is already a high degree of compliance for many of the contaminants assessed, it is unlikely that GES would be fully achieved. This is due to the highly persistent nature of the Persistent, Bioaccumulative and Toxic legacy chemicals (for which most uses have been banned for many years). Projections by ICES show that it may be many decades before some of these chemicals fully degrade from marine sediments in the sea. We therefore believe that an exception under regulation 15(2)(e) is justified.

To reduce the emissions of Persistent Organic Pollutants (POPs) to the environment, the Stockholm Convention on POPs requires countries to take measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POPs wastes in an environmentally sound manner.

The UK government in collaboration with devolved governments is seeking to eliminate the production of PCBs by 2025, in line with the UK's commitments under the Stockholm Convention and is seeking substantially to increase the amount of POPs material being destroyed or irreversibly transformed by 2030, to make sure there are negligible emissions to the environment.

2.13 – Contaminants in seafood (D9)

GES achieved. Improving situation since 2012.

2.13.1 – Overview and targets

Targets used to assess progress

For contaminants where regulatory levels have been set, and a risk assessment has indicated that concentrations in some commonly eaten seafood may be of concern to the public if they exceed current precautionary advice to restrict consumption of certain higher risk species, there should be a high rate of compliance based on relevant surveys and including samples originating from commercial fishing grounds in the Greater North Sea and the Celtic Seas.

Read more about UKMMAS targets for contaminants in seafood.

Overview

The 2018 assessment concluded the UK had achieved its aim of GES for contaminants in seafood and that there was a high level of compliance with agreed safety levels, however the following pressures have been identified and will continue to be monitored through appropriate periodic risk-based surveys to check that agreed safety levels continue to be met:

- discharges, missions, and losses of persistent, toxic and bioaccumulating synthetic and non-synthetic chemicals as pesticides, such as pesticides, antifoulants, pharmaceuticals, heavy metals and hydrocarbons from various sources which impact the marine environment

Additionally, to support the maintenance of GES for contaminants in seafood, we must also consider the health impacts of ingesting micro and nano-sized plastics (less than 150 micrometres) (µm) and their chemical contaminants which are still not completely understood. The WHO has raised concerns and called for more research to be conducted on the effects of microplastics on human health.

The UK Committee on Toxicity (COT) considers the potential toxicological risks of microplastics on an ongoing basis, including ingested nano plastics, based on current scientific literature and data (such as, published COT Statements).

2.13.2 Measures to meet targets

As the UK continues to achieve its aim of GES for contaminants in seafood, we will maintain GES by continued use of existing measures set out in the 2015 programme of measures. Background contamination in the marine environment is relatively stable and we anticipate that measures to reduce emissions through measures being taken to address overall contaminants (D8) should lead to a gradual lowering of contaminant levels in seafood.

Nevertheless, we will continue to be vigilant in relation to emerging risks including those identified from D8 activities and from other information sources and will carry out investigations as necessary to ensure that appropriate risk management measures are in place to protect seafood consumers.

Further detail on UK government and devolved government-specific measures for contaminants in seafood is listed in the annex.

2.13.3 – Exceptions

No exception is being applied for this descriptor.

2.14 – Marine litter (D10)

GES not achieved. Stable situation since 2012.

2.14.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for marine litter are that:

- a decrease in the total amount of the most common categories of litter found on surveyed beaches
- a downward trend in the number of northern fulmars with more than 0.1 grams (g) of plastic particles in their stomach
- a decrease in the number of items of litter on the seabed
- develop an appropriate indicator to measure microlitter in the marine environment

Overview

The 2018 assessment concluded that GES had not been achieved, but that the situation remained stable. A challenge for carrying out robust assessments is that we are faced with a yet unquantified, and likely increasing, baseline for marine litter globally. Further harmonisation on counts and a better understanding of how different gear types catch litter is needed to better understand the amounts of litter on the sea floor. Predominant pressures influencing GES for marine litter are:

- marine spatial land claim
- the seafood industry
- tourism and leisure
- transport
- pollutants and terrestrial inputs

2.14.2 – Measures to achieve targets

In addition to the measures already set through the 2015 programme of measures, there are 28 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 5 additional areas of action

aimed at reducing our uncertainty on the status of marine litter in our seas, which will support the development of measures over the longer term. These are set out in the annex.

The following suite of measures is expected to contribute to the achievement of GES in regard to marine litter:

UK nations are working to prevent plastic from entering the environment in the first place by making producers more responsible for the plastic they make and eliminating the most problematic plastic items. Legislation to restrict the supply of certain single-use plastic items has been introduced across UK nations (M14.15 to M14.18) and extended producer responsibility schemes will be introduced across the UK, on a phased basis from 2024 (M14.14).

Since April 2022, a plastic packaging tax has applied to plastic packaging manufactured in, or imported into the UK, which does not contain at least 30% recycled plastic.

The UK government and devolved governments are working with the fishing industry to develop solutions for the collection and recycling of end-of-life fishing gear (M14.22).

Furthermore, to tackle microplastics, a UK-wide ban on microbeads in rinse off personal care products has been introduced. The UK government and devolved governments supported the development and publication of the first handling and management standard for plastic pellets, the second largest source of microplastic pollution globally.

As a Contracting Party to OSPAR, the UK has supported the development and implementation of the second Regional Action Plan on Marine Litter, which was launched in June 2022.

The UK government in collaboration with the devolved governments co-sponsored the proposal to prepare a new international, legally binding treaty on plastic pollution. At the United Nations Environment Assembly in March 2022, countries agree to prepare a new treaty, with the aim of completing their work by 2024. The UK took an ambitious stance at the first Intergovernmental Negotiating Committee (INC1) in November 2022, calling for a treaty that will restrain the production and consumption of plastic to sustainable levels, ensure the design of plastic enables a circular economy and encourage more recycling and re-use of plastic.

At the second meeting (INC2) in May 2023, the critical decision was agreed to produce the first draft of the treaty to be negotiated at INC3 (November 2023), keeping the world on track to agree a new treaty by 2024. The UK joined the High Ambition Coalition to End Plastic Pollution as a founding member, which is now a group of over 50 countries calling for an ambitious treaty that will end plastic pollution by 2040.

Further detail on UK government and devolved government-specific measures for marine litter is listed in the annex.

2.14.3 – Exceptions

As it will take time for the effects of these measures to be seen in the marine environment, an exception is being applied for this descriptor under regulation 15(2)(e) of the Marine Strategy Regulations 2010, as follows:

(e) natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Levels of marine litter assessed in part one of the UKMS do not meet the definition for GES. However, we propose to introduce a suite of measures which will tackle many of the commonly found macro plastics at source – see the annex. While this is ambitious, we expect to begin to see a reduction in these items during the upcoming cycle of the UKMS (2022 to 2028) allowing us to reach GES in the longer term.

2.15 – Underwater noise (D11)

GES partially achieved. Stable situation since 2012.

2.15.1 – Overview and targets

Targets used to assess progress

The UKMMAS targets for underwater noise are hat:

- levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals
- levels of anthropogenic continuous low-frequency sound do not exceed levels that adversely affect populations of marine animals

Overview

The 2018 assessment concluded that the achievement of GES for underwater noise in the UK is uncertain. Research and monitoring programmes established since 2012 have provided an improved understanding of the impacts of sound on marine ecosystems.

Descriptors are now threshold rather than trend based. The primary uncertainties for defining GES thresholds are on the levels of noise which lead to population-level effects, a problem which is likely to be insoluble for most species. Therefore, more risk-based approaches to threshold setting are likely to be required for the foreseeable future.

2.15.2 – Measures to achieve targets

In addition to the measures already set through the 2015 programme of measures, there are 6 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this programme of measures. There are also 11 additional areas of action aimed at reducing our uncertainty on the status of underwater noise, which will support the development of measures over the longer term. These are set out in the annex.

The following suite of measures and actions serve to further our progress towards achieving GES for underwater noise:

The North-East Atlantic Environment Strategy 2021 to 2030 (M15.1), which will contribute towards developing noise thresholds.

The UK government and devolved governments are considering or have under development programmes to explore and develop mechanisms to enable delivery of the government's offshore wind ambition while still protecting the marine environment.

Other measures under this heading include Defra's dedicated underwater noise project, part of the Offshore Wind Enabling Actions Programme (OWEAP). As part of the OWEAP, other measures for underwater noise are being developed. This includes publication of the UK's revised joint position statement which sets out that low noise methods of clearance should be the default method used to clear any type of unexploded ordnance in the marine environment, restricting high-order detonations to extraordinary circumstances only or as a last resort.

It also includes Defra's Marine Noise policy paper which sets out that all offshore wind pile driving activity across all English waters will be required to demonstrate that they have utilised best endeavours to deliver noise reductions. This will be followed by designing and consulting on a potential noise limit to further reduce noise levels from offshore wind construction.

In Scotland, the Scottish Marine Energy Research (ScotMER) (A15.7) identifies the evidence needs for the consenting and planning of offshore wind and specifically identifies needs relating to noise across several receptors (benthic, fish and fisheries, diadromous fish, marine mammals) and facilitates strategic research for the highest priority areas

In Northern Ireland, the DAERA consultation on proposed measures for the use of fast craft and personal water craft in MPAs launched in June 2022 and closed in September 2022, with management measures to be finalised by April 2023 and published in 2024

In Scotland, measures associated with activities involving noise production in the marine environment include the Aquaculture Code of Practice brought into force by the Fish Farming Code of Practice (Scotland) Order 2021 (M15.3) and the Scottish Marine Wildlife Watching Code (updated in 2017) (M15.5)

Further detail on UK government and devolved government-specific measures for underwater noise is listed in the annex.

2.15.3 – Exceptions

No exception is applied for this descriptor.

Section 3: Cross-cutting measures

There are several broad policies whose implementation and delivery mechanisms are expected to have a positive impact in supporting the delivery of GES across a wide range of descriptors and ecosystem components. It should be noted that the delivery mechanism may vary across the 4 countries.

Where these have specific relevance to a particular descriptor, we have endeavoured to reference this against that descriptor. These include:

The Fisheries Act 2020

The Fisheries Act 2020 will make a positive contribution to the achievement of the GES targets proposed for cetaceans, seals, birds, fish, commercial fish, food webs and benthic and pelagic habitats, by providing a comprehensive regulatory framework to manage fishing activity through a Joint Fisheries Statement from the UK government and the devolved governments was published in November 2022. This sets out how the UK Fisheries Policy Authorities will achieve the objectives set out in the act and contribute to the delivery of GES.

The JFS sets out the overall purpose of fisheries management plans (FMPs). FMPs are a new provision under the act that will support the fisheries objectives of the Act and the sustainable management of stocks. They will be evidence-based action plans, developed in collaboration with the fishing sector and other stakeholders, with the purpose of delivering sustainable fisheries for current and future generations.

River Basin Management Plans

River Basin Management Plans (RBMPs) measures, and delivery mechanisms included in the RBMPs contribute or will contribute towards the achievement of GES in estuarine and coastal waters, and in certain cases the wider marine environment.

MPAs and HPMAs

The UK's network of MPAs, as well as Other Effective area-based Conservation Measures (OECMs) (areas that are achieving the long term and effective *in-situ* conservation of biodiversity outside of protected areas), form an integral component of the proposed

programme of measures for achieving GES, particularly for benthic habitats. In England, HPMAs will provide additional protection over and above the existing MPA network by preventing all extractive, destructive or depositional activities likely to hinder the HPMA conservation object while allowing other activities that are unlikely to be a hindrance.

MPA networks can act as a nature-based solution to improve the state of UK seas, address biodiversity loss, and ensure a more climate resilient marine ecosystem which will deliver benefits for GES.

In England, the UK government designated the first 3 HPMAs in summer 2023.

In Scotland, fisheries management measures are being developed for MPAs where they are not already in place and protective management measures are also being developed for the 11 benthic priority marine features most affected by bottom-contacting mobile fishing gear outside MPAs.

In Northern Ireland, DAERA has prohibited certain gear types in some Northern Irish MPAs (M6.4) and are in the process of reviewing Northern Ireland's MPA Strategy (M6.9) and developing a Blue Carbon Action Plan (M6.10).

In Wales, the Welsh Government has committed to designating further Marine Conservation Zones (MCZs) focusing on benthic features identified by habitat gap analysis. Potential sites have been identified primarily in the Welsh offshore region, with a view to designating smaller areas within this. A consultation is expected to launch in 2024. Supporting this is the Welsh MPA management framework, accompanied by a grant scheme, to fund actions to address pressures and threats, and improve understanding (A6.1).

Offshore, several Vulnerable Marine Ecosystems (VMEs) in England have also been designated for protection against bottom-contacting mobile fishing gear. 98 inshore MPAs have management measures in place to protect sensitive features from methods of bottom towed fishing gears, with plans to add more fisheries management bylaws in offshore MPAs as needed (M6.2).

Offshore wind

Offshore wind will play a pivotal role in our clean energy mission and this Government is committed to radically increasing offshore wind deployment by 2030, as outlined in the Clean Power Action Plan. The UK government and devolved governments are considering or have under development programmes to explore and develop mechanisms to enable delivery of the government's offshore wind ambition while still protecting the marine environment.

In Scotland, the Scottish Marine Energy Research (ScotMER) programme identifies the evidence needs for the consenting and planning of offshore wind and specifically identifies

needs relating to noise across several receptors (benthic, fish and fisheries, diadromous fish, and marine mammals) and facilitates strategic research for the highest priority areas.

In England, Defra has committed to implementing an Offshore Wind Environmental Improvement Package (OWEIP) through a mixture of legislation and policy. The OWEIP will:

- review and streamline Habitats Regulations and Marine Conservation Zone Assessments for marine aspects of offshore windfarm developments
- enable measures to compensate for adverse effects to be undertaken at a strategic scale
- introduce a Marine Recovery Fund to deliver strategic compensatory measures
- deliver Offshore Wind Environmental Standards
- develop a strategic approach to environmental monitoring

National adaptation programme

In the UK we are committed to ensuring that climate change adaptation, resilience and mitigation are fully considered and integrated in our marine policies.

Under the Climate Change Act, the UK Government committed to laying policies and proposals before the UK Parliament to address risks identified by the third Climate Change Risk Assessment (CCRA3). The UK Government will do so through the third national adaptation Programme (NAP), published in July 2023.

National governments in Northern Ireland, Wales and Scotland are responsible for their own respective adaptation programmes. In the case of Scotland, there is a devolved statutory framework on adaptation set out through the Climate Change (Scotland) Act 2009. The third Scottish National Adaptation (SNAP3) was launched in September 2024 and outlines how Scotland is preparing for the impacts of climate change over the period to 2029.

Climate change mitigation and adaptation

Climate change was identified as one of the key pressures affecting the marine environment in the UKMS part one. As outlined above, the UK government and devolved governments are taking a range of actions to mitigate climate change and adapt to its impacts (M16.1) These include:

- climate change adaptation policy information
- Scotland Policies Climate Change
- Wales Climate Action
- Northern Ireland Climate Change Adaptation Programme

Other government-specific cross-cutting measures

In England, the Environment Act 2021 (which includes a new target for MPAs) and the EIP 2023.

In Scotland, the draft Biodiversity Strategy for Scotland final version and 5-year Delivery Plan, including for marine were consulted on in late 2023. As part of this, the Scottish Government also committed to introduce a Natural Environment Bill to put in place key legislative changes that will restore and protect nature in our seas, including, but not restricted to, targets for nature restoration, and an effective, statutory, target-setting monitoring, enforcing, and reporting framework.

The publication of Northern Ireland's first overarching Environment Strategy (subject to Executive agreement).

The Environment (Wales) Act 2016 and Well-being of Future Generations (Wales) Act 2015.

The marine NCEA programme is leading the way in integrating natural capital evidence and approaches into policy and decision making for marine and coastal environments. This includes delivery of a comprehensive monitoring programme in the pelagic and seabed environments of English inshore and offshore waters, collecting data on the extent, condition and change over time of our natural capital assets and the services they provide. This data will support assessments across multiple UKMS indicators and help measure our progress towards achieving GES in our seas. The programme is further exploring how natural capital approaches can help us to achieve and maintain GES, including the development and refinement of measures.

Annex 1 – new measures since 2015

This annex outlines the measures that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS part three. These include both measures that we have introduced since 2015 and those that we plan to adopt in the coming years for which funding has already been committed. Measures under this section have been allocated a 'M' number and actions an 'A' number.

This number is not reflective of the importance of any particular initiative. The numbering is in place to help refer to initiatives quickly and easily without breaking the flow of the text referring to it.

Cetaceans (D1 and D4)

Measures for cetaceans that have been amended or developed over the current cycle of the UKMS or are completely new measures in the 2024 UKMS part three:

- M1.1 – UK Cetacean Conservation Strategy. Consultation closed on 14 June 2021. Publication in 2023 to 2024
- M1.2 10 – Special Areas of Conservation (SACs) designated by the end of 2019
- M1.3 – Scottish Government designations for minke whales, Sea of the Hebrides and Southern Trench, and for Risso's dolphin, North East Lewis in 2020
- M1.4 – 2019 Species Action Plan for North-east Atlantic common dolphin (Delphinus delphis)
- M1.5 – 4 Marine Management Organisation (MMO) byelaws in offshore MPAs in England, restricting fishing activities, including bottom-towed gear (in specified areas):
    - the Dogger Bank Special Area of Conservation (Specified Area) Bottom Towed Fishing Gear Byelaw 2022)
    - the Inner Dowsing, Race Bank and North Ridge Special Area of Conservation (Specified Areas) Prohibited Fishing Gears Byelaw 2022
    - the South Dorset Marine Conservation Zone (Specified Area) Bottom Towed Fishing Gear Byelaw 2022
    - the Canyons Marine Conservation Zone (Specified Area) Prohibited Fishing Gears Byelaw 2022
- M1.6 – Fisheries Act 2020 with policies outlined in the Joint Fisheries Statement (JFS)
- M1.7 – Future Fisheries (Scotland): Management Strategy 2020 to 2030
- M1.8 – Clean Catch bycatch mitigation hub
- M1.9 – Clean Catch UK
- M1.10 – Updated UK Bycatch Monitoring Programme and new Marine Mammal Bycatch Reporting Requirements as of 2021
- M1.11 – The Fish Farming Code of Practice (Scotland) Order 2021 approves the code of practice entitled 'Aquaculture Code of Practice: Containment of and Prevention of Escape of Fish on Fish Farms in relation to Marine Mammal Interactions', which was issued by the Scottish Ministers on 21 September 2021 ('the Code')
- M1.12 – Scottish Entanglement Alliance (SEA) monitoring and engagement programme launched in 2018 for improving understanding and developing mitigation of marine animal entanglements in Scottish waters
- M1.13 – Scottish Marine Wildlife Watching Code updated 2017
- M1.14 Welsh regional codes (for example, the Ceredigion Marine Code, Pembrokeshire Marine Code and Gwynedd Marine Code)
- M1.14 – Wild Seas Wales and the Wales Coast Explorer app
- M1.15 – Operation Seabird
- M1.16 – The Fish Farming Code of Practice (Scotland) Order 2021 and associated Code in relation to interactions with marine mammals. Aquaculture: Code of Practice. the code includes guidance and mandatory standards in relation to the use of containment measures and deterrents, including ADDs, and reporting of bycatch

- M1.17 – DAERA consultation on proposed measures for the use of fast craft and personal water craft in MPAs launched in June 2022 and closed in September 2022, management measures to be finalised by April 2023 and published in 2024

Activities addressing uncertainty and supporting measures development

- A1.1 – Offshore Wind Enabling Actions Programme (OWEAP)
- A1.2 – Offshore Wind Environmental Evidence Register
- A1.3 – POSEIDON project
- A1.4 – ECOWind programme
- A1.5 – PrePARED (Predators and Prey Around Renewable Energy Developments)
- A1.6 – Marine Noise Registry
- A1.7 – Continuation of and expansion of SCANS surveys: SCANS IV surveys were undertaken in 2022. SCANS-III is a large-scale ship and aerial survey to study the distribution and abundance of cetaceans in European Atlantic waters
- A1.8 – The Collaborative Oceanography and Monitoring for Protected Areas and Species (COMPASS)
- A1.9 – The East Coast Marine Mammal Acoustic Study (ECOMMAS)
- A1.10 – Joint Monitoring Programme for Ambient Noise in the North Sea project (JOMOPANS)
- A1.11 – Joint Framework for Ocean Noise in the Atlantic Seas (JONAS)
- A1.12 – Joint Cetacean Data Programme
- A1.13 – Scottish Marine Energy Research Programme (ScotMER)
- A1.14 – UK Offshore Energy Strategic Environmental Assessment (SEA) Research Programme
- A1.15 – Wales MPA Management Action Plan
- A1.16 – Soundscapes of the Atlantic Frontier (SAMOSAS): Monitoring cetacean occurrence and ambient sound levels in Scottish offshore waters
- A1.17 – MMSS: Marine Mammal Scientific Support Programme (Scotland). Led by the Scottish Mammals Research Unit (SMRU)

Seals (D1 and D4)

Measures for seals that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS part three:

- M2.1 – 4 MMO byelaws in offshore MPAs in England, prohibiting (at least) all bottom-towed gear (in specified areas) (see section 2.1.5 for details)
- M2.2 – Fisheries Act 2020
- M2.3 – Future Fisheries (Scotland): Management Strategy 2020 to 2030
- M2.4 – Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020
- M2.5 – Marine wildlife bycatch mitigation initiative
- M2.6 – Clean Catch UK
- M2.7 – Marine Mammal Bycatch Reporting Requirements

- M2.8 – Give Seals Space campaign 2021
- M2.9 – Global Ghost Gear initiative (GGGI)
- M2.10 – Scottish Entanglement Alliance (SEA) 2018
- M2.11 – Scottish Marine Wildlife Watching Code 2017
- M2.12 – Welsh regional codes (for example, the Ceredigion Marine Code, Pembrokeshire Marine Code and Gwynedd Marine Code)
- M2.13 – Wild Seas Wales and Wales Coast Explorer app
- M2.14 – Operation Seabird
- M2.15 – Marine and Coastal Wildlife Code
- M2.16 – Fish Farming Code of Practice (Scotland) Order 2021 which approves the Aquaculture Code of Practice: Containment of and Prevention of Escape of Fish, on Fish Farms in relation to Marine Mammal Interactions'. The Code includes guidance and mandatory standards in relation to the use of containment measures and deterrents, including ADDs and reporting of bycatch
- M2.17 – MSSPP Increased effort in SE England Seal monitoring of harbour seals
- M2.18 – DAERA consultation on proposed measures for the use of fast craft and personal watercraft in MPAs launched in June 2022 and closed in September 2022, management measures to be finalised by April 2023 and published in 2024

Activities addressing uncertainty and supporting measures development

- A2.1 – The Marine Protected Area Management and Monitoring (MarPAMM) project
- A2.2 – OWEAP
- A2.3 – Offshore Wind Environmental Evidence Register
- A2.4 – POSEIDON project
- A2.5 – ECOWind programme
- A2.6 – PrePARED (Predators and Prey Around Renewable Energy Developments)
- A2.7 – Special Committee on Seals (SCOS)
- A2.8 – Marine Noise Registry
- A2.9 – Wales MPA Management Action Plan
- A2.10 – The Collaborative Oceanography and Monitoring for Protected Areas and Species (COMPASS)
- A2.11 – Joint Monitoring Programme for Ambient Noise in the North Sea project (JOMOPANS)
- A2.12 – Joint Framework for Ocean Noise in the Atlantic Seas (JONAS)
- A2.13 – UK Offshore Energy Strategic Environmental Assessment (SEA) Research Programme
- A2.14 – INSITE: influence of man-made structures in the ecosystem, specifically the EcoSTAR project: Ecosystem level importance of structures as artificial reefs
- A2.15 – MMSS: Marine Mammal Scientific Support Programmes Sea Mammals Research Unit (SMRU) at the University of St Andrews
- A2.16 – Scottish Marine Energy Research Programme (ScotMER)

Birds (D1 and D4)

Measures for birds that have been amended or developed over the current cycle of the UKMS or are completely new measures in the 2024 UKMS part three:

- M3.1 – The Conservation of Offshore Marine Habitats and Species Regulations 2017
- M3.2 – Natural England assessment on the vulnerability of seabird species and recommended actions to improve the health of populations (ESCaRP). Due to be published in January 2024
- M3.3 – The Northern Ireland Seabird Conservation Strategy due to be finalised by the end of 2023. Due to go to consultation in the second half of 2024
- M3.4 – The Scottish Seabird Conservation Strategy. Due to be published in late 2024
- M3.5 – The Welsh Seabird Conservation Strategy
- M3.6 – 'North Atlantic Current and Evlanov Seamount' OSPAR High Seas MPA (designated 2021)
- M3.7 – 4 MMO byelaws made in 2022 for offshore MPAs in England, restricting fishing (in specified areas) (see 1.5 for details)
- M3.8 – Fisheries Act 2020
- M3.9 – Future Fisheries (Scotland): Management Strategy 2020 to 2030
- M3.10 – Rathlin Island (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2016
- M3.11 – Marine wildlife bycatch mitigation initiative
- M3.12 – Clean Catch UK
- M3.13 – Global Ghost Gear initiative (GGGI) launched in 2015 A
- M3.14 – Wild Seas Wales and Wales Coast Explorer app
- M3.15 – Operation Seabird
- M3.16 – Marine and Coastal Wildlife Code
- M3.17 – DAERA consultation on proposed measures for the use of fast craft and personal watercraft in MPAs launched in June 2022 and closed in September 2022, management measures to be finalised by April 2023 and published in 2024
- M3.18 – Climate change measures**:** The UK government and each devolved government has individually taken a range of actions to help tackle climate change and adapt to its impacts. These actions will help safeguard seabird populations from unmitigated elements of climate change that impact their prey and habitat
- M3.19 – Defra in collaboration with the Welsh Government have funded and established an advisory group to advise, recommend actions and develop guidance on minimising the impact of HPAI on wild bird populations. The group liaises with equivalent groups in Scotland and Northern Ireland, and with other countries beyond the UK to share knowledge and resources. The group is lead and chaired by JNCC and made up of key experts, such as Natural England, Natural Resources Wales, RSPB, British Trust for Ornithology, National Trust, Wildlife & Countryside Link, Wildfowl and Wetlands Trust, British Association for Shooting and Conservation and the Game & Wildlife Conservation Trust

Activities addressing uncertainty and supporting measures development

- A3.1 – In 2022, a report on seabird bycatch mitigation in UK waters was published by JNCC
- A3.2 – Species on the Edge Programme
- A3.3 – The Marine Protected Areas Management and Monitoring (MarPAMM)
- A3.4 – Biosecurity for Life – Biosecurity surveillance
- A3.5 – OWEAP
- A3.6 – Offshore Wind Evidence and Change (OWEC) programme
- A3.7 – POSEIDON project
- A3.8 – ECOWind programme
- A3.9 – Marine Noise Registry
- A3.10 – UK Offshore Energy Strategic Environmental Assessment (SEA) Research Programme
- A3.11 – Wales MPA Management Action Plan
- A3.12 – Scottish Marine Energy Research Programme (ScotMER)

Fish (D1 and D4)

Measures for fish that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS part three:

- M4.1 – Fisheries Act 2020 – Bycatch, Ecosystem and Precautionary Objectives
- M4.2 – Marine Protected Areas and Highly Protected Marine Areas
- M4.3 – Byelaws passed to restrict fishing activity in 4 offshore MPAs in England:
    - The Dogger Bank Special Area of Conservation (Specified Area) Bottom Towed Fishing Gear Byelaw 2022
    - The Inner Dowsing, Race Bank and North Ridge Special Area of Conservation (Specified Areas) Prohibited Fishing Gears Byelaw 2022
    - The South Dorset Marine Conservation Zone (Specified Area) Bottom Towed Fishing Gear Byelaw 2022
    - The Canyons Marine Conservation Zone (Specified Area) Prohibited Fishing Gears Byelaw 2022
- M4.4 – Future Fisheries (Scotland): Management Strategy 2020 to 2030
- M4.5 – Marine wildlife bycatch mitigation initiative
- M4.6 – The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017
- M4.7 – The Edible Crabs (Undersized) Order (Northern Ireland) 2020 (as amended)
- M4.8 – The Edible Crabs (Conservation) Regulations (Northern Ireland) 2020 (as amended)
- M4.9 – The Scallop Enhancement Sites (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022

- M4.10 – Marine Protected Areas Bottom Towed Fishing Gear byelaw passed in 2023 covering specified areas in 13 marine protected areas

Activities addressing uncertainty and supporting measures development

- A4.1 – Defra's marine NCEA programme
- A4.2 – UK Fisheries Fund
- A4.3 – The Marine Protected Area Management and Monitoring (MarPAMM) project
- A4.4 – OWEAP
- A4.5 – Offshore Wind Environmental Evidence Register
- A4.6 – POSEIDON project
- A4.7 – ECOWind programme
- A4.8 – Scottish Marine Energy Research Programme (ScotMER)
- A4.9 – Offshore Wind Evidence and Change Programme

Pelagic habitats (D1 and D4)

Previous UKMS assessments have concluded that regional-scale change in the composition and abundance of plankton communities is linked to rising sea temperatures. Addressing this requires global action outside of the scope of the UKMS.

However, the following cross-cutting policies and measures are likely to be beneficial to the environmental status for pelagic habitats as they relate to the UK government's climate ambitions, support adaptation and resilience or will increase our understanding of the planktonic response in the face of a changing climate:

- M5.1 – Marine Protected Areas – offshore sites
- M5.2 – Net Zero Strategy
- M5.3 – Marine Planning and Spatial Prioritisation policies

Activities addressing uncertainty and supporting measures development

- A5.1 – Marine Natural Capital and Ecosystem Assessment programme

Most new measures include components that address the need for improved monitoring, which captures the state of our marine natural capital assets and the ecosystem services they provide, for people, the environment, and the economy. The marine NCEA programme will be funding the following evidence gathering projects relevant to the D1 and D4 pelagic habitats descriptor:

- monthly inshore zooplankton sampling at around 20 waterbodies
- continuous zooplankton sampling at 2 existing smart buoy sites in the Thames and Liverpool Bay
- reinstatement of English offshore waters Continuous Plankton Recorder (CPR) routes
- optimisation of all pelagic datasets (establishment of a working group, quality assurance and quality control of data sampling, data management and maintenance)

In addition, the Environment Agency and Cefas delivered a marine NCEA project, which used Earth Observation data to model impacts of land-based sediment plumes on coastal water bodies and how this affects natural capital assets.

Benthic habitats (D1 and D6)

- M6.1 – Fisheries Act 2020:
  - The Joint Fisheries Statement (JFS)
  - The 8 fisheries objectives
- M6.2 – 98 inshore MPAs have management measures in place to protect sensitive features from methods of bottom towed fishing gears. There is also a programme to roll out fisheries management byelaws as necessary in English offshore MPAs and the aim is for these to be completed by 2024
- M6.3 – Future Fisheries (Scotland): Management Strategy 2020 to 2030
- M6.4 – Northern Ireland: fisheries management measures in MPAs introduced in the Marine Protected Areas (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022
- M6.5 – HPMAs
- M6.6 – Deep-sea Access Regulation ((EU) 2016/2336)
- M6.7 – restoration projects including Restoring Meadow, Marsh, and Reef (ReMeMaRe) and LIFE Recreation ReMEDIES (Reducing and Mitigating Erosion and Disturbance Impacts affecting the Seabed)
- M6.8 – Northern Ireland: review of MPA Strategy
- M6.9 – Northern Ireland: development of Blue Carbon Action Plan
- M6.10 – Welsh Marine Conservation Zones
- M6.11 – Scotland Vessel Tracking and Monitoring Systems
- M6.12 – Seafish Gear Forum

Activities addressing uncertainty and supporting measures development

- A6.1 – Wales MPA Management Action Plan
- A6.2 – OWEAP
- A6.3 – Offshore Wind Evidence and Change (OWEC) programme.
- A6.4 – Offshore Transmission Network Review project
- A6.5 – The Environment Act 2021 introduced a mandatory Biodiversity Net Gain requirement for new development

    - the biodiversity net gain requirement applies to most projects in England, and therefore includes most development which occurs down to the low water mark
    - this means that the requirement would apply to any onshore components of offshore schemes, including components in the intertidal zone, such as onshore cabling for an offshore wind farm
- A6.6 – Environment Act 2021 (England)
- A6.7 – The Environment (Wales) Act 2016
- A6.8 – Defra's marine NCEA programme
- A6.9 – Scottish Marine Energy Research Programme (ScotMER)

The following measures contribute to many descriptors but are of particularly relevant to environmental status for benthic habitats:

- M6.1 – Fisheries Act 2020 and the Joint Fisheries Statement (JFS) which will set out the policies and measures needed to achieve the 8 fisheries objectives
- M6.2 and M6.6 – Marine Protected Areas and Highly Protected Marine Areas
- M6.7 – Deep-sea Access Regulation ((EU) 2016/2336): the regulation bans bottom trawling in waters deeper than 800m and requires establishment of closures to bottom fishing in waters 400m to 800m depth. The UK has been supporting, via ICES, the identification of areas where VMEs occur or are likely to occur

UK government and devolved government-specific measures

- General Policy 9 of Scotland's National Marine Plan on natural heritage

Non-indigenous species (NIS – D2)

Measures for non-indigenous species (NIS) that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS Part Three:

Measures for the prevention of introduction and spread of NIS through biosecurity and best practice

- M7.1 – Invasive Species Action Plans and Biosecurity Plans including:
    - UK:
        - The GB Non-native Secretariat advice and information
        - Marine Operator Biosecurity Toolkits (2019)
        - The Great Britain invasive non-native species strategy (2023)
    - England:
        - Marine Biosecurity Plan: Tamar Estuaries (2018)
        - Crouch Harbour Biofouling and Marine Biosecurity guidelines (2020)
    - Scotland:
        - Firth of Clyde Forum Biosecurity Plan (2016)

        - Loch Creran Community Biosecurity Action Plan (2017)
        - Loch Fyne Community Biosecurity Action Plan (2020)

    - Wales:
        - Wales Priority Marine Species (2018)

- M7.2 – Didemnum vexillum Action Plan and development of a voluntary biosecurity cross-jurisdictional standard by a Biosecurity in Aquaculture Working Group November 2022
- M7.3 – Pathway Action Plans (PAP)
- M7.4 – Rapid Life Project: Good practice management: Pacific oyster (Crassostrea gigas) (2018)
- M7.5 – Great Britain Shellfish Biosecurity Measures Plan (2019) for Aquaculture Production Businesses. Plans include a section on 'identification of biosecurity risks and limitation measures,' which may include introduction of non-native or invasive species as a risk, with for example, examination of new stock for presence of additional species included as a mitigation
- M7.6 – the American lobster Retain and Report campaign – A more generalised retain and report campaign is being considered in England to provide a consistent route to remove, report and verify emerging NIS
- M7.7 – Non-Native Species Inspectorate – a 6-month scoping exercise for a Non-Native Species (NNS) inspectorate was conducted in 2020 followed by the establishment of a pilot inspectorate with 4 staff in 2021
- M7.8 – Ballast Water Management Convention. The UK acceded to the International Convention for the Control and Management of Ships' Ballast Water and Sediments on the 26 May 2022. The UK domestic legislation entered into force on 29 July 2022. Guidance has been published in MSN 1908 and MGN 675
- M7.9 – Scottish Marine Energy Research Programme (ScotMER)

Activities addressing uncertainty and supporting measures development

The UK currently collates and assesses data collected through a wide variety of projects, including ground fish surveys, the Continuous Plankton Recorder, and MPA monitoring. This provides information on NIS presence and distribution across diverse habitats and species. To develop our understanding of NIS introduction, spread and impact, several research and development projects are underway.

These include exploring cost-effective and integrative methods of monitoring at high-risk sites (for example, ports and marinas), including use of novel techniques, and modelling population dynamics of known invasive species to improve our understanding of life cycles, habitat suitability and spread, so we can continue to refine and improve our mitigating measures.

Commercial fish and shellfish (D3)

Measures for commercial fish and shellfish that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS Part Three:

- M8.1 – Fisheries Act 2020:
    - Joint Fisheries Statement
    - Fisheries Management Plans (see Annex A of the JFS for proposals)
    - the 8 Fisheries Objectives

- M8.2 – the UK has signed fisheries framework agreements with both Norway and the Faroe Islands

- M8.3 – limiting fishing mortality of wild-capture shellfish species (England):
    - review and strengthen current management measures through FMPs, Scallop Industry Consultation Group, the Shellfish Industry Advisory Group and the Inshore Working Group
    - fleet structure or permitting to reflect sustainable exploitation rates of stocks
    - review of the retained EU Western Waters Effort Regime (EC Regulation 1954/2003 and 1415/2004)
    - ensure effective monitoring processes are in place to evaluate the impact of existing measures on stock status and fishery exploitation levels
    - improve data collection and scientific evidence base for wild-capture shellfisheries

- M8.4 – UK Bycatch Mitigation initiative

- M8.5 – other specific measures for shellfish:
    - The Edible Crabs (Undersized) Order (Northern Ireland) 2020
    - The Edible Crabs (Conservation) Regulations (Northern Ireland) 2020
    - Northern Ireland Inshore Fisheries Strategy
    - The Marking of Creels (Scotland) Order 2020
    - The Lobsters and Crawfish (Prohibition of Fishing and Landing) (Amendment) (England) Order 2017
    - The Whelk Fishing (Wales) Order 2019
    - The Specified Crustaceans (Prohibition on Fishing, Landing, Sale and Carriage) (Wales) Order 2015
    - The UK National North Sea Cod Avoidance Plan
    - The Scallop Enhancement Sites (Prohibited Methods of Fishing) Regulations (Northern Ireland) 2022

    - DAERA consultation on proposed measures and call for evidence on potential options for the regulation of intertidal hand gathering of shellfish in the Northern Ireland marine area due to launch in June 2022 and closed September 2022. Response to be published 2024
    - DAERA consultation on proposal for requirement for Northern Ireland fishing vessels less than 12 metres in length to have a vessel monitoring system operational during fishing activities
- M8.6 – Convention on Biological Diversity Global Biodiversity Framework
- M8.7 – Department for Environment, Food and Rural Affairs Outcome Delivery Plan
- M8.8 – Environmental Improvement Plan 2023

North Sea Cod TAC

In response to challenging scientific data on the state of the North Sea cod stock, the UK has introduced a national North Sea cod avoidance plan, which puts in place technical and spatial management measures in order to reduce fishing pressure on cod. These measures apply to all fishing vessels fishing in UK waters.

Activities addressing uncertainty and supporting measures development

- A8.1 – UK joining and participating in Regional Fisheries Management Organisations (RFMOs)
- A8.2 – Future Fisheries (Scotland): Management Strategy 2020 to 2030
- A8.3 – Future Fisheries Management Wales: Proposed Cockle Order for 2022 and Crustacean Order for 2023
- A8.4 – outputs from a series of workshops aiming to incorporate ecosystem information into the single-species stock assessment process for the Irish Sea offer an approach to adjust fisheries management to changes in the environment and environmental impacts on stock productivity
- A8.5 – Offshore Wind Environmental Evidence Register
- A8.6 – Scottish Marine Energy Research Programme (ScotMER)
- A8.7 – in addition to monitoring inshore and offshore habitats, the marine NCEA programme is filling data gaps on inshore fish biodiversity, enabling us to pin-point location, extent, and value of different fish stocks, and the ecosystem services they provide. This includes species with previously poor data coverage (such as non-quota and smaller species, or those associated with rocky habitats). The programme is also testing how natural capital approaches can improve fisheries management for the benefit of people, the environment, and the economy

Food webs (D4)

The main measures to address the food webs targets set out in the UKMS part one (2019) have been outlined elsewhere in this document, particularly under the biodiversity, commercial fisheries, and eutrophication descriptor sections, although all measures make some contribution to the high-level objective for food webs. Three significant new cross-cutting measures for food webs are:

- M9.1 – The Fisheries Act 2020
- M9.2 – The Sandeel Natural Capital Account for the North Sea, led by Natural England for the marine NCEA programme in its proof-of-concept year (2021 to 2022)
- M9.3 – fishing for sandeel in English waters of the North Sea has been prohibited indefinitely from 26 March 2024. The Scottish Government is also prohibiting fishing for sandeel in all Scottish waters following the outcome of a public consultation in 2023; with the measures coming into force from the same date

Activities addressing uncertainty and supporting measures development

- A9.1 – the Marine Strategy Monitoring, Assessment and Reporting Group, in cooperation with OSPAR, is further developing the food web indicators to achieve a more robust assessment of human activity impacts on marine food webs to support an ecosystem-based management approach
- A9.2 – we are using historical fish data to establish a baseline from which to measure ecosystem change. We are cooperating within OSPAR, and through the EURO-MARINE and ICES networks, to make best use of data previously collected and identify gaps for future data collection
- A9.3 – we intend to address food web data needs through OSPAR, by building on the recent research outcomes from the Defra-funded Marine Environmental Research Programme, and by using refined ecosystem models to evaluate food web status under different environmental and management scenarios
- A9.4 – in England, following a consultation in Summer 2022 on 5 candidate HPMA sites, Defra designated its first 3 HPMAs in English waters in July 2023. These will contribute to the maintenance of food web functioning and assist with the restoration of habitats (Section 3.4)
- A9.5 – The Sandeel Natural Capital Account for the North Sea, led by Natural England for the marine NCEA programme in its proof-of-concept year (2021 to 2022)

Eutrophication (D5)

Measures for eutrophication that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS part three:

Overarching measures to support GES for eutrophication

- M10.1 – 25 Year Environment Plan (UK government) (2018)
- M10.2 – Environment Act 2021 (England) and The Environmental Targets (Water) (England) Regs 2023

Measures to address the agriculture pathway

- M10.3 – The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021. The regulations replace the Nitrate Pollution Prevention (Wales) Regulations 2013 which applied in designated Nitrate Vulnerable Zones only, covering 2.4% of Wales
- M10.4 – the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 – Commonly known as the Farming Rules for Water
- M10.5 – Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021. The regulations restate with amendments provisions of the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003 The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017, Water Environment and Water Services (Scotland) Act 2003
- M10.6 – Future environmental land management schemes (England): Sustainable Farming Incentive, Local Nature Recovery scheme and Landscape Recovery scheme. Under the Sustainable Farming Incentive, the soil standards will encourage the use of herbal leys and grass-legume mixtures or cover crops, which build levels of organic matter, improve soil structure, and water retention, and prevent erosion, helping to keep nutrients in the soil
- M10.7 – updates under the Rural Development Programmes (M10.3):
    - England: Since 2015 options have been launched under the Countryside Stewardship scheme to promote the active management of diffuse pollution and prevent run off. As the UK has now left the EU, these capital grants continue from 2021 under domestic funding
    - Scotland: With the 2014 to 2020 programme now complete, Scotland continues to support the Scottish Rural Development Programme domestically while piloting new approaches through NatureScot between 2021 and 2024
    - Wales: The current Rural Development Programme (RDP) will continue until December 2023. In parallel, a domestic rural support scheme is in development in Wales. Future plans include the introduction of an Agriculture (Wales) Bill under which new sustainable land management schemes will be developed

Measures to address the emissions pathway

- M10.8 – The National Emissions Ceilings Regulations 2018

- M10.9 – The Merchant Shipping (Prevention of Air Pollution from Ships) (Amendment) Regulations 2021 (SI 2021/1108): to implement stricter sulphur oxides (SOx) and nitrogen oxides (NOx) requirements which are required under Annex VI of the MARPOL Convention the Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 have been amended. The Merchant Shipping (Prevention of Air Pollution from Ships) (Amendment) Regulations 2021 (SI 2021/1108) came into effect in October 2021
- M10.10 – a Scottish Nitrogen Balance Sheet (SNBS) has been established the Climate Change (Nitrogen Balance Sheet) (Scotland) Regulations 2022 came into force on 11 March 2022

Measures to manage and address wastewater, sewage, and surface water

- M10.11 – measures to manage surface water and reduce CSO discharges at Burry Inlet and Loughor Estuary Site of Special Scientific Interest (SSI) (Wales)
- M10.12 – Extension of the Storm Overflows Discharge Reduction Plan to include Coastal and Estuarine Waters in September 2023 Storm Overflows Discharge Reduction Plan (publishing.service.gov.uk)
- M10.13 – Living with Water Programme (LWWP) (Belfast, Northern Ireland)
- M10.14 – Shared Waters Enhancement and Loughs Legacy (SWELL) project (Northern Ireland)
- M10.15 – New freshwater river bodies have been designated as sensitive in England under the Urban Waste Water Treatment (UWWT) Regulations (M10.5)NULL, The Urban Waste Water Treatment (England and Wales) Regulations 1994

Measures to address aquaculture

- M10.16 – Regulatory framework for Finfish Aquaculture (Scotland)

Activities addressing uncertainty and supporting measures development

- A10.1 – research on dissolved nutrient ratios: further investigation into the relationships between changes in dissolved Nitrogen: Phosphorus, Nitrogen: Silicate and Phosphorus: Silicate ratios and, the changes in near shore coastal water phytoplankton communities and size profiles are required to identify if additional measures are needed

Contaminants (D8)

Measures for contaminants that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS part three:

Overarching measures to support GES for contaminants

- M12.1 – 25 Year Environment Plan (25YEP) (UK government) (2018) and the first revision of the 25YEP, England's Environmental Improvement Plan (EIP)

Heavy metal contaminant measures

- M12.2 – The Minamata Convention on Mercury
- M12.3 – measures to limit mercury emissions and releases (UK government):
    - a chlor-alkali plant using 'mercury cell' technology, the largest industrial use of mercury in England, was required to cease by December 2017 and was replaced by a membrane process which does not involve the use of mercury
    - high performance filters, known as amalgam separators, to prevent mercury water contamination by dental clinics became compulsory in January 2019
- M12.4 – Metal Mine Remediation Programme (Wales)
- M12.5 – measures to reduce the impact of Combined Storm Overflows (CSO) on water quality (Wales)
- M12.6 – Extension of the Storm Overflows Discharge Reduction Plan to include Coastal and Estuarine Waters in September 2023 Storm Overflows Discharge Reduction Plan (publishing.service.gov.uk)
- M12.7 – Scotland's River Basin Management Plans, published in December 2021, set objectives aiming to improve the number of waterbodies at good status or better for water quality from 86% (2020) to 92% by 2027 and 98% in the long-term

Measures to control contaminants from shipping

- M12.8 – The Merchant Shipping (Prevention of Oil Pollution) Regulations 2019
- M12.9 – The Merchant Shipping (Prevention of Pollution from Noxious Liquid Substances in Bulk) Regulations 2018. The organisation responsible for implementation of these regulations (under M12.7 and M12.8) is the Maritime & Coastguard Agency
- M12.10 – The Merchant Shipping (Ship to Ship Transfers) Regulations 2020 Operators are also advised to take account of the latest edition of the Ship to Ship Transfer Guide (for Petroleum, Chemicals and Liquified Gases)

Activities addressing uncertainty and supporting measures development

- A12.1 – OSPAR/NORMAN work on contaminants of emerging concern (CECs)
- A12.2 – OSPAR List of Substances of Possible Concern (LSPC) and List of Chemicals for Priority Action (LCPA). OSPAR is undertaking a full review of the 2 Lists (LCPA and LSPC) to filter and rationalise them. New lists were published in 2023
- A12.3 – the UK regulatory agencies and other stakeholders, including the UK water industry's Chemicals Investigation Programme, monitor for emerging contaminants to identify and consider the risk that they may pose to the freshwater and marine environment and link with wider European networks to improve the assessment

Contaminants in seafood (D9)

Activities addressing uncertainty and supporting measures development

- A13.1 – there has been a thorough review of new European Food Safety Authority opinions published for dioxins and perfluorinated alkyl substances, to determine the food safety implications carried out by the Food Standards Agency Committee on Toxicity of Chemicals in Food, Consumer Products, and the Environment (COT). Following this, new or revised regulatory limits may become applicable to fish and shellfish, possibly accompanied by revised precautionary advice to consumers. In the event of such changes, the implications for meeting the GES criteria for D9 will be reviewed and the need for additional monitoring will be considered

Marine litter (D10)

Measures for marine litter that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS Part Three. The measures below are liable to be subject to the UK Internal Market Act 2020, which may affect their implementation.

Cross-cutting measures to promote action across communities and businesses to reduce and clean up litter

- M14.1 – OSPAR Regional Action Plan (RAP) on Marine Litter – The RAP is currently being reviewed by the OSPAR Commission with a new RAP planned to be adopted in 2022

- M14.2 – the Circular Economy Waste Package (transposed in 2020). Producer Responsibility Obligations (Packaging Waste) Regulations 2007 and Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 2007 – The packaging producer responsibility obligations are in the process of being reformed

- M14.3 – United Nations Environment Assembly (UNEA) -The UK supported the resolution agreed at the continuation of the 5th session of the United Nations Environment Assembly (UNEA-5.2) on ending plastic pollution in 2021.The UK works with organisations (The International Maritime Organisation, UN Environment Programme, and the Food and Agriculture Organization of the United Nations) and Commonwealth Countries to develop marine litter action plans and measures worldwide: G20 Osaka Blue Ocean Vision

- M14.4 – England: The Littering from Vehicles Outside London (Keepers: Civil Penalties) Regulations 2018 and The Environmental Offences (Fixed Penalties) (England) Regulations 2017

- M14.5 – The Litter Strategy for England, 2017. The strategy details ongoing work in England and the UK to tackle marine litter

- M14.6 – 25 Year Environment Plan (England) – sets out the UK government's plan to tackle marine pollution of all kinds. This is supplemented by the first revision of the 25YEP, England's EIP

- M14.7 – Resources and Waste Strategy for England – published 2018, contains commitments to reduce marine plastic pollution through circular economy policy measures and international cooperation

- M14.8 – Circular Economy Bill: Consultation 2022, for delivery 2023 Delivering Scotland's Circular Economy

- M14.9 – although the Northern Ireland Marine Litter Strategy expired in December 2020, the structure it provides remains relevant to how DAERA is addressing marine litter. DAERA has committed to producing an NI Litter Strategy in 2025 which will incorporate marine litter

- M14.10 – Scotland: Making Things Last Strategy (2016)

- M14.11 – Marine Litter Strategy (2022)

- M14.12 – Wales: A new Litter and Fly-tipping Prevention Plan for Wales will focus on key themes. The Circular Economy Strategy for Wales was developed collaboratively by the Wales Clean Seas Partnership and Welsh Government in 2020

Measures to reduce the sources of terrestrial general litter

Microplastics

- M14.13 – Plastic Pellet Loss Reduction – British-Irish Council Commitment: The Publicly Available Specification with the British Standards Institution published in July 2021 supports the UK government and devolved governments in the reduction of pellet loss. Governments continue to support the plastic industry's voluntary pellet loss reduction scheme of Operation Clean Sweep© and the move towards auditing of best practice

Macroplastics

- M14.14 – the 4 governments across the UK will introduce extended producer responsibility for packaging on a phased basis from 2024.This will include new legislation being laid to implement the changes. Reform will include payments from producers to cover the cost of managing packaging in street bins and fund behaviour change campaigns on litter.

- M14.15 The UK government, Welsh Government, Scottish Government and DAERA have agreed to launch Deposit Return Schemes (DRSs) for drinks containers in October 2027. The schemes will introduce a deposit on single-use drinks containers, which is refunded upon return of the container. The deposit provides a financial incentive for consumers to return drinks containers for recycling and is expected to boost recycling levels for in-scope containers to over 90% by year 3 of the scheme's operation

Measures to address terrestrial sources of single-use plastic product litter

- M14.15 – Microbeads Regulations: legislation to ban the manufacture and sale of rinse-off personal care products containing plastic microbeads has been introduced by the UK government and each devolved government across the UK:
    - England: The Environmental Protection (Microbeads) (England) Regulations 2017
    - Scotland: The Environmental Protection (Microbeads) (Scotland) Regulations 2018
    - Wales: The Environmental Protection (Microbeads) (Wales) Regulations 2018
    - Northern Ireland: The Environmental Protection (Microbeads) Regulations (Northern Ireland) 2019
- M14.16 – Common beach litter product bans:
    - England: The Environmental Protection (Plastic Straws, Cotton Buds and Stirrers) (England) Regulations 2020
    - Northern Ireland: DAERA is currently funding a multi-year Tackling Plastic project with a view to changing behaviours on plastics
    - Scotland: The Environmental Protection (Single-use Plastic Products) (Scotland) Regulations 2021 (legislation.gov.uk) – single-use plastic balloon sticks, straws, stirrers, cutlery, plates and expanded polystyrene cups and food containers
    - Scotland: The Environmental Protection (Cotton Buds) (Scotland) Regulations 2019
    - Wales: Welsh Government will ban 9 of the most commonly found single use plastic items found as beach litter before 2026. Phase 2 will explore additional bans for wet wipes and plastic carrier bags

- M14.17 – England: Environment Act 2021

- M14.18 – in January, Defra announced a ban on the supply of single-use plastic plates, trays, bowls, cutlery and balloon sticks, and certain types of polystyrene cups and food containers. This ban will be introduced from October 2023

Taxation used to help address terrestrial litter sources

- M14.19 – Plastic packaging tax – From April 2022, a tax will be applied on businesses that produce or import plastic packaging with insufficient recycled content

Enforcement and penalties of terrestrial littering

- M14.20 – Northern Ireland: the review on the use of Fixed Penalty Notices for littering and dog fouling was completed in December 2020. These findings were incorporated into the draft Environment Strategy, which was issued for public consultation from 11 November 2021 until 18 January 2022

The review highlighted the need to include the proposal to increase the maximum Fixed Penalty Notice for littering offences from £80 to £200 (which will be the highest in the UK) by 2023, into Northern Ireland's first Environment Strategy.

It is hoped that the necessary regulations to allow this increase will come into operation as soon as practicable in the new Assembly mandate. It will then be up to individual district councils to set their own FPN within this new limit.

Measures to address marine sources of litter

- M14.21 – British-Irish Council Commitment: all governments are working together to improve educational materials and modules on marine litter for young people and the fishing industry; promote measures to further reduce the loss of pre-production plastics across the supply chain; and work with the fishing industry to develop solutions for the collection and recycling of end-of-life gear from its main fishing ports (See also A13.2)

- M14.22 – All UK governments support the development of a European standard to encourage circular design of fishing and aquaculture gear to keep gear in use for as long as possible and promote reuse and recycling at the end of its use. Measures to remove litter from the marine environment

- M14.23 – Northern Ireland: an exemption from marine licensing for diving activity to remove marine litter was included in the Marine Licensing (Exempted Activities) (Amendment) Order (NI) 2022. This created a new exemption (Art 21A) for the removal of marine litter and abandoned, discarded, or lost fishing gear during the course of diving activities, provided the licensing authority is notified in advance and the activity does not damage archaeology or affect protected areas. Work has

commenced on developing a new all-encompassing Litter Strategy which will address litter in terrestrial and aquatic environments (See also A13.3)

- M14.24 – Scotland intends to increase riverine litter removal, supporting the introduction of removal technologies where suitable. A refreshed Marine Litter Strategy was published in 2022 to reflect a growing focus on supporting litter removal (See also A13.3)

- M14.25 – the Global Ghost Gear initiative (GGGI) is a cross-stakeholder alliance of fishing industry, private sector, corporates, NGOs, academia, and governments focused on solving the problem of lost and abandoned fishing gear worldwide

- M14.26 – Wales: introduced a scheme to collect and recycle end of life fishing gear including nets, ropes, and hard plastics. Further options are being explored with UK and devolved governments to address other types of gear

Activities addressing uncertainty and supporting measures development

- A14.1 – Microplastic Research: governments and research partners are undertaking and funding research projects to better understand the sources, distribution, and impact of microplastics in our marine environments

- A14.2 – Fishing Gear and aquaculture equipment Waste Management Research – Evidence gathering to support the British-Irish Council commitment to work with industry to develop solutions to improve the collection and recycling of end-of-life fishing gear

- A14.3 – Recreational Vessel Disposal Study

- A14.4 – Research and Innovation Framework – The UK has announced that it will contribute £25 million towards a Marine Plastics Research and Innovation Framework

Underwater noise (D11)

Measures for underwater noise that have been amended or developed over the current cycle of the UKMS or will be completely new measures in the UKMS part three:

Measures contributing towards developing noise thresholds

- M15.1 – The feasibility of developing a marine noise management strategy is being explored through the OSPAR Convention, which is currently negotiating the next North-East Atlantic Environment Strategy for the period 2021 to 2030
- M15.2 – Defra has established a dedicated underwater noise project, as part of its OWEAP Programme, to increase knowledge of impulsive noise in the marine environment and improve its management

Measures associated with activities involving noise production in the marine environment

- M15.3 – The Fish Farming Code of Practice (Scotland) Order 2021 which approves the M15.4 Aquaculture Code of Practice: Containment of and prevention of escapes of fish on fish farms in relation to marine mammal interactions
- M15.5 – Scottish Marine Wildlife Watching Code (updated in 2017)

Activities addressing uncertainty and supporting measures development

- A15.1 – a portfolio of research projects delivered through Defra's OWEAP which aim to improve understanding of impacts of underwater noise on marine species, determine the effectiveness of the current noise management approach and identify changes to improve management. This includes recent upgrades to the Marine Noise Registry to better understand the noisy activities that are taking place, and to facilitate more effective management
- A15.2 – the Collaborative Oceanography and Monitoring for Protected Areas and Species (COMPASS) project
- A15.3 – both the COMPASS project and MarPAMM project are collaborating with the JONAS project to coordinate direct measurement and modelling of ambient noise and the application of these outputs for MPA management
- A15.4 – The Joint Framework for Ocean Noise in the Atlantic Seas (JONAS) project
- A15.5 – The East Coast Marine Mammal Acoustic Study (ECOMMAS) project
- A15.6 – The Joint Monitoring Programme for Ambient Noise in the North Sea project (JOMOPANS)
- A15.7 – Scottish Marine Energy Research Programme (ScotMER)
- A15.8 – Continuous Noise Monitoring Programme
- A15.9 – UK Offshore Energy Strategic Environmental Assessment (SEA) Research Programme Through this Department for Energy Security and Net Zero programme, the first at-sea trials of quieter alternative technologies for the clearance of unexploded ordnance took place in January 2022
- A15.10 – several other research programmes have or are providing additional knowledge that will support the development of future measures:
    - Offshore Wind Evidence and Change (OWEC)
    - a 2019 workshop and programme of research designed to identify and test noise abatement technologies associated with the underwater noise pollution from pile driving and the removal of unexploded ordnance in UK waters

Offshore Renewables Joint Industry Programme projects on noise

- Defra's marine NCEA programme

- A15.11 – DAERA consultation on proposed measures for the use of fast craft and personal water craft in MPAs launched in June 2022 and closed in September 2022, management measures to be finalised by April 2023 and published in 2024

Measures associated with climate change mitigation and adaptation

- M16.1:
  - climate change was identified as one of the key pressures affecting the marine environment in the UKMS part one. The UK government and each devolved government is taking a range of actions to begin to mitigate climate change and adapt to its impacts. These adaptions and resilience policies can be found:
    - England: Climate change adaptation policy information
    - Scotland: Climate change policies
    - Wales: Climate action
    - Northern Ireland: Climate change adaptation programme