



**Protecting Scotland's seafloor:**  
an assessment of Scottish  
Ministers' implementation of  
the Marine Strategy  
Regulations 2010

June 2026

**ENVIRONMENTAL**  
**Standards Scotland**  
Ìrean Àrainneachdail na h-Alba

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## Glossary

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Benthic (habitats) – refers to the bottom, or near the bottom, of a body of water (in this case the sea) and associated species associated

ESS – Environmental Standards Scotland

CFP – Common Fisheries Policy

FMP – Fisheries Management Plan

GES – Good Environmental Status

JFS – Joint Fisheries Statement

JNCC – Joint Nature Conservation Committee

HBDSEG – Healthy and Biologically Diverse Seas Evidence Group

MARG - Marine Assessment and Reporting Group

MPA – Marine Protected Area

MSFD – EU Marine Strategy Framework Directive

MSY – Maximum Sustainable Yield

NMP – National Marine Plan

OEP – The Office for Environmental Protection

OSPAR - Oslo Paris Convention for the Protection of the Marine Environment of the North-East Atlantic

PLG – Policy Leads Group

PMF – Priority Marine Feature

PoM – Programme of Measures

RBMP – River Basin Management Plans

SAC – Special Area of Conservation

SMA2020 – Scotland’s Marine Assessment 2020

SNCBs – Statutory Nature Conservation Bodies

UKMS – UK Marine Strategy

VME – Vulnerable Marine Ecosystems

VMS – Vessel Monitoring Systems

WER – Water Environment Regulations

WFD – Water Framework Directive

# 1. Key findings and recommendations

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**Key finding 1: The Scottish Ministers have not discharged their duties to develop and implement a Programme of Measures (PoM) under the Marine Strategy Regulations 2010 ('the 2010 Regulations') effectively. This constrains the ability of the programme to support the aim of the 2010 Regulations of achieving Good Environmental Status (GES) and limits its contribution to the protection of the marine environment in Scottish waters.**

Scotland's seafloor, or benthic, habitats support a diverse range of species and play a vital role in global nutrient cycling, carbon storage and biodiversity. These habitats face ongoing pressure from human activities and climate change, which can degrade their overall health and condition (see section 3.4). The UK Marine Strategy (UKMS) introduced statutory UK-wide targets to maintain and restore the integrity of seafloor habitats so that they reach GES (as defined in the 2010 Regulations) by 2020. The most recent assessment (2026) of environmental status under the UKMS shows that GES for the seafloor integrity descriptor was not achieved by the statutory deadline of 2020 and no revised deadline has been set.

There is a lack of clarity on how Scottish measures, intended to support achievement of GES for benthic habitats, were identified or assessed in the 2015 and 2025 PoMs. Specifically, there is no clear evidence that a gap analysis was undertaken to determine whether existing measures were sufficient to achieve GES. There is also no clear evidence that the technical feasibility or cost-effectiveness of the relevant measures were assessed prior to operationalising either the 2015 or 2025 PoM.

Measures relevant to Scottish waters in both PoMs are consistent with statutory requirements and broadly align with European Commission guidance and scientific evidence on the types of measures expected to support GES for seafloor integrity. However, the PoMs provide limited detail on how measures will be implemented in practice and the contribution they will make to achieving GES. The effectiveness of any measure depends on the scale to which it is implemented, and an evidence-based understanding of the contribution of measures to individual targets is required in order to achieve GES. However, both the 2015 and 2025 PoMs rely on qualitative descriptions of contributions, despite evidence that more quantitative and spatially specific assessments are both feasible and informative. Overall, the Scottish

Government's approach does not provide the necessary assurance that the measures in the 2015 and the 2025 PoM are sufficient to support achievement of GES for seafloor integrity.

**Recommendation 1: The Scottish Government should set out the steps it will take to ensure effective implementation of its duties under Regulation 14.**

**Environmental Standards Scotland (ESS) expects this to include:**

- **an assessment of the contribution that Scottish measures in the 2025 PoM are expected to make towards an agreed share of UK-wide seafloor integrity targets for Scotland, including by when**
- **the development of new or additional measures where that assessment shows that current measures are insufficient to meet an agreed share of UK-wide seafloor integrity targets for Scotland**
- **evidence of how the technical feasibility and cost-effectiveness of any new measures have been assessed and how such assessments will be integrated into future updates of the PoM**

**Key finding 2: The Scottish Ministers have failed to comply with environmental law under Regulation 13 of the 2010 Regulations. The 2026 UKMS Part One assessment states that GES could not be assessed in Scottish regions for multiple seafloor integrity indicators, citing a reduction in monitoring in Scottish waters. This demonstrates that monitoring programmes were not sufficient to meet the requirements of Annex V (1) of the Marine Strategy Framework Directive (MSFD), as required by Regulation 13.**

There are systemic shortfalls that have led to a sustained inability of Scottish monitoring programmes to provide information that enables a comprehensive, evidenced-based assessment of seafloor integrity status against GES targets. Despite the longstanding recognition of monitoring gaps, the Scottish Government has not developed the additional monitoring needed to meet duties, or implemented recommendations made by statutory nature conservation bodies (SNCBs). Instead, monitoring efforts in Scottish waters have declined since 2014, particularly in coastal and offshore areas. As a result, Scottish Ministers cannot provide sufficient information for the status assessment of some UKMS sub-regions comprising Scottish waters. Consequently, the effectiveness of any measures in delivering

progress towards GES for seafloor integrity is also unknown because the status of benthic habitats cannot be assessed sufficiently.

**Recommendation 2: The Scottish Government must implement appropriate monitoring in Scottish waters to ensure that data gaps from Scotland no longer prevent assessment of GES for seafloor integrity, and so that the impact of measures adopted in the PoMs can be assessed. Monitoring in Scottish waters should contribute to an increase in the certainty of benthic habitats assessments over successive Part One assessments under the UKMS. ESS expects this to include:**

- **implementation of appropriate coastal monitoring to enable future assessments of GES in Scottish waters using relevant Water Environment Regulation (WER) indicators**
- **implementation of recommendations made by the Joint Nature Conservation Committee (JNCC) and NatureScot for additional monitoring of marine protected areas (MPAs) and wider seas to fulfil requirements under the UKMS**

**Key finding 3: The Scottish Ministers have not discharged their duties to take the necessary measures to achieve or maintain GES under Regulation 4 of the 2010 Regulations for the seafloor integrity descriptor effectively. There are weaknesses in governance arrangements, together with inconsistencies in how the Scottish Ministers have implemented their duty to have regard to the marine strategy under Regulation 9. This places constraints on meeting the aim of the 2010 Regulations and prevents them from making a full and effective contribution to the protection of the marine environment in Scottish waters.**

Existing governance frameworks for the UKMS have several strengths, including a strong scientific advice mechanism, established cross-administration co-ordination and public consultation processes. There are examples of good practice integrating GES obligations into policy processes, and several measures for seafloor integrity from the 2015 PoM have been implemented. However, there have been repeated delays in implementation, and many measures remain only partially implemented. The Scottish Government's approach to embedding the UKMS into policy processes

and seeking GES-related advice from SNCBs is inconsistent. ESS has concluded that governance challenges such as fragmented responsibilities, weak accountability, and insufficient integration of marine objectives across policy areas have affected delivery and achievement of GES for seafloor integrity.

**Recommendation 3: The Scottish Government should publish a timetable for implementing outstanding seafloor integrity measures from the 2015 PoM and forthcoming measures from the 2025 PoM. The timetable should also demonstrate when measures will be expected to deliver an agreed share of UK-wide seafloor integrity targets for Scotland.**

**Recommendation 4: The Scottish Government should set out the practical changes it will make to its governance mechanisms for implementing the UKMS to ensure effective coordination across all Scottish Government policy and public bodies, and with other UK administrations.**

As a public authority, the Scottish Government has duties under Section 23 of the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021 to make all reasonable efforts to:

- swiftly resolve any matter which ESS raises concerning the authority's failure to comply with environmental law, to make effective environmental law or to implement or apply it effectively
- reach agreement with ESS on any remedial action the authority should take for the purpose of environmental protection

In line with these duties, ESS requests the Scottish Government to reach agreement for a plan of remedial action, which will be used to track progress against delivering recommendations 1 to 4 in this report.

**Recommendation 5: The Scottish Government must agree a plan of remedial actions, with a clear timeline for delivery, to resolve the issues highlighted in this report and implement ESS' recommendations. This should be agreed with ESS as soon as possible and no later than six months from the date of publication.**

Recommendations in this report are made in relation to the Scottish Ministers' duties under the 2010 Regulations, to the extent that they fall within the legislative competence of the Scottish Parliament (see Section 2 – About this report). Where ESS' recommendations apply only to inshore waters, in line with that competence, ESS recognises that the Scottish Government's response, and effective implementation of the 2010 Regulations, will also require delivering for offshore waters and asks the Scottish Government to consider them in that context.

While ESS' recommendations only relate to seafloor integrity, ESS encourages the Scottish Government to consider implementing them holistically across all UKMS descriptors as appropriate.

ESS also recognises that implementing the recommendations, and achieving GES in shared waters, will require joint action between Scottish Ministers and other administrations.

## 2. About this report

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2.1 Environmental Standards Scotland's (ESS) Strategic Plan 2022-25 identified several analytical priorities. One of these is 'developing a better understanding of threats to the marine environment'. Following systematic scoping and evaluation, seafloor integrity (meaning the extent to which seafloor habitats are functioning and healthy) was prioritised because of its importance for achieving overall Good Environmental Status (GES) under the UK Marine Strategy (UKMS) and the increasing exposure of seafloor habitats to human and climate-related pressures.

2.2 Section 20 of the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021 ('the 2021 Act') sets out the scope of ESS' functions. ESS' remit is to:

- ensure public authorities, including the Scottish Government, public bodies and local authorities, comply with environmental law
- monitor and take action to improve the effectiveness of environmental law and its implementation

2.3 The analysis presented here focuses on the effectiveness of environmental law, and how it is implemented and complied with, with respect to seafloor integrity in Scottish waters. The relevant environmental law for this work is the Marine Strategy Regulations 2010 ('the 2010 Regulations').

2.4 Section 20 of the 2021 Act empowers ESS to make recommendations to public bodies. The recommendations in this report are made in relation to the Scottish Government's duties under the 2010 Regulations, to the extent that these fall within the legislative competence of the Scottish Parliament. ESS' remit and powers are defined in the 2021 Act by reference to the legislative competence of the Scottish Parliament. Consequently, any legislative provision that falls outwith the competence of the Scottish Parliament is not within ESS' remit.

2.5 The 2010 Regulations executively devolve functions to the Scottish Ministers in relation to the 'devolved marine area', which includes both the Scottish inshore (i.e. out to 12 nautical miles) and Scottish offshore (i.e. from 12 to 200 nautical miles) zones under the 2010 Regulations. The exercise of those functions within the inshore zone aligns with the legislative competence of the Scottish Parliament, and

consequently, falls within the statutory remit of ESS. The exercise of those functions within the offshore zone (insofar as they do not amount to functions within the competence of the Scottish Parliament - such as the regulation of sea fisheries) is therefore outwith the remit of ESS.

2.6 Consequently, some of these executively devolved functions fall within a 'lacuna' or gap in ESS' remit whereby, in respect of the performance of certain functions, Scottish Ministers are not subject to scrutiny by ESS as regards to their implementation of environmental law. In addition, they are not subject to scrutiny by the Office for Environmental Protection (OEP), ESS' counterpart organisation, because Scottish Ministers are expressly excluded from the definition of 'public authority' in section 31 of the Environment Act 2021 that defines OEP's functions.

2.7 ESS has highlighted this gap in scrutiny powers to the Scottish Government which is currently considering how best to address it. Where the recommendations in this report apply only to inshore waters, in line with the general legislative competence of the Scottish Parliament, ESS recognises that the Scottish Government's response, and effective implementation of the 2010 Regulations, will also require delivering for offshore waters and asks the Scottish Government to consider them in that context.

2.8 In addition, ESS has liaised and shared its findings with the OEP during the course of this work, given its own ongoing investigation into a suspected failure by the UK Government to take the necessary measures to achieve or maintain Good Environmental Status (GES) of marine waters by the statutory deadline.

2.9 This report:

- examines Scottish Ministers' compliance with, and implementation of, duties under the 2010 Regulations, and the effectiveness of the 2010 Regulations.
- specifically focuses on the Scottish Ministers duties under Regulations 4, 9, 13, 14 and 15

2.10 ESS' findings and recommendations are based on:

- evidence gathered from published documents
- information provided to ESS by the Scottish Government, NatureScot and JNCC through meetings and correspondence
- evidence published in supporting ESS' technical analysis papers:

- 'How much could marine protected areas contribute to Good Environmental Status? - development of a practical assessment approach'
- 'Effects of marine protected areas on benthic habitat condition and extent and their associated assemblages – a systematic review'
- 'Effects of non-spatial fisheries management under the UK Marine Strategy on seafloor integrity – a systematic review'

2.11 This report details evidence gathered through ESS' scrutiny, which underpins the key findings and recommendations in Section 1. The report is divided into three sections according to the relevant duties on Scottish Ministers. Each section interprets the relevant statutory duties, then describes Scottish Government's implementation of those duties and finally provides ESS' findings in relation to compliance and effectiveness.

2.12 ESS asks the Scottish Government to reach agreement with it for a plan of remedial action to resolve the issues highlighted in this report and implement ESS' recommendations. This plan of remedial action should be agreed with ESS as soon as possible and no later than six months from the date of publication in line with the Scottish Government's duties under section 23 of the 2021 Act.

2.13 Nothing in this report, or the recommendations made within it, prejudices ESS' ability to make decisions about further scrutiny of the topics covered, for example, in response to representations made to ESS on related matters.

## 3. Background

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### The Marine Strategy Regulations 2010

3.1 The EU Marine Strategy Framework Directive (MSFD) was transposed into UK legislation through the Marine Strategy Regulations 2010 (hereafter referred to as ‘the 2010 Regulations’ in this report). The 2010 Regulations placed an obligation on the Secretary of State and devolved administrations to take measures to achieve or maintain Good Environmental Status (GES) in the marine environment by 2020.[1, 2]

3.2 GES is defined as “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, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations”. [3]

3.3 To deliver GES, the 2010 Regulations require the UK to produce, and periodically update, a marine strategy consisting of three parts (as set out in Table 1). Each part must be reviewed and, if required, updated on a six-year cycle. The publication dates and subsequent updates to each part are summarised in Table 1, noting that there have been delays and changes to publication timing. The UK Marine Strategy (UKMS) covers all marine waters within the UK’s jurisdiction. The 2026 Part One assessment of environmental status used two regions for reporting purposes: Greater North Sea and Celtic Seas, both of which include Scottish waters.

Table 1 Overview of the three parts of the UKMS, outlining their respective functions and associated publication dates. For Part One assessments, the period for assessments varies across each descriptor.

UKMS part	Description	Published	Updated
<b>Part One</b>	An assessment of marine waters, objectives for GES and targets and indicators to measures progress towards GES	2012 (initial assessment)	2019 (assessed status from 2012 initial assessment) and 2026 (assessed status for 2016 to 2020)
<b>Part Two</b>	Sets out the monitoring programmes to monitor progress against the targets and indicators	2014	2022
<b>Part Three</b>	Sets out a programme of measures for achieving GES	2015	2025

## Assessment of Good Environmental Status

3.4 GES is defined through 11 qualitative descriptors covering marine species, habitats and environmental pressures. Descriptor 6 for seafloor integrity is assessed alongside descriptor 1 (biological diversity) under the “benthic habitats” assessment in the UKMS. As defined in Annex I of the MSFD, achieving GES for descriptor 6 means that seafloor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.

3.5 Scottish waters support a broad range of benthic habitats, including horse mussel reefs, seagrass and maerl beds, and muddy sand that supports rich

communities of burrowing and sensitive fauna. Many of these benthic habitats are important biogenic habitats. This means that they are formed by living organisms which act as attachment surfaces and shelter for a wide variety of species. These habitats support a high biodiversity and underpin important ecosystem functions and services, such as the capture and storage of carbon. As such, benthic habitats play an important role in supporting the overall health and sustainability of our marine environment.[4, 5]

3.6 In Scotland, many benthic habitats and species are classified as Priority Marine Features (PMFs). These are habitats and species of priority conservation importance due to their ecological roles and susceptibility to pressures from human activities and climate change. These activities include bottom-towed fisheries and marine development (oil and gas, renewable energy and aquaculture).[6, 7] Such activities can lead to physical disturbance and loss of habitat, as well as the input of pollutants that can degrade the overall health of benthic habitats and affect the ecosystem services that they provide.[6]

3.7 Under the UKMS, the MSFD description of GES for seafloor integrity is translated into a broader, high-level objective for benthic habitats spanning both descriptors 1 and 6, which states that “the health of seabed habitats is not significantly adversely affected by human activities”.[8] The difference in wording reflects the UK’s integration of biological diversity (descriptor 1) and seafloor integrity (descriptor 6) into a single overarching objective.

3.8 The 2026 UKMS Part One assessment defines four criteria, and associated targets for GES of benthic habitats. These criteria are:

- spatial extent of physical loss
- habitat condition
- spatial extent of habitat type affected by physical disturbance
- extent of adverse effects

3.9 The 2026 Part One assessment details 12 indicators associated with these criteria. However, a number of these remain in development, therefore only nine of the indicators were used to determine status against GES targets in the 2026 assessment. These indicators cover sediment, rocky and biogenic habitats and all use quantitative thresholds to assess status against GES.[8] Several of these are common indicators developed under the Oslo Paris Convention for the Protection of

the Marine Environment of the North-East Atlantic (OSPAR), which serves as the relevant Regional Seas Convention for UK waters under the MSFD.

3.10 The criteria and indicators for the assessment of benthic habitats have been updated through successive Part One assessments with additional indicators added over time. These have been developed to assess GES in light of growing pressures and to integrate common OSPAR indicators into the UK assessment. There have also been revisions to the thresholds used to determine whether GES is achieved for particular indicators between successive Part One assessments. Table 2 details the targets and indicators that will be used to assess GES in the next reporting cycle (2026 to 2032), as set out in the 2026 Part One assessment.

Table 2 Criteria, targets and indicators that will be used to assess status against GES for benthic habitats in the next reporting cycle (as reported in the latest Part One assessment published in 2026).

UKMS Benthic Habitats	
Criteria and target	2026 Part One indicator for next cycle
<b>Spatial extent of physical loss:</b> the extent of loss of a seabed habitat type caused by human activities is minimised and where possible reversed (should not exceed a set of agreed indicator thresholds)	Area of Habitat Loss (OSPAR BH4)
<b>Habitat condition:</b> habitat loss of sensitive fragile or important habitats caused by human activities is prevented, and where feasible reversed (should not exceed a set of agreed indicator thresholds)	Potential Physical Loss of Predicted Biogenic Habitats (PPL)
<b>Spatial extent of habitat type adversely affected by physical disturbance:</b> the extent of habitat types adversely affected by physical disturbance caused by human activity should be minimised (should not exceed a set of agreed indicator thresholds)	<p>Extent of Physical Disturbance to Benthic Habitats: Fisheries with no Mobile Bottom Contacting Gears (OSPAR BH3a)</p> <p>Extent of Physical Disturbance to Benthic Habitats: Aggregate Extraction (OSPAR BH3b)</p> <p>Extent of Physical Disturbance to Benthic Habitats: Offshore Structures and Other Activities (OSPAR BH3c)</p>

Criteria and target	2026 Part One indicator for next cycle
<p><b>Extent of adverse effects:</b> the extent of adverse effects caused by human activities on condition, function and ecosystem processes of habitats is prevented, and where feasible reversed (should not exceed a set of agreed indicator thresholds)</p>	<p>Sentinels of the Seabed in the Celtic Seas and Greater North Sea (biological traits analysis to measure changes on ecosystem function) (OSPAR BH1 UK)</p> <p>Condition of Benthic Habitat Communities: Nutrient and/or Organic Enrichment (OSPAR BH2a)</p> <p>Condition of Benthic Habitat Communities Based on the Relative Margalef Diversity (OSPAR BH2b)</p> <p>Condition of Intertidal Seagrass Communities in Coastal Waters Determined Using Water Environment Regulations (WER) Methods (WER Seagrass)</p> <p>Condition of Intertidal Saltmarsh Communities in Coastal Waters Determined Using WER Methods (WER Saltmarsh)</p> <p>Condition of Soft Sediment Invertebrate Communities in Coastal Waters Determined Using WER Methods (WER IQI)</p> <p>Condition Of Intertidal Rocky Shore Macroalgae (Seaweed) Communities in Coastal Waters Determined Using WER Methods (WER Macroalgae)</p> <p>Condition Of Intertidal Sediments in Coastal Waters Determined Using WER Opportunistic Macroalgae Blooming Assessment Methods (WER Opp Mac)</p> <p>Intertidal Community Temperature Index (MarClim)</p> <p>Changes to the Condition of Biogenic Reefs Indicator</p> <p>Condition of Sublittoral Rock Habitats Indicator</p>

3.11 The target to achieve GES for the seafloor integrity descriptor has not been met since the introduction of the UKMS. Progress has been limited and the statutory deadline of meeting GES by 2020 was not met. For the 2019 Part One assessment, eight indicators were used to assess the status of GES for benthic habitats. Of these, two indicators met GES, two indicators partially met GES, two indicators were not consistent with GES and two indicators were not formally assessed. For the 2026 Part One assessment, nine indicators were used to assess GES: three indicators met GES, three indicators partially met GES or were only assessed in one sub-region and three indicators did not meet GES. For specific WER indicators, there has been limited data available for the assessment of Scottish regions and in the 2026 Part One, the number of Scottish regions assessed for GES had decreased relative to the 2019 assessment.

## Scottish Ministers' duties

3.12 The 2010 Regulations set clear statutory duties on Scottish Ministers, as a competent authority for:

- publishing a Programme of Measures (PoM) with the necessary measures to achieve or maintain GES under Regulation 14
- developing and implementing a programme for environmental monitoring under Regulations 13
- exercising their relevant functions, so as to secure compliance with Article 1 of the MSFD, including taking the necessary measures to achieve or maintain GES by 2020, under Regulation 4
- having regard to the marine strategy developed under the 2010 Regulations in exercising their functions, under Regulation 9

3.13 The responsibilities, or functions, of Scottish Ministers are subject to an overarching cooperation requirement:

- Scottish Ministers must co-operate with the UK Government in exercising relevant functions, under Regulation 8

3.14 The context for the Scottish Ministers' duties is the duty on the UK Government, set out in Regulation 11, to determine the characteristics of GES with reference to seafloor integrity.

## **4. Scottish Ministers' responsibilities for the programme of measures**

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4.1 The Scottish Ministers have statutory duties for the development, publication and review of the PoM under the 2010 Regulations. These responsibilities are primarily set out in Regulation 14 and are supported by Regulations 2, 3, 6, 10, 12, 15 and 18. The Scottish Ministers, as a competent authority, must prepare and publish a PoM designed to achieve or maintain GES.[1] This had to be operational by 31 December 2016, or within one year of its publication, whichever was earlier.

4.2 Guidance issued by the European Commission in support of the MSFD provides additional context on the interpretation of these duties.[9-15] The guidance describes a PoM as "a set of measures that the Member State is responsible for implementing, put into context with each other, referring to the environmental targets they address. The Programme of Measures includes existing and new measures." While the Commission guidance does not create statutory obligations, it provides a framework for evaluating the effectiveness of the Scottish Ministers' implementation alongside an assessment of compliance with statutory duties.

4.3 The following sections describe the Scottish Ministers' statutory duties and associated expectations in relation to the development of a PoM. This includes, in relation to general principles, types of measures to be included, required assessments, provisions for exceptions and arrangements for review.

### **General principles for developing a Programme of Measures**

4.4 The 2010 Regulations establish several overarching requirements for developing a PoM. Regulation 14 requires that the PoM is prepared on the basis of an assessment of marine waters carried out under Regulation 10, and that it takes account of the targets established under Regulation 12. This reflects requirements under the MSFD for Member States to link measures to an evidence-based understanding of the condition of the marine environment.[2] Specifically, paragraph 23 of the Official Journal for the MSFD states "Programmes of Measures executed

under marine strategies will be effective only if they are devised on the basis of a sound knowledge of the state of the marine environment [...] and are tailored as closely as possible to the needs of the waters concerned”.[16]

4.5 Regulation 5 of the 2010 Regulations further requires that the marine strategy, including the PoM, is developed and implemented in line with the precautionary principle, and through an ecosystem-based approach. Regulation 7 places a duty on competent authorities to ensure that the marine strategy, including the PoM, is developed in a consistent manner across administrations. Commission guidance provides further explanation of these principles.[9, 13, 17]

## Types of measures

4.6 In preparing a PoM, the Scottish Ministers are required to identify and consider existing measures relevant to achieving or maintaining GES. Commission guidance recommends undertaking a gap analysis on existing measures to assess the extent to which they are sufficient to reach GES and environmental targets, and to identify any gaps where additional measures may be required.[9]

4.7 The guidance highlights that existing measures were not designed to support implementation of the MSFD. As a result, it notes that reliance on existing measures alone may be insufficient to achieve GES.[9] Where gaps are identified, guidance indicates that new measures should be considered to meet environmental targets for GES.

4.8 Regulation 14 (3) requires that the PoM includes spatial protection measures in accordance with MSFD Article 13 (4). Article 13 (4) specifies that spatial protection measures should contribute to a coherent and representative network of protected areas and may include protected areas designated under other legislation, such as the Habitats Directive or domestic legislation. Beyond the inclusion of spatial protection measures, the 2010 Regulations do not prescribe specific categories or types of measures that must be included in the PoM.

4.9 Commission guidance does provide an indicative list of EU legislation that may serve as measures for achieving GES for specific descriptors. For seafloor integrity, the guidance identifies the Water Framework Directive (WFD), Habitats Directive, Birds Directive, Strategic Environmental Assessment Directive and the Renewable Energy Directive (as implemented through Scottish and UK legislation) as being

expected to contribute to GES. The guidance also identifies a range of possible modes of action through which measures may operate. These include technical, legislative, economic and policy-driven measures (Table 3). These actions are further classified into eight categories: input and output controls, spatial and temporal distribution control, management co-ordination measures, improvements to traceability, economic incentives, mitigation and remediation tools and communication tools. The guidance also notes the relevance of measures adopted under the WFD to address pressures on the marine environment that arise from land-based activities.[9]

Table 3 Modes of action of measures within a PoM, as defined in Commission guidance

Mode of action	Description
<b>Technical</b>	A measurable and visible action
<b>Legislative</b>	Adapting or supplementing national environmental legislation to achieve/maintain GES
<b>Economic</b>	Often aimed at encouraging uptake of technical measures. Financial motives can be used to stimulate certain behaviours
<b>Policy driven</b>	Examples include: economic incentives, voluntary agreements with stakeholders, communication strategies, awareness raising, education

## Contribution of measures to Good Environmental Status

4.10 Regulation 14 requires the Scottish Ministers to include a description of how the measures will contribute to the achievement of environmental targets established under Regulation 12 within the PoM. The 2010 Regulations do not define the level or format of detail required for this description.

4.11 European Commission guidance recommends that contributions are identified through gap analysis and in particular states that “it is important to assess how far the existing spatial protection measures solely, or in combination with other non-spatial measures applicable inside and outside of MPAs and targeting, for example, certain pressures, are sufficient to meet the MSFD environmental targets”. [9] In

addition, case law has established legal precedent that PoMs must contain detail to explain how measures are intended to contribute to statutory targets (Box 1).[18]

#### Box 1: Case law: Secretary of State for Environment and Rural Affairs vs Pickering Association

**Pickering presented** that the technical requirements that were to be included in the PoM, as set out by the WFD, were not presented in the appropriate detail in the PoM produced by the Secretary of State.

**The court had to determine** whether the programme ought to be a high level, strategic document or more detailed and targeted at individual water bodies.

**Court decision:** to satisfy the requirements of the WFD, the PoM had to identify a scheme of actions for each water body. Where there are generic provisions in a programme, there must be some explanation of how those provisions will assist each water body to achieve the required status. The level of detail to be included was a matter for the discretion of the authorities.

**Take away:** is the principle that there must be some explanation as to how a specific action will assist in achieving the specified status.

**Key notes:** statutory guidance was used to confirm the court's interpretation.

## Technical feasibility, impact assessments and cost-effectiveness

4.12 Regulation 14 (6) requires the Scottish Ministers to satisfy themselves, before the PoM comes into operation, that the measures are cost-effective and technically feasible. The 2010 Regulations also require that an impact assessment and a cost-benefit analysis are carried out for each measure. Where the costs of a measure would be disproportionate, taking account of the risks to the marine environment, the 2010 Regulations provide that the measure may not need to be implemented. This is provided that there was an assessment of the risk to the marine environment that might arise as a result of the failure to implement.

4.13 The 2010 Regulations do not prescribe how competent authorities should assess or evidence the technical feasibility, cost-effectiveness or impacts of measures. These matters are therefore left to interpretation within the statutory framework. To date, there is no reported UK case law directly determining how these requirements are to be applied in practice in the context of a PoM.

4.14 European Commission guidance provides some direction for these assessments.[9] It recommends three high-level steps to assess the technical feasibility of new measures. These are: (1) identify the potential new measures needed to meet the environmental targets, (2) verify feasibility of these measures through consulting experts, input from Regional Seas Conventions and consulting stakeholders, then (3) identify how to develop and adopt the technically feasible new measures. The guidance further advises that where a measure is considered technically feasible but cannot be fully realised, the PoM should include full details of the measure and an explanation of the limitations identified.

4.15 For cost-effectiveness, the guidance is less prescriptive, recommending generally that a cost-benefit analysis should be undertaken for proposed measures. A definition of impact assessments is provided as “something that can evaluate the potential economic, social and environmental consequences of a new initiative” but a recommended methodology for carrying out such assessments is not provided.

## Exceptions

4.16 The 2010 Regulations make provision for exceptions where environmental targets or GES cannot be achieved. Regulation 15 sets out the circumstances in which exceptions may be identified by the competent authority and the information that must be provided where they are applied. Exceptions can only be used where non-achievement of GES by the specified deadline results from factors beyond the control of the UK. These include natural causes, force majeure, modifications to physical characteristics for overriding public interest, or natural conditions that prevent timely improvement of the status of marine waters.

4.17 Where an exception applies, Regulation 15 (4) further requires the competent authority to identify measures to prevent further deterioration of the affected waters and to mitigate adverse impacts in marine waters at the level of the marine region or sub-region. These measures must be integrated into the PoM where practicable. Where the Scottish Government, as a competent authority, identifies a case for exception, Regulation 15 requires that they clearly identify this in the PoM and prepare and publish a report setting out the justification for the exception in a publicly accessible format as soon as reasonably practicable.

4.18 The 2010 Regulations do not define all circumstances for exceptions, but further examples are provided in European Commission guidance. The guidance sets a clear expectation that where natural conditions delay achievement of GES, Member States should specify a revised timescale by when GES will be achieved.[9]

## Review of the PoM

4.19 Regulation 14 (9) requires the Scottish Ministers to review the PoM on a six-yearly cycle to ensure that it remains up to date. While the 2010 Regulations do not directly stipulate that an updated PoM must be published as part of the review, other provisions within the 2010 Regulations and the requirements of the MSFD indicate that PoMs are intended to be updated as part of the six-yearly review cycle. European Commission guidance recommends how a PoM should be reviewed and updated. It states that an “updated Programme of Measures should provide an overview of the new measures proposed [...], together with a general description of the method(s) or approach(es) to selecting new MSFD measures”. [13]

## Summary of Scottish Ministers’ responsibilities

4.20 Overall, the legislative framework governing the PoM imposes clear duties on the Scottish Ministers as the competent authority. The statutory duties are supplemented by guidance that informs the manner in which those obligations may be discharged. Collectively, the provisions require that measures are identified, assessed, justified and reviewed in a structured and transparent manner, consistent with statutory objectives and applicable procedural requirements. The following section reviews the Scottish Government’s implementation of these duties and discusses how associated guidance has been given effect in practice.

## 5. Development of the Programme of Measures

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### Development of Scottish measures in the UK Programme of Measures

5.1 A single UK-wide PoM was produced under the UKMS, aligning with requirements for consistency under Regulation 7 of the 2010 Regulations. This approach was adopted in preference to producing separate PoMs for each administration, which would have been permissible under the 2010 Regulations. This differs from Part One of the Strategy, for which the 2010 Regulations require a single UK-wide assessment of status.

5.2 The first PoM was published in 2015 and an updated PoM was published in 2025. Both PoMs were developed by the UK government and the devolved administrations, with input from scientific experts and policy officials across administrations.

### 2015 Programme of Measures

5.3 The 2015 PoM states that the Scottish Government (as a devolved administration) led the development and implementation of measures for their marine waters.[19] It further details that the requirements of the MSFD were a key consideration during development, citing relevant MSFD Articles, and that the PoM was developed following European Commission guidance.[19]

5.4 There is minimal detail in the PoM regarding the process by which the Scottish Government identified and developed measures for Scotland. The Scottish Government informed ESS that “measures relating to the state of benthic habitats in the 2015 PoM were developed by considering what policies were in development which would contribute to improving the state of benthic habitats and the health of the seafloor”. However, there is no record of this process.

### Types of measures

5.5 In the 2015 PoM, measures for benthic habitats are primarily UK-wide existing measures. They comprise legislation and policy instruments that were established or planned prior to the UKMS, such as the Habitats Directive and Common Fisheries

Policy (CFP), whereby implementation in Scottish waters is generally the responsibility of the Scottish Ministers.

5.6 There are nine measures in total for benthic habitats that are relevant to Scottish waters. These include EU legislation identified in Commission guidance as applicable to the seafloor integrity descriptor (Section 1). Of these nine, seven are 'generic measures' intended to contribute to the achievement of GES for several descriptors. Two measures are specific to benthic habitats. One of these is 'OSPAR recommendations' for OSPAR listed habitats, which are being implemented across the Northeast Atlantic for benthic habitats. The other is the Prohibition of Fishing for Scallops (Scotland) Order 2003, which represents the only Scottish-specific measure for benthic habitats in the 2015 PoM.

5.7 The measures for benthic habitats relevant to Scotland are detailed in Table 4. They are a combination of spatial measures that apply management actions to a specific geographical area e.g. within MPAs, and non-spatial measures, which manage how and when activities can occur. The measures can be considered as a combination of those that are non-regressive and those that are progressive. Non-regressive measures prevent the further deterioration of benthic habitats from the current status, whereas progressive measures actively drive progress towards GES by improving the state of benthic habitats. Table 4 summarises these classifications.

Table 4 A summary of measures listed in the 2015 PoM for benthic habitats relevant to Scottish waters. Classifications of non-regressive/progressive (column 5) and whether the contribution to GES is specified in the PoM (column 6) have been assigned by ESS. \* Denotes measures whereby the EU Directive is listed in the PoM, but corresponding UK/Scottish-specific legislation and policy is responsible for its implementation. \*\* Denotes measures that have been listed as 'benthic-specific', but ESS' assessment has classified as 'generic'

2015 Part Three Measures applicable to Scottish waters	Existing or planned	Generic or benthic-specific	Spatial or non-spatial	Non-regressive or progressive	Contribution to GES specified
Habitats Directive (SACs)	Existing	Generic	Spatial	Both	Yes
Common Fisheries Policy	Existing	Generic	Both	Both	Partially
The Prohibition of Fishing for Scallops (Scotland) Order 2003	Existing	Benthic-specific	Both	Non-regressive	No
Marine (Scotland) Act 2010 / Marine and Coastal Access Act (MPAs)*	Both	Generic	Spatial	Progressive	Yes
Marine planning*	Existing	Generic	Both	Progressive	No
Marine licensing*	Existing	Generic	Both	Non-regressive	Partially
Environmental Impact Assessment* / Strategic Environmental Assessment* / Electricity Act	Existing	Generic	Non-spatial	Non-regressive	Yes
River Basin Management Plans	Existing	Generic	Non-spatial	Progressive	No
OSPAR recommendations	Both	Generic**	Non-spatial	Progressive	No

5.8 The 2015 PoM also detailed a number of 'planned measures' for benthic habitats. These are measures that were already agreed at the time of publication but not yet implemented. For Scottish waters, these included: the consideration of a

further three MPA proposals for habitats in Scottish territorial waters; the implementation of management measures for 30 Scottish MPAs by 2016; the commitment to a UK ecologically coherent network of MPAs; and further development and implementation of recommendations for programmes of measures to protect OSPAR listed habitats.

5.9 The 2015 PoM states that “Overall, we believe that the existing and planned measures are sufficient to meet our targets and to help achieve or maintain GES as defined in our Marine Strategy Part One. We recognise that there remain some gaps in our knowledge and uncertainties around the relationship between measures and their impacts. The monitoring programme established under our Marine Strategy Part Two will provide information on progress towards our targets and we will review our approach where necessary”.

### **Contribution of measures to Good Environmental Status**

5.10 The 2015 PoM provides only high-level descriptive text on expected contributions or potential benefits for both generic measures and those specific to the seafloor integrity descriptor. For fisheries regulation, marine planning and MPAs, the PoM generally presents the contribution of measures in qualitative terms, outlining the potential for positive influence on benthic habitats. However, it seldom explains the pathways through which the measures will deliver improvements and provides minimal detail on direct, measure-specific mechanisms for achieving the individual benthic GES targets.

5.11 As an example, the CFP is described as making a “positive contribution” to seafloor integrity through technical measures such as gear restrictions and closed areas, without clarifying the scale and extent of these measures or how they would translate into measurable habitat recovery. For the Prohibition of Fishing for Scallops (Scotland) Order 2003, the only Scottish-specific measure, the 2015 PoM details that this “sets restrictions for gear characteristics in different areas to protect demersal stocks and habitats” but provides no specific description of the contribution of the measure to GES.[19]

5.12 Similarly for other measures, the relationship between the actions and the achievement of GES for benthic habitats is not clearly set out. For example, the measure ‘OSPAR Recommendations’ comprises a generic set of actions focused

primarily on monitoring and information exchange. ESS considers this unlikely to have a direct or material effect on achieving GES. For River Basin Management Plans (RBMPs), the 2015 PoM states that they will contribute to the achievement of GES, as defined under the WFD, in intertidal and coastal waters. The PoM does not disaggregate which actions within RBMPs are expected to contribute to GES for benthic habitats under the UKMS. Some RBMP priorities relating to water quality, aligned with UKMS benthic indicators, are likely to have positive effects on benthic habitats. However, other RBMP actions, such as those addressing invasive non-native species, water flows, water levels and fish migration, are either not aligned with benthic indicators under the UKMS or are likely to have minimal direct influence on the status of GES for benthic habitats.

5.13 The 2015 PoM itself notes that “an analysis will need to be undertaken to assess the overall contribution of measures for the achievement of the targets at regional level, and to ascertain if there are any gaps that might be addressed by adapting existing measures”. This highlights the absence of detailed, measure-specific contribution assessments.[19] The Scottish Government informed ESS that this analysis has not been undertaken.

### **Technical feasibility, impact assessments and cost-effectiveness**

5.14 The 2015 PoM provides limited information on how the Scottish Ministers’ implemented their duties relating to the technical feasibility, cost-effectiveness of measures and impact assessments prior to operationalising the PoM. For both the generic and Scottish-specific measures, the 2015 PoM does not set out any assessment or explanation of technical feasibility for benthic habitats measures. By contrast, for descriptors 5 (eutrophication) and 8 (contaminants), the PoM explicitly identifies some actions as technically infeasible. The 2015 PoM broadly outlines that the cost of existing and planned measures has been accounted for in relation to the specific policies they relate to and that additional costs are not expected. For benthic habitats, it states that this applied to “elements covered by the Habitats Directive and WFD”. The 2015 PoM does not reference impact assessments undertaken for specific measures and no supporting impact assessments of the overall 2015 PoM are publicly available.

5.15 The Scottish Government informed ESS that technical feasibility and cost-effectiveness are generally considered as part of policy development and that “[the

Scottish Government's] understanding is that measures were assessed within each policy area using the best practices at the time of policy development". The Scottish Government stated that analysis of policy options is informed by different forms of impact assessments, and that strategic environmental assessments (SEA) and business and regulatory impact assessments (BRIA) help to inform the assessment of cost effectiveness. The Scottish Government further informed ESS that "opinions on the policies and the associated impact assessments, which can include any issues around technical feasibility and cost effectiveness, are sought through public consultation".

## Summary

5.16 In summary, the 2015 PoM contains benthic measures that are broadly consistent with categories of measures recommended in the European Commission guidance (see paragraph 4.9). Several of the measures can also be considered to be well-supported by scientific evidence that shows that reducing the spatial footprint of fisheries (e.g. through MPAs), in combination with reductions in overall fishing effort or gear modification (e.g. through the CFP) can improve seafloor integrity in relation to habitat disturbance, condition and extent.[20-23] However, [ESS' review of published scientific evidence](#) also highlights the gaps which remain in understanding the effectiveness of some measures, particularly in a Scottish context. [24]

5.17 While the assessment of the collective contribution of measures, especially those that are broad and non-specific, can be complex, available evidence indicates that quantitative assessment of the contribution of measures is feasible.[25, 26] ESS' own analysis has demonstrated that estimating the contribution of spatial measures to physical disturbance targets is both feasible and informative, highlighting how developing a more consistent evidence base can support clearer assessment and more transparent planning (see [ESS technical paper](#)).[27] The wider scientific literature further shows that ecosystem modelling approaches can be used to assess the combined effects of spatial closures, gear modifications, and effort reductions on multiple indicators of benthic habitat status.[20, 22, 23, 28] This evidence suggests that more explicit analysis of how individual and combined measures contribute to GES targets for benthic habitats could have been undertaken within the 2015 PoM.

5.18 Impact assessments are available for certain existing, individual measures listed in the 2015 PoM, including for RBMP, aspects of marine planning and MPA

management. However, these documents do not provide commentary on the technical feasibility of the measures. While a BRIA and SEA could partly satisfy the requirement to assess the cost-effectiveness of Scottish measures, the absence of publicly accessible documents linked explicitly to the 2015 PoM limits transparency in relation to how duties under Regulation 14 were implemented. The published summary of responses to the 2015 PoM public consultation does not provide evidence that views were specifically sought (or received) on the cost-effectiveness and technical feasibility of the proposed measures.

## European Commission review and public consultation on updating the UK Programme of Measures

5.19 In 2018, the European Commission undertook a review of Member States' PoMs. The review identified several general shortcomings in the UK's 2015 PoM. These included ambiguity on the geographical coverage of the spatial measures, an absence of any quantified expectations for what the measures were intended to achieve (e.g. the expected levels of pressure reduction) and insufficient detail on how the measures would contribute to achieving the targets and GES.[29, 30]

5.20 Although the review did not include seafloor integrity among the UK descriptors it assessed as not expected to achieve GES by 2020, it found specific weaknesses relating to benthic measures across UK waters. These included:

- a lack of clarity over whether the PoM addressed physical loss and damage from certain activities (e.g. marine renewable energies, mining and aquaculture)
- whether the PoM addressed physical damage from dredging and recreational activities
- whether the PoM addressed physical loss from port operations and solid waste disposal, and
- no consideration of measures to target destructive fishing practices outside protected areas, including MPAs

5.21 The review also highlighted that most benthic measures focused on pressures of physical loss and damage to seabed habitat with limited consideration of other pressures, such as non-indigenous species and marine litter. The review noted that measures for those descriptors could have also addressed seabed habitat

pressures. The review concluded that the UK 2015 PoM only partially addressed key pressures on seabed habitats in UK waters.

5.22 Similar views were reflected in responses to the 2021 public consultation on updating the UK PoM. All respondents considered that the proposed measures in the consultation document were insufficient to achieve GES across any descriptor.[31] Multiple new or additional measures were proposed by consultees for inclusion in an updated PoM. This was alongside calls for improvements to the delivery of measures and the introduction of key actions to improve the effectiveness of the PoM and to address unaddressed pressures. This included requests for specific (not only existing) measures to be designed and implemented. Consultees also indicated that a PoM should include a comprehensive impact assessment of the measures, quantifying the expected contribution of measures towards achieving GES.[31]

## 2025 updated Programme of Measures

5.23 According to the statutory timeline specified by Regulation 14 (9), a review of the PoM was due by 2021. Following the 2021 consultation, an update to the PoM was published in 2025.

5.24 The updated 2025 PoM states that its overall approach is to provide “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 Status Assessment (updated in 2019)”.

5.25 In the 2019 Part One assessment, criteria, targets and threshold values for assessing GES for benthic habitats, were updated. These updates were primarily to clarify thresholds, and to introduce additional indicators for pressures already targeted under the 2012 assessment, rather than to materially alter the objectives that measures were expected to deliver. The 2025 PoM describes that a whole ecosystem approach, such as considering how measures acted together on the entire ecosystem, was used to develop measures.[32] Similar to the 2015 PoM, the updated programme was developed by the UK Government and devolved administrations, with input from scientific experts and policy makers across each administration.[32] All measures in the updated 2025 PoM are in addition to measures listed in the 2015 PoM.

## Types of measures

5.26 Similar to the 2015 PoM, there are several measures that are expected to contribute to the achievement of GES across descriptors, including benthic habitats, which are described as “cross-cutting” measures. For benthic habitats, the updated PoM details, collectively for the four UK nations, “6 new measures that have either been put in place since 2015 or will be implemented over the lifetime of this [updated] PoM”. The updated PoM does not clearly reference which six new measures these are, but provides a general summary of benthic habitat measures. Annex I of the PoM lists 12 measures for benthic habitats, which are a mix of different national measures and “UK Government and devolved government-specific measures”, the latter of which lists a single, Scottish-specific, measure. The PoM also cites the Scottish Biodiversity Strategy and associated targets under the Natural Environment Act as a relevant benthic measure. Collectively, ESS considers seven of the listed measures as relevant to benthic habitats in Scottish waters: these are summarised in Table 5.

5.27 The updated 2025 PoM also details eight actions to reduce uncertainty about GES for benthic habitats. As these are not described as measures, ESS has not assessed them as part of its scrutiny. The updated PoM states that these new measures and actions are “mostly administration-specific, and expected to further the UK’s shared progress towards achieving GES for benthic habitats”. [32]

5.28 Measures for benthic habitats in the 2025 PoM are predominantly focused on the management and regulation of fisheries and the reduction of physical disturbance pressure on benthic habitats. Compared to the 2015 PoM, there is a greater number of measures specific to Scottish waters, including the introduction of fisheries management measures to protect 11 benthic PMFs outside of MPAs. The additional measures included in the updated 2025 PoM can be considered to be consistent with measures recommended in European Commission guidance, and to be generally effective actions that would deliver progress towards benthic habitat GES targets for habitat disturbance, condition and extent.

Table 5 A summary of measures listed in the 2025 PoM for benthic habitats that are relevant to Scottish waters. Classification of non-regressive/progressive (column 5) and whether the contribution to GES is specified (column 6) have been assigned by ESS based on our assessment of these measures

2025 Part Three Measures applicable to Scottish waters	Existing or planned	Cross-cutting or Scottish-specific	Spatial or non-spatial	Non-regressive or progressive	Contribution specified
Fisheries Act 2020: The Joint Fisheries Statement and the 8 Fisheries Objectives	Both	Cross-cutting	Both	Both	Partially
Future Fisheries (Scotland): Management Strategy 2020-2030: MPA management measures for remaining MPAs	Planned	Both	Spatial	Both	Yes
Management measures for 11 benthic Priority Marine Features	Planned	Scottish-specific	Spatial	Both	Yes
Deep-sea Access Regulation (EU 2016/2336)	Existing	Cross-cutting	Spatial	Progressive	Partially
Scottish Vessel Tracking and Monitoring Systems	Both	Scottish-specific	Spatial	Progressive	Partially
Scotland's National Marine Plan – General Policy 9 on Natural Heritage	Existing	Scottish-specific	Non-spatial	Non-regressive	No
Scottish Biodiversity Strategy	Existing	Both	Both	Both	Partially

## **Contribution of measures, technical feasibility analysis and impact assessments**

5.29 Similar to the 2015 PoM, broad descriptions on the expected contributions of cross-cutting measures to the overall achievements of GES targets are provided. For Scottish-specific measures, the PoM details what action is planned and certain benefits, but does not provide information regarding how measures will quantitatively contribute to benthic habitat targets, nor does it detail the extent of implementation. For example, for the measure “Vessel tracking monitoring systems”, the PoM details that this will “ensure more effective compliance [...] across the whole commercial fishing fleet” but does not specify how this will be implemented or its exact contribution to GES targets for benthic habitats.[32]

5.30 For new measures in the 2025 PoM, there are no references to technical feasibility or its assessment. A generic section on the costs of the PoM details that a review was carried out to gather existing socio-economic assessments of new measures and to identify which measures would require an assessment. It also details that measures introduced since the 2015 PoM are either updates to existing measures or subject to individual economic assessments. Similarly to the previous public consultation on the 2015 PoM, there was no direct question regarding the technical feasibility of measures included in the public consultation for the updated measures in the 2025 PoM. There is also no record of a sustainability appraisal being undertaken for the updated 2025 PoM.

### **Implementation of European Commission recommendations**

5.31 The updated 2025 PoM introduces several measures that can be considered to address aspects of the European Commission’s critique of the UK’s 2015 PoM. For example, the inclusion of fisheries management measures to protect 11 benthic PMFs outside of MPAs addresses the Commission’s finding that the 2015 PoM lacked measures targeting destructive fishing practices outside of protected areas. However, measures to address wider, non-fishing pressures, which were highlighted as lacking in the Commission’s 2018 review, remain limited in the 2025 PoM. Similarly, details of the interactions between measures for other descriptors, including invasive non-native species and marine litter, and benthic habitats remain lacking, despite the Commission’s findings.

5.32 The Scottish Government did not state whether EU recommendations from its review of the 2015 PoM had been implemented for the updated 2025 PoM. The Scottish Government also informed ESS that “the process for developing the 2025 PoM was broadly the same process as was used to develop the 2015 PoM”.

### Exceptions

5.33 The 2025 PoM applies an exception for the seafloor integrity descriptor under regulation 15 (2)(e) of the 2010 Regulations on the basis that natural conditions do not allow timely improvement in the status of the marine waters concerned. Specifically, the 2025 PoM cites variable and slow recovery time of benthic habitats and species as preventing the collective impact of measures from being immediately apparent in terms of environmental status. It sets out that 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.

5.34 The 2025 PoM does not explicitly confirm a new deadline for achieving GES for benthic habitats and the seafloor integrity descriptor. However, it refers to an exception being 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 Scottish Government informed ESS that no revised target date has been agreed between the four UK nations for when GES is expected to be achieved for benthic habitats.

### European Commission review 2025

5.35 In 2025, the European Commission published a further assessment of Member States’ PoMs setting out expectations that ambition should be increased and action accelerated through clearer PoMs grounded in robust assessments.[14] While this assessment did not cover the UK PoM, it identifies principles that are relevant when considering the fulfilment of the Scottish Ministers’ duties in relation to the PoM. Specifically, the assessment identified that to achieve GES, PoMs should include quantitative measures that bridge the gap between the current status and GES, as quantified by the threshold values set at EU, regional and subregional level and integrated into marine strategies. It also emphasises the need to ensure that measures taken under other legislation and policies have the sufficient ambition to

contribute to the achievement of GES or are complemented by the additional measures needed for GES, which are not part of existing frameworks.

5.36 Overall, the European Commission found greater coherence within PoMs where authorities have developed tools to support the assessment of the gap between current environmental status and GES, and to identify the measures required to close this gap.[14]

## Conclusion

### **Key finding 1**

The Scottish Ministers have not discharged their duties to develop and implement a PoM under the 2010 Regulations effectively. This constrains the ability of the programme to support the aim of the 2010 Regulations of achieving GES, and limits its contribution to the protection of the marine environment in Scottish waters.

5.37 The 2010 Regulations place clear duties on the Scottish Ministers to produce an effective, achievable and transparent PoM, which must provide a detailed description of measure contributions and implementation, and must ensure that measures are cost-effective and technically feasible.

5.38 Across both the 2015 and 2025 PoM, there is a lack of detail on the process by which the Scottish Ministers identified and developed Scottish-specific measures, and no revised deadline for achieving GES has been set. There is no clear evidence that the Scottish Ministers assessed cost-effectiveness, or evaluated the technical feasibility of measures as required by Regulation 14 (6). Additionally, there is no evidence that the Scottish Ministers undertook a gap analysis of existing measures to ensure that they were sufficient to achieve GES targets for benthic habitats prior to the publication of both PoMs, as recommended in European Commission guidance.

5.39 The 2015 and 2025 PoMs include spatial protection measures, as required by Regulation 14 (3). The other measures included in the programmes broadly align with European Commission guidance and are supported by scientific evidence as being capable of reducing the most dominant pressure on benthic habitats. However,

the effectiveness of the measures is strongly dependent on their scale and implementation intensity. For example, the geographical extent of spatial protection measures and the magnitude of fishing effort reduction. The PoMs provide limited details of how, and to what extent, certain benthic measures will be implemented and of how they are expected to contribute to the achievement of GES targets for benthic habitats as required by Regulation 14 (2).

5.40 Available evidence demonstrates that it is feasible to move beyond high-level qualitative statements about contributions, such as those provided in the PoMs, to more quantitative contribution assessments. More explicit and quantitative assessments would strengthen assurance on the sufficiency of measures included in the PoM, and would align with European Commission recommendations for greater detail and spatial specificity in measure design. Such quantified contribution assessments will be most effective where targets and measures are themselves specific and clearly defined. It is evident from the detail, both within the updated 2025 PoM, and within information provided by the Scottish Government, that critiques raised in the European Commission's review were not fully considered by the Scottish Ministers and integrated into the updated 2025 PoM.

5.41 While Regulation 14 provides scope for interpretation within the statutory framework, there is limited transparency about the processes used to identify and assess measures. Together with the minimal detail provided on contribution, feasibility and cost effectiveness, this means that the ability of the PoM to deliver the overarching aim of the 2010 Regulations is constrained. Furthermore, the failure to agree a revised deadline for achieving GES means that the PoM does not contribute fully to the protection of the marine environment.

### **Recommendation 1**

The Scottish Government should set out the steps it will take to ensure effective implementation of its duties under Regulation 14. ESS expects this to include:

- an assessment of the contribution that Scottish measures in the 2025 PoM are expected to make towards an agreed share of UK-wide seafloor integrity targets for Scotland, including by when
- the development of new or additional measures where that assessment shows that current measures are insufficient to meet an agreed share of UK-wide seafloor integrity targets for Scotland
- evidence of how the technical feasibility and cost-effectiveness of any new measures have been assessed and how such assessments will be integrated into future updates of the PoM

## 6. UK Marine Strategy monitoring programmes

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### Statutory duties on Scottish Ministers

6.1 Under the 2010 Regulations, Scottish Ministers have specific responsibilities for environmental monitoring in Scotland's marine waters within the marine strategy area. As the competent authority for the devolved marine area, under Regulation 13, Scottish Ministers must establish and maintain a comprehensive and co-ordinated marine monitoring programme that supports ongoing assessment of GES. This programme must be consistent with the expectations set out in Article 11 of the MSFD. The monitoring programme must be established on the basis of the indicative list of elements set out in Annex III, which necessitate monitoring of benthic habitats.

6.2 Article 11 obliges each Member State to operate a co-ordinated system of monitoring tailored to the marine sub-regions. This should integrate with existing monitoring under other directives, such as the Habitats, Birds and relevant international frameworks (for example, OSPAR).

6.3 The technical Annexes of the MSFD further define monitoring requirements. Annex III specifies the ecological components (e.g. physical and chemical features, biological features) and pressures that monitoring must address, including those relevant to benthic habitats and seafloor integrity. Annex V sets out more detailed expectations for how monitoring should operate. These include a series of specific requirements, such as ensuring compatibility with existing programmes and having monitoring that can generate information to:

- assess environmental status and track distance from, and progress towards, GES
- assess the impact of the measures adopted in the PoM

6.4 In practice, this means that the monitoring programme for Scottish waters must be designed and implemented in a way that ensures that Scottish Ministers can periodically assess whether GES is being achieved or maintained, measure progress towards environmental targets and evaluate the impact of measures being implemented under the PoMs.

## Process for devising the UK Marine Strategy monitoring programmes

6.5 The UKMS monitoring programme was developed at a UK-wide scale between devolved administrations and the UK Government. Similar to the PoMs, the UK elected to develop a single, UK-wide monitoring programme, in preference to producing separate programmes for each administration, which would have been permissible under the 2010 Regulations.

6.6 The 2014 monitoring programme did not distinguish between actions taken by the UK Government and devolved administrations in developing monitoring schemes for the UKMS. In addition, no specific actions by the Scottish Ministers to develop benthic habitat monitoring were detailed. As a result, ESS have considered all information detailed in the 2014 monitoring programme as applying to the actions of Scottish Ministers.[33]

6.7 The 2014 monitoring programme describes how that monitoring schemes were developed through the MSFD steering group (comprising the devolved administrations and UK government departments) and with the UK Marine Monitoring and Assessment Strategy (UKMMAS) group. UKMMAS comprises scientists, UK and devolved administrations, environmental agencies and representatives from marine institutes and research. These are organised into evidence groups under the co-ordination of the Marine Assessment and Reporting Group (MARG). The Healthy and Biologically Diverse Seas Evidence Group (HBDSEG) co-ordinates UK marine monitoring to ensure that high-quality data support status assessments of the UK's marine environment for its national and international obligations, such as the MSFD. The HBDSEG and its benthic sub-group provided advice on benthic monitoring for the 2014 monitoring programme.

6.8 The UK also considered recommendations made by the MSFD Common Implementation Strategy working groups for MSFD monitoring programmes and reporting. The 2014 monitoring programme states that, where possible, recommendations and guidance produced by European Commission working groups concerning the MSFD were reflected in the programme.

6.9 The 2014 monitoring programme makes clear that relies upon existing monitoring and surveillance, undertaken by a number of organisations, required by other European Commission Directives, such as the Birds and Habitats Directives,

and the WFD, and that the competent authorities sought to align with monitoring undertaken for OSPAR. By design, the UK's MSFD monitoring was largely 'business as usual', albeit with an expectation that existing monitoring would "be adapted where necessary" to fulfil the requirements of the MSFD. The 2014 monitoring programme states that "in all cases the monitoring programmes are the minimum required to meet the UK's monitoring obligations" and concludes that using pre-existing surveys meant no additional monitoring costs were identified for many descriptors including benthic habitat components.

6.10 The 2014 monitoring programme for descriptor 6 (seafloor integrity) identified three monitoring programmes relevant to benthic habitats in Scottish waters (Table 6). The monitoring largely relied upon existing schemes concerning monitoring of protected habitats and features within protected sites, such as Special Areas of Conservation (SACs) and MPAs, and monitoring water quality in coastal waters.

6.11 The use of only these existing monitoring and surveillance programmes, as listed in the 2014 monitoring programme, means that the assessment of benthic habitat status would be restricted to data obtained from within European protected sites and coastal waters out to three nautical miles. As a result, the monitoring programme for benthic habitats does not encompass the full spatial extent of the sub-regions assessed in 2019 Part One.

6.12 The 2014 monitoring programme provides a general description of how monitoring will be used to assess the effectiveness of measures. It states that the effect of pressure from human activities, and any reduction in pressure, will be evidenced through monitoring of the benthic habitat extent and condition indicators.

Table 6 UKMS monitoring and surveillance programmes for assessment of seafloor integrity in Scottish waters taken from the 2014 Part Two monitoring programmes

2014 Part Two monitoring programmes applicable to Scottish waters	Existing or developed for MSFD	Spatial extent	Contributing/ co-ordinating authority	Updated in 2022
Monitoring of Annex I habitats listed under the Habitats Directive: Special Areas of Conservation (SAC)	Existing	Inshore waters (1-12 nm) and offshore waters (12-200 nm)	Scottish Ministers, NatureScot, JNCC	No
Water Framework Directive (RBMP)	Existing	Transitional and coastal waters out to 3 nm	SEPA	No
Marine Biodiversity and Climate Change (MarClim)	Existing	Intertidal	Marine Biological Association/ Scottish Association for Marine Science	No

6.13 The 2014 monitoring programme acknowledged several gaps and issues regarding the operability of several indicators, and therefore the ability to assess and determine status of benthic habitats and the impact of benthic measures set out in the Part One PoM. In relation to indicators, these gaps concerned:

- missing indicators for sediment, rocky and biogenic habitat condition
- incomplete indicators for distribution and extent of listed inshore and offshore habitats
- insufficient condition indicators for sediment habitats

6.14 Although not operational monitoring, the 2014 monitoring programme also noted that data gathered from survey programmes to support the designation of MPAs would support the development of further indicators of GES for habitat extent and condition. The 2014 monitoring programme confirmed that gaps related to habitat indicators were expected to be addressed prior to the 2019 Part One

assessment. Additionally, the programme states that it will be regularly reviewed to achieve efficiencies, and resources would be targeted at areas where there is most risk of not achieving GES.

## Post-2014 reviews and assessments of the monitoring programmes

6.15 Since 2014, several independent reviews and assessments confirmed that benthic monitoring under the 2014 monitoring programme of the UKMS remained insufficient for the needs of the MSFD.

6.16 In 2017, the European Commission undertook an analysis of all submitted EU Member States' monitoring programmes. Their assessment of the UK's monitoring programmes highlighted several achievements, including its coverage of pressure-based descriptors and consistency with the OSPAR's standards and guidelines. However, for descriptor 6, it concluded that the programme was not sufficient to assess progress towards GES targets. The European Commission recommended that the UK should further develop its biodiversity monitoring sub-programmes and should continue to integrate existing monitoring schemes, such as for the WFD and Habitats Directive, with MSFD monitoring programmes. This would ensure they meet MSFD requirements, such as spatial scope, habitats and species monitored.[34]

6.17 Between 2016 and 2018, JNCC completed a review of UK marine biodiversity monitoring on behalf of the HBDSEG of UKMMAS that reinforced the points raised by the European Commissions. This review included the development of monitoring options by scientists and monitoring experts, costed and reviewed by policy representatives from each of the four administrations of the UK. In 2018 the HBDSEG concluded that UK existing monitoring programmes did not meet the UK's monitoring obligations, including under the MSFD, and advised on specific monitoring needs, including for offshore and deep-sea benthic habitats.[35]

6.18 JNCC, in their role as the statutory advisor to the UK Government and devolved administrations on nature conservation in offshore waters, informed ESS that the review recommended monitoring of a total of 24 offshore (including deep-sea) MPAs, and regions of the offshore environment outside of MPAs. The implementation of this recommendation would ensure representation of all offshore feature types at a UK scale and support the UK's ability to assess and report on progress towards

achieving national and international targets.[35] Of these 24 sites, eight are in Scottish offshore waters and only five of these eight sites are currently monitored. This limited subset of MPAs (which lack full feature representation) means current offshore MPA monitoring in the UK is not fully effective in providing a robust evidence base for the MPA network. The review also urged development of an indicator for seabed condition and called for much more systematic and funded monitoring of seabed habitats UK-wide.[36]

6.19 In 2020/21 (and updated in 2022) the HBDSEG (led by JNCC) co-ordinated a 'stabilisation review' aimed at identifying priority areas for improving monitoring and stabilising the UK monitoring evidence base to support assessments. The highest priority action to stabilise both inshore and offshore benthic monitoring programmes was to establish a long-term, multi-year funding structure to support planning and delivery, but this has yet to be delivered.[35] This priority action was also recommended in an earlier review conducted by JNCC into the monitoring and assessment of seabed habitats in UK inshore MPAs during the period 1999 to 2013.[37]

6.20 The 2019 Part One assessment of GES made evident the deficiencies in the UK benthic monitoring programme. The assessment detailed several 'outstanding issues' for assessing GES targets for soft sediment, rocky and biogenic and intertidal habitats linked to insufficient evidence to establish reference conditions, distribution and lack of wider UK seas sampling. It stated that, "Due to the limited data and scientific evidence it was not possible to undertake a fully integrated assessment of benthic habitats at this stage." [3] The 2019 Part One assessment also identified descriptor 6 (seafloor integrity) as one of the descriptors where there was uncertainty on whether GES would be met by 2020 and that additional targets, monitoring and research, as well as additional measures would be put into place from 2018 to 2024.[3] As noted in Sections 3 and 5, in the PoM published in 2025, GES targets were revised and additional measures were introduced. Updates to monitoring are discussed in paragraph 6.23.

6.21 There is no description provided in the UKMS of what constitutes a 'fully integrated assessment'. However, the Scottish Government informed ESS that a lack of 'fully integrated assessment' means that there is no standard methodology to aggregate the outputs of multiple indicators into one overall assessment of GES. As

a result, benthic GES outcomes were based solely on ‘expert judgement’. Without a suitable methodology and a reasonable level of certainty to assess whether GES has been met, Scottish Ministers would not be able to evaluate the impact of measures in achieving GES for benthic habitats.

6.22 The 2019 Part One assessment of the habitat extent indicator (physical loss of predicted seafloor habitats) also stated that greater empirical data was needed to refine modelled outputs in the assessment.[38] NatureScot informed ESS that surveys are needed to validate and interpret modelling approaches used in some of the benthic indicators. This indicates that limited quantitative data has been gathered to directly assess benthic conditions to enable an evaluation of the impacts of measures, as proposed in the 2014 monitoring programme.[33]

## Process to update the Part Two monitoring programme 2022

6.23 An update to UKMS Part Two monitoring programme was published in 2022. The monitoring identified in the 2022 monitoring programme is a continuation of existing 2014 Part Two programmes and the programme details where improvements have been made as well as additional monitoring that took place between 2014 and 2022, but was not captured in the 2014 monitoring programme. These include the development of the Scottish MPA Monitoring Strategy framework published in 2017 for more systematic inshore MPA and SAC monitoring, and monitoring in Scottish offshore MPAs and deep-sea habitats led by JNCC, which has been taking place since 2014 and 2016, respectively.[39]

Table 7 Monitoring programmes identified in the updated 2022 Part Two. These monitoring programmes reflect monitoring that was implemented following publication of the 2014 monitoring programme

Updated 2022 Part Two monitoring programmes applicable to Scottish waters	Existing or developed for MSFD	Spatial extent	Contributing/co-ordinating authority
Inshore benthic MPA monitoring programmes	Existing	0-12 nm	NatureScot
Offshore and deep sea MPA monitoring programmes	Existing	12-200 nm	JNCC

6.24 Despite the fact that the monitoring implemented from 2014 onwards delivered only a limited assessment of benthic habitats in 2019, no additional monitoring programmes relevant to benthic habitats were identified for implementation in the 2022 Part Two monitoring programme for the next reporting cycle. Specifically, no additional benthic monitoring that covers the full spatial scope of Scottish waters encompassing the UKMS area were introduced.

6.25 The 2022 monitoring programme update itself acknowledges that monitoring still relies heavily on a few protected area surveys and that data from the broader marine environment (including industry generated data) are still underused. It also highlights that coverage outside designated sites remains very limited. The 2022 monitoring programme details several opportunities to address these, such as increasing funding for wider benthic habitat monitoring, but does not provide details of how or when these opportunities would be implemented.

## 2026 UKMS Part One assessment

6.26 The UK's most recent Part One assessment published in 2026 again reports limited data and scientific evidence on benthic habitat status. The assessment explicitly states that “due to limited data and scientific evidence, it was not possible to undertake a fully integrated assessment of benthic habitats at this stage”.<sup>[8]</sup> As a result, the overall conclusion that GES was ‘not met’ for benthic habitats was based on expert opinion.<sup>[6]</sup>

6.27 Crucially, the 2026 assessment reports that “the number of assessment units in which indicators could be assessed in 2024 has decreased compared to 2019. This decrease was due to a general reduction in monitoring programmes, including a reduction in some of the WER coastal monitoring and limited new data from Scotland, where the monitoring programmes, needed to assess most of the benthic WER indicators, have stopped”.

6.28 Under the 2026 assessment, a number of Scottish regions are classified as “unassessed” for intertidal seagrass, intertidal saltmarsh, intertidal rocky shore, infauna quality index, opportunistic macroalgae (example: Figure 1).<sup>[6]</sup> Overall, this points to a weakening of monitoring of seabed habitat status, and moving towards using expert judgement rather than quantitative data in classifying GES as not met many benthic components. The Scottish Government informed ESS that a UK-level

review of UKMS monitoring programmes is ongoing and being co-ordinated primarily by MARG.

## UK map showing UKMS target achievement for Regional Seas for the Rocky Shore Macroalgae Indicator

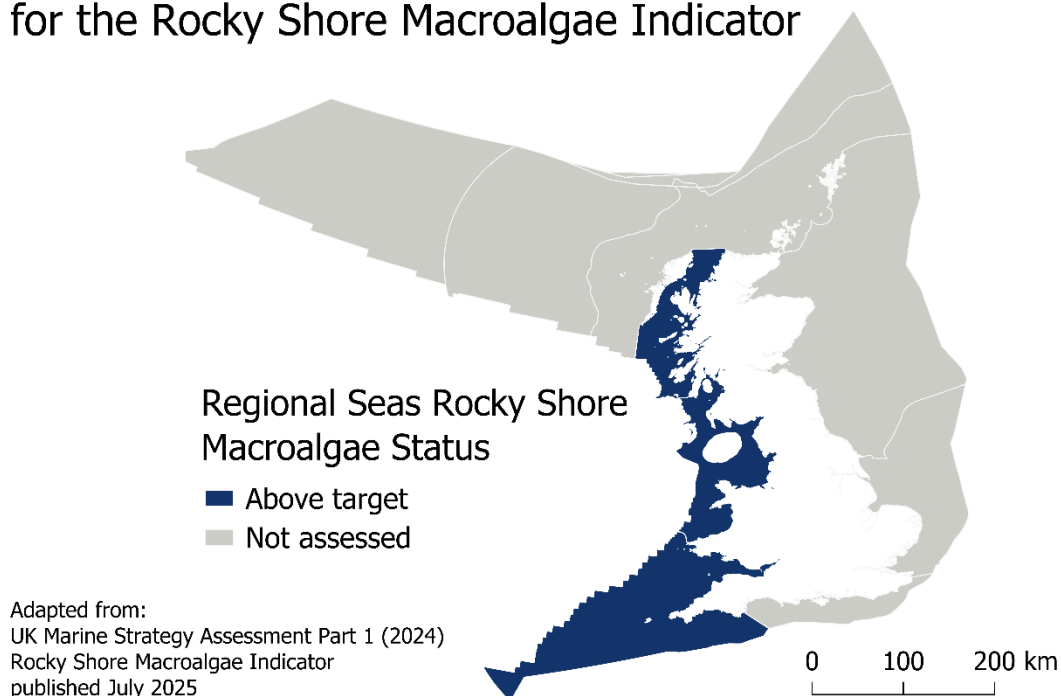


Figure 1 A UK map showing the status of the WER Rocky Shore Macroalgae Indicator assessed for each Regional Sea area, as reported in 2026 under the UKMS Part One assessment. Scottish regions: Northern North Sea and Scottish Continental Shelf are classified as 'not assessed'. The Atlantic North-West Approaches is classified as 'not assessed' due to lack of suitable habitat present.

## Conclusions on Scottish monitoring programmes

### Key finding 2

The Scottish Ministers have failed to comply with environmental law under Regulation 13 of the 2010 Regulations. The 2026 UKMS Part One assessment states that GES could not be assessed in Scottish regions for multiple seafloor integrity indicators, citing a reduction in monitoring in Scottish waters. This demonstrates that monitoring programmes were not sufficient to meet the requirements of Annex V (1) of the MSFD, as required by Regulation 13.

6.29 The 2010 Regulations, when read with the MSFD, place clear duties on the Scottish Ministers to maintain integrated, regionally coherent benthic monitoring sufficient to a) assess whether GES is being met, and to b) evaluate whether measures are contributing to the achievement of GES. ESS' analysis finds that these obligations have not been met and continue not to be met.

6.30 The evidence assessed by ESS demonstrates long-standing, systemic shortfalls that have led to a sustained inability of Scottish monitoring programmes to provide information that enables a comprehensive, evidence-based assessment of seafloor integrity status against GES targets. Despite longstanding recognition of monitoring gaps, Scottish Ministers have not developed the additional monitoring needed to meet their duties, or implemented recommendations made by SNCBs.

6.31 Instead, monitoring efforts in Scottish waters have declined since 2014, particularly in coastal and offshore areas. As a result, Scottish Ministers cannot provide sufficient information for the status assessment of UKMS sub-regions comprising Scottish waters. Consequently, the effectiveness of any management measures on benthic habitats also remains unknown as the status of these cannot be assessed sufficiently.

6.32 The 2026 Part One assessment confirms that GES could not be assessed in Scottish regions explicitly, citing a reduction in monitoring in Scottish waters as the primary cause. This demonstrates that monitoring programmes were not sufficient to meet the requirements of Annex V (1) of the MSFD, as required by Regulation 13.

## **Recommendation 2**

The Scottish Government must implement appropriate monitoring in Scottish waters to ensure that data gaps from Scotland no longer prevent assessment of GES for seafloor integrity, and so that the impact of measures adopted in the PoMs can be assessed. Monitoring in Scottish waters should contribute to an increase in the certainty of benthic habitats assessments over successive Part One assessments under the UKMS. ESS expects this to include:

- implementation of appropriate coastal monitoring to enable future assessments of GES in Scottish waters using relevant WER indicators
- implementation of recommendations made by the JNCC and NatureScot for additional monitoring of MPAs and wider seas to fulfil requirements under the UKMS

## 7. Implementation, integration and UK Marine Strategy governance structures

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### Scottish Minister's duties and responsibilities

7.1 Delivering the objectives of the 2010 Regulations requires strong governance and sustained implementation across government and public bodies. While having robust monitoring programmes and an understanding of how measures work and contribute to GES is essential (Sections 5 and 6), achieving GES is dependent on co-ordinated, long-term action across multiple Scottish marine policy domains and organisations. This requirement is reinforced by statutory obligations placed on Scottish Ministers for implementation and governance under the 2010 Regulations.

7.2 Regulation 4 places a duty on Scottish Ministers to exercise their functions, so as to secure compliance with the MSFD, including taking the necessary measures to achieve or maintain GES by 2020. Regulation 9 further requires Scottish Ministers and relevant public authorities to have regard to the UKMS in exercising their functions, embedding GES considerations across decision-making and policy processes. Collectively, these provisions establish an expectation that governance arrangements deliver active oversight, policy coherence and accountability mechanisms capable of ensuring that measures are not only identified, but implemented effectively to meet targets.

7.3 Implementation occurs within a multi-tiered governance structure involving the UK Government, devolved administrations and other public bodies. The Scottish Government must meet its statutory duties, while contributing to a UK-wide and international framework reliant on shared status assessments of marine regions, co-ordinated monitoring, and alignment of policy interventions across borders. This increases the importance of clarity of roles, coordination mechanisms, transparency and accountability structures.

7.4 The European Commission has also emphasised the need for strong governance arrangements under the MSFD to ensure coherent and deliverable PoMs, including strong inter-authority coordination, adequate resourcing, and early and sustained stakeholder engagement.[14]

## Implementation of measures

7.5 Assessing the extent to which the Scottish Government has implemented the measures contained in the PoMs, and therefore compliance with Regulation 4, is limited by several structural constraints. The absence of defined timelines and broad articulation of benthic habitat measures in the PoMs restrict the ability to independently verify progress or determine implementation status. Uncertainty over environmental status with respect to GES for some seafloor integrity criteria in Part One assessments further limits assessment of compliance with Regulation 4. Furthermore, even where the Part One assessments provide a comprehensive assessment of environmental status against GES thresholds, the lack of agreed nationally disaggregated allocations for shared UK-wide targets (see Section 5) makes it difficult to determine which administration is responsible for failing to take the necessary measures when GES is not achieved.

7.6 Publicly available information on environmental status within Scottish waters and implementation of key measures indicates a mixed pattern of progress. The 2020 Scottish Marine Assessment (SMA2020) provides some insight into national delivery and environmental outcomes.[40] This assessment replicates analysis of three UKMS benthic GES indicators at the scale of Scottish marine regions (Table 8). Although not explicitly designed to evaluate Scotland's national contribution to UKMS targets, the results offer indicative evidence relevant to understanding whether the necessary measures to achieve GES have been taken by the Scottish Government. The condition of intertidal seagrass was assessed as being consistent with GES thresholds, but sufficient data were available for only three regions. For the other two indicators, the "potential physical loss of predicted biogenic habitats" and the "extent of physical disturbance to benthic habitats: fisheries with mobile bottom-contacting gears (BH3a)", environmental status was inconsistent with GES thresholds in all or most Scottish marine regions (Table 8). These findings broadly align with overall UK-wide findings under the UKMS Part One.

7.7 In contrast, ESS' own analysis of the BH3a indicator found that disturbance levels in the Scottish portion of the Northern Celtic Seas could be consistent with achieving GES, without implementation of any further measures. This occurred when the BH3a indicator was applied to 2016 to 2020 fishing data, using the GES threshold criteria applied in the 2026 UKMS Part One assessment.[27] However,

achieving disturbance levels consistent with GES was dependent on the regional boundaries and the GES threshold used, both of which differed between the 2019 and 2026 UKMS Part One assessments. ESS' analysis found that disturbance levels were not consistent with GES for the Scottish portion of the North Sea under any combination of boundaries and thresholds.

7.8 Differences between the results of the SMA2020 and ESS' analysis illustrate that, in absence of agreed national allocations of responsibility for achieving UK-wide targets and consistent assessments, differing methodologies and assumptions about Scotland's contribution can materially affect conclusions on environmental status and progress. These differences constrain the extent to which available evidence can be used to assess whether the Scottish Government has taken the necessary measures required under Regulation 4.

Table 8 Results from UKMS 2026 Part One GES assessment and Scottish Marine Assessment 2020 (SMA2020) for three benthic habitat indicators. The SMA2020 provides an assessment against the same indicators and thresholds, with some variations in methods relative to the UKMS

UKMS Criteria	UKMS Indicator	UKMS 2026 Part One GES Assessment	Scottish Marine Assessment 2020
<b>Habitat condition</b>	Potential physical loss of predicted biogenic habitats	Not met	Inconsistent with GES thresholds in 5 out of 5 regions assessed
<b>Spatial extent of habitat type adversely affected by physical disturbance</b>	Extent of physical disturbance to benthic habitats: fisheries with mobile bottom-contacting gears (BH3a)	Not met	Inconsistent with GES thresholds in 18 out of 21 regions
<b>Extent of adverse effects</b>	Condition of intertidal seagrass communities	Met	Consistent with GES thresholds in 3 out of 3 regions assessed

7.9 Implementation of measures listed in the 2015 PoM ranges from full to partial implementation or uncertain progress. Several ‘progressive’ measures (see Table 4, Section 5) have experienced notable and sustained delays. Measures introduced in the updated 2025 PoM have also already experienced delay relative to their original implementation timetables.

7.10 An overview of implementation status for key measures identified in the PoM to achieving GES for benthic habitats is set out below

### **Spatial protection measures – partial implementation**

7.11 Between 2014 and 2020, 49 Nature Conservation MPAs and SACs were designated for marine features (including for non-benthic features), with a further three designated after 2020.[41] The most recent report to the Scottish Parliament on the condition of the MPA network indicated that, as of 2024, fisheries management measures had been fully implemented in only 37 of 70 inshore MPAs and SACs, with consultation on remaining measures expected in 2026. Management measures for offshore MPAs and SACs were implemented in 2025.[42] A 2026 Habitats Directive Report for offshore SACs concluded that Favourable Conservation Status has not been achieved or is unknown for the two benthic seabed habitat types that are protected in Scottish offshore SACs. For inshore sites, NatureScot reported that 96.2% of assessed marine habitats in protected sites were in a favourable condition as of 2025.[43] However, this figure includes sites which are in an unfavourable condition where management measures have been put in place.

7.12 Implementation of the Deep-Sea Access Regulation (EU) 2016/2336 has also been partial. While bottom trawling below 800 metres has been prohibited since the Regulation entered into force in 2017, requirements to identify where Vulnerable Marine Ecosystems (VMEs) occur or are likely to occur between 400 and 800 m is not complete. Consequently, spatial closures to bottom-contacting fishing in those areas, which is optional under the Deep-Sea Access Regulation, have also not been implemented in Scotland. The Scottish Biodiversity Delivery Plan commits to spatial measures in VMEs by 2027, 10 years after the 2010 Regulations came into force. In comparison, the EU implemented 87 VME protection areas in the northeast Atlantic in 2022, which are closed to trawling.

## Other measures to reduce fishing pressure – partial implementation

7.13 The Prohibition of Fishing for Scallops (Scotland) Order 2003, the only Scottish-specific measure listed in the 2015 PoM, introduced restrictions on scallop fishing gear to conserve king scallops and protect seabed habitats. The Order came into force in 2003 and therefore was fully implemented in Scottish waters nine years prior to the initial definition of GES status in the first Part One assessment in 2012, and twelve years prior to publication of the 2015 PoM. Continued application of the Order can be considered to provide ongoing protection against further deterioration of seabed integrity from certain types of scallop dredging. However, given implementation of the Order was in 2003, its provisions function as part of the baseline prior to the UKMS, rather than implementation action taken by the Scottish Government under Part Three of the UKMS.

7.14 A range of technical measures under the CFP, including strengthened gear selectivity, expanded spatial and temporal closures and enhanced bycatch controls, have been implemented, particularly through Regulation (EU) 2019/1241. However, these measures have primarily been driven by objectives relating to the sustainable exploitation of stocks and reducing discards, rather than being explicitly designed to limit seabed disturbance.

7.15 It is challenging to assess the extent to which implementation of Scottish Government fisheries management actions can be considered consistent with delivering the CFP's central objective that all managed stocks are fished at or below maximum sustainable yield (MSY). This is because of both data limitations and the reliance of key government reporting mechanisms on shared international stock assessments. For example, the Scottish Sustainable Fishing Indicator (SSFI) provides information on the sustainability of fishing in relation to a number of key stocks that occur wholly or partly in Scottish waters. The indicator shows that the proportion of stocks assessed as being fished at or below maximum sustainable yield remained broadly constant between 2014 (60%) and 2020 (63%), but increased annually since 2020 to 73% in 2023. However, the information used to calculate the findings relies on multinational fishing data collated through ICES (International Council for the Exploration of the Sea) scientific advice. The aggregated nature of the indicator may mask important trends in relation to Scotland's fisheries (both fishing activity within Scottish waters, or fishing activity by Scottish versus non-

Scottish vessels) and therefore does not provide information that can be used to evaluate Scottish Government action directly.

7.16 Another method, developed in 2021 to support implementation of the Fisheries Act 2020, evaluates whether the catch limits negotiated by the UK as part of international negotiations are consistent with MSY (or related metrics of sustainability).[44] For 2026, 28 out of 59 (47%) of stocks which have associated scientific advice on MSY, had total catch limits set (combined for all fishing nations) in line with ICES advice. However, the evidence is subject to important limitations, including the short period covered by the assessment (from 2020 onwards), reliance on international catch data to complete the full assessment, and the inability to separate Scottish Government negotiating positions from UK-wide outcomes, which constrains direct scrutiny of Scottish Government policy decisions under the UKMS. Delays have already occurred in implementing the Fisheries Act 2020 and the Joint Fisheries Statement (JFS), which comprise new measures in the updated 2025 PoM. A key deliverable of the Fisheries Act 2020 was for the Scottish Government to lead on the preparation and publication of Fisheries Management Plans (FMPs) for 21 stocks between 2022 and 2024. However, this timeline was not met, and subsequent amendments to the JFS set a revised deadline for all Scottish-led FMPs to be published by the end of 2026.[45]

### **Marine planning – implemented**

7.17 In the 2015 PoM, marine planning is identified at the level of the statutory regime established by the Marine (Scotland) Act 2010, rather than at the level of individual marine planning tools. The statutory elements of marine planning under the Marine (Scotland) Act 2010 have been implemented, including the adoption of Scotland's National Marine Plan (NMP), which provides the framework for licensing and consenting decisions. A sectoral marine plan has been produced for commercial-scale offshore wind energy. This is a non-statutory planning instrument developed following policy direction set out in the adopted NMP. Regional Marine Plans, which are discretionary under the Act, have been partially implemented, with plans adopted in two of Scotland's eleven marine regions. A regional marine plan for one other region has been in development for several years. The Scottish Government confirmed that no further regional marine plans will be established until after the adoption of the next NMP, with progression dependent on individual regions

and funding. Parliamentary evidence from the Scottish Government highlights that the regional marine planning progress has been constrained by structural and resource barriers, including competing policy pressures.[46]

### **River Basin Management Plans – partial implementation**

7.18 RBMPs for Scotland have been produced, and published, at six-yearly intervals as required under the WFD, meaning the procedural elements of this measure have been implemented. However, RBMPs are not on track to meet all WFD objectives within the original timescale. A significant number of water bodies continue to fall short of GES or ecological potential, and many require derogations, extending deadlines to 2027 and beyond.[47] As a result, while RBMPs have been prepared and progress made, the effectiveness of their implementation in achieving WFD objectives is limited, and as a measure for seafloor integrity under the UKMS can be considered only partially implemented.

### **Internal Scottish governance and integration of the UK Marine Strategy across Scottish marine policies**

7.19 Beyond the implementation of specific measures in the PoMs, the extent to which the UKMS and GES objectives are embedded within broader Scottish marine policy frameworks is an important indicator of whether Scottish Ministers have had due regard to the UKMS when exercising their functions under Regulation 9. Integration is present across several high-level policy documents, including the [‘National Marine Plan’](#), [‘The Blue Economy Vision’](#) and the [‘Future Fisheries: Management Strategy’](#). However, references to the UKMS and GES are often strategic and high-level rather than operational.

7.20 Scotland’s NMP adopts the 11 GES descriptors as overarching strategic objectives, but these are not explicitly linked to the individual planning policies within the NMP.[48] It also does not set out how GES objectives should be operationalised to guide consenting or licensing decisions taken in accordance with the Plan. Statutory reviews of the NMP highlighted incompatibility and perceived conflicts between planning policies and the absence of a prioritisation framework, which collectively limit the NMP’s effectiveness as a clear, decision-shaping instrument to deliver the strategic GES objectives.[49, 50] The Scottish Government confirmed that GES is considered among a broad suite of planning considerations in licensing

decisions, but no specific adaptations to licensing processes have been introduced to directly support progress towards meeting GES obligations.

7.21 Several other marine-related policies with potential to influence seafloor integrity and the wider marine environment do not reference the UKMS or GES at all. Scotland's '[Vision for Sustainable Aquaculture](#)', the '[Offshore Wind Policy Statement](#)', and the '[Islands Connectivity Plan](#)' contain no explicit integration of GES objectives. However, in the latter two cases, supporting Strategic Environmental Assessment processes incorporate relevant considerations against GES descriptors and targets.

7.22 By contrast, a more structured and detailed integration of GES is present within the draft demersal FMPs which were consulted on in 2026. For the FMPs, the Scottish Government commissioned targeted advice from NatureScot and JNCC on risks to achieving GES across multiple descriptors.[51] NatureScot and JNCC applied a clear methodology to assess potential risks and provided evidence-based recommendations. The subsequent draft plans incorporate specific actions to address risks to seafloor integrity and GES, including alternative gear options, improving data to evaluate the effectiveness of measures, and further actions targeted at reducing adverse benthic impacts.[52] This represents a notably robust and transparent example of practice that aligns well with the duties under Regulations 4 and 9.

7.23 The approach to seeking GES-related advice from SNCBs appears inconsistent across Scottish marine policy functions. The Scottish Government informed ESS that, as a general rule, specific advice is not routinely sought from NatureScot or JNCC on how individual policy actions would contribute to, or endanger achievement of, GES. Instead, requests for advice are typically generic, with an expectation that SNCBs will highlight any GES-relevant issues of their own accord. JNCC confirmed that they do not provide advice on GES status or risks proactively to the Scottish Government, but advice sought has considered GES at a high-level. NatureScot indicated that their advice on GES has been included at a strategic, high-level framing, for example, in policy background sections of MPA advice.

7.24 The variability in how GES obligations are interpreted and embedded suggests a lack of internal alignment across Scottish marine policy. ESS has also found evidence of siloed delivery, with Scottish Government officials confirming that when

measures in the PoM are delayed or not fully implemented, responsibility for addressing issues typically falls to individual policy teams rather than through a coordinated, internal governance mechanism. Additionally, ESS identified weaknesses in corporate recordkeeping, with officials on several occasions being unable to verify the basis for key decisions or to explain how the contribution of individual measures to meeting GES targets was assessed when developing the PoMs. These issues indicate a lack of a systematic and overarching internal governance structure that is needed to ensure consistent interpretation of GES requirements across marine policy, planning and regulatory functions.

## UKMS governance structures

7.25 Internal Scottish Government governance sits within a framework of UK-wide Marine Strategy governance which is consistent with cooperation requirements in Regulation 8 of the 2010 Regulations. Several structures underpin the joint implementation of the UKMS and delivery of national contributions towards shared GES targets across the four UK administrations. These include a Policy Leads Group (PLG), identified as the primary forum guiding implementation and delivery of legal obligations, and the MARG which co-ordinates scientific advice and leads the six-yearly assessments under Part One of the UKMS.

7.26 Scottish Government participation in these groups, alongside joint production of the UK-wide monitoring programme (Part Two) and PoM (Part Three), demonstrates a commitment to collaborative working across political boundaries. Such arrangements are consistent with expectations of the MSFD and offer benefits for consistency, shared evidence bases, and coherent ecological outcomes. However, persistent and interrelated weaknesses in the UKMS governance framework are evident. These relate, in particular, to target formation, responding to feedback and overall transparency.

7.27 A central issue concerns the lack of agreed deadlines for, and national contributions towards, shared benthic targets for GES (see Section 5). No formal apportionment of responsibility has been established between the four UK administrations, and the most recent 2025 PoM did not set a revised target date for achieving benthic GES following the failure to meet the 2020 deadline. In parallel, successive assessment cycles have introduced revisions to indicator methodologies, GES thresholds and the spatial boundaries used to define UKMS regions. While

methodological refinement in response to improved scientific evidence (including refinement and iteration at the OSPAR level) is both necessary and expected, the cumulative effect of these changes is to create 'a moving target' between the design of measures and the assessment of outcomes. This reduces the ability of Scottish Government to plan effectively. In the absence of stable targets, clearly defined deadlines, and an agreed allocation of national responsibility, the Scottish Government faces inherent constraints in determining and evidencing whether it has identified and taken the necessary measures to achieve GES.

7.28 Recurring issues have been identified across successive cycles of the monitoring programmes and PoMs, including by the European Commission, statutory advisers, and through public consultation. In particular, the European Commission concluded that the UK PoM only partially met the Directive's requirements for seafloor habitat GES targets.[11] Although this finding has been acknowledged by the Scottish Government, there is limited evidence of systematic corrective action, as similar deficiencies are apparent in subsequent updates. There are also indications that coordination mechanisms may have weakened over time. NatureScot reported a decline in direct interaction with Defra compared to earlier implementation phases, raising questions as to whether governance arrangements have become less effective as the Strategy has matured.

7.29 Transparency presents a further area of concern. Publicly available information on the operation of UKMS governance groups is limited, and the Scottish Government's website indicates that the PLG was established relatively late in the strategy's implementation (around 2019).[53] The Scottish Government informed ESS that the Terms of Reference for the PLG are under review. ESS' response to the 2025 consultation on the recent Part One assessment also raised concerns regarding the transparency of how expert advice is commissioned and applied and that changes in assessment methods are not always clearly explained.

7.30 These governance challenges occur alongside broader issues relating to timeliness of publication of the Strategy's constituent parts. There have been repeated delays in the publication of key components of the UKMS against statutory deadlines.

## European Commission evaluation of the MSFD

7.31 Many issues highlighted in this report are not unique to the UKMS or the Scottish Government's implementation of relevant MSFD provisions. In 2025, the European Commission's evaluation of the MSFD concluded that the Directive has been only partially effective and failed to achieve GES in all EU marine waters by 2020.[54] The evaluation identified key causes including:

- the complexity of the legislation, and absence of enforceable provisions
- a lack of clarity around key concepts, such as GES and the ecosystem-based approach, and unclear procedures for setting legally binding threshold values
- weak alignment with other legislative frameworks on which the Directive relies
- weak governance and limited capacity in the Member States

7.32 The evaluation also found that monitoring insufficiencies under the MSFD limit the quality of environmental status assessments. In turn, these limit the ability to quantify distance from GES and hinder the design of effective measures.

7.33 The evaluation shows that these structural issues persisted across successive implementation cycles. Significant gaps remained in determination of GES, the setting of environmental targets, monitoring programmes and the design of measures. During the first cycle, only 8% of reported GES definitions were assessed as adequate, while most were qualitative and lacked clear, measurable objectives. Measures were often insufficiently ambitious or not tailored to MSFD objectives, and in many cases, were unlikely to be implemented. The UK's 2015 PoM was, however, assessed as 'highly likely' to be implemented on the basis of its plans for new measures and full consideration of operational aspects.[55]

7.34 Over the second implementation cycle, limited EU-wide progress was observed, despite adoption of a 2017 Commission Decision, intended to strengthen GES criteria, methodological standards and threshold requirements. GES determinations largely remained qualitative and lacked quantitative detail for tracking progress. Although targets for most descriptors were set by all Member States, only a small proportion were considered measurable, operational and capable of closing the gap towards GES, with Member States rarely defining the scale of reduction required.

7.35 The evaluation concludes that the absence of quantified and measurable GES determinations has fundamentally undermined the effectiveness of marine strategies

over the past 15 years, including the development of measures with quantifiable outcomes and tangible environmental benefits. This is because all operational provisions of the Directive are linked, directly or indirectly, to the concept of GES.

7.36 At the same time, the Commission recognised that the MSFD has added value in an otherwise fragmented policy landscape, delivering process-based obligations and some environmental improvements. The evaluation also highlights that inherent challenges stemming from the Directive are not insurmountable, with some Member States, notably Poland and Finland, demonstrating good practice through quantitative thresholds and stronger assessments of the sufficiency of measures.[14, 56]

## Conclusion

### **Key finding 3**

The Scottish Ministers have not discharged their duties to take the necessary measures to achieve or maintain GES under Regulation 4 of the 2010 Regulations for the seafloor integrity descriptor effectively. There are weaknesses in governance arrangements, together with inconsistencies in how the Scottish Ministers have implemented their duty to have regard to the marine strategy under Regulation 9. This places constraints on meeting the aim of the 2010 Regulations and prevents the regulations from making a full and effective contribution to the protection of the marine environment in Scottish waters.

7.37 Existing governance frameworks for the UKMS have several strengths, including a strong scientific advice mechanism, established cross-administration coordination and public consultation processes. There has been partial implementation of measures listed in both PoMs and examples of good practice integrating GES obligations into policy processes.

7.38 However, evidence to date indicates that governance challenges have affected delivery and achievement of GES. These include fragmented responsibilities, weak accountability, and insufficient integration of GES objectives across policy areas. Many of the issues identified in Section 5 and 6 can be understood, at least in part, as a consequence of the structural weaknesses in governance, both internally within

the Scottish Government, and the wider UK framework. Alongside the failures to fully implement agreed measures, this indicates a lack of an integrated outcome-focused approach and accountability mechanisms that would be required to achieve GES across the Scottish Government. The overall consequence of these issues has been continued deterioration of benthic habitats. The 2026 Part One assessment itself concludes that “although there has been some small improvement, the overall picture for benthic habitats is still of deterioration, particularly sensitive habitats”.

7.39 While many of the issues identified by ESS reflect limitations in the MSFD itself, experience elsewhere in the EU demonstrates that more effective implementation is achievable, and shared challenges do not absolve individual administrations, including the Scottish Government, of their statutory obligations.

7.40 The available evidence and structural issues within the UKMS framework prevent a definitive evaluation of whether the Scottish Government has complied with duties under the 2010 Regulations to take necessary measures to achieve GES for the seafloor integrity descriptor. However, ESS finds that there are clear implementation failures and governance issues that limit the effectiveness of the 2010 Regulations in achieving their intended aim and making a full contribution to environmental protection.

### **Recommendation 3**

The Scottish Government should publish a timetable for implementing outstanding seafloor integrity measures from the 2015 PoM and forthcoming measures from the 2025 PoM. The timetable should also demonstrate when measures will be expected to deliver an agreed share of UK-wide seafloor integrity targets for Scotland.

#### **Recommendation 4**

The Scottish Government should set out the practical changes it will make to its governance mechanisms for implementing the UKMS to ensure effective coordination across all Scottish Government policy and public bodies, and with other UK administrations.

## **8. Remedial action**

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As a public authority, the Scottish Government has duties under Section 23 of the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021 to make all reasonable efforts to:

- swiftly resolve any matter which ESS raises concerning the authority's failure to comply with environmental law, to make effective environmental law or to implement or apply it effectively
- reach agreement with ESS on any remedial action the authority should take for the purpose of environmental protection

In line with these duties, ESS requests the Scottish Government to reach agreement for a plan of remedial action, which will be used to track progress against delivering recommendations 1 to 4 in this report.

#### **Recommendation 5**

The Scottish Government must agree a plan of remedial actions, with a clear timeline for delivery, to resolve the issues highlighted in this report and implement ESS' recommendations. This should be agreed with ESS as soon as possible and no later than six months from the date of publication.

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