Department for Environment Food & Rural Affairs

www.gov.uk/defra

Marine Strategy Part Three: UK programme of measures

December 2015

Llywodraeth Cymru
Welsh Government

DOE
Department of the Environment
www.doeni.gov.uk

The Scottish Government
Riaghaltas na h-Alba

This document/publication is also available on our website at:

https://www.gov.uk/government/publications

Any enquiries regarding this document/publication should be sent to us at:

MSFDteam@defra.gsi.gov.uk

Contents

Part 1: Context for the UK's Marine Strategy Part Three

Part 1: Section 1 – Introduction

1. This document sets out the UK's programme of measures (PoM) that will help to achieve or maintain Good Environmental Status[1] (GES) as defined in the UK's Marine Strategy Part One[2]. In doing so it fulfills the requirement in the Marine Strategy Framework Directive (2008/56/EC; MSFD) for Member States to identify the measures which need to be taken in order to achieve or maintain GES.

2. The MSFD aims to ensure sustainable use of marine waters: GES involves protecting the marine environment, preventing its deterioration and restoring it where practical, while using marine resources sustainably. GES does not require the achievement of a pristine environmental state across the whole of the UK's seas.

3. This is consistent with the UK government and Devolved Administrations' vision of 'clean, healthy, safe, productive and biologically diverse oceans and seas' as set out in the UK Marine Policy Statement. The initial assessment of UK marine waters set out in the Marine Strategy Part One (which drew heavily from Charting Progress 2[3] and regional reports), recognised that although many aspects of the UK's marine environment are improving (eg the impacts of contamination), other aspects (eg fish populations) are degraded and continue to be affected by human activity.

4. In line with the UK Marine Policy Statement, the UK government and Devolved Administrations have already put in place and committed to taking many measures that will improve the state of the UK's marine environment as part of ensuring sustainable development, most notably through the Marine and Coastal Access Act 2009, the Marine (Scotland) Act 2010 and the Marine Act (Northern Ireland) 2013. Equally, measures taken as a result of existing EU legislation, such as the Water Framework Directive (WFD), the Birds and Habitats Directives and the newly reformed Common Fisheries Policy (CFP), also contribute to improving the state of the UK's marine and coastal environments. These existing and planned measures form the core of our proposed PoM. Part 2 section 2 provides more details on generic measures that apply across several MSFD Descriptors.

---

[1] Good Environmental Status means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, 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. A fuller description is set out in the MSFD (2008/56/EC) Article 3(5).

[2] https://www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status

[3] http://chartingprogress.defra.gov.uk

Part 1: Section 2 – Background to the MSFD

5. The MSFD requires Member States to take measures to achieve or maintain GES for their seas by 2020. It came into force on 15 July 2008 and was transposed into UK law by the Marine Strategy Regulations 2010 (www.legislation.gov.uk/uksi/2010/1627/contents/made). The Directive is wide-ranging and sets out 11 Descriptors of GES (see Table 1).

Table 1: MSFD Descriptors of Good Environmental Status (GES)

MSFD Descriptors of GES

1. Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions ('Descriptor 1' or 'D1').
2. Non-indigenous species (NIS) introduced by human activities are at levels that do not adversely alter the ecosystems ('Descriptor 2' or 'D2').
3. Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock ('Descriptor 3' or 'D3').
4. All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity ('Descriptor 4' or 'D4').
5. Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters ('Descriptor 5' or 'D5').
6. 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 ('Descriptor 6' or 'D6').
7. Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems ('Descriptor 7' or 'D7').
8. Concentrations of contaminants are at levels not giving rise to pollution effects ('Descriptor 8' or 'D8').
9. Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards ('Descriptor 9' or 'D9').
10. Properties and quantities of marine litter do not cause harm to the coastal and marine environment ('Descriptor 10' or 'D10').
11. Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment ('Descriptor 11' or 'D11').

6. The aims of the Directive are to:

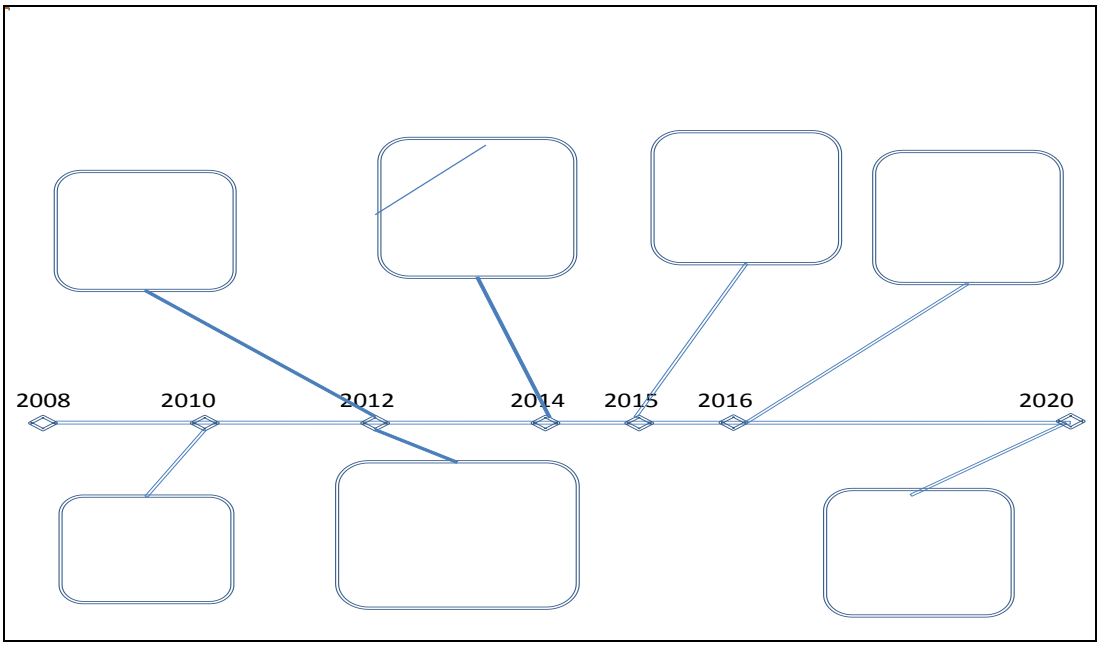
i. ‘Protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected.’

ii. ‘Prevent and reduce inputs in the marine environment, with a view to phasing out pollution, so as to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.’

7. The concept of sustainable use is enshrined within the Directive (Article 1(3)). In this context, this means ensuring that the collective pressure of human activities is kept within levels compatible with the achievement of GES, while ensuring that the capacity of the marine ecosystem to respond to human-induced changes is not compromised, whilst enabling the sustainable use of the marine environment now and in the future[4]. Therefore, GES is unlikely to reflect a pristine status. In addition, prevailing environmental conditions, including natural variability and climate change, must also be considered.

8. The aims of the Directive are to be delivered through the development of marine strategies covering the elements set out in Figure 1.

Figure 1: Key stages in the MSFD implementation process



9. The UK completed the first implementation stage of the MSFD in December 2012 with the publication of the UK’s Marine Strategy Part One[5].

[4] MSFD 2008/56/EC Article 1(3).

[5] www.gov.uk/government/uploads/system/uploads/attachment_data/file/69632/pb13860-marine-strategy-part1-20121220.pdf

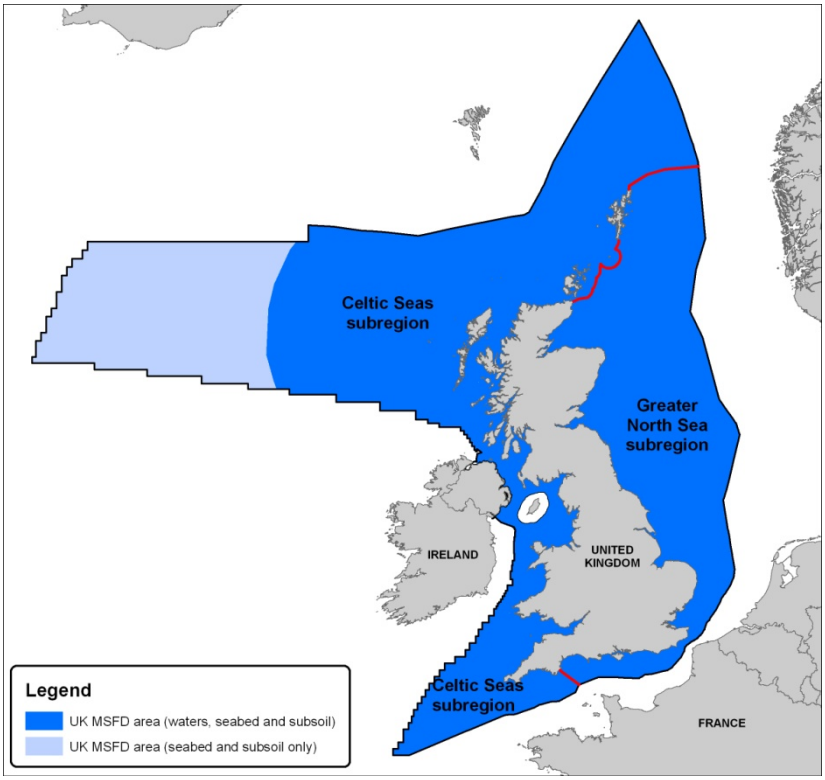
10. The second phase was the development of a UK marine monitoring programme to monitor progress towards GES. This was completed in July 2014 with the publication of the UK's Marine Strategy Part Two[6].

11. This PoM constitutes the third stage in the implementation of the MSFD. The PoM has to be developed by December 2015 and implemented by December 2016.

12. Each stage of the marine strategy must be reviewed every 6 years and revised if necessary[7]. Where appropriate, the PoM will be updated to take account of new developments and knowledge.

13. The Directive covers the extent of the marine waters over which the UK claims jurisdiction. This area extends from the landward boundary of coastal waters[8] as defined by the WFD (which is equivalent to Mean High Water Springs) to the outer limit of the UK Exclusive Economic Zone (EEZ). It also includes the area of the continental shelf beyond the EEZ over which the UK has a claim[9]. The area of UK waters over which the MSFD applies is shown in Figure 2.

Figure 2: Area of UK waters over which the MSFD applies



6 www.gov.uk/government/uploads/system/uploads/attachment_data/file/341146/msfd-part-2-final.pdf

7 As required under Article 17(2) of Directive 2008/56/EC.

8 The MSFD includes Coastal Waters (as defined by the Water Framework Directive, WFD), but does not include WFD Transitional Waters.

9 This area is defined by the Continental Shelf Act 1964. In this area the requirements of the Directive (including the requirement to put in place measures to achieve GES) apply only to the seabed and subsoil and not to the water column.

14. The Directive is being implemented in a coordinated way across the UK administrations. The UK PoM has been developed at a UK-wide scale with input from experts and policy makers across the UK administrations. The Devolved Administrations lead the development and implementation of measures for their marine waters. Gibraltar has a separate implementation process and is developing a PoM for British Gibraltar Territorial Waters.

Part 1: Section 3 – The European and regional context

Regional coordination requirements of the Directive

15. A key requirement of the Directive is that Member States must take a coordinated approach to implementation, co-operating with other Member States in the relevant marine region or subregion to ensure each element of their marine strategies is coherent and coordinated.

16. The Directive splits Europe's waters into 4 marine regions and associated subregions, as set out in Table 2.

Table 2: MSFD marine regions and associated subregions

Marine regions	Relevant subregions (if any)
The Baltic Sea	No subregions specified
The North East Atlantic Ocean	The Greater North Sea, including the Kattegat and the English Channel
	The Celtic Seas
	The Bay of Biscay and the Iberian Coast
	The Macronesian biogeographic region (the waters surrounding the Azores, Madeira and the Canary Islands)
The Mediterranean Sea	The Western Mediterranean Sea
	The Adriatic Sea
	The Ionian Sea and the Central Mediterranean Sea
	The Aegean-Levantine Sea
The Black Sea	No subregions specified

17. The UK's marine waters are in the North East Atlantic Ocean marine region, with waters to the west of the UK forming part of the Celtic Seas subregion, and waters to the east of the UK, including the Channel, forming part of the Greater North Sea

subregion. The UK shares the Celtic Seas subregion with Ireland and France, and the Greater North Sea subregion with France, Belgium, Netherlands, Germany, Denmark, Sweden and Norway. All these countries are members of the OSPAR Regional Sea Convention[10] for the North East Atlantic and OSPAR has played the primary role in coordinating the implementation of the Directive in this marine region (see further details below).

18. The UK has one marine strategy covering the whole of our marine waters. The UK initial assessment, characteristics of GES and associated targets and indicators were developed at this scale, in coordination with other countries in the North East Atlantic Region. However, where there are significant biogeographical differences between the Greater North Sea and the Celtic Seas subregions these were taken into account. The initial assessment made reference to the status of UK waters at the scale of the subregions and a series of informal assessment regions developed for Charting Progress 2.

European-level coordination

19. Coordination between countries is taking place both at a European level (for generic issues) and within the specific marine regions set out in Table 2 (for more detailed issues). At a European level, coordination is being carried out through a series of informal working groups led by the European Commission:

i. **The Working Group on GES:** this working group focuses on issues concerning the characteristics of GES and the associated targets and indicators, with the aim of ensuring comparable approaches are taken across the EU.

ii. **The Working Group on Economic and Social Analysis:** this working group is co-chaired by the UK and supports Member States in meeting the economic and social assessment requirements of the Directive, with the aim of ensuring comparable approaches are taken across the EU.

iii. **The Working Group on Data, Information and Knowledge Exchange:** this working group has been set up to develop a coordinated MSFD information and data reporting process. The working group is addressing the development of the data infrastructures that are needed to facilitate the implementation of the Directive at European- and Member State-level, working as far as possible to use existing data initiatives and to remove duplication of reporting with related directives.

iv. There are also 2 **EU technical subgroups**, one on marine litter (Descriptor 10) and one on noise[11] (Descriptor 11) which have a remit to review monitoring methodologies and develop proposals for new monitoring; provide a platform for

[10] www.ospar.org/

[11] The noise group is co-chaired by the UK.

sharing best practice on the development of GES characteristics, targets and indicators; and recommend proposals for further research.

20. The UK has played a pro-active role in all the European working groups and, where appropriate, the recommendations and guidance produced by these groups has been taken into account in finalising this PoM.

Regional-level coordination

21. At a North East Atlantic regional level, more in-depth coordination is taking place between the UK and other relevant countries. The key forum for regional coordination is OSPAR which has made MSFD implementation a significant element of its work programme.

22. Considerable efforts have been made to coordinate the UK approach with that of other countries in the North East Atlantic. In its role as a co-convenor of the OSPAR group dealing with MSFD issues, the UK has played a significant part in developing a regional plan to improve adequacy and coherence of MSFD implementation. In addition, there is good coordination between the Republic of Ireland and Northern Ireland.

Part 1: Section 4 – How was the UK programme of measures developed?

Requirements of the Directive

23. One of the key considerations in developing the PoM is to ensure that it meets the requirements of the Directive. The key articles are set out in Table 3 below:

Table 3: Key articles and what they mean

Key articles	What they mean
Articles 5(2), 13(10) and 18: Requirement for a PoM and reporting	Member States are required to develop a PoM designed to achieve or maintain GES. The PoM needs to be developed by the end of 2015 and reported to the European Commission by the end of March 2016. It needs to be made operational by the end of 2016. Member States must, within 3 years of the publication of their PoM, submit to the European Commission a brief interim progress report.
Article 13(1), (9) and Annex VI: Overall framework for the PoM	These set out the overall framework that PoM need to follow. Member States must identify the measures which need to be taken to achieve or maintain GES (as defined by the Member State) in their marine waters. The measures should relate to the Member States' initial assessment and the environmental targets. The PoM should take into consideration the types of measures listed in Annex VI and be coherent and

	coordinated across the relevant marine region.
Article 13(7): How the PoM will address pressures/improve status	The PoM should indicate how measures identified contribute towards the maintenance or achievement of GES.
Article 13(2): Existing EU and other policies	The PoM should take into account relevant measures required under existing and planned EU legislation and other international agreements.
Article 13(3): Socio-economic impacts	Member States must give 'due consideration to sustainable development and, in particular, to the social and economic impacts of the measures envisaged and that measures are cost effective and technically feasible and carry out impact assessments, including cost-benefit analyses, prior to the introduction of any new measures'.
Article 13(4): Spatial protection measures	Member States are required to include spatial protection measures in their PoM that contribute towards 'coherent and representative networks of Marine Protected Areas, adequately covering the diversity of the constituent ecosystems'.
Article 13(8): Impacts on waters of other Member States	Member States should consider the implications of their PoM on waters beyond their marine waters.
Article 16: Assessment	The European Commission will assess Member States' PoM within 6 months of them being received.
Article 17(2) (d): Updates	An update of the programmes is required every 6 years, ie by 31 March 2022 at the latest.
Article 14: Exceptions	There are 2 broad categories of exceptions, under Article 14(1) and 14(4), with different obligations attached. Article 14(1) covers exceptions to reaching GES or the associated targets. These can fall within distinct subcategories: • action or inaction for which the Member State concerned is not responsible • natural causes • force majeure • modifications or alterations to the physical characteristics of marine waters brought about by actions taken for reasons of overriding public interest which outweigh the negative impact on the

	environment, including any trans-boundary impact • natural conditions which do not allow timely improvement in the status of the marine waters concerned. Article 14(4) allows for 2 additional subcategories of exceptions: 'significant risk' and 'disproportionate costs'.

24. When developing our PoM we have followed the European Commission guidance document 'Programmes of measures under MSFD: Recommendations for establishment / implementation and related reporting'. This document sets out basic principles for the establishment of PoM, guidance for their implementation and the main elements to be considered when reporting PoM to the European Commission. It includes the following definitions:

    A **measure** in the MSFD should be considered as any action on a national-, European- or international-level with a view to achieving or maintaining GES and with reference to the environmental targets.

    While MSFD measures will primarily focus on changing the intensities of predominant pressures, activities to improve environmental status directly, such as restoration of habitats and reintroductions of species, can also be defined as measures under the MSFD.

    A **programme of measures** (PoM) is 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.

25. As required by the Directive, the UK's PoM includes: existing EU and international measures; existing national policies; and planned EU, international and national measures that have been agreed.

26. 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. In addition, for some Descriptors work is already underway to develop suitable targets and indicators. These tend to be in cases where gaps in our evidence and knowledge base remain. In other cases, we have established surveillance indicators that will provide data that will enable us to develop, where necessary, suitable indicators and targets in the future. Finally, there are those cases where we believe that the necessary measures are in place but where it might not be possible to demonstrate that GES has been achieved by 2020.

Cost of measures

27. The cost of these existing and planned additional measures has already been accounted for in relation to the specific policies they relate to. This means that significant additional costs arising from the MSFD are not envisaged. This applies to the Descriptors on commercial fish, eutrophication, hydrographical conditions, contaminants, contaminants in seafood, elements of marine litter, and the proposals for marine mammals, birds, (non-commercial) fish and benthic habitats (those elements covered by the Habitats Directive and WFD).

28. For other Descriptors, particularly those where we identified surveillance indicators in the Marine Strategy Part One, further work is needed to develop our understanding of current risks, the level of pressures and impacts. This covers in particular non-indigenous species, some of our targets on benthic habitats, litter on the seabed and underwater noise.

Exceptions

29. The Directive provides, at Article 14, for instances which Member States may identify within their marine waters where, for certain specified reasons, the environmental targets or GES cannot be achieved through measures taken by the Member State, or, that they cannot be achieved by 2020. Where we believe these exceptions apply it is indicated in the relevant section of the programme of measures.

Part 2: Programme of measures summaries

Part 2: Section 1 – Introduction

30. The Marine Strategy Part Three provides summaries of the measures for each of the 11 Descriptors of GES. They are presented in a series of annexes and for each Descriptor provide:

- the current status of the Descriptor
- the agreed targets and indicators
- our proposed approach for that Descriptor
- a more detailed description of the proposed measures
- the degree of coordination with other countries and how the measures could impact on the waters of neighbouring Member States
- the contribution of the proposed measures towards the achievement of GES and the related environmental targets by 2020
- details of whether any exceptions apply

- gaps and issues relating to each Descriptor

Table 4 gives some background to the individual sections.

Table 4: Rationale for the sections used to help articulate the summary of the UK Programme of Measures

Section	Reason for inclusion
Section 1: Status of the Descriptor in UK seas	This gives a picture of the current state of knowledge about the extent to which GES has been achieved and where there are still problems. It provides context on the extent of measures that might be needed.
Section 2: Marine Strategy Part One characteristics of GES, targets and indicators	This provides a reminder of the UK characteristics, targets and indicators the UK has set for the achievement of GES. These are as set out in the Marine Strategy Part One and are not subject to change at this stage.
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	This aims to provide a quick, easy-to-read summary of our approach for that particular Descriptor and how the measures will address the associated targets.
Section 4: Existing measures	This provides a summary of existing measures which are already being implemented and which will help achieve or maintain GES.
Section 4: Planned measures	This provides a summary of measures which have been agreed but not yet implemented and which will help achieve or maintain GES.
Section 4: New measures	This provides a summary of any new proposed measures which will help achieve or maintain GES.
Section 4: Extent to which measures are coordinated and	This provides an overview of the degree of coordination for the measures identified.

coherent at a UK, subregional and/or regional level	
Section 4: Impact measures have on waters of other countries	This provides information on how the measures identified could impact neighbouring Member States' waters.
Section 5: Contribution of the measures to achieving GES	This provides an assessment of the extent that the proposed measures are sufficient to achieve or maintain GES by 2020. It also identifies where exceptions under Article 14 are relevant.
Section 6: Contribution of the measures to Marine Protected Areas	This provides information on how the measures identified could contribute to the development of a coherent network of Marine Protected Areas.
Section 7: Gaps and issues	This sets out any: • gaps in our understanding of the Descriptor or aspects of the Descriptor • gaps in the PoM that are preventing the UK from meeting its targets • further development of targets needed to help achieve or maintain GES
Section 8: Additional information	This sets out any relevant additional information.

31. This PoM is made up of two main elements. The first element (Part 2 section 2) describes generic measures that are applicable to a number of the Descriptors. It provides information on those measures so as to avoid repetition in the following annexes. The second element (Part 3) sets out the measures in relation to each Descriptor.

32. As in the Marine Strategy Parts One and Two, Descriptors 1 (biodiversity), 4 (food webs) and 6 (seafloor integrity) are addressed on the basis of five ecosystem components: fish; marine mammals; birds; pelagic habitats; and benthic habitats.

33. We then provide separate annexes for Descriptors 2 (non-indigenous species), 3 (commercially exploited fish and shellfish), 5 (human-induced eutrophication), 7 (hydrographical conditions), 8 (concentrations of contaminants), 9 (contaminants in fish and other seafood), 10 (marine litter) and 11 (underwater noise).

34. There are many detailed individual, local-scale measures that relate to specific areas or circumstances. It would not be possible to detail all of those individual measures here. Instead we have provided a description of the overarching mechanisms under which the individual measures are delivered and the sorts of actions that can be taken.

Part 2: Section 2 – Generic measures

35. A number of the proposed measures have an impact on more than one of the Descriptors. These are referred to in each of the individual Descriptor annexes but we have provided a more detailed overview of these generic measures below to avoid repetition.

Marine planning and marine licensing

36. The UK marine planning system, incorporating a new licensing regime, was set up under the UK Marine and Coastal Access Act 2009, the Marine (Scotland) Act 2010 and the Marine Act (Northern Ireland) 2013 to contribute to the sustainable development of marine resources. This includes applying an ecosystem-based approach to the management of human activities.

37. In the UK, marine planning is the responsibility of the MMO in England, Welsh Government in Wales, Marine Scotland in Scotland and the Department of the Environment in Northern Ireland. Marine plans are either at a subnational level, eg the East Inshore and East Offshore Marine Plans in England[12], adopted in 2014 or a national level, eg Scotland's National Marine Plan[13], adopted in March 2015. Plans covering the rest of the UK will be established by 2021 at the latest, in accordance with the Maritime Spatial Planning Directive.

38. Marine plans are being prepared and adopted in accordance with the above acts and set out policies aimed at contributing to the achievement of sustainable development in the UK's marine area in line with the framework established by the UK Marine Policy Statement which all 4 UK administrations adopted in 2011. One of the core aims of marine planning is to manage human impacts on marine ecosystems so that they continue to provide goods and services which benefit society.

[12] https://www.gov.uk/government/publications/east-inshore-and-east-offshore-marine-plans
[13] http://www.gov.scot/Publications/2015/03/6517

39. The UK Marine Policy Statement clearly identifies the MSFD as one of the environmental legislative provisions that should be taken into account in the marine planning process and, where appropriate, reflected in marine plans.

40. Marine plans will contribute to meeting the objectives of the MSFD, particularly in relation to any measures which have a spatial dimension. Marine plan authorities will consider how marine plans may shape activities within the relevant marine area to support the goals of the MSFD, as well as those of other relevant pieces of EU legislation.

41. The UK marine planning system will make a positive contribution towards the achievement of GES. It has the potential to contribute to all Descriptors but in particular for Descriptor 1 (biodiversity), Descriptor 6 (seafloor integrity), Descriptor 7 (hydrographical conditions), Descriptor 10 (marine litter) and Descriptor 11 (underwater noise). The specific contribution made by marine plans will reflect the particular issues raised during development of the plan and where the evidence base changes or improves. Scotland's National Marine Plan has adopted the 11 GES Descriptors as strategic objectives, ensuring that these underpin the planning process.

42. It is further anticipated that marine plans will be used to highlight the need for decision makers to take account of impacts that may affect the achievement or maintenance of GES. This is currently being explored as the MMO drafts the south marine plans. Marine plans may also contribute to GES by highlighting relevant issues to be addressed by future policies.

43. Policies in marine plans can also set a more general framework and/or provide direction, as appropriate. In doing so, decision makers must take into account economic, social and environmental impacts in relation to the development and use of the marine environment. Marine plans are also subject to the Strategic Environmental Assessment Directive. In addition, the process of preparing marine plans, which involves extensive stakeholder engagement, provides a range of opportunities for communication and raising public awareness of issues related to the marine environment.

44. The development of marine plans involves characterisation of the marine plan area and identification of trends in activities and environmental parameters in a social and economic context, which in turn can inform decisions on the implementation of measures to achieve GES. Further regional details can be found in:

    - The Marine Management Organisation's Strategic Scoping Report [14](and the South Plans Analytical Report[15]); and

[14] https://www.gov.uk/government/publications/marine-planning-strategic-scoping-report

[15] https://www.gov.uk/government/publications/south-marine-plan-areas-south-plans-analytical-report

- Wales' Marine Evidence Report[16]; and
- Scotland's National Marine Plan[17] and Scotland's Marine Atlas[18]
- Northern Ireland's State of the Seas Report[19]

45. Marine plans set the direction for the licensing and consenting process. Public authority must take any authorisation or enforcement decision in accordance with the UK Marine Policy Statement 2011 and marine plans, unless relevant considerations indicate otherwise.

46. Marine licensing is the system by which regulated marine activities and developments are assessed and consented. The system identifies potential adverse impacts of activities and developments, including cumulative impacts, in line with national and international requirements. Where appropriate it may impose licence conditions that may include monitoring or mitigation of impacts.

47. The organisations responsible for marine licensing in the UK are: the Marine Management Organisation (MMO) for most marine licensing in English inshore and offshore waters and for Welsh and Northern Ireland's *offshore* waters; Natural Resources Wales and the Department of the Environment for Welsh and Northern Ireland's *inshore* waters, respectively; Marine Scotland on behalf of Scottish Ministers for Scottish inshore and offshore waters; and the Secretary of State, through the Department of Energy and Climate Change (DECC), for oil and gas-related activities.

48. Marine licensing decisions must also be compliant with all EU directives including the Environmental Impact Assessment Directive, the Habitats and Birds Directives and Water Framework Directive and existing nature conservation regimes, where appropriate.

49. In addition to marine licensing requirements, some activities may also require consents issued by other regulatory authorities such as the Secretary of State, environment agencies and statutory nature conservation bodies across the UK, and local planning authorities. In England, nationally significant infrastructure project applications, including larger ports and offshore renewable energy projects, will be decided in accordance with the relevant National Policy Statement, subject to certain exceptions, and having regard to the UK Marine Policy Statement.

---

[16] http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en

[17] http://www.gov.scot/Publications/2015/03/6517

[18] http://www.gov.scot/Topics/marine/seamanagement/national

[19] https://www.doeni.gov.uk/publications/state-seas-report

Environmental Impact Assessment/Strategic Environmental Assessment/Habitats Regulations Assessment

50. These three measures cover the strategic planning, assessment, and licensing of a marine development and will as a result contribute, at a generic level, towards the achievement and maintenance of GES by avoiding unintentional and irrevocable consequences for the environment.

51. Environmental impact assessment applies a procedure for the assessment of the environmental effects of projects which are likely to have a significant effect on the environment. It requires that development consent (for example, planning permission) for projects which are likely to have significant effects on the environment should be granted only after an assessment of the likely significant environmental effects of those projects has been carried out.

52. Strategic environmental assessment is a European Union requirement (Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment) that seeks to provide a high level of protection of the environment by integrating environmental considerations into the process of preparing certain plans and programmes which are likely to have significant effects on the environment.

53. The Habitats Directive protects certain species of plants and animals which are particularly vulnerable and requires the designation of Special Areas of Conservation (SACs). These, along with Special Protection Areas (SPAs) classified under the Birds Directive and, as a matter of policy, Ramsar sites designated under the Ramsar Convention, make up the Natura 2000 network of European protected sites. The UK regulations used to implement the EU directive require a Habitats Regulations Assessment (HRA). The process of HRA involves an initial ‘screening’ stage followed by an ‘appropriate assessment’ (AA) if proposals are likely to have a significant (adverse) impact on a Natura 2000 site. The potential consequences of developments on European protected species also need to be considered.

Common Fisheries Policy

54. Appropriate fisheries management measures will make a positive contribution to the achievement of the GES targets proposed for Descriptor 1 (biodiversity), Descriptor 3 (commercial fisheries), Descriptor 4 (food webs) and Descriptor 6 (seafloor integrity).

55. The Common Fisheries Policy (CFP) is the principal legal mechanism for managing fish stocks in EU waters and its implementation will play a critical role in supporting the achievement and maintenance of GES and ensuring consistency across European waters, promoting sustainable stocks and fishing practices. The kinds of measures include technical measures on gear selectivity, eliminating discards, spatial restrictions and limits on landings. These measures will be focussed both on achieving targets for Maximum Sustainable Yield in commercial fisheries (taking into account the complexity

of mixed fisheries and interactions between stocks) and on achieving sustainable use of the marine environment outside the Marine Protected Area network.

Water Framework Directive

56. There are strong links between the Water Framework Directive (WFD) and the MSFD. They have comparable objectives, with MSFD focussed on the achievement of GES in marine waters, and WFD aiming to achieve Good Ecological and Good Chemical Status. Whilst Good Environmental Status is not exactly equivalent to Good Ecological/Chemical Status there are some significant areas of overlap, particularly in relation to chemical quality, the effects of nutrient enrichment (eutrophication) and some aspects of ecological quality and hydromorphological quality.

57. In the UK, the organisations responsible for implementing the WFD are: in England, Defra; in Wales, the Welsh Government for western Wales and for the river Severn and the river Dee joint responsibility between England and Wales; in Scotland, the Scottish Government; and in Northern Ireland, the Department of the Environment.

58. There is some overlap between the waters covered by the WFD and the MSFD. The WFD relates to surface waters throughout a river basin catchment from rivers, lakes and groundwaters through to transitional and coastal waters to 1 nautical mile out to sea (3 nautical miles in Scotland) and overlaps with the MSFD in coastal waters. The MSFD includes WFD coastal waters for Descriptors not already covered by WFD. The MSFD does not include WFD transitional waters (eg estuaries and coastal lagoons). The boundary between the WFD and the MSFD varies between the UK administrations.

59. The MSFD recognises these overlaps with the WFD and makes it clear that in coastal waters the MSFD is only intended to apply to those aspects of GES which are not already covered by the WFD (eg noise, litter, most commercial fish species and aspects of biodiversity).

60. For Descriptor 8 (contaminants) and Descriptor 5 (eutrophication), given that most of the anthropogenic activities which cause these pressures are either terrestrial in nature or are taking place in the coastal zone, it is considered highly likely that measures taken under the WFD and its related directives will be sufficient to achieve and maintain GES for these Descriptors across the UK’s wider marine area. For Descriptor 7 (hydrographical conditions), it is considered that the application of the WFD in the coastal area, plus the wider application of the Environmental Impact Assessment Directive through the marine licensing process, will be sufficient to achieve GES for this Descriptor across the UK’s marine waters.

Marine Protected Areas

61. The UK's network of Marine Protected Areas (MPAs) will play a significant role in supporting the achievement of a number of the GES characteristics and targets set out in this Strategy – in particular for Descriptor 1 (biodiversity) and Descriptor 6 (seafloor integrity). The UK MPA network forms an integral element of the proposed programme of measures for GES, contributing to the Directive's requirements to put in place spatial protection measures which contribute to a coherent and representative network of MPAs.

62. The UK has established and continues to extend its network of MPAs. The network consists of Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), sites designated under the Ramsar Convention and domestic Marine Conservation Zones (MCZs)/MPAs. These cover both predominant habitats and special habitats and species. The extent of the network is still being finalised and the management measures needed to achieve the site conservation objectives, in many cases, are still under development. In England, a revised approach to fisheries management in MPAs is in place, and the reformed CFP provides an effective mechanism for the protection of offshore sites. We aim for the network, when completed, to be representative and ecologically coherent, with effective management identified by 2016 for all existing MPAs, and that it will play a critical role in improving the status of the UK's marine habitats and species.

63. In England, there are plans for a second tranche of MCZs by January 2016 with a third tranche to follow to complete their contribution to the network of MPAs. Additional Special Protection Areas for birds are also being established.

64. The development of approaches to the management of the 30 designated MPAs in Scotland is underway, with the aim to have all management measures in place by the end of 2016. SNH have also identified four additional MPA proposals for Scotland, primarily for mobile species including basking shark. Work is on-going to prepare the package of information for a public consultation. The Scottish Government is also considering a community led Demonstration and Research MPA proposal as part of the network, which if designated will investigate the factors affecting seabird populations on Fair Isle.

Habitats and Birds Directives

65. Significant habitat and species protection is also already provided in UK waters through the implementation of the Habitats and Birds Directives (92/43/EEC and 2009/147/EC respectively). The spatial protection aspects of these directives have already been mentioned under the section on MPAs, but these two directives also set a number of specific conservation objectives for particular species and habitats. Measures taken under the Habitats Directive are designed to achieve Favourable Conservation Status (FCS) for the species and habitats listed. The aims of the Birds Directive relate to the

conservation of all species of naturally-occurring birds in the wild state in the European territory of the Member State to which the treaty applies.

66. Due to the strong links between the MSFD and these two directives, the management measures to achieve the aims of the Habitats and Birds Directives will play a significant role in achieving the GES targets for Descriptors 1 (biodiversity), 4 (food webs) and 6 (seafloor integrity).

The Environment (Wales) Bill

67. The approach taken in the Environment (Wales) Bill is compatible with MSFD. However, the role of the ecosystem approach reflected in the Environment (Wales) Bill is wider and applies across terrestrial, coastal and marine. It makes explicit the link between the status of natural systems and ecosystem services that support human well-being. It applies sustainable development to the management of natural resources in looking at the need to sustain ecological systems, human communities, and economic infrastructure concurrently.

68. The Bill includes three key features that will ensure that managing our natural resources sustainably will be a core consideration in decision making:

    - The State of Natural Resources Report will give an assessment of how natural resources are being managed in a sustainable way;

    - A National Natural Resources Policy will take account of the findings of the State of Natural Resources Report and set out the Welsh Government's priorities in relation to the management of natural resources as a whole. The intention is that it will also point to the Welsh National Marine Plan as the framework for sustainably managing Wales' marine natural resources; and

    - Area Statements will be produced by NRW setting out the priorities, risks and opportunities for managing natural resources sustainably. The purpose of area statements is to facilitate the implementation of the commitments set out in the National Natural Resources Policy.

Part 3: UK programme of measures for the MSFD Descriptors 1 to 11

Descriptors 1 and 4: Fish

Section 1: Status of fish in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that all parts of the marine fish community have been impacted by human activities. There have been recent improvements in the status of some fish communities which have primarily resulted from a reduction in fishing pressure. This will become more widespread as we move towards attaining Maximum Sustainable Yield for commercial stocks. Some fish communities in estuaries have also benefitted from improved water quality. Concerns remain over the status of threatened and vulnerable species such as sharks, skates and rays and deep sea species, which are especially vulnerable to fishing pressure. There are similar concerns over diadromous fish species such as the European eel and salmon that move between fresh and salt water during their life cycle. Improved information is needed on inshore and coastal fish, on the causes of declines in diadromous fish species and on the status of some highly migratory fish, such as oceanic sharks.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en).

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptors 1 and 4: Fish	**Descriptor 1:** At the scale of the MSFD subregions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway: The abundance, distribution, extent and condition of species and habitats in UK waters are in line with prevailing environmental conditions as defined by specific targets for species and habitats. Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities, such that the specific structures and functions for their long-term maintenance exist for the foreseeable future. Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms. **Descriptor 4:** At the level of the MSFD subregions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats. There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards.
MSFD Criterion 1.1: Species distribution	**Target:** At the scale of the MSFD subregions, distribution of sensitive fish species is not significantly impacted by human activities: the geographic and depth distribution of sensitive fish should meet individual indicator targets in a statistically significant proportion of species monitored. **MSFD Indicator 1.1.1:** Distributional range (continental shelf seas and shelf-edge seas) **MSFD Indicator 1.1.2:** Distributional pattern within range (continental shelf seas and shelf-edge seas)
MSFD Criterion 1.2: Species abundance	**Target:** At the scale of the MSFD subregions, populations of sensitive fish species are not significantly impacted by human activities: the population abundance density and population biomass density of sensitive fish should meet individual indicator targets for recovery in a statistically significant proportion of species

MSFD Criterion 1.3: Population condition[20] **MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species**	monitored. **MSFD Indicator 1.2.1:** Population abundance **MSFD Indicator 1.2.1:** Population biomass based on fish population biomass **MSFD Indicator 1.3.1:** Population demographic characteristics **MSFD Indicator 4.3.1:** Abundance trends of functionally important selected groups/species
MSFD Criterion 1.7: Ecosystem structure – fish relative abundance **MSFD Criterion 4.2: Proportion of selected species at the top of food webs**	**Target:** The size composition of fish communities should not be impacted by human activity such as to indicate any adverse change in trophic function within the community: A specified proportion (by weight) of fish in any defined marine region should exceed a stipulated length threshold. **MSFD Indicator 1.7.1:** Composition and relative proportions of ecosystem components **MSFD Indicator 4.2.1:** Large fish by weight
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how	For fish, targets have been established in relation to abundance and distribution of sensitive fish species and also in relation to the overall health of the fish community. Sensitive fish species include both commercially targeted and non-targeted species. They are those species which are least able to withstand additional mortality, and tend to be slow growing, large bodied species with low rates of reproduction. The species to be included in the assessment for these targets are chosen by identifying the 33% most sensitive species caught

[20] These are considered together due the close similarity of the targets.

will the measures be targeted to help achieve them?	in existing research surveys and then excluding any for which data is too poor to allow robust statistical analysis (eg because they are so rare that they are not routinely caught in research surveys)[21]. The targets on fish abundance and distribution aim to ensure that these attributes are not significantly impacted by human activities. The target on the overall health of the fish community was set to enable an assessment of the fish community to be made. As set out in the initial assessment the main pressure on fish communities is the extraction of fish species by commercial fishing through both direct removal of target fish, and indirectly by removing non-target fish that are predators, prey or competitors and by physically impacting essential habitats. The status of many fish communities has improved and it is expected that this will become more widespread as we move towards attaining Maximum Sustainable Yield (MSY) for commercial stocks. Some fish communities in estuaries have also benefitted from improved water quality. However, as mentioned above in section 1, concerns do remain over the status of threatened and vulnerable species such as sharks, skates and rays, deep sea species and diadromous fish species such as the European eel and salmon. The measures set out below in section 4 are designed to reduce the key pressures on fish communities and as such are expected to contribute to the achievement of the targets and GES. Specific targets for diadromous species are included below for completeness as they will make a contribution towards GES.
Section 4: Existing, planned and new measures needed to achieve GES for fish	
What **existing** measures are in place to address the above targets? How are they implemented? What is	**The main existing measures to address the above targets are taken through:** **Common Fisheries Policy (CFP; 1380/2013):** See the section on Descriptor 3: Commercial fish for details. The measures for the targets proposed under Descriptor 3 (commercial fish) will play a central role in

[21] To support robust statistical analysis species are only carried forward into the assessment if they are recorded in 50% of the surveys undertaken.

the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	supporting the achievement of the biodiversity targets for sensitive fish. It is expected that the implementation of the reformed CFP will lead to a reduction in overall fishing pressure, which will reduce fishing impacts on both target and non-target species and sensitive species. This is expected to lead to an improvement in the status of all stocks and contribute to the achievement of the targets for fish under Descriptors 1 and 4. For example: i. Delivering against the CFP target of managing stocks at MSY by 2015 where possible, and 2020 in all cases, will help ensure long-term sustainability of European fish stocks and reduce pressures on the fish community as a whole and therefore contribute to the targets identified for Descriptors 1 and 4. However the system will likely have a slow response time, so sufficient improvement could take a number of years to become manifest. Managing stocks at MSY and the introduction of the landing obligation may also reduce pressure on the seabed (see Descriptors 1 and 6: Benthic habitats). ii. From 2014 the setting of annual Total Allowable Catches (TACs) and quotas are required to take MSY into account. iii. Deep sea fisheries, which have significant implications for sensitive species, are subject to an EU access regime intended to limit their impacts. This is subject to negotiations that will continue into 2016, in which the UK is pursuing an amended regime that makes full use of spatial management, whilst still permitting sustainable fishing activity where appropriate. iv. Technical measures which protect juvenile species and spawning grounds through setting of minimum conservation reference sizes and use of selective fishing gear allowing for more targeted fishing and avoidance of juvenile fish. These provisions are being reviewed as part of the overhaul of the EU Technical Conservation Regulation which is expected between 2015 and 2017. In addition to these measures the UK is already undertaking a range of initiatives which have the objective of reducing fishing mortality and delivering a recovery of fish stocks through cutting unwanted catches. These include operating Catch Quota schemes under which fishermen are given incentives to count uptake at point of capture rather than on landing. The introduction of highly selective gears into fisheries which have habitually

	had high discard rates associated with them, such as small-mesh Nephrops fisheries, is also reducing discards. A real time closure system is also in place across the UK, managed by the Scottish Government and the MMO, and DARD. This can put in place fishing restrictions in a number of ways: • real time closures • live closed areas • commercial impact zones • juvenile real time closures • seasonal closed areas These closures apply to all UK registered vessels bigger than 10metres; vessels under this size are asked to comply voluntarily. For further details, see: • https://www.gov.uk/government/collections/closed-fishing-areas-in-english-waters • http://www.scotland.gov.uk/Topics/marine/Sea-Fisheries/19213/restrictions • http://gov.wales/topics/environmentcountryside/marineandfisheries/?lang=en In Northern Ireland seas, closed areas are incorporated into the EU Technical Conservation Regulations so no voluntary closed areas are needed. These closures reduce the fishing effort in areas where juvenile fish are concentrated or where there is enhanced pressure. For example, the UK, France and Ireland have agreed to implement additional selectivity measures to reduce unwanted catches of haddock in the Celtic Sea as this stock is deemed to be under enhanced pressure and in a poor state. The UK also undertakes a range of national schemes to enhance selectivity and reduce catches of juvenile and unwanted fish, eg in Northern Ireland DARD has issued the selected gear guidance notes and requires vessels to use highly selective gear in order to gain sufficient days at sea (http://www.dardni.gov.uk/days-at-sea-letter-to-industry-february-2015.pdf).

	All of these measures are likely to collectively have a positive impact on our sensitive fish species. There are also relevant byelaws and fishing orders applying to fisheries operating within the UK's 6 and 12 nautical mile limits. Some of these measures are intended to help support a healthy marine trophic structure. For example local minimum conservation reference sizes (MCRSs) which enhance or strengthen EU-applied MCRSs add an additional level of protection for sensitive species, eg the Strangford Lough (Sea Fishing Exclusion Zones) Regulations (Northern Ireland) 2012 which offers total protection to communities of horse mussel (*Modiolus modiolus*) from sea fishing (http://www.dardni.gov.uk/strangford_lough_fishing_exclusion_zones_2012_-_map.png). Similarly, English Inshore Fisheries and Conservation Authorities (IFCAs) are responsible for a range of byelaws that implement measure such as minimum landing sizes and closures of spawning and nursery grounds (https://www.gov.uk/government/publications/closed-fishing-areas-in-english-waters-august-2014). **Marine Protected Areas: The Habitats and Wild Birds Directives (92/43/EEC and 2009/147/EC) / Conservation of Habitats and Species Regulations 2010; The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007; The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995:** The UK has established and continues to extend its network of marine protected areas. It is expected that Marine Protected Areas will contribute to reducing pressure on sensitive species (Descriptor 1), on community size structure (Descriptors 1 and 4), and on the seabed (Descriptor 6). Some marine conservation zones identify specific fish species as protected features, such as smelt, black sea bream, Couch's goby, giant goby, spiny seahorses and short-snouted seahorses. Special areas for conservation (SACs) have been established for allis and twaite shad species, together with Atlantic salmon (freshwater areas only). The MPAs cover over 10% of Scottish seas and will play an important role in delivering a healthy, productive and biologically diverse marine environment and will contribute to achievement of the targets for Descriptors 1 and 4. Some of these MPAs explicitly have fish as protected features – sandeels, common skate, orange roughy.

	Wildlife and Countryside Act 1981 and equivalent legislation in the Devolved Administrations: These protect a range of habitats and species and provide for specific site designations eg Sites of Special Scientific Interest (SSSIs) and intertidal SSSIs. Measures include UK Biodiversity Action Plan Priority Habitat Action Plans and requirements for developments with the potential to affect designated habitats to ensure the interest(s) of the site(s) are not harmed. SSSIs are also afforded protection under the Nature Conservation (Scotland) Act 2004. Wildlife and Natural Environment Act (Northern Ireland) 2011 amends the Wildlife (NI) Order 1985 and the Environment (NI) Order 2002 and adds new provisions to protect a greater range of plants, animals, birds and to increase protection to Areas of Special Scientific Interest. It affords protection to such endangered benthic species as the fan mussel (*Atrina fragilis*). The Environment (NI) Order 2002 provides legal protection for Northern Ireland's important habitats through its powers to designate, protect and manage Areas of Special Scientific Interest (ASSIs). These powers are also used to complement or 'underpin' protection and management of our European sites (ie SACs and Special Protected Areas, SPAs) and Ramsar sites These measure will have benefits for fish species, for instance by conserving essential fish habitats, or measures to support prey species for birds. Several fish species are protected on the WCA, including diadromous species (sturgeon, twaite shad, allis shad), three of the more sensitive elasmobranchs (basking shark, white skate, angel shark), two rare species of goby (Couch's goby and giant goby) and both species of seahorse found in UK waters. **The Wildlife (Northern Ireland) Order 1985 (as amended):** Under this legislation elasmobranchs and skates must be protected, but there is provision for wildlife licences to allow activities which would otherwise give rise to an offence. Guidance for applicants is available from https://www.doeni.gov.uk/articles/marine-wildlife-licensing. **Species Specific Measures** **ELASMOBRANCHS**

	Shark Action Plans: The UK Shark, Skate and Ray Conservation Plan is a key document which outlines the UK's position and overarching goals for the conservation and management of elasmobranchs and is implemented through relevant domestic, EU and international measures eg FAO Shark Plan of Action, EU Shark Plan of Action. The conservation plan objectives are to ensure that all catches are sustainable, that depleted stocks recover, and that appropriate action is taken for those species most at need of additional protection. These objectives are underpinned by specific actions including the collection of data to address knowledge gaps, the active promotion of effective conservation methods to the fishing industry, support of education and awareness initiatives, and engagement with the international community to ensure coordinated and concerted action is taken. These steps will contribute to the achievement of GES by helping ensure elasmobranch stocks are managed sustainably. These action plans also support the recommendations for the elasmobranch species that are included on the OSPAR List of Threatened and/or Declining Species. These include porbeagle, common skate, spotted ray, thornback ray, and spurdog (https://www.gov.uk/government/publications/protected-marine-species/fish-including-seahorses-sharks-and-skates). **Council Regulation (EC) No 1185/2003 on the removal of fins of sharks on board vessels:** This prohibits the removal of shark fins at sea, making it a legal requirement that all sharks be landed with their fins still naturally attached. It represents the simplest and most effective measure for ensuring illegal finning, an unsustainable and wasteful practice, does not occur within the EU fleet**.** **The Convention on Migratory Species (CMS) Shark Memorandum of Understanding (MoU):** This addresses the need for improved conservation and management of sharks and aims to: improve the understanding of migratory shark populations through research, monitoring and information exchange; ensure that directed and non-directed fisheries for sharks are sustainable; protect critical habitats, migratory corridors and critical life stages of sharks; increasing public awareness of threats to sharks and their habitats; enhance public participation in conservation activities; and enhance national, regional and international cooperation**.** There is also regional legislation in place across the Devolved Administrations aimed at the conservation of

	elasmobranchs. In Northern Ireland: • The Wildlife (Northern Ireland) Order 1985 (as amended) which provides species protection measures for angel sharks and common skate within 6 nautical miles by making it an offence to deliberately or recklessly take, kill or injure these species. In Scotland: • The Sharks, Skates and Rays (Prohibition of Fishing, Trans-shipment and Landing) (Scotland) Order 2012 (SSI 2012/63) establishes prohibitions on the fishing for Tope shark other than by rod and line or hand-line, its trans-shipment, and along with other particular species of sharks, skates and rays its landing. **DIADROMOUS SPECIES** Diadromous fish are included under CFP in their marine phase. However, specific targets for diadromous species that are part of UK freshwater policy objectives will make a contribution towards GES and are therefore set out below. **The obligations for the entire UK for diadromous species include, principally:** **The Habitats and Water Framework Directives (92/43/EEC and 2000/60/EEC):** Salmon, trout, sea lamprey and eel are used as indicators under the Water Framework Directive (WFD) Fisheries Classification Scheme to assess whether rivers meet good ecological status and are hence subject to management measures to achieve that objective; salmon, sea lamprey, and allis and twaite shad are Habitats Directive Annex II species and are managed to meet obligations under that directive. **The EU Eel Regulation (1100/2007):** European eel stocks are managed to meet obligations under this regulation. Management of eel stocks in the UK aims to achieve EU-specified biomass limits for all regional eel

	management units. **The North Atlantic Salmon Conservation Organisation (NASCO):** The UK is a member of NASCO and is expected to follow/implement NASCO recommendations/guidance; salmon management measures form part of our NASCO 2013-18 Implementation Plan. The NASCO UK Implementation Plan applies to the management of salmon stocks. Key measures include 'catch and release' for recreational anglers and no commercial fishing until affected salmon in rivers meet the required management targets. There are three plans covering the UK: • England and Wales http://www.nasco.int/pdf/2013%20papers/CNL(13)46%20FINAL.pdf • Northern Ireland http://www.nasco.int/pdf/2014%20papers/CNL_14_69.pdf • Scotland http://www.nasco.int/pdf/2014%20papers/CNL_14_60.pdf **Measures implemented at the Devolved Administration level for salmon:** **England and Wales** Salmon and sea trout stocks are principally managed via Net Limitation Orders and national and local byelaws which implement a number of measures to restrict commercial and recreational fishing. They are complemented by a range of voluntary measures (eg voluntary 'catch and release' by anglers) and various habitat improvement measures (improving/increasing spawning habitat, opening up migratory pathways, climate change adaptation measures, improving land management practices eg to reduce agricultural run-off, management of river flows). Statutory measures are managed and implemented by the Environment Agency or Natural Resources Wales and voluntary measures are agreed with various bodies eg local angling clubs. **Scotland** Drift netting at sea has been prohibited since 1962. Angling and net fishing (in-river net and coble, and coastal fixed engines) for salmon and sea trout is primarily regulated by the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. Salmon and sea trout are also key beneficiaries of controls under the

	WFD to avoid the deterioration of river habitats and water quality. The independent review of the management of Scotland's wild fisheries reported in October 2014. The Scottish Government's 12-week consultation on 'Wild Fisheries Reform: a response to the report of the Wild Fisheries Review' closed in August 2015. We are currently analysing the responses received and considering the detail of how best to take the reforms forward. We intend to consult on a draft provisions for a Wild Fisheries Bill in early 2016. In early 2015 the Scottish Government announced its intention to introduce a conservation measure whereby no salmon could be killed without a licence from the start of the 2016 season. Following a number of consultations linked to this issue, the Scottish Government are currently consulting on a revised package of conservation measures. The revised proposal retains the fundamental principle that any killing of wild salmon - a protected species – must be sustainable and not present a threat to vulnerable stocks. **Northern Ireland** For salmon, fish can only be taken by recreational anglers or commercial fishermen from waters that meet their management targets. A legislative framework is in place to support this. Where management targets have not been set the precautionary principle is applied and it is compulsory catch and release. Work is being undertaken to determine conservation limits and management targets for all major salmon rivers in the Department of Culture Arts and Leisure area as set out in the NASCO UK (NI) 2013 – 18 Implementation plan

	(see link above). The Loughs Agency[22] has powers to control the fishing of salmon to ensure sustainable stocks are maintained, including the prohibition of commercial fishing and compulsory 'catch and release' (http://www.legislation.gov.uk/nisr/2010/199/pdfs/nisr_20100199_en.pdf). Northern Ireland also has a voluntary catch and release policy. **Measures implemented at the Devolved Administration level for eel:** **England and Wales** Key eel stock management measures in England and Wales include management of commercial and recreational fishing (through 'authorisation' of commercial eel fisheries and continuing the ban on retention of recreational catch), reduction of eel mortality caused by turbines and pumps through improved screening of water intakes (eg through the Eels (England and Wales) Regulations 2009) and improvement and increasing of eel habitat. **Scotland** The Scottish Government's Eel Management Plan will help Scotland achieve the objective of the council regulation to protect and ensure the sustainable exploitation of the European eel. As part of the management arrangements, Scotland's legislative framework prohibits fishing by any method for eels without a licence from Scottish Ministers.

[22] The Loughs Agency exercises functions of the North South implementation body, the Foyle, Carlingford and Irish Lights Commission (FCILC). FCILC is co-sponsored by DARD and Department of Communications, Energy and Natural Resources (DCENR) in the Republic of Ireland. The Loughs Agency's responsibilities include promoting the development of Lough Foyle and Carlingford Lough for commercial and recreational purposes in respect of marine, fishery and aquaculture matters

	Northern Ireland There are 3 Eel Management Plans, one of which is cross border (with Ireland) and assessments are made of escapement of silver eels against specific targets annually. There is a ban on eels being taken by recreational anglers (http://www.dcalni.gov.uk/index/inland_waterways-fisheries-r08/angling-conservation-and-protection/eel_conservation.html). Within the Foyle and Carlingford area there are no commercial eel fisheries and the killing of eels by recreational anglers has been banned since 2009.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	**EU Common Fisheries Policy (CFP; 1380/2013)** Multiannual plans: In addition to the annual exercise to set total annual catches for fish stocks there are also a series of multiannual plans already in place for many stocks which set out how the management of the stock will work over an extended period of time. Further plans are expected to be completed moving forward to assist in delivering the objectives of the new CFP and enabling a long-term perspective to be taken in the management of stocks. Landing obligations: Landing obligations will help to reduce the level of waste within the fisheries. These provisions will be introduced between 2015 and 2019. It is expected that this will reduce unwanted fishing mortality and support stock recovery. In the longer term we expect healthier and more robust stocks to support an increase in landings. Further legislative changes are also expected to support the move to the landing obligations to end regulatory discards. The obligation to land all catches has the potential to lead to significant improvements in the technical specifications of fishing gears and in fishing practices so that unintended catches are reduced to the greatest possible extent and reduce pressure on 'sensitive species' and thus contribute to the achievement of the targets for Descriptor 1. Changes to technical regulations are also being delivered (from 2015 onwards) starting with a proposal for a basic alignment of the current framework to ensure that existing measures are updated to align with the landing obligations (known as the 'Omnibus' proposal) and then to proceed with a major overhaul of the technical

	regulations. This EU-level overhaul will be preceded by detailed analysis and public consultation that will examine the benefits and disadvantages of different approaches. UK MPA network proposals: In England a consultation on a second tranche of MCZs occurred in early 2015 with designations planned for by January 2016. A further tranche will follow. Northern Ireland will designate MCZs by December 2016. Four further MPA proposals in Scotland include one site where basking shark is a proposed protected feature. Fishery management measures for MPAs: By the end of 2016 a wide range of fishery management measures, through existing domestic or EU legislation, should be introduced to ensure MPAs move towards or are maintained at favourable condition. These measures will help to reduce pressure on fish species in certain areas.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The CFP is the principal legal mechanism for managing fish stocks in EU waters and this ensures coherent application of management across all EU Member States. Management of fisheries in MPAs will be achieved through CFP mechanisms and will, where possible, be coordinated with other Member States with fishing interests in the region. WFD is coordinated at national level with river basin management plans (RBMPs) covering respective river basin districts, although management is undertaken on a local/regional basis. For Northern Ireland 3 river

	basins are shared with Ireland and action is coordinated with them. Eel management is coordinated at national level but managed regionally/nationally via districts analogous to WFD river basin districts. The Loughs Agency feeds into both Northern Ireland and Ireland's management of eels decision and management structures.
Do any of the measures have any impact on the waters of other countries in the subregion?	The most important measures will be those implemented under the CFP: as such they will also apply to all EU Member States in the region. Measures in MPAs may affect other waters to the extent that the species migrate into/through other countries' waters. Management measures in MPAs in the 6-12nm zone where other Member States have historic fishing rights and 12-200nm zone are implemented through the processes under the CFP which include regional requirements.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
FISH (GENERAL) It is expected that the implementation of the reformed CFP and the other measures listed above will lead to a reduction in overall pressures, which will reduce impacts on sensitive fish species and the fish community more generally. This is expected to lead to an improvement in the status of fish stocks and to the achievement of GES and the related targets. However, the extent to which this will be achieved for all fish and whether it will be achieved by 2020 remains uncertain. Scientific opinion on whether meeting CFP objectives for stocks and improved management of our shellfisheries will automatically result in meeting objectives for size structure of fish communities is divided. It may be sufficient; however, sufficient detection of recovery (for the first two targets) and recovery itself will need time beyond 2020. It is expected that the combined set of measures set out above will achieve GES, but that recovery of the stocks may not be achieved by 2020 and that the exception under Article 14 (1) (e) is relevant. **ELASMOBRANCHS** The management measures listed above are expected to continue to lead to an increased number of elasmobranch stocks showing good	

signs of recovery. This applies to those species identified as ‘sensitive’ eg thornback ray, spurdog, starry smooth hound, spotted ray, cuckoo ray, tope, blonde ray, smooth hound, and the common skate complex) and to basking shark, white skate and angel shark which are regarded as some of the species more sensitive to over exploitation, and which are protected under national legislation. Accurate assessments of the status of other deep water and large pelagic sharks are not available and precautionary fisheries management measures to reduce mortality on such stocks have been implemented at an EU level. It is expected that the combined set of measures set out above will achieve GES, but that again recovery of the stocks may not be achieved by 2020 and that the exception under Article 14 (1) (e) is relevant .

DIADROMOUS SPECIES

The measures set out above are expected to contribute towards the overall achievement of GES for fish. However as set out in the Marine Strategy Part Two, further work is needed to investigate the validity of using existing monitoring of freshwater stocks to assess the status and health of offshore stocks of certain diadromous species in marine waters. Eels stocks are not expected to recover to MSY by 2020 because of the long generation time; not all salmonids stocks will recover because of pressures in freshwater and at sea.

Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?

Yes. All types of UK MPA (marine SACs, marine SPAs, marine SSSIs, sites under the Ramsar convention, MCZs and Scottish MPAs) will be part of the contribution to a wider ecologically coherent network in the North-East Atlantic.

Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)

Through implementation of the reformed CFP, the intention is to move towards an ecosystem-based approach to fisheries management. Once stocks have recovered, fishing pressure and stock biomass will be maintained in equilibrium, enabling indefinite MSY. Monitoring will be used to assess whether this approach has adverse impacts on the achievement of our targets, and if so whether further measures are needed. Mechanisms exist to deliver such measures.

For stocks where reference points such as MSY have not been defined, further work is needed to improve data collection and biological

assessment.

Delivery in deep sea areas is dependent on agreement of the revised Deep Sea Access regulation at EU level.

Further work in under way to understand the status of fish stocks in our inshore and coastal waters.

Section 8: Additional information

A Biodiversity Strategy for Northern Ireland to 2020: This was published on 1 July 2015 and gives consideration sustainable fisheries in our territorial waters, including inshore fisheries (https://www.doeni.gov.uk/news/new-biodiversity-strategy-northern-ireland).

Management of elasmobranchs: A number of key projects relating to the management of elasmobranchs are being undertaken that, whilst not strictly measures, will influence future management decisions and may contribute to the attainment of GES. These projects include:

- Shark By-Watch 2: This builds upon the success of the southern North Sea Shark By-Watch pilot study, and is an industry led project which continues the development of strong partnerships between fishermen, scientists, fishery managers, food retailers and NGOs throughout the UK. It aims to provide important data on elasmobranch biology, populations, distribution, and survivability post discarding, and promote fishing and handling practices which increase survivability.

- NEPTUNE: This is a key project in the South-West of England. Using a similar approach to Shark By-Watch, it brings together fishermen, scientists, and policy makers to provide the data necessary to inform management decisions for commercially important shark, skate, and ray species (porbeagle, spurdog, and common skate).

- The Spurdog Alignment Plan: This aims to provide a well-reasoned, scientifically justified proposal for the sustainable management of this North-East Atlantic stock in order to eliminate the current discarding problems. It may include a proposal for an appropriate TAC/bycatch allowance and any management measures that would be necessary to facilitate this.

Marine Management Organisation (MMO) shark, skate and ray guidance: This covers awareness raising campaigns and guidelines eg The Shark Trust annual fishery advisories (funded by Defra). These guidelines are designed to assist the commercial fishing industry and enforcement agencies through the provision of rapid access to the legislative status of sharks, skates and rays in UK and EU waters (http://www.sharktrust.org.uk/en/fisheries_advisories). This provides information for commercial and recreational fishermen who may catch

shark, skate and ray species, and markets, merchants or any premises who may handle these species. It provides details of what can and cannot lawfully be done with certain species that are protected by EU fisheries legislation, national, EU and international wildlife legislation and other agreements.

Regional Fisheries Management Organisations (RFMOs): Whilst not directly managing any of the species considered ‘sensitive’ under this Descriptor, they have an important role in managing any species of shark caught in conjunction with their fisheries (in the high seas). They are a mechanism within which additional measures can be taken.

Descriptors 1 and 4: Marine mammals

Section 1: Status of marine mammals in UK seas

Seals

UK seas host about 38% of the world's population of grey seals and about 30% of the European population of harbour (or common) seals. Both species are seen off all UK coasts, though they are considerably more abundant in some areas than others with the majority present around Scotland. The UK initial assessment for the MSFD (https://www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) stated that grey seals are generally experiencing few problems, but that the reasons for declines in some harbour seal populations on the east coast of Scotland and in the Northern Isles, need to be more fully understood. The main anthropogenic pressures known to affect seals, some of which may be at the population level, include illegal shooting (in some localities), fisheries bycatch, pollutants, vessel or propeller strikes and noise in the marine environment. The grey seal population in the North Sea is increasing, particularly south of the Humber Estuary; the Orkney population is also increasing but not so quickly while west of Scotland populations have not increased since the early 1990s.

Cetaceans

Twenty-eight species of cetacean have been recorded in UK waters. Those using UK waters are mostly part of larger biological populations whose range extends beyond UK waters. The number of individuals present at any one time may be only a small proportion of those that make use of UK waters at some point. The most abundant species of cetacean found in UK waters are harbour porpoise, common bottlenose dolphin, white-beaked dolphin, fin whale, and minke whale. The UK initial assessment concluded that the conservation status of these species in UK waters is considered 'favourable'. The status of a further six species (short-beaked common dolphin, Atlantic white-sided dolphin, Risso's dolphin, long-finned pilot whale, killer whale and sperm whale) was unknown due to a lack of suitable abundance estimates. The remaining 17 species found in UK waters are considered rare or vagrant and therefore it was not possible to assess their conservation status.

The main pressures on cetacean populations vary to some extent by species and include fisheries bycatch, prey depletion and/or competition, pollutants, vessel or propeller strikes and noise in the marine environment. However, there is no indication that at present these pressures are threatening or depleting these populations. Further regional detail can be found in: • Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas) • Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report) • Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)	
Section 2: Marine Strategy Part One characteristics of GES, targets and indicators	
Characteristics of GES for Descriptors 1 and 4: Marine mammals	**Descriptor 1:** At the scale of the MSFD subregions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway: The abundance, distribution, extent and condition of species and habitats in UK waters are in line with prevailing environmental conditions as defined by specific targets for species and habitats. Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities such that the specific structures and functions for their long-term maintenance exist for the foreseeable future. Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms. **Descriptor 4:** At the level of the MSFD subregions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-

	term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats. There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards.
Seals **MSFD Criterion 1.1: Species distribution**	**Target:** At the scale of the MSFD subregions, the distribution of seals is not contracting as a result of human activities: in all of the indicators monitored there is no statistically significant contraction in the distribution of marine mammals caused by human activities. **MSFD Indicator1.1.1:** Distributional range **MSFD Indicator 1.1.2:** Distributional pattern within range
Seals **MSFD Criterion 1.2: Population size** **MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species**	**Target:** At the scale of the MSFD subregions, abundance of seals is not decreasing as a result of human activity: in all of the indicators monitored, there should be no statistically significant decrease in abundance of marine mammals caused by human activities. **MSFD Indicator 1.2.1:** Population abundance **MSFD Indicator 4.3.1:** Abundance trends of functionally important selected groups/species.
Seals **MSFD Criterion 1.3: Population condition** **MSFD Criterion 4.1:**	**Target:** At the scale of the MSFD subregions, marine mammal productivity is not significantly affected by human activities: There should be no statistically significant decline in seal pup production caused by human activities. **MSFD Indicator 1.3.1:** Population demographic characteristics

Productivity (production per unit biomass) of key species or trophic groups (grey & harbour seals)	**MSFD Indicator 4.1.1:** Performance of key predator species using their production per unit biomass (productivity)
Cetaceans **MSFD Criterion 1.1: Species distribution**	**Target:** At the scale of the MSFD subregions, the distribution of cetaceans is not contracting as result of human activities: in all of the indicators monitored there is no statistically significant contraction in the distribution of marine mammals caused by human activities. **MSFD Indicator 1.1.2:** Distributional pattern within range.
Cetaceans **MSFD Criterion 1.2: Population size** **MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species**	**Target:** At the scale of the MSFD subregions, abundance of cetaceans is not decreasing as a result of human activity: in all of the indicators monitored, there should be no statistically significant decrease in abundance of marine mammals caused by human activities. **MSFD Indicator 1.2.1:** Population abundance **MSFD Indicator 4.3.1:** Abundance trends of functionally important selected groups/species.
Seals and Cetaceans **MSFD Criterion 1.3: Population condition**	**Target:** At the scale of the MSFD subregions, cetacean populations are in good condition: mortality of cetaceans due to fishing bycatch is sufficiently low so as not to inhibit population size targets being met. **Target:** At the scale of the MSFD subregions, seal populations are in good condition and mortality of seals due to fishing bycatch is sufficiently low so as not to inhibit population size targets being met.

Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	For marine mammals the targets reflect existing commitments under the Habitats Directive, which covers all marine mammal species. They aim to ensure that marine mammal distribution is not significantly affected by human activities and that their abundance is not decreasing as a result of human activities, using baselines consistent with those used for the Habitats Directive. Specific targets have also been developed for the condition of marine mammals, looking at species productivity and the impacts from key pressures, such as bycatch. Separate targets have been developed for seals and cetaceans reflecting the fact that the life histories of these two groups are very different.
Section 4: Existing, planned and new measures needed to achieve GES for marine mammals	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	While the measures for marine mammals under Descriptors 1 and 4 have much in common they have been described separately so that it is clear which measures cover seals, which cover cetaceans and which measures cover bycatch issues for both species. The main existing measures to address the above targets are taken through: **SEAL MEASURES** **Habitats Directive (92/43/EEC)**: Common and grey seals are listed on Annex II of the Habitats Directive. Conservation of their habitat therefore requires the designation of Special Areas of Conservation (SACs) under this directive. These, along with Special Protection Area (SPAs) classified under the Birds Directive and, as a matter of policy, Ramsar sites designated under the Ramsar Convention, make up the Natura 2000 network of European protected sites.

	Once a Natura 2000 site is established, Member States must ensure the protection and restoration of the site in accordance with Habitats Directive Article 6, which outlines minimum conservation measures ensuring 'appropriate steps to avoid deterioration / disturbance of habitats and species for which sites have been designated'. There must be Habitats Regulation Assessment of any plans or projects that would have the potential to cause a likely significant effect on Natura 2000 protected sites, either in isolation or in combination with other plans and projects. The Natura 2000 network includes both terrestrial and marine sites. Codes of conduct produced by voluntary organisations and local government are also in place across the UK where seals are a known feature. These offer practical guidance to all those who watch marine wildlife and aim to minimise the risk to marine wildlife from encounters with people. **Marine (Scotland) Act 2010:** Under this legislation it is an offence to kill or injure a seal except under licence or for welfare reasons. It is also an offence to disturb seals (ie intentional or reckless harassment) at designated haul out sites in Scotland. Seal conservation areas around Scotland have been introduced and are designed to ensure the proper conservation of seals. **Conservation of Seals Act 1970 (England and Wales**): This prohibits the shooting of seals during a closed season except under licence. Additionally the Conservation of Seals (England) Order (1999) prohibits killing, injuring or taking of seals at any time of year on the east coast of England. Given the distribution of seal populations in England, this order has the net effect of providing year round protection for almost all common seals and the majority of grey seals in England. There are also a few well established grey seal colonies in Wales which are also protected by the act. **Wildlife and Countryside Act 1981 and equivalent legislation in the Devolved Administrations**: Within Sites of Special Scientific Interest in England, Scotland and Wales, consent is required to undertake notified operations likely to damage interest features of those sites. In Northern Ireland harbour seals and grey seals are also protected but there is provision for wildlife licences to allow activities which would otherwise give rise to an offence. Guidance for applicants is available from https://www.doeni.gov.uk/articles/marine-wildlife-licensing.

CETACEAN MEASURES

Cetaceans are protected by a number of national, European and international conventions, agreements and regulations which also establish the broad parameters for monitoring.

Habitats Directive (92/43/EEC): All cetacean species are protected under the Habitats Directive where they are specifically listed in Annex IV (Animal and Plant Species of Community Interest in Need of Strict Protection). The obligations of the Habitats Directive are transposed through domestic legislation which makes it an offence to kill, injure, capture or disturb all cetaceans. As European protected species they must be protected throughout their natural range.

Wildlife and Countryside Act 1981 and equivalent legislation in the Devolved Administrations: These provide for the protection of all cetaceans found within UK territorial waters (out to 12nm), making it an offence to intentionally kill, injure or take cetaceans, to cause damage or destruction to certain areas used by cetaceans for shelter and protection, or to intentionally disturb animals occupying such areas.

International Whaling Commission (IWC): The Whaling Industry Regulation Act 1934, as amended by the Fisheries Act 1981: The IWC has established a moratorium on commercial whaling and facilitates research and actions to conserve and improve the conservation and welfare of all cetaceans globally (http://iwc.int/home).

ASCOBANS (Agreement of the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish and North Seas) (Daughter Agreement Under the Convention on Migratory Species): This aims to restore and maintain populations of small cetaceans through the coordination and implementation of conservation measures. Parties have agreed a conservation plan setting out actions for research, monitoring and the tackling of pressures such as bycatch, pollution, litter, noise etc. It also includes a specific North Sea Action Plan for Harbour Porpoise (http://www.ascobans.org).

	Convention on the International Trade of Endangered Species (CITES): All whale species are listed on CITES with most given the highest level of protection, prohibiting any international commercial trade except in certain exceptional specific circumstances. **Guidance and codes of conduct:** Guidance is also in place in the UK for marine users who are planning to carry out activities in the marine environment which have the potential to kill, injure or disturb a marine European Protected Species (ie any cetacean species). The guidance provides advice on interpreting regulations protecting cetaceans from the point of view of whether an activity will cause or has caused death, injury or disturbance to a marine European Protected Species. It is also used by regulators, nature conservation agencies, enforcement authorities and competent authorities. In particular, this guidance is intended to help the reader assess: a) the likelihood of an offence being committed (as an incidental result of a lawful activity); b) if this can be avoided or minimised; and c) where this cannot be avoided or minimised, whether the activity could go ahead under licence. The Joint Nature Conservation Committee (JNCC), Natural England and Natural Resources Wales have good practice guidelines and protocols in place for specific activities (pile driving, seismic surveys and use of explosives) to minimise the risk of injury and reduce disturbance to cetaceans (http://jncc.defra.gov.uk/page-1528). There are also specific good practice guidelines in place in Scotland: 'The protection of Marine European Protected Species from injury and disturbance' (http://www.scotland.gov.uk/Resource/0044/00446679.pdf). Codes of conduct are also in place. Scottish Natural Heritage has produced a Wildlife Watching Code to reduce disturbance (http://www.marinecode.org/scottish-marine-code-g.asp). This code, published in 2006, offers practical guidance to all those who watch marine wildlife around Scotland and aims to minimise the risk to

	marine wildlife from encounters with people. A similar code is also in place in the Cardigan Bay SAC (http://www.cbmwc.org/wildlife/code-of-conduct). **BYCATCH MEASURES** **EC Regulation 812/2004**: This requires the mandatory use of acoustic deterrents ('pingers') in identified fisheries on vessels larger than 12m, as well as the establishment of a national bycatch monitoring programme. The MMO has produced guidance on reducing cetacean bycatch by using pingers that are attached to nets (https://www.gov.uk/reduce-dolphin-and-porpoise-by-catch-comply-with-regulations). **South West Territorial Waters (Prohibition of Pair Trawling) Order 2004**: This domestic legislation bans the seasonal use of pair trawls in English waters within the South West English Channel to prevent the bycatch of dolphin (specifically common dolphin).
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	**CETACEANS** Scottish Natural Heritage have put forward 3 Marine Protected Area proposals to Marine Scotland for government consideration: 2 for minke whales and 1 for Risso's dolphin. JNCC and the statutory nature conservation bodies (SNCBs) have undertaken an assessment of the largest and most recent set of data for harbour porpoise, and provided advice on the potential for Special Areas of Conservation for harbour porpoise in line with the requirements of the Habitats Directive. This advice is being considered by the 4 UK governments. **BYCATCH** Work continues across Member States to develop and refine appropriate environmental limits for cetacean and seal bycatch. These limits will need to be discussed and agreed through dialogue with stakeholders, existing and future planned European Commission regulations and through other international agreements (eg ASCOBANS).

What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	**SEALS** In the UK, species conservation is a devolved matter. Measures are taken by the Devolved Administrations under their national legislation. The respective administrations liaise with each other and coordinate action where this is required, for example where measures relate to the UK as a Member State or issues cross limits of devolved competence. Under the Conservation of Seals Act 1970, the Natural Environment Research Council (NERC) has given a duty to the Special Committee on Seals (SCOS) to provide scientific advice to government on matters related to the management of seal populations. Formal advice is given annually based on the latest scientific information to enable government to review applications for licences to shoot seals, and respond to parliamentary questions and correspondence. The Conservation of Seals Act 1970 now only covers England and Wales. The act has been repealed in Scotland and replaced with new protective provisions, through Part 6 of the Marine (Scotland) Act 2010. Under the 2010 act, Scottish ministers must consult and have regard to any advice about the management of seal populations which is given to them by NERC via SCOS. Northern Ireland protects seals under the Wildlife (Northern Ireland) Order 1985 (as amended).

	CETACEANS As migratory species, the majority of cetacean measures require collaboration internationally or regionally. Limited specific domestic action (beyond what has been agreed at regional or EU level) is required, but voluntary work to support delivery is effective. UK SNCBs have also compiled marine mammal management units to deliver an appropriately scaled area for management of species populations. This is currently being reviewed and updated and may incorporate ICES (2014) assessment areas.
Do any of the measures have any impact on the waters of other countries in the subregion?	**SEALS** Grey seals range widely at sea and so measures are likely to impact on their presence in the waters of other countries. **CETACEANS** Cetaceans range widely at sea and so measures are likely to impact on their presence in the waters of other countries.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
SEALS It is expected that the implementation of the measures listed above will lead to a reduction in overall pressures, which will reduce impacts on both seal species and their habitats. We are confident the measures will be sufficient to achieve GES in 2020 for the indicator targets for grey seal abundance and pup production based on the latest monitoring results (SCOS 2013). The latest monitoring results for harbour seals show they have undergone declines in some areas of UK waters in recent years (SCOS 2013). These measures may partially mitigate the	

decline, but as the reasons for these declines are currently unknown we do not know at this stage whether the measures will be sufficient to achieve GES for harbour seals in the UK by 2020.

CETACEANS

We believe that the existing and planned measures described above will contribute to maintaining GES for those species whose status is 'favourable' and to achieving GES for other cetacean species. Although we will assess progress once all the targets and indicators for cetaceans are fully operational, assessments carried out under the Habitats Directive lend support to the robustness of existing and planned measures.

Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?

Yes. For the 2 UK seal species, SACs have already been designated in the UK to protect breeding colonies and moulting and haul out sites. Seven sites have been designated for grey seals and 9 sites for harbour seals. Plus another 3 where the species is a qualifying feature, but not a primary reason for site selection. A review of recent data on seals at sea in UK waters is currently being undertaken to determine whether or not it will be possible to identify any SACs for either of the 2 seal species in waters away from the coast.

Three SACs have been designated for bottlenose dolphin within UK territorial waters. These are Cardigan Bay, the Moray Firth and Lleyn Peninsula and the Sarnau. The UK has identified harbour porpoise as a qualifying feature of the Skerries and Causeway SCI. Thirty-four other sites include harbour porpoise as a non-qualifying species. JNCC and the SNCBs have undertaken an assessment of the largest and most recent set of data for harbour porpoise, and provided advice on the potential for Special Areas of Conservation for harbour porpoise in line with the requirements of the Habitats Directive. This advice is being considered by the 4 UK governments; no decision has yet been taken.

Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)

Most of the targets and indicators for cetaceans are not operational because further work needs to be completed to enable the definition of baselines and trends. These targets and indicators are under development and cover those cetacean species for which there are sufficient

data to enable estimates of abundance and trends over time. These are expected to be operational by 2018. The baselines for the marine mammal targets will be consistent with those used for the Habitats Directive (ie 1992 or the closest best estimate). Experts from across the North-East Atlantic have acknowledged that 'although the most robust way to set baselines for marine mammals is based on historical data, these are not available at the appropriate spatial and temporal scale'. Regulation 812/2004, which sets out cetacean bycatch monitoring requirements, is being reviewed at an EU level. It is not clear at this time what this review will conclude, however the UK would not want to see current levels of protection reduced (see section 8).

Section 8: Additional information

BYCATCH – cetaceans: The European Commission is reviewing Regulation 812/2004 (cetacean bycatch) and is presently proposing to incorporate cetacean bycatch mitigation and monitoring measures within the future Technical Conservation Measures Framework and Data Collection Framework, both of which are being revised to implement recent reforms to the Common Fisheries Policy. This may result in a less prescriptive, more regionalised approach, which places clearer data collection obligations on Member States and/or requires changes to the nature of mitigation necessary. The detail and impact of any changes has not yet been discussed or agreed by Member States.

The UK Protected Species Bycatch Monitoring Scheme will continue. This is a UK funded programme to monitor bycatch in UK waters of European Protected Species (ie those species listed on Annex IV of the Habitats Directive whose natural range includes any area in UK waters; these consist of several species of cetaceans and turtles). The scheme also investigates the use and effectiveness of acoustic deterrent devices in relation to mitigation of cetacean bycatch.

Statutory guidance to reduce impacts of underwater noise, were developed by JNCC with the other SNCBs and have been in place since 1994 and implemented under various permitting procedures for seismic surveys, explosive use and pile driving.

LIFE Natura 2000 Programme in Wales and the improvement programme for England's Natura 2000 sites (IPENS): These EU funded LIFE Natura 2000 Programmes for England and Wales both aim to produce strategic prioritised and costed plans for the conservation management and restoration of existing Natura 2000 sites, comprising Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

The initiatives will develop thematic action plans comprising prioritised, costed action plans for known crosscutting issues or risks occurring in Natura 2000 sites, with identified sources of funding and delivery timescales. Thematic action plans will draw on actions proposed on

Natura 2000 sites, consider any wider management outside sites and make recommendations where appropriate. Actions taken to manage known issues or risks associated with habitats and species designated under the Habitats and Birds Directives are likely to contribute towards MSFD marine mammal targets.

Propeller strikes and corkscrew injuries: There are possible explanations for corkscrew injuries other than ducted propellers. These other possible causes don't necessarily rule in or out ducted propellers as a potential cause. Further research is currently underway.

Descriptors 1 and 4: Birds

Section 1: Status of birds in UK seas

The UK initial assessment for the MSFD (https://www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that although numbers of seabirds breeding in the UK had increased from the 1960s to the end of the 1990s, recent downward trends in breeding success of seabirds in the Greater North Sea and the northern Celtic Seas are of concern. The main pressures on seabirds arise from climate change and fishing but pressures from non-indigenous species, hazardous substances, habitat loss, litter and visual disturbance are also recognised. Average numbers of waterbirds wintering in, or migrating through, marine areas in the UK doubled on average between the mid-1970s and the mid-1990s. Since then, average numbers have declined. The main human pressures on waterbirds arise from contamination by hazardous substances, removal of species, habitat damage and habitat loss.

Climate change affects bird populations through changes in sea temperature leading to shifts in plankton and prey species. These, and warmer winters, that can lead to shifts in our bird populations and more of our waterbirds that would traditionally winter in the UK, wintering on the continent. Any changes in our population attributed to these climatic changes are beyond the scope of these measures.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en).

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptors 1 and 4: Birds	**Descriptor 1:** At the scale of the MSFD subregions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway: The abundance, distribution, extent and condition of species and habitats in UK waters are in line with prevailing environmental conditions as defined by specific targets for species and habitats. Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities such that the specific structures and functions for their long-term maintenance exist for the foreseeable future. Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms. **Descriptor 4:** At the level of the MSFD subregions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats. There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards**.**
MSFD Criterion 1.1: Species distribution **MSFD Criterion 1.2: Population size** **MSFD Criterion 4.3: Abundance/distribution**	**Target:** At the scale of the MSFD subregions, distribution of marine birds is not significantly affected by human activities: No major shifts or shrinkage in the population distribution of marine birds in 75% of species monitored. **Target:** At the scale of the MSFD subregions, abundance of marine birds is not significantly affected by human activities: Changes in abundance of marine birds should be within individual target levels in 75% of species monitored. **MSFD Indicator 1.1.2:** Distributional pattern within range

of key trophic groups/species	**MSFD Indicator 1.2.1:** Population abundance **MSFD Indicator 4.3.1:** Abundance trends of functionally important selected groups/species.
MSFD Criterion 1.3: Population condition **MSFD Criterion 4.1: Productivity (production per unit biomass) of key species or trophic groups**	**Target:** At the scale of the MSFD subregions, marine bird productivity is not significantly affected by human activities: Annual breeding success of black-legged kittiwakes should not be significantly different, statistically, from levels expected under prevailing climatic conditions (ie sea surface temperature), and widespread seabird colony breeding failures should occur rarely in other species that are sensitive to changes in food availability. At the scale of the MSFD subregions, the risks to island seabird colonies from non-native mammals are reduced. **MSFD Indicator 1.3.1:** Population demographic characteristics. **MSFD Indicator 4.1:** Performance of key predator species using their production per unit biomass (productivity).
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	For birds, targets have been developed for bird population distribution and abundance, and for the condition of bird species. The overall aim is to ensure that marine bird species are not significantly impacted by human activity. The targets for condition look at species productivity and impacts from key pressures. These targets are based on indicators covering bird species whose subregional populations rely on the marine environment and are therefore likely to be affected by the impacts of human activities in the marine environment. The targets for abundance are based on work carried out in OSPAR to develop an ecological quality objective for birds and more recently to develop common indicators for MSFD. They are applicable to species for which good breeding site or colony data are available, and to migratory shorebirds that over-winter along UK coasts. The targets will be set individually for each species indicator, based on current and historic data. Species thresholds will

	be set at levels expected under prevailing climatic conditions and will promote recovery where this is required. Targets and indicators have been developed to detect changes in the distributional pattern of marine birds in the UK. The aim of these targets is to avoid any significant impacts from the displacement of birds from intertidal and shallow inshore areas (eg by offshore renewables, dredging, aggregate extraction) and from the loss of onshore breeding habitat as a result of coastal developments and flood defences. Targets for changes in distributional pattern are not useful for large breeding colonies of seabirds because any pressure impacts will be detected by abundance indicators long before any changes in distribution would become evident. Distribution targets are also not useful for detecting impacts on marine birds in offshore areas because their distributional pattern is very variable over time, in response to numerous factors, especially weather. In order for GES to be achieved, at least 75% of species are required to meet their individual indicator thresholds for abundance and distribution. Bird abundance and distribution can be affected by changes in prevailing conditions (eg climate change and changes in prey distribution) as well as by human induced pressures, so it is considered consistent with GES that some species may decline within UK waters. However, if continual declines are observed for a species, action will be taken to establish the cause, so that management measures can be taken where appropriate. At this stage, work is underway that could lead to monitoring schemes for the seabirds and waterbirds at sea in inshore and/or offshore UK waters. Indicators of abundance and distribution may be constructed from such data and be assessed against targets in the future. Targets for population condition that reflect seabird breeding failure rate are based on work carried out in OSPAR to develop common indicators for MSFD. These targets reflect pressures from fishing, but also from human disturbance, contaminants and predation by invasive species. The targets' aim is for widespread breeding failure of seabird colonies to occur rarely and not over successive years. A UK-based target focuses on kittiwake breeding success and aims to reflect the impacts from fishing that occur over and above the effects of prevailing climatic conditions. Both targets have strong links to management, especially with regard to food availability, human disturbance and predation.

	Another target for species condition aims to reduce the risks to island seabird colonies from non-native mammals. This target is a direct measure of the effectiveness of measures designed to eliminate or reduce impacts of non-native mammals (see below).The measures set out below in section 4 are designed to reduce the key human pressures on our bird populations and as such are expected to contribute to the achievement of the targets and GES.
Section 4: Existing, planned and new measures needed to achieve GES for birds	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The combined measures proposed for birds under Descriptors 1 and 4 will address the species distribution, population size and abundance targets as well as those on population condition and productivity. The main existing measures to address the targets are those taken through: **Birds Directive (2009/147/EC) and related national legislation:** This legislation puts in place: i. a ban on activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs; ii. the classification and subsequent management of Special Protected Areas (SPAs, eg seabird breeding colonies and seaduck wintering areas in order to achieve site-specific conservation objectives (see below for marine SPAs in the 'planned measures' section); iii. obligations for the protection of endangered migratory waterbird species; and iv. the protection of sites important for waterbird species (SPAs and UK wetlands designated under the Ramsar Convention on Wetlands), such as the 31 SPAs in Scotland that include a marine element. **Marine (Scotland) Act 2010:** Black guillemot Marine Protected Areas (MPAs) designated in 2014. **Habitats Directive (92/43/EEC):** Management of MPAs (including Marine Conservation Zones, MCZs) designated under national legislation could have beneficial effects on bird populations, particularly in terms of maintaining good

	foraging conditions and by managing disturbance impacts from tourism/recreational activities (both voluntary and regulatory measures to manage access/activity levels). **Common Fisheries Policy (1380/2013; CFP):** Some CFP measures have been designed to protect seabird populations. The new CFP landing obligations (discard ban) came into force for pelagic fisheries in 2015, and will come into force for key demersal species (cod, hake, sole) in North Atlantic waters by 2016 and for all other commercial species in all waters by 2017. With some derogations, fishers will be obliged to land all commercial species they catch and will not be allowed to discard these species. The impact of the landing obligations is as yet unknown, but it is expected that there will be some reduction in seabird species populations. The direct effects of catch quotas and technical measures, eg gear type, mesh size, selectivity, etc could also impact on some food species. **OSPAR Recommendations 2011/4-6:** These cover recommendations on furthering the protection and conservation of the Black-legged kittiwake, Roseate tern and Balearic shearwater. Across the Devolved Administrations, there are a number of **relevant byelaws or equivalent statutory controls** eg sandeel fishing closure off North-East England and East Scotland since 2000 as a direct measure for seabird conservation and voluntary bans on sandeel fishing around Shetland. **Protection of bird island colonies from the invasion by non-indigenous predatory mammals (eg black/brown rat, fox, American mink)**: We have put in place good working practices with regard to quarantine measures at a number of locations. There have also been several ad hoc eradications of rats and some localised control of American mink. However each island requires specific measures that are appropriate to the island concerned, the invasive species and the bird species concerned.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to	**UK Seabird Bycatch Plan of Action:** This will translate the FAO and EU Seabird Bycatch Plans of Action into a UK relevant action plan outlining measures and actions necessary to ensure seabird bycatch in UK waters is not having a detrimental impact on seabird populations. **Completion of the UK MPA network:** This includes further SPAs. Management measures at individual marine

address the above targets? How will they contribute? Which organisation is responsible for the measures?	SPAs will be identified and implemented by regulators following advice from the SNCBs (including JNCC). Proposals will be discussed with stakeholders.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The implementation of all measures except CFP is devolved to the Devolved Administrations and their agencies. The UK has in place a timetable to identify all SPAs where possible during 2016. Our approach is coordinated across the Devolved Administrations although the programme is being taken forward separately by the relevant SNCBs in England, Wales, Scotland and Northern Ireland. In the offshore area work is led by JNCC, with Natural England, Natural Resources Wales, Northern Ireland Environment Agency and Scottish Natural Heritage dealing with the inshore area for their respective countries.
Do any of the measures have any impact on the waters of other countries in	All the measures potentially impact birds that also use waters of other countries in the subregion and, in some cases, in other subregions. Most marine bird species are wide-ranging throughout their lifetime and also throughout a single year. For example, many birds that breed in UK seabird colonies will migrate into the waters of several

the subregion?	other countries outside the breeding season. There is a rapidly expanding body of evidence (through improvements in tracking technologies) of individuals that breed in UK colonies making foraging trips in to other countries' waters while raising young.

Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?

Non-breeding shorebirds and breeding waterbirds: We are confident the measures are sufficient on the basis of current knowledge and conditions for the achievement of GES in 2020 for non-breeding shorebirds and breeding waterbirds because the latest assessment of indicators of abundance and distribution showed UK populations to be on target. The most relevant measures for these species are site-based protection through designation of terrestrial and intertidal areas as SPAs under the Birds Directive and as protected areas under national legislation (eg Sites of Special Scientific Interest). Management measures in these areas are aimed at reducing disturbance from human activities (eg recreation, bait digging, shellfish harvesting etc) and from predators (eg foxes). There have also been measures to sustainably harvest shellfish, which have probably had positive impacts on prey availability to intertidal-foraging birds.

Breeding seabirds: An increased level of protection under the Birds Directive and other national legislation (by supporting prosecutions) has had a beneficial effect on the UK's breeding seabird populations. Licensed killing of cormorants and nest removal/disturbance of gulls is kept under review to ensure it does not affect the achievement of environmental targets. There is anecdotal evidence that management measures (eg anti-predator measures) have been effective for protected colonies of terns and gulls.

Given the uncertainties around the links between pressures and impacts and the effectiveness of some measures, it is difficult to be certain that GES will be achieved by 2020. An assessment of the kittiwake indicator between 2000 and 2010 also showed a decrease in the number of UK colonies in both the Greater North Sea and the Celtic Seas that are exhibiting the level of breeding success we would expect under the prevailing climatic conditions. This kittiwake indicator and the indicator on breeding failure in kittiwakes and other species are correlated with sandeel fishing pressure in the North Sea. There is evidence that the sandeel fishing closure off North-East England and East Scotland has had a positive impact on the breeding success of kittiwake colonies adjacent to the closed area. The recent change to smaller scale management of sandeel stocks is a positive move. Discard bans should not affect the achievement of GES.

The latest assessment of indicators of abundance showed UK and international populations of breeding seabirds in the Celtic Seas and Greater North Sea subregions to be below target. It is difficult to attribute this state to particular pressures and their impacts and it is likely to result from a combination of factors including both human and natural drivers and prevailing climatic conditions.

Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?

Yes. Existing measures at SPAs and planned measures at marine SPAs will contribute to the Natura 2000 network of sites. Also MPAs for black guillemot in Scotland will contribute to the protection of this species.

Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)

As mentioned above, some MSFD indicators and targets for birds are influenced by a suite of anthropogenic pressures. The impacts of these are difficult to distinguish from natural factors and from impacts of prevailing climatic conditions. Areas where further work is underway, or is needed to help understand the links between pressures and impacts, include the following:

i. An assessment of the risk of seabird mortality from bycatch in UK waters is currently being undertaken. The results of the risk assessment will inform bycatch monitoring and, in turn, a risk-based approach to taking measures where necessary (eg gear modifications, working practice modifications) to reduce bird mortality. Any significant reductions in adult mortality will probably increase the chance of meeting the targets for population size. Such measures would also need to be considered in the light of any requirements introduced through updates to EU fisheries legislation, implementing recent changes made under CFP reform, as well as within the context of the planned UK Seabird Bycatch Plan of Action.

ii. The invasion of important seabird colonies on offshore islands by non-indigenous predatory mammals (eg brown rats, American mink) would have severe impacts on populations of ground-nesting seabirds (eg terns, gulls, shearwaters, petrels and puffins): breeding numbers and breeding success would be reduced and could lead to the desertion of whole colonies. This presents a significant risk to many important colonies, most of which are in SPAs. The future implementation of a UK-wide programme of quarantine against invasive, non-indigenous mammals from island seabird colonies and the strategically targeted removal of mammals from some islands will increase our confidence in

meeting the target for minimising the risks to island seabird colonies from non-indigenous mammals. This could also help more birds to nest closer to good foraging areas during the breeding season and may help to enhance breeding success.

iii. The landing obligation is an important measure in the sustainable management of fisheries that will have beneficial impacts on the populations of seabird prey. But some seabird species, such as gulls, great skuas and northern gannets have for many decades exploited discards as a food source. It is likely that discards may have been the underlying resource enabling increases in such species. It is unknown what will happen to their populations when discards of commercial species are stopped completely. Gulls and great skuas are opportunistic feeders and have an eclectic diet and there is evidence that they are able to exploit alternative food sources, including predation of other seabirds. Likewise gannets can exploit a wide range of fish species. It will be useful to monitor the effects of the ban so that it can be distinguished from other drivers.

iv. Further research into the contribution of site-based management measures at regional and subregional scale and into the feasibility and effectiveness of seabird breeding failure and kittiwake breeding success to inform the local-scale management of sandeel fisheries would help improve our understanding of measures that might contribute towards achieving GES.

Section 8: Additional information

Bycatch: The European Commission is currently updating relevant legislation following recent reforms of the Common Fisheries Policy. This includes the Technical Conservation Measures Framework and Data Collection Framework. It is possible that these future regulations may include new framework provisions for mitigating and monitoring seabird bycatch, taking a risk-based and regionalised approach. However, the inclusion, detail and impact of any such future requirement has not yet been discussed or agreed by Member States.

LIFE Natura 2000 Programme: The EU funded LIFE Natura 2000 Programme for Wales is an initiative to produce a strategic prioritised and costed plan for the conservation management and restoration of existing Welsh Natura 2000 sites, comprising Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The initiative will develop thematic action plans comprising prioritised, costed action plans for known crosscutting issues or risks occurring in Welsh Natura 2000 sites, with identified sources of funding and delivery timescales. Thematic action plans will draw on actions proposed on Natura 2000 sites, consider any wider management outside sites and make recommendations where appropriate. Actions taken to manage known issues or risks associated with habitats and species designated under the Habitats and Birds Directives will contribute towards the achievement of MSFD birds targets.

Descriptors 1, 4 and 6: Pelagic habitats

Section 1: Status of pelagic habitats in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that there is evidence of changes in the composition and the spatial and temporal abundance of both phytoplankton and zooplankton in UK waters and in the North-East Atlantic. However, based on the large amount of data gathered on plankton from long-term observations, plankton as a whole are considered healthy and are subject to few direct human pressures.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en).

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptors 1, 4 and 6: Pelagic habitats	**Descriptor 1**: At the scale of the MSFD subregions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway: The abundance, distribution, extent and condition of species and habitats in UK waters are in line with prevailing environmental conditions as defined by specific targets for species and habitats. Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities

	such that the specific structures and functions for their long-term maintenance exist for the foreseeable future. Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms. **Descriptor 4**: At the level of the MSFD subregions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats. There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards. **Descriptor 6**: Sea-floor habitats (physically and structurally) are both productive and sufficiently extensive at the level of the MSFD subregions to carry out natural functionality, including the necessary ecological processes which underpin ecosystem goods and services, and are capable of supporting a healthy and sustainable ecosystem for the long term.
MSFD Criterion 1.4: Habitat distribution	**Target:** At the scale of the MSFD subregions, distribution of plankton community is not significantly adversely influenced by anthropogenic pressures, as assessed by indicators of changes in plankton functional types (life form) indices. **MSFD Indicator 1.4.1:** Distributional range **MSFD Indicator 1.4.2:** Distributional pattern
MSFD Criterion 1.6: Habitat condition	**Target**: At the scale of the MSFD subregions, condition of plankton community is not significantly adversely influenced by anthropogenic pressures. **MSFD Indicator 1.6.1** Condition of the typical species and communities

	MSFD Indicator 1.6.2 Relative abundance and biomass
MSFD Criterion 1.7: Ecosystem structure	**Target**: At the scale of the MSFD subregions, structure of plankton community is not significantly adversely influenced by anthropogenic pressure, as assessed by indicators of changes in plankton functional types (life form) indices. **MSFD Indicator 1.7.1** Composition and relative proportion of ecosystem components
MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species	**Target**: At the scale of the MSFD subregions, abundance/distribution of plankton community is not significantly adversely influenced by anthropogenic pressures, as assessed by indicators of changes in plankton functional types (life form) indices. **MSFD Indicator 4.3.1** Abundance trends of functionally important groups/selected species
MSFD Criterion 6.2: Condition of benthic community	**Target**: At the scale of the MSFD subregions, condition of the plankton that have a direct link to the benthos is not significantly adversely influenced by anthropogenic pressures. **MSFD Indicator 6.2.2** Multi metric indexes assessing benthic community condition and functionality
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be	For pelagic habitats, all the targets were developed specifically for MSFD purposes. The targets and indicators focus on plankton as this plays a crucial role in the pelagic food-web and the whole marine ecosystem. Other components of the pelagic ecosystem such as fish are addressed by measures under other groups. Changes in plankton are driven largely by climatic conditions but can also be affected by human pressures, particularly nutrient enrichment and fishing. The targets and indicators are designed to identify changes in plankton

targeted to help achieve them?	caused by human pressures, and require that the structure, condition and abundance of the plankton community 'are not significantly adversely influenced by anthropogenic pressure'. Detailed quantitative indicators to measure progress towards the achievement of these targets are currently under development and are expected to be in place by 2015 to support the MSFD monitoring programmes. Given the current positive status of pelagic habitats no additional measures are envisaged at this stage. The achievement of the targets under Descriptor 3 and Descriptor 5 will also support the maintenance of GES for pelagic habitats.
Section 4: Existing, planned and new measures needed to achieve GES for pelagic habitats	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets, as indicated above, are under Descriptors 3 and 5 and include: • measures under the CFP to achieve Maximum Sustainable Yield; and • measures under Descriptor 5 aimed at reducing nutrient levels and eutrophication effects. For further detail please refer to the relevant descriptor section.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which	None.

organisation is responsible for the measures?	
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the measures for Descriptor 3 and 5 mentioned above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	See sections for Descriptors 3 and 5.
Do any of the measures have any impact on the waters of other countries in the subregion?	See sections for Descriptors 3 and 5.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	

While there is evidence of changes in the composition, abundance and spatial and temporal abundance of both phytoplankton and zooplankton in UK waters, plankton as a whole are considered healthy and are subject to few direct human pressures. In the absence of pressures we are confident that GES will be maintained and that the measures under Descriptor 3 and 5 will support this.
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?
No.
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)
Based on our current scientific understanding of the key human pressures on pelagic habitats we believe that no further measures are required. The monitoring programme we are developing will provide further information on the state of pelagic ecosystems and help address any gaps in our knowledge.
Section 8: Additional information
Measures for the protection of habitats through the development and implementation of the Water Framework Directive programme of measures, the management of marine protected areas, and other legislative drivers under the measures for benthic habitats (Descriptor 6) will help maintain the GES of the pelagic habitat.

Descriptors 1 and 6: Benthic habitats

Section 1: Status of benthic habitats in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) identified the main pressures affecting the condition of benthic habitats and considered the relationships between habitats and pressures. It was based on a combination of data and expert judgement, drawing upon the limited evidence available at the time. It identified the key pressures for benthic habitats as physical damage or loss, and the removal of species. The main sources of these pressures arise from demersal fishing activity. Although there are a number of other activities that result in physical damage of the sea bed through abrasion, the spatial extent of damage from bottom gear fisheries is considered to be the main pressure. Intertidal and shallow habitats are most likely to be affected by pressure from sea-level rise, nutrient enrichment and pollution, whereas stable shelf and deep sea habitats are affected by increased change of pH. Impacts of human activities on seabed habitats are widespread and the composition of seabed habitats has been altered over large areas. In general, sediment habitats are under more pressure from human activities than rocky habitats. Intertidal habitats, in particular, may be subject to locally significant impacts from the development of tidal range devices and habitat loss due to coastal squeeze.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en).

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptors 1 and 6: Benthic habitats	**Descriptor 1:** At the scale of the MSFD subregions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway: The abundance, distribution, extent and condition of species and habitats in UK waters are in line with

	prevailing environmental conditions as defined by specific targets for species and habitats. Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities such that the specific structures and functions for their long-term maintenance exist for the foreseeable future. Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms. **Descriptor 6:** Sea-floor habitats (physically and structurally) are both productive and sufficiently extensive at the level of the MSFD subregions to carry out natural functionality, including the necessary ecological processes which underpin ecosystem goods and services, and are capable of supporting a healthy and sustainable ecosystem for the long term.
MSFD Criterion 1.4: Habitat distribution	**Targets**: Sediment habitats Special: At the scale of the MSFD subregions the range and distribution of listed (special) sediment habitat types is stable or increasing and not smaller than the baseline value (Favourable Reference Range for Habitats Directive habitats). Predominant: No target proposed. **Targets**: Rocky and biogenic habitats Listed: At the scale of the MSFD subregions, range and distribution are stable or increasing and not smaller than the baseline value (Favourable Reference Range for Habitats Directive habitats). Predominant: As per listed. **MSFD Indicator 1.4.1:** Distributional range **MSFD Indicator 1.4.2:** Distributional pattern

MSFD Criterion 1.5: Habitat extent	**Targets**: Sediment habitats Listed: At the scale of the MSFD subregions the area of listed (special) sediment habitats is stable or increasing and not smaller than the baseline value (Favourable Reference Area for Habitats Directive habitats). Water Framework Directive extent targets for saltmarsh and sea grass should be used within WFD boundaries as appropriate. Predominant: No target proposed. **Targets**: Rocky and biogenic habitats Listed: At the scale of the MSFD subregions, area is stable or increasing and not smaller than the baseline value (Favourable Reference Area for Habitats Directive habitats). Predominant: As per listed. **MSFD Indicator 1.5.1:** Habitat area
MSFD Criterion 1.6: Habitat condition **MSFD Criterion 6.1: Physical damage** **MSFD Criterion 6.2: Habitat condition**	**Targets**: Sediment habitats Special: At the scale of the MSFD subregions, the area of listed (special) sediment habitat types which is unsustainably impacted by human activities (as defined by condition indicators) must not exceed 5% of baseline value (favourable reference area for HD habitats). WFD targets (km2 thresholds) for area of unacceptable impact for benthic invertebrates, macroalgae, saltmarsh and sea grass should be used within WFD boundaries as appropriate. Predominant: At the scale of the MSFD subregions damaging human impacts on predominant sediment habitats are reduced: The area of habitat which is unsustainably impacted by human activities (as defined by vulnerability criteria) is reduced and the precautionary principle is applied to the most sensitive habitat types and/or those which are most important for ecosystem functioning. **Targets**: Rocky and biogenic habitats

	Special: At the scale of the MSFD subregions, habitats are not significantly affected by human activities; the area of habitat in poor condition (as defined by condition indicators) must not exceed 5% of the baseline value (Favourable Reference Area for Habitats Directive habitats). Predominant: Rock and biogenic as per special. **MSFD Indicator 1.6.1:** Condition of the typical species and communities **MSFD Indicator 1.6.3:** Physical, hydrological and chemical conditions
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	Benthic habitats have been impacted by a wide range of pressures caused by human activities, which in some cases results in cumulative impacts from similar pressures or in-combination impacts from multiple pressures. The current targets are designed to assess progress toward the achievement of GES within UK waters. For **rock and biogenic reef habitats** the targets are all based on existing targets for these habitats under the Habitats Directive. The targets require the distribution and extent of rock and biogenic reef habitats to be stable or increasing, using Favourable Reference Area and Favourable Reference Range under the Habitats Directive as a baseline. They also require these habitats to be in good condition and not significantly impacted by human activities. For **listed sediment habitats** (ie those habitats covered by existing legislation) the targets are based on existing requirements under the Habitats Directive and the Water Framework Directive. For habitats not covered by existing legislation, referred to as predominant sediment habitats, new targets were proposed. The targets for these habitats have been particularly hard to develop because there is a significant lack of evidence and understanding on both current and desired state, meaning that it is not possible to set ecologically meaningful target thresholds. For this reason the targets for predominant sediment habitats under Descriptors 1 and 6 are trend-based, pressure targets, requiring a reduction in damaging human impacts on these habitats. It is not currently possible to define the necessary level of reduction in impacts in quantitative terms, but further research will be carried out with the aim of setting appropriate targets for predominant sediment habitats.

Section 4: Existing, planned and new measures needed to achieve GES for benthic habitats	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **Habitats Directive (92/43/EEC):** requires the establishment of a coherent European ecological network of Special Areas of Conservation. Annex I lists marine habitats that require protection and whose conservation requires the designation of Special Areas of Conservation (SACs). There are currently 108 SACs with a marine / intertidal component designated for their benthic or intertidal ecology. Under the Habitats Directive there are strict rules to prevent deterioration of these habitats and assessment processes that need to be followed in order to assess any potential impacts from plans and projects. **Wildlife and Countryside Act 1981 and equivalent legislation in the Devolved Administrations:** These protect benthic habitats and species and provide for specific site designations eg Sites of Special Scientific Interest (SSSIs) and intertidal SSSIs. Measures include UK Biodiversity Action Plan Priority Habitat Action Plans and requirements for developments with a potential to affect designated habitats to ensure the interest(s) of the site(s) are not harmed. SSSIs are also afforded protection under the Nature Conservation (Scotland) Act 2004. **Wildlife and Natural Environment Act (Northern Ireland) 2011:** This amends the Wildlife (NI) Order 1985 and the Environment (NI) Order 2002 and adds new provisions to protect a greater range of plants, animals, birds and to increase protection to Areas of Special Scientific Interest. It affords protection to such endangered benthic species as the fan mussel (*Atrina fragilis*). The Environment (NI) Order 2002 provides legal protection for Northern Ireland's important habitats through its powers to designate, protect and manage Areas of Special Scientific Interest (ASSI's). These powers are also used to complement or 'underpin' protection and management of our European sites (ie SACs and SPAs) and Ramsar sites. **Common Fisheries Policy:** This includes technical measures which govern how, where and when fishermen may fish. The types of measures include: minimum landing sizes and minimum conservation sizes; specifications for design and use of gears; minimum mesh sizes for nets; requirement of selective gears to reduce unwanted catches; closed areas and seasons; limitations on bycatches (catches of unwanted or non-target species); and measures to minimize the impact of fishing on the marine ecosystem and environment. Regulation of fishing activity that can damage protected habitats is managed by each Devolved Administration. In

	English territorial waters Inshore Fisheries and Conservation Authorities (IFCAs) and the Marine Management Organisation (MMO) undertake the regulation of fishing activity that can cause damage to protected habitats. The Welsh Government is the management authority in Welsh waters, the Department of Agriculture and Rural Development (DARD) in Northern Ireland waters and Marine Scotland in Scottish waters. The management of fisheries in European Marine Sites has recently been revised, resulting in a high level of protection for certain benthic features. Eleven new byelaws preventing damaging fishing activity were introduced in 2013. **Scallop Fishing Order:** Specific legislation across the UK sets restrictions for gear characteristics in different areas to protect demersal stocks and habitats. • The Scallop Fishing (England) Order 2012 • The Prohibition of Fishing for Scallops (Scotland) Order 2003 • Scallop Fishery (Wales) (No 2) Order 2010 & 2011 • The Conservation of Scallops Regulations (Northern Ireland) 2008 **Marine and Coastal Access Act (2009), Marine (Scotland) Act (2010) and Marine Act (Northern Ireland) (2013):** MPAs that include features designated under national and international legislation will make a significant contribution to achieving GES targets for benthic habitats as the network will contribute to the conservation or improvement of the marine environment in the UK marine area; The features that are protected by the sites comprised in the network represent the range of features present in the UK marine area; and the designation of sites comprised in the network reflects the fact that the conservation of a feature may require the designation of more than one site. **Maritime Spatial Planning Directive (2014/89/EU), Environmental Impact Assessment Directive (2011/92/EU) and Strategic Environmental Assessment Directive (2001/42/EC):** See ‘generic measures’ section. Benthic habitats and species need to be considered within the relevant EIA, where this is required. This includes all habitats and species listed as Annex 1, SSSI or UK or local BAP designations and the OSPAR list of threatened and/or declining species and habitats. Consideration is also given to whether or not the effects of activities requiring a licence might affect the

	conservation objectives of sites designated under the EU Natura Directives. Where there is a risk of such an effect a formal assessment of the potential activity is made in relation to the sites conservation objectives. The Strategic Environmental Assessment and Environmental Impact Assessment (EIA) Directives both require the effects of developments to be assessed for their impact on the environment, including seabed habitats. The objective of these directives is to ensure no significant impacts, and to ensure all relevant considerations are made before developments occur. A marine licence will be required for developments placing materials on the seabed, regardless of scale. Environmental information is required to support any application. **Electricity Act 1989:** This requires benthic habitats and species to be considered within the relevant EIA, where this is required. This includes all habitats and species listed as Annex 1, SSSIs or UK or local Biodiversity Action Plan (BAP) designations. **River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC):** These include measures and delivery mechanisms which contribute to or will contribute towards the achievement of Good Ecological Status in intertidal and coastal waters. **OSPAR recommendations:** OSPAR contracting parties have prepared a series of recommendations for programmes and measures to protect OSPAR listed habitats which are being implemented by contracting parties individually and collectively in relevant waters of the North-East Atlantic. These programmes and measures include recommendations to: i. investigate the distribution of habitats through seabed surveys and monitoring; ii. report data on habitat distribution to the OSPAR habitat mapping database; iii. consider whether sites justify selection as MPAs; iv. develop and implement an appropriate monitoring and assessment strategy addressing the distribution, extent and condition of the habitat; and v. draw relevant issues to the attention of authorities competent for fisheries management such as requests for fisheries closures to minimise the impacts of human activities. Measures that have been implemented were reported by OSPAR contracting parties in the first compliance report

	against species and habitat recommendations in December 2013.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	The UK considers that the suite of SACs for Annex I habitats is substantially complete, based on the latest information. It is anticipated that additional MCZs will be designated in English waters by January 2016 with a third tranche to follow. The Welsh Government is seeking a better understanding of what habitats are already afforded protection within its existing MPAs to identify whether there are any gaps in the network and what the options might be to fill those gaps. An MCZ Project has been set up within Northern Ireland to identify MCZs within their waters and the network of sites within Northern Ireland is planned for completion by the end of 2016. A further three MPA proposals for habitats are under consideration in Scottish territorial waters. The UK has committed to a number of international agreements on MPAs including an ecologically coherent network of MPAs in the North-East Atlantic. The five main OSPAR principles guiding the process are features, representativeness, connectivity, resilience and management. Contracting parties have agreed and signed off a series of recommendations for programmes and measures to protect OSPAR listed habitats. Not all measures have yet been implemented, but all proposed measures can be found in the relevant recommendation documents. All contracting parties hold responsibility for implementing the measures in their relevant waters in the North-East Atlantic. The second compliance report against habitat recommendations will be completed in 2016. Further measures to limit the effect of fishing activity on benthic habitats within sites are under consideration. By 2016 the target for English waters is that at least 25% of that marine area will be contained in well managed Marine Protected Areas. 36% of Welsh waters are already within MPAs. In offshore MPAs, the responsibility for the regulation of fishing lies, through the CFP, with the European Union. The UK government is working with other Member States to ensure that further fishery restrictions are introduced, where necessary to protect benthic habitats in MPAs. Not all OSPAR listed species and habitats yet have recommendations for programmes and measures to protect them. Contracting parties are working together to agree leads on the preparation of these documents. Many will be in place by 2014 and others by 2015. All contracting parties hold responsibility to implement the measures in their relevant waters in the North-East Atlantic.
What **new** (planned but not	Other than the additional measures which are planned but which have not yet been implemented set out above, no

yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The development of the MPA network is being carried out in accordance with the principles set out by the OSPAR Convention. Similarly, the natural range, sufficiency and proportionality of European sites to the network of Special Areas of Conservation is assessed by the EU on a biogeographic basis. Measures under the CFP will be achieved through CFP mechanisms and will, where possible, be coordinated with other Member States with fishing interests in the region. WFD is coordinated at national level with river basin management plans covering respective river basin districts, although management is undertaken on a local/regional basis. For Northern Ireland 3 river basins are shared with Ireland and action is coordinated with them. The OSPAR Commission leads the coordination of actions to implement the provisions of the OSPAR Convention. The OSPAR Biodiversity Committee, attended by delegates from all contracting parties, leads on the agreement and sign off of recommendations for actions and measures to protect OSPAR listed species and habitats. This ensures coordination and agreement of measures relevant at the national level and at the North-East Atlantic level.
Do any of the measures have any impact on the waters of other countries in the subregion?	Yes. MPAs will contribute to an ecologically coherent network of MPAs in the North-East Atlantic. More specifically, we have a designated a European Marine Site on the U sector of the Dogger Bank. The Netherlands and Germany have made similar provision. All 3 countries, plus Denmark, which has a major fishery interest, are preparing a joint recommendation for the management of bottom fisheries on the Dogger Bank. We have a shared SAC with the

	Netherlands – Dogger Bank. Bassurelle Sandbank SAC/SCI borders a French site. The French sites closed to UK boundaries are Récifs Gris-Nez Blanc-Nez SAC and Ridens et dunes hydrauliques du détroit du Pas-de-Calais. The OSPAR Biodiversity Committee leads on the agreement and sign off of recommendations by all Contracting Parties for actions and measures to protect OSPAR listed species and habitats. These recommendations include measures that should be implemented collectively by all Contracting Parties for North-East Atlantic waters.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
It is expected that the blend of current regulation and measures linked to coastal development, marine licensing and planning, shoreline management plans, river basin management plans (under the WFD), MPAs (including SSSIs), and inshore fisheries byelaws should be sufficient to ensure the targets on habitat distribution and habitat extent are achieved. These measures and those under the CFP will also contribute to reducing impacts and therefore the achievement of the targets on habitat condition and physical damage, although 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. **Habitats Directive measures:** The MSFD targets are based on the Habitats Directive Favourable Reference Range. The latest reports on Annex I Habitats Directive 2013 Favourable Conservation Status assessment conclusions (Article 17 reports) are at http://jncc.defra.gov.uk/page-6392. These will need to be taken into account in any assessment of the targets and therefore the contribution towards GES.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
Yes. European Marine Sites including SACs and SPAs, SSSIs/ASSIs and Ramsar sites, together with Marine Conservation Zones in England, and Northern Ireland and Nature Conservation MPAs in Scotland will provide the UK contribution to an ecologically coherent network of MPAs in the North-East Atlantic in accordance with the OSPAR Convention.	
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	

Within the UK it is expected that indicators to assess the condition of sediment, biogenic and rocky habitats and listed and predominant habitats will be made operational between now and 2020. Indicators for the distributional range and extent for listed inshore and offshore habitats, and condition indicators for sediment habitats are under development and likely to be made operational during the late part of this or early in the next MSFD cycle (2018-2020).

Gaps and issues that could be addressed in order to support the achievement of the environmental targets are:

i. A better understanding of the contribution made by the management of existing and new MPAs (ie sites) towards MSFD targets and indicators will inform future decisions on further management.

ii. Consideration of cumulative effects and of unintended consequences of more local management actions. For example, as a result of the cumulative effects of MPA management, marine area development (eg wind farms) and fisheries management.

iii. Work with industry, industry bodies and regulators to develop monitoring of projects and a better understanding of impacts, at the regional or subregional scale. The aim would be to better-understand and therefore more efficiently regulate activities.

iv. Measures related to improving and facilitating regional coordination, within the UK and across Member States.

v. The combination effects of climate-related drivers with anthropogenic pressures will need to be explored to ascertain the effectiveness of existing, planned and future measures.

Section 8: Additional information

Convention on Biological Diversity: The Government is meeting its commitment to this agreement through the UK Post-2010 Biodiversity Framework (2012) (http://jncc.defra.gov.uk/page-6189). Under this plan, JNCC has assisted in the selection of priority habitats (and species), which include a number of marine priority habitats.

LIFE Natura 2000 Programme: The EU funded LIFE Natura 2000 Programme for Wales is an initiative to produce a strategic prioritised and costed plan for the conservation management and restoration of existing Welsh Natura 2000 sites, comprising Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

The initiative will develop thematic action plans comprising prioritised, costed action plans for known crosscutting issues or risks occurring in Welsh Natura 2000 sites, with identified sources of funding and delivery timescales. Thematic action plans will draw on actions proposed on

Natura 2000 sites, consider any wider management outside sites and make recommendations where appropriate. Actions taken to manage known issues or risks associated with habitats designated under the Habitats and Birds Directives will contribute towards achieving benthic habitat targets**.**

Vulnerable Marine Ecosystems (VMEs) under UN General Assembly Resolution 61/105: The UK recognises the importance of Vulnerable Marine Ecosystems (VMEs) and the interaction with fisheries. Defra continues to take an active and leading role in the negotiation of the Deep Sea Access Regime with the aim to protect areas of the sea floor in the deep sea which are VMEs through establishing protected areas which would prohibit damaging bottom fishing, and to confine fishing to those areas which have been fished intensively for many years, the 'core' fishing areas, in which there is no habitat (VME) left to protect. The UK has had a number of VMEs designated. The designation process includes appropriate protection from bottom activity delivered via the CFP and NEAFC (North-East Atlantic Fisheries Commission).

Descriptor 2: Non-indigenous species

Section 1: Status of non-indigenous species in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) recommends further research in this area. To be able to reduce the risk from non-indigenous species (NIS), more information is needed to better understand the abundance, distribution and pathways of introduction. This will help determine the current status of marine NIS in the UK and assist with the development of risk-based monitoring and, if necessary, the identification of measures.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report), the 2013 repeat of the 2006 'Rapid assessment of marinas for invasive species in Northern Ireland' (https://www.doeni.gov.uk/publications/rapid-assessment-marinas-invasive-species-northern-ireland) and 'risk assessment of non-indigenous species Ireland, including those expected in inland waters' (http://www.nonnativespecies.org/downloadDocument.cfm?id=1228)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 2: Non-indigenous species	The risk from pathways and vectors which facilitate the introduction and spread of non-indigenous species as a result of human activities is significantly reduced, leading to a reduction in the risk of introducing new species some of which may have adverse impacts.

MSFD Criterion 2.1: Abundance and state characterisation of non-indigenous species, in particular invasive species	**Target:** Reduction in the risk of introduction and spread of non-native species through improved management of high risk pathways and vectors. **MSFD Indicator 2.1.1:** Trends in abundance, temporal occurrence and spatial distribution in the wild of non-indigenous species, particularly invasive non-indigenous species, notably in risk areas, in relation to the main vectors and pathways of spreading of such species
MSFD Criterion 2.2: Environmental impact of invasive non-indigenous species	**Target:** Action plans are developed for key high risk marine non-indigenous species by 2020. **MSFD Indicator 2.2.2:** Impacts of non-indigenous invasive species at the level of species, habitats and ecosystem, where feasible
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	Due to the lack of information on current abundance, distribution and impacts of NIS, and the very high costs and lack of feasibility associated with widespread management or eradication programmes, the targets for this Descriptor are operational targets. The targets require management measures to reduce the risk from key pathways and vectors of introduction and spread of NIS, and the development and implementation of management plans for dealing with key high risk species should they arrive in UK waters. This approach is consistent with the GB Non Native Species Strategy approach of prevention, early detection and eradication where feasible, as well as the EU Invasive Alien Species Regulations. Some of the measures needed to reduce the risk of introductions of NIS will need to be implemented at an international scale in order to be effective. The International Maritime Organization (IMO) is leading action to reduce the spread of NIS through international shipping. In addition to this, there are a number of existing statutory and voluntary measures in place, or planned, to manage the key pathways and vectors of introduction of NIS. They include controls on aquaculture and shipping, as well as legislation to prevent the movement of NIS through

	aquaculture operations and ban the deliberate release of NIS into the wild. The UK MSFD monitoring programme will provide the required additional information on NIS. Once this additional information is received, we will keep under review whether any additional national measures are likely to be necessary to achieve the targets for this Descriptor. Defra commissioned Cefas to conduct work on hotspots of introduction of NIS and on monitoring and surveillance; this work has been completed and final reports available online (http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19059&FromSearch=Y&Publisher=1&SearchText=5215&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description). Current and future work will consist of agreeing a species list, obtaining baseline information and finalising the development of the MSFD monitoring and surveillance programmes, with the aim to have a programme established for 2016/17. The approach to date in the UK and Republic of Ireland has been to address NIS on a biogeographical basis. For the island of Ireland a joint programme of work between Northern Ireland and the Republic of Ireland, known as the Invasive Species Ireland Project, was established in 2006. Measures undertaken in Northern Ireland will therefore impact on the Republic of Ireland and vice versa.
Section 4: Existing, planned and new measures needed to achieve GES for non-indigenous species	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **Cross cutting measures:** Specific legislation across the UK restricts the release of NIS and bans the release of any non-indigenous animals and the planting of any non-indigenous plant in the wild. This includes unintentional actions such as allowing an animal to escape, bringing in 'hitchhiker' organisms and causing a plant to grow. It also prohibits the sale or advertising for sale of listed NIS. The relevant acts and orders are: • the Wildlife and Countryside Act 1981 as amended by • the Wildlife and Countryside Act 1981 (variation of schedule 9) (England and Wales) Order 2010 • the Wildlife and Natural Environment (Scotland) Act 2011) • the Wildlife (Northern Ireland) Order 1985 (as amended by the Wildlife and Natural Environment Act

	(Northern Ireland) 2011) The Conservation of Habitats and Species Regulations 2010 The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 **England and Wales species control orders:** The Infrastructure Act 2015 provides for species control orders to tackle invasive NIS. They are applicable in Wales and England and are to be used in exceptional circumstances where a voluntary approach cannot be agreed and there is a clear and significant threat from inaction. They could apply to marinas, ports, offshore platforms and any vessel moored there. The orders would compel landowners to take action on invasive NIS or permit others to enter the land and carry out those operations. The scope of the powers extends to those invasive non-indigenous and formerly resident indigenous species whose release into the wild is regulated by section 14 of the Wildlife and Countryside Act 1981. **Scottish species control orders:** Scottish ministers, the Scottish Environment Protection Agency, Scottish Natural Heritage and Forestry Commission Scotland can all make orders to require owners or occupiers of premises to take action with respect to invasive NIS. These can only be made after a voluntary approach has been tried and failed or in an emergency (www.snh.gov.uk/protecting-scotlands-nature/nonnative-species/sco). **Scottish Code of Practice for Non-native Species:** This guidance sets out how you should act responsibly within the law to ensure that NIS under the ownership, care and management of individuals, businesses and boat owners do not cause harm to the environment. It was made by Scottish ministers under section 14c of the Wildlife and Countryside Act 1981 (www.scotland.gov.uk/Resource/0039/00398608.pdf). **Invasive Species Action Plans and Biosecurity Plans:** There are a number of species action and biosecurity plans across the UK designed to control NIS. These include: • Chinese Mitten Crab (*Eriocheir sinensis*; http://invasivespeciesireland.com/wp-content/uploads/2010/10/Eriocheir_sinensis_ISAP.pdf)

- Firth of Clyde Forum Biosecurity Plan (http://clydeforum.com/attachments/biosecplan.pdf)
- Solway Firth Partnership Biosecurity Plan (www.nwcoastalforum.org.uk/2013/03/20/consultation-on-draft-biosecurity-plan-marine-invasive-non-native-species-in-the-solway)
- Shetland Biosecurity Plan (www.nafc.uhi.ac.uk/research/research-activities/non-native-marine-species)
- Scottish Natural Heritage Marine Biosecurity Planning (www.snh.gov.uk/docs/A1294630.pdf)
- Scottish Natural Heritage Identification of Best Practice (www.snh.org.uk/pdfs/publications/commissioned_reports/748.pdf)

Measures to address the aquaculture pathway

Alien and Locally Absent Species in Aquaculture (England and Wales) Regulations 2011; Alien and Locally Absent Species in Aquaculture Regulations (Northern Ireland) 2012; Alien and Locally Absent Species in Aquaculture (Scotland) Regulations 2015: These control the use of non-indigenous and locally absent species in open aquaculture facilities. Each species undergoes a risk assessment. The Scottish regulations exempt Pacific oyster and rainbow trout as these have been farmed in the UK for a considerable time. Cefas is responsible for the enforcement of these regulations in England and Wales and the Department of Agriculture and Rural Development (DARD) in Northern Ireland. Marine Scotland is responsible for enforcement in Scotland.

Molluscan Shellfish (Control of Deposit) Order (Northern Ireland) 1972, Lobsters (Control of Deposit) Order 1981, Lobsters (Prohibition of Introduction) Order (Northern Ireland) 1982: These protect UK lobster stocks by controlling where non-indigenous lobsters can be held and under what conditions. Cefas is responsible for the enforcement of these regulations in England and Wales, DARD in Northern Ireland and Marine Scotland in Scotland.

Guidance on fish movements: There is specific legislation across the UK to restrict the movements of aquatic

	animals which is a vital measure to control the spread of disease. This includes: • Aquatic Animal Health (England and Wales) Regulations 2009; Aquatic Animal Health (Northern Ireland) Regulations 2009; The Aquatic Animal Health (Scotland) Regulations 2009: These regulations detail the controls in place regarding the notification and control of disease outbreaks. • Fisheries Act (Northern Ireland) 1966: It is a condition of fish culture licences granted under section 11 of this Act that live shellfish shall not be moved from or to the licensed shellfish site without the prior written approval of DARD. • Fish Health Inspectorate guidance for England and Wales includes reference to control of fish movements: www.gov.uk/prevent-fish-or-shellfish-diseases. **Measures to address the commercial shipping pathway** **General guidance on the voluntary interim application of the D1 ballast water exchange standard by vessels operating between the Mediterranean Sea and the North East Atlantic and/or the Baltic Sea:** These interim guidelines to safeguard the marine environment from invasive species introduced through ballast water discharge recommend that vessels exchange all their ballast tanks at least 200 nautical miles from the nearest land in water at least 200 metres deep, subject to safety considerations. Vessels should also keep a record of all ballast water operations. These safeguards are voluntary and do not apply to vessels entering the area from the Mediterranean Sea. The guidelines were produced by the OSPAR Commission and will be replaced once the Ballast Water Convention (see additional information section) becomes international maritime law (www.ospar.org/html_documents/ospar/html/ballast_water_guidance.pdf). **Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species:** These voluntary guidelines were produced by the International Maritime Organization (IMO) for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species. They were adopted by IMO's Marine Environment Protection Committee in July 2011 by resolution MEPC.207(62). The guidelines identify practices to control and manage biofouling to reduce the risk of the transfer of invasive aquatic

	species (www.imo.org/blast/blastDataHelper.asp?data_id=30766). **Measure to address the recreational boating pathway** The Green Blue initiative has produced various leaflets, posters and resources for boat owners on prevention and management of alien invasive species (www.thegreenblue.org.uk/boat_users/antifoul_and_invasive_species.aspx). The Invasive Species Ireland website has guidance for watercraft users, marina operators and divers (http://invasivespeciesireland.com/cops). **Guidance for minimizing the transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft:** This was produced by the IMO for minimizing biofouling on recreational crafts less than 24 meters in length (www.imo.org/en/OurWork/Environment/Biofouling/Documents/MEPC.1-Circ.792.pdf). **Measures to address the natural dispersal pathway** IPIECA (the global oil and gas industry association for environmental and social issues) has produced guidance for the prevention and management of alien invasive species in the oil and gas industry. It provides practical information on onshore and offshore projects and operations (www.ipieca.org/publication/alien-invasive-species-and-oil-and-gas-industry).
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	**Cross cutting measures** **EU Regulation 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species:** This took effect on 1 January 2015 and will apply to a list of invasive alien species (IAS) which are or were brought into the territory of the EU intentionally or otherwise. It will not apply to species that alter their natural range without human intervention or where controls on them exist under other European regulatory regimes (ie plant and animal health legislation and the use of alien or locally absent species in aquaculture). The regulation requires 3 types of interventions: prevention; early warning and rapid response; and management. By 2016 a list of invasive alien species of EU concern will be drawn up with Member States using risk assessments which will be based upon scientific evidence. The scope of the list will

include terrestrial, riverine and marine plants and animals.

From the point of their listing, Member States must have border controls in place to prevent their introduction into the EU, and restrictions in place on their keeping, using, moving, breeding and selling.

Within 18 months of this union list being adopted Member States are required to:

- carry out an assessment of the pathways of introduction and spread of species on the union list and identify the priority pathways of introduction;
- establish a surveillance system for species on the union list; and
- have in place effective management measures for species on the union list.

Within 36 months of this union list being adopted, Member States are required to have pathway action plans in place.

Invasive species action plans: these are developed by the Great British Non-Native Species Secretariat (GB NNSS) under the recently revised and adopted GB Invasive Non-Native Species Strategy, and adopted by its Programme Board. Currently an action plan for *Didemnum vexillum* is under development (www.nonnativespecies.org/index.cfm?sectionid=92c). Additional action plans for species that are already present, and contingency plans for those that have yet to arrive, are in preparation

River basin management plans: Measures for the control of NIS will be implemented in the second cycle of river basin management plans. To avoid deterioration, the key measures at the catchment scale are to:

- slow the spread of high impact invasive NIS by adopting good biosecurity practice and by promoting campaigns such as ‘Check, Clean, Dry’;
- contain, eradicate and control high impact invasive NIS as a contribution to national invasive species

	action plans; and • promote local action groups to engage the support of the third sector in controlling invasive NIS and in promoting key messages. Whilst these are primarily focused on other environments they are also applicable in marine environment and can play a role in contributing to achievement of GES.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	Action plans being developed by the GB NNSS apply across Great Britain. Action plans developed by the Invasive Alien Species Ireland Project will apply in Northern Ireland. The UK is also working within OSPAR to improve understanding of the pathways and vectors for the introduction of NIS, develop common approaches to the monitoring of NIS and improve the control of NIS at a regional sea level.
Do any of the measures have any impact on the waters of other countries in	Some of the measures are agreed at an international level and will therefore apply to other countries. The UK's work to improve understanding of pathways and vectors for the introduction of NIS is being shared with other Member States through OSPAR and will be used to develop solutions to reduce the impact of NIS. In Northern Ireland measures are of particular importance for the Republic of Ireland and it is anticipated that the coordinated

the subregion?	cross-border effort will continue.

Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?

Until the UK monitoring programme has provided the required additional information, it is not possible to effectively assess whether GES will be achieved by 2020. The UK will keep this under review.

Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?

No.

Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)

As mentioned above, a key gap is the lack of information on current abundance, distribution and impacts of NIS. The operational targets will help address these gaps. Issues associated with the control on NIS include the prohibitively high costs and lack of feasibility associated with widespread management or eradication programmes and, linked to this, a reliance on voluntary measures.

Section 8: Additional information

Generic measures that apply across several pathways: There are a number of measures that require biosecurity risk assessments, impact assessments or other controls to reduce the risk of introduction of non-indigenous invasive species. For example: Habitats Regulations Assessments of new plans and projects; Sites of Special Scientific Interest (SSSI) consents; the marine licensing process; and the associated

Environmental Impact Assessment (EIA) process.

Ballast Water Convention: In February 2004 the International Maritime Organization (IMO) adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments, to regulate discharges of ballast water and reduce the risk of introducing NIS from ships' ballast water. The Ballast Water Convention (BWC) will enter into force 12 months after a total of 30 states, representing 35% of the world's shipping tonnage, have ratified it. As of June 2015, a total of 44 states had ratified the Convention, but representing only 32.86% of the tonnage. Entry into force internationally is expected within the next 18 months. Upon entry into force, the UK will become a party to the convention and national legislation will be developed.

An Invasive Alien Species Strategy for Northern Ireland (2013): The aim of the strategy is to minimise the risk posed, and reduce the negative impacts caused, by invasive alien species in Northern Ireland. Increasing awareness and understanding of the risks and issues in tackling invasive alien species is a central overarching issue. The strategy seeks to maximise the effectiveness of existing approaches while putting in place new actions to address the gaps identified (www.doeni.gov.uk/publications/invasive-alien-species-strategy-northern-ireland-0).

Invasive Species Ireland Project: This project has produced a number of outputs to date: a list of NIS which pose the biggest threat to biodiversity, management plans for the highest risk species, an early warning alert system for new species, contingency plans for high risk species which may arrive, best practice guidance and codes of practice for key sectors. Information is available from http://invasivespeciesireland.com.

Marine Pathways Project: This project was originally a two year project funded until end March 2015. It was concerned with the management of pathways by which marine invasive NIS may be introduced into the UK and Republic of Ireland (www.nonnativespecies.org/index.cfm?sectionid=126). In relation to measures it covers:

- specific NIS guidance and voluntary best practice for marina operators and boat owners, particularly focussing on developing consistent advice on in-water cleaning and a common GB-wide approach
- specific NIS guidance and voluntary best practice for aquaculture, which also explores how it can be combined with the existing Biosecurity Measure Plan guidance as a voluntary addition
- identification of locations at high risk of introduction where biosecurity efforts should be focused

The project will be continuing.

Natura 2000 programme: The EU funded Natura 2000 programme for Wales is an initiative to produce a strategic prioritised and costed plan for the conservation, management and restoration of existing Welsh Natura 2000 sites, comprising Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The initiative will develop thematic action plans comprising prioritised and costed action plans for known crosscutting issues or risks occurring in Welsh Natura 2000 sites, with identified sources of funding and delivery timescales. Thematic action plans will draw on actions proposed on Natura 2000 sites, consider any wider management outside sites and make recommendations where appropriate. Actions taken to manage known issues or risks associated with marine invasive NIS are likely to contribute towards MSFD targets.

A similar project was carried out in England to produce both site implementation plans and theme plans: the Improvement Programme for England's Natura 2000 sites (IPENS; www.gov.uk/government/publications/improvement-programme-for-englands-natura-2000-sites-ipens and http://publications.naturalengland.org.uk/category/5605910663659520).

Celtic Seas Partnership Project: The EC Life + funded Celtic Seas Partnership Non-indigenous Species Task Group has identified that it would be beneficial to develop a Celtic Seas scale operational action plan to promote best practice in biosecurity protocols for NIS. As a first step, the Celtic Seas Partnership is commissioning an audit to identify good practice and gaps in biosecurity protocols across different sectors and countries.

Descriptor 3: Commercially exploited fish

Section 1: Status of commercial fish in UK seas

Since publication of the UK initial assessment (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status), further annual advice has been received from the International Council for the Exploration of the Sea (ICES). For the stocks of main commercial interest to the UK this indicates that:

For the North Sea MSFD subregion, 64% of assessed stocks met the target for fishing mortality and 91% met the target for reproductive capacity of stocks. *Nephrops norvegicus* (Norway lobster) was the only shellfish in the North Sea covered by stock assessments for the UK initial assessment. Four of the 9 Nephrops stocks in the North Sea were assessed. Of these 25% met GES for fishing mortality and 75% met GES for reproductive capacity of stocks.

For the Celtic Sea MSFD subregion, 61% of assessed stocks met GES for fishing mortality and 72% met GES for reproductive capacity of stocks. Nephrops was the only shellfish in the Celtic Sea covered by stock assessments for the UK initial assessment. Seven of the 8 Nephrops stocks in the Celtic Sea were assessed in relation to fishing mortality; of these 70% met GES for fishing mortality. Four of the 8 stocks were assessed in relation to reproductive capacity of stocks; of these 100% met GES for reproductive capacity of stocks.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en).

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators	
Characteristics of GES for Descriptor 3: Commercial fish	The level of stock mortality generated by fishing activity (F) is equal to or lower than F_{MSY} - the level capable of producing Maximum Sustainable Yield (MSY). The spawning stock biomass is within safe biological limits and all stocks are sustainably exploited.
MSFD Criterion 3.1: Level of pressure of the fishing activity	**Target:** The exploitation rate of each stock is either at or below Fisheries Mortality Rate - Maximum Sustainable Yield (F_{MSY}), or within the range of plausible fishing mortalities consistent with $F_{MSY.}$ Where data does not allow F_{MSY}, or F_{MSY} proxies, to be calculated exploitation of each stock will be based on the precautionary approach with limits defined by agreed proxies for sustainable exploitation. **MSFD Indicator 3.1.1:** Fishing mortality **MSFD Indicator 3.1.2:** Ratio between catch and biomass index
MSFD Criterion 3.2: Reproductive capacity	**Target:** The reproductive capacity of the stock shall be maintained at or above levels that will support the long-term exploitation of stocks at F_{MSY}, as indicated by spawning stock biomass of all stocks being above Biomass (Bpa). **MSFD Indicator 3.2.1:** Spawning stock biomass **MSFD Indicator 3.2.2:** Biomass indices
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	

What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	The Common Fisheries Policy (CFP) is the principal legal mechanism for managing fish stocks in EU waters, ensuring consistency across Member States. The approach to Descriptor 3 reflects the commitments agreed during the negotiations on the reform of the CFP to fishing sustainably and the achievement of sustainable stock levels. The achievement of MSY is largely dependent on the success of the fisheries management measures under the reformed CFP. Only commercial stocks that are covered by the Total Allowable Catches (TACs) under the TAC and Quota Regulations **and** for which the UK has an obligation to provide biological sampling data under the Data Collection Framework (DCF) will be used to assess progress against the targets. These are stocks for which ICES provides assessments to which the UK contributes through the Data Collection Framework. There is a separate programme of measures section to identify management measures for certain UK commercially exploited shellfish species, ie edible crabs (*Cancer pagarus*), lobsters (*Homarus gammarus*) and scallops (*Pecten maximus*). As Nephrops are managed directly through the CFP, they will fall under the scope of the measures below.
Section 4: Existing, planned and new measures needed to achieve GES for commercial fish	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **EU Common Fisheries Policy (CFP; 1380/2013):** This contains legal requirements relating to fishing sustainably. Article 2(2) states that 'the CFP shall apply the precautionary approach to fisheries management, and shall aim to ensure that the exploitation of living marine biological resources restores and maintains populations of harvested species above levels which can produce the Maximum Sustainable Yield. In order to reach the objective of progressively restoring and maintaining populations of fish stocks above biomass levels capable of producing MSY, the MSY exploitation rate shall be achieved by 2015 where possible and, on a progressive, incremental basis at the latest by 2020 for all stocks' (http://ec.europa.eu/fisheries/cfp/index_en.htm).

	Multi-annual plan: Given the complexity of the interactions between fish stocks, the new regulation also contains provisions stating that 'multi-annual plans may contain specific conservation objectives and measures based on the ecosystem approach in order to address the specific problems of mixed fisheries in relation to the achievement of the objectives set out in Article 2(2) for the mixture of stocks covered by the plan in cases where scientific evidence indicates that increases in selectivity cannot be achieved. Where necessary, the multi-annual plan shall include specific alternative conservation measures, based on the ecosystem approach, for some of the stocks that it covers.' **Total Allowable Catches (TACs) and quotas:** Levels of fishing are managed within the EU by setting TACs. From 2014 the fisheries ministers from Member States are required to take account of the objectives in the new CFP when setting TACs. In setting TACs they will need to take into consideration the scientific advice from independent fisheries scientists who assess the health of the stocks. The agreed fishing opportunities are published annually in the TACs and Quota Regulation (currently, Regulation 2015/104). Deep sea fisheries, in addition to a separate 2-yearly deep sea species fishing opportunities regulation (currently Regulation 1367/2014), are subject to an access regime which has significant implications for the protection of vulnerable marine ecosystems and species (the EU Deep Sea Access regime, Regulation 2347/2002, which will be amended in the light of EU negotiations continuing in 2015). **Regionalisation:** The new CFP also contains improvements to the decision-making process, known as regionalisation (Article 18). The regionalisation work has already commenced to tailor how fisheries management measures are designed to reflect the needs of given fisheries. The UK participates in the North Sea and North West Waters regional groups in developing plans for the implementation of the landing obligations. An expectation is that the use of regionalisation as a decision-making framework will expand over time as the remit of the groups increase to encompass wider fisheries management issues. **Technical measures:** Further to setting catch limits at an EU level there are already a large number of technical measures in place which are intended to protect juvenile species, spawning grounds, etc. The measures include, but are not limited to, minimum conservation reference sizes (MCRSs), mesh sizes by fishery and seasonal closed areas. These are contained within the Technical Conservation Regulation (850/98) which will also be updated to

	reflect the change in the direction of fisheries policy agreed during the CFP reform negotiations, with particular reference to the landing obligations (see discussion on planned measures below). The Scottish Government's scheme for managing fishing effort is called the Conservation Credits Scheme (CCS). The aim of the scheme is to make sure that stocks of valuable whitefish in Scottish waters, particularly cod, are able to recover to sustainable levels (fulfilling Scotland's obligations under the EU's Cod Recovery Plan). The CCS allocates limited fishing time to vessels that use particular types of fishing gear (principally, trawls for whitefish and Nephrops) and rewards them with additional time in return for the adoption of conservation-minded fishing practises (www.scotland.gov.uk/Topics/marine/Sea-Fisheries/17681/2013). Similar schemes exist in England, Northern Ireland and Wales. In addition to the measures outlined above, the UK is already undertaking a range of initiatives which have the objective of reducing fishing mortality and delivering the recovery of fish stocks through cutting unwanted catches. These include operating catch quota schemes under which fishermen are given incentives to count uptake at point of capture rather than on landing. These schemes use Remote Electronic Monitoring (REM) to ensure that catches are fully documented. The introduction of highly selective gears into fisheries which have habitually had a high discards associated with them, such as small-mesh Nephrops fisheries, is also leading to a radical reduction in discards. A system of real-time closures of sea areas is also in place to prevent fishing effort in areas where juvenile fish are concentrated. **European Maritime and Fisheries Fund (EMFF):** The UK will work with the European Commission to ensure that full appropriate use is made of the new EMFF. The EMFF is an important mechanism to assist transition to the reformed CFP. EMFF funding will support delivery measures (including support for more selectivity), monitoring, enforcement and data collection.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above	**Multi-annual plans:** Further plans are expected to be completed in future to assist with delivering the objectives of the new CFP and enabling a long-term perspective to be taken in the management of stocks. Increasingly, these will be mixed-fishery plans, which take account of the relationships between different stocks, towards an ecosystems-based approach. In late 2014 the European Commission proposed their first such plan, for the Baltic. Similar proposals for the North Sea and Western Waters are in development, with the North Sea proposal due to

targets? How will they contribute? Which organisation is responsible for the measures?	be released by the end of 2015. **Landing obligations:** The new CFP has introduced landing obligations for quota species to reduce the level of waste within European fisheries. Provisions come into effect between 2015 and 2019. EU modelling has suggested this will support stock recovery as a result of a reduction in fishing mortality. It is expected that TACs will be adjusted to allow a proportion of previously discarded fish to be landed and sold. Further legislative changes, for instance concerning undersized fish, are also expected to support the move to the landing obligations by removing regulatory drivers of discarding. Pressure to comply with the landing obligations is expected to facilitate an increase in the uptake of selective gear and a change in fishing practices so that the unintended catches are reduced to the greatest possible extent. Changes to technical regulations will also be delivered from 2015 onwards starting with a proposal for a basic alignment of the current framework to ensure that existing measures are updated to align with the landing obligations (known as the Omnibus proposal) and then to proceed with a major overhaul of the technical regulations. This overhaul will be preceded by detailed analysis and public consultation that will examine the benefits and disadvantages of different approaches.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.

To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The measures relating to the CFP, setting the exploitation rate to reach F_{MSY}, agreements on eliminating discards and technical measures are predominantly agreed at the European level, though this will increasingly be complemented by decision making at a regional level, for the North Sea and the North West Waters. In approaching those discussions the UK will agree its position between the 4 UK fisheries administrations. The UK also engages as necessary with other EU Member States. Defra and the Marine Management Organisation (MMO) are responsible for the implementation of measures for management of the English fleet and compliance in English waters. The Welsh Government are responsible for implementation of measures for management of the Welsh fleet and compliance in Welsh waters. Marine Scotland is responsible for implementation of measures for management of the Scottish fleet and compliance in Scottish waters. The Department of Agriculture and Rural Development (DARD) is responsible for implementation of measures for management of the Northern Ireland fleet and compliance in Northern Ireland waters.
Do any of the measures have any impact on the waters of other countries in the subregion?	Many of the fish species found in UK waters are migratory and move between the waters of the countries in the subregion. Measures that support the achievement of F_{MSY} within UK waters, or in other EU waters, will have a beneficial impact on adjacent waters.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
There is strong confidence that the legal framework under the CFP will result in the exploitation rates for TAC species being set at levels that will deliver MSY. However, it will take more time for all fish stocks to respond to the changes in the exploitation rate and for the biomass to increase to the targeted biomass levels. Certainty is also affected by biological and climatic conditions, which are beyond the control of fisheries managers. What can be controlled (the exploitation rate) will be delivered to time, subject to negotiations at an EU level. Given the slow response times to the measures, Article 14(1) (e) will be relevant. This category of exceptions covers cases where, because of natural conditions, such as slow recovery of ecosystems, measures taken will only allow us to meet environmental targets and reach GES after 2020. This exception is therefore an exception to the deadline by which GES must be achieved and not to the full achievement of GES at a future point	

in time.
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?
Yes, to a limited extent. Multiannual Plans (MAPs), as they are developed, and Technical Measures will have an indirect role in delivering, among other things, ecosystem-based management of a coherent MPA network.
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)
Further action may need to be taken should the monitoring programme show that the effect of the combined measures will not deliver GES in line with expectations.
Section 8: Additional information
Welsh fisheries management legislation: The Welsh Government have committed to a review of Welsh fisheries management legislation between 2013 and 2017, with the aim of developing appropriate management plans and measures to be incorporated into regional management strategies (for bass, skates and rays). Prioritisation will be given to bass and an evidence base will be established for skates and rays in the future. MSFD targets will be given due consideration when reviewing legislation. **Celtic Seas Partnership Project:** Through workshops organised by the EC Life + funded Celtic Seas Partnership project, it was suggested that improving relationships within the fishing industry, and between the fishing industry, the Scottish Government (Marine Scotland) and eNGOs, the potential to achieve GES by 2020 would be improved. A voluntary measure was piloted in Scotland to use civic mediation to improve trust and address conflict in the sector. The pilot demonstrated the contribution of mediation to build trust and understanding amongst stakeholders. Those involved in the process are committed to explore its further development.

Descriptor 3: Commercially exploited shellfish

Section 1: Status of commercial shellfish in UK seas

The most recent stock assessments for edible crab and lobster stocks around the English and Scottish coasts show that they are being fished at a rate either around or, more often, above Maximum Sustainable Yield (MSY) levels. There are currently insufficient data to undertake scallop stock assessments in English waters; however, available data suggests that scallop fishing is at or above MSY through much of ICES Area VII[23]. The Scottish scallop stock assessment is in the process of being updated.

Further detail can be found in Cefas' website (www.cefas.defra.gov.uk/our-science/fisheries-information/commercial-species/shellfish.aspx) and Scotland's Marine Atlas (www.scotland.gov.uk/Topics/marine/education/atlas).

Northern Ireland has established an Inshore Fisheries Strategy and Partnership Group to examine the status of crab and lobster stocks around the Northern Ireland coast (www.dardni.gov.uk/index/fisheries/sea-fisheries-policy/inshore-fisheries-policy/inshore-fisheries-strategy.htm).

Bangor University's School of Ocean Sciences is conducting a suite of research programmes for the Welsh Government, which, when complete will offer a better evidence base to enable adequate assessment.

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 3: Commercial shellfish	The level of stock mortality generated by fishing activity (F) is equal to or lower than F_{MSY} - the level capable of producing Maximum Sustainable Yield (MSY). The spawning stock biomass is within safe biological limits and all stocks are sustainably exploited.

[23] ICES area VII covers Channel, Western Approaches, Celtic Sea and Irish Sea.

MSFD Criterion 3.1: Level of pressure of the fishing activity	**Target:** The exploitation rate of each stock is either at or below Fisheries Mortality Rate - Maximum Sustainable Yield (F_{MSY}), or within the range of plausible fishing mortalities consistent with F_{MSY}. Where data does not allow F_{MSY}, or F_{MSY} proxies, to be calculated exploitation of each stock will be based on the precautionary approach with limits defined by agreed proxies for sustainable exploitation. **MSFD Indicator 3.1.1:** Fishing mortality **MSFD Indicator 3.1.2:** Ratio between catch and biomass index
MSFD Criterion 3.2: Reproductive capacity	**Target:** The reproductive capacity of the stock shall be maintained at or above levels that will support the long-term exploitation of stocks at F_{MSY}, as indicated by spawning stock biomass of all stocks being above Biomass (Bpa). **MSFD Indicator 3.2.1:** Spawning stock biomass **MSFD Indicator 3.2.2:** Biomass indices
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	The shellfish programme of measures covers the following UK commercially exploited non-quota species: edible crabs (*Cancer pagarus*), lobsters (*Homarus gammarus*) and scallops (*Pecten maximus*). Nephrops as a quota species are included in the section for Descriptor 3: Fish because their stocks are managed through the CFP. The targets are designed to prevent levels of fishing mortality that lead to a reduction in stock size to levels that impede recruitment. There are already a number of measures in place at an EU, national and local level which help manage exploitation of the stocks and protect the spawning stock biomass. As stated in the UK initial assessment, a number of stocks are being fished at a rate either around or, more often, above MSY levels. We plan to use the evidence from our monitoring programme to evaluate if the existing and planned measures in place are sufficient to reach GES targets. In doing so we will continue to work with stakeholders to develop fishery management

	measures to ensure stocks are exploited sustainably.
Section 4: Existing, planned and new measures needed to achieve GES for commercial shellfish	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **Measures to help limit fishing mortality of shellfish species** **Shellfish Licensing Scheme 2004:** This scheme limits, through shellfish entitlements, the fishing of certain shellfish stocks. The entitlements were given to those who applied and could demonstrate a track record of shellfish landings or to those who had proof of a financial investment to introduce a shellfish vessel to the fleet. There are no arrangements in place for any further entitlements to be issued. Commercial vessels must be specifically licensed to fish for lobsters (*Homarus gammarus*), edible crabs (*Cancer pagurus*), velvet crabs (*Liocarcinus puber*), spider crabs (*Maia squinado*), green crabs (*Carcinus maenus*) and crawfish (Palinuus spp.). Only vessels with shellfish entitlements can land more than 5 lobsters or crawfish and 25 crabs per day. **Scallop entitlements:** These were issued to limit the fishing of king scallops (*Pecten maximus*) including the use of mechanical dredging gear towed by over 10 metre vessels. The entitlements were issued to those who applied and could demonstrate a track record of scallop landings or to those who had proof of a financial investment to introduce a scallop dredge vessel to the fleet. There are no arrangements in place for any further entitlements to be issued. **Western Waters Efforts Regime (EC Regulation 1954/2004):** The current Western Waters Efforts Regime was introduced in 2004 and limits effort on edible and spider crab and king and queen scallop stocks in Western Waters for vessels equal to and over 15 metres in length. The MMO is responsible for monitoring and managing fishing

effort for this regime.

Scallop Fishing: Specific legislation across the UK puts in place technical, temporal and spatial restrictions to manage commercial scallop dredging within specified areas. This limits the catching capacity of individual vessels operating in the area. Prohibiting types of attachments also increases selectivity and reduces discarding of undersized scallops and bycatch. The relevant items of legislation are:the Scallop Fishing (England) Order 2012 the Prohibition of Fishing for Scallops (Scotland) Order 2003;The Scallop Fishery (Wales) (No 2) Order 2010 and 2011; and the Conservation of Scallops Regulations (Northern Ireland) 2008

Local management measures

England: Inshore Fisheries and Conservation Authorities (IFCAs): The 10 IFCAs have a number of different byelaws to limit fishing effort on inshore shellfish stocks within their districts (0 to 6 nautical miles). These byelaws include measures to restrict the fishing of shellfish through a system of permits, maximum vessel length allowed, fishery closures (eg temporary, seasonal), restrictions on certain fishing methods and pot limitations. Details of byelaws for each IFCA can be found on their website (links to all IFCA websites can be found at www.association-ifca.org.uk.

Scotland: Inshore Fisheries Groups (IFGs): Scottish IFGs are responsible for developing local management plans for fisheries in their areas. IFGs are non-statutory bodies that aim to improve the management of Scotland's inshore fisheries out to 6 nautical miles, and to give commercial inshore fishermen a strong voice in wider marine management developments (http://ifgs.org.uk/). If IFGs decide that regulation is required then Marine Scotland can introduce these measures through statutory instruments, such as the Outer Hebrides (Landing of Crabs and Lobsters) Order 2015. IFGs will have a key role in the development of future regional marine plans and will be the mechanism for fisheries input into Marine Planning Partnerships.

Wales: Inshore Fisheries Groups (IFGs): Welsh IFGs and the Welsh Marine Fisheries Advisory Group advise the Welsh Government on the management of Welsh fisheries out to 12 nautical miles.

Welsh ministers use fishery orders under section 153 of the Marine and Coastal Access Act 2009. These byelaws

	put in place measures to help control shellfishing including setting of minimum sizes, authorisation for fixed engines and other various technical measures. Details for byelaws in the north and south of Wales can be found at http://wales.gov.uk/topics/environmentcountryside/fisheries/commercialfishing/byelawsgeneral/?lang=en. **Northern Ireland: Inshore Fisheries Partnership Group (IFPG):** The IFPG involves DARD and inshore fisheries stakeholders working collaboratively to develop inshore fisheries policy. **Inshore Fishing (Scotland) Act 1984:** Orders under the act are one of the main inshore fishery management instruments in Scotland. They offer the potential mechanism to restrict fishing and fishing methods but are only applicable up to 6 miles from baselines. Orders are the responsibility of Marine Scotland. **Shetland Islands Regulated Fishery (Scotland) Order 2012:** This confers management responsibility and introduces a duty to improve/enhance the relevant fisheries to the Shetland Shellfish Management Organisations (SSMO). Currently it covers local management arrangements for crab, lobster and scallop fisheries, and includes area-specific minimum landing sizes, closed areas, a licensing system which limits access to the fishery, effort and landings reporting and powers to restrict effort. **Measures to help protect spawning stock of shellfish species** **EC Regulation 850/98 on technical measures for managing fish stocks:** The regulations prescribe a number of technical measures for the protection of juveniles. Measures include setting the MLS for shellfish species (including crabs, lobsters and scallops), restricting the proportion of the crab landings with detached claws and only allowing lobsters to be landed whole. **Undersized Edible Crabs Order 2000:** The EU size limits are superseded by stronger UK legislation in the Western Channel (VIIe) and part of the Celtic Sea (VIIf) for edible crabs, stipulating a higher MLS for male crabs (160 mm) to allow more spawning opportunities. **Sea Fisheries (Shellfish) Act 1967:** This prohibits the landing of soft-shelled and berried (egg-bearing) crabs in England, Scotland and Wales. Shellfish Orders (Regulating, Several or Hybrid) can also be introduced under this

	act which may grant exclusive fishing or management rights to a grantee such as an IFCA, within a designated area. There are a number of Shellfish Orders currently implemented which include managing the exploitation of shellfish species other than crabs, lobsters and scallops. **Breeding lobsters:** Specific legislation across the UK is in place to protect breeding lobsters from being fished. It is prohibited to land lobsters with a V-notch in their tail fan or mutilated in such a manner as to obscure a V-notch. The relevant items of legislation are: • for England and Northern Ireland, the Lobsters and Crawfish (Prohibition of Fishing and Landing) Order 2000; • for Scotland, the Lobsters and Crawfish (Prohibition of fishing and Landing) (Scotland) Order 1999 (Scottish Statutory Instrument No.88); and • for Wales, the Lobsters and Crawfish (Prohibition of fishing and Landing) (Wales) Order 2002. **Scallop fishing:** See scallop fishing legislation above. Measures are also available to prohibit the use of attachments to scallop dredgers. Prohibiting certain types of attachments increases selectivity and reduces discarding of undersized scallops and bycatch and helps support spawning stock. **Local management measures:** See local management measures above. The groups mentioned above can also use various byelaws to protect spawning stocks including MLSs and prohibiting the landing of berried (egg-bearing) lobsters.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they	Defra ministers have agreed a stock-specific fishery management approach to improve the sustainability of edible crab and lobster fisheries and prevent stock overexploitation in English waters. Defra plan to prioritise stocks which require further management intervention to improve their sustainability status, as indicated by the national stock assessments. Work will be conducted with delivery partners such as Cefas and IFCAs, relevant Devolved Administrations, stakeholders and industry to define specific management requirements for stocks in order to

contribute? Which organisation is responsible for the measures?	develop stock-specific fishery management plans. Following a recent consultation Marine Scotland will also to make changes to minimum landing size provisions (an increase from 100 to 105 mm) and dredge number restrictions in the scallop fishery from Spring 2016. All Welsh-only fisheries legislation (mainly the inherited byelaws referred to above) is being reviewed between now and 2017 to ensure it supports sustainable fisheries.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	For shellfisheries, management for both EC regulation and UK legislation is devolved: England: The MMO and IFCAs (within their districts) are responsible for enforcing EU and national measures. IFCAs are responsible for managing and enforcing their byelaws within their districts. Wales: The Welsh Government are directly responsible for enforcing EU and national measures. Scotland: Marine Scotland acting on behalf of Scottish ministers are responsible for enforcing EU and national measures. Northern Ireland: The Department of Agriculture and Rural Development are responsible for enforcing EU and

	national measures.
Do any of the measures have any impact on the waters of other countries in the subregion?	The EC regulations apply to other EU Member States.

Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?

Crabs and lobsters: As with commercial finfish stocks, the classification of 'safe biological limits' and the age/size distribution of a 'healthy stock' is linked to the concept of fishing at or below MSY levels. The stock assessments for crabs and lobsters in English waters in 2012 indicate that the majority of stocks are being fished above $F_{35\%SpR}$ (proxy F_{MSY}), and those in Scotland above F_{MAX} (proxy F_{MSY}). It is expected that the measures identified above will help ensure that crab and lobster stocks achieve GES by 2020. However, the effectiveness of management measures on species such as lobster will take a long time to evaluate due to biological traits (ie slow growth rate means that it takes several years between an individual hatching from an egg and it appearing in the fishery) and may not emerge until after 2020. Therefore Article 14(1)(e) will be relevant. This category of exceptions covers cases where, because of natural conditions, such as slow recovery of ecosystems, measures taken will only meet environmental targets and reach GES after 2020. This exception is therefore an exception to the deadline by which GES must be achieved and not to the full achievement of GES at a future point in time.

Scallops: There are currently insufficient data to undertake scallop stock assessments in English waters and MSY reference points have yet to be agreed for stocks in Scotland; therefore it is difficult to determine whether stocks are fished at MSY levels and if additional measures are required to ensure they achieve GES by 2020. Defra have commissioned a new project to consider alternative data collection methods to inform next steps for developing a monitoring programme. We will assess the results from the monitoring programme to determine if additional management measures are required. Marine Scotland will continue to assess scallop stocks in Scottish waters and develop and implement national and local management measures to help ensure Scottish stocks are exploited sustainably and achieve GES targets. However, as with crab and lobster the effectiveness of management measures will take time to evaluate due to biological traits and may not emerge until after 2020. The Welsh Government currently has 3 years of stock assessment data for scallop. Additional work to improve our understanding of the

Welsh stocks and the impacts of fisheries is ongoing. Additional work has been commissioned for improved monitoring and enforcement above what is specified by the Welsh Scallop Order. A scallop management plan will be established by 2017.

Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?

No.

Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)

The monitoring programme for crabs and lobsters should monitor the effectiveness of existing and planned measures. The effectiveness of any new measures introduced as a part of the Defra stock-specific management approach will be assessed and reviewed if necessary.

Section 8: Additional information

Defra commissioned work in 2014 to design a more robust monitoring regime for scallop stocks and review the Scallop Order to ensure that it is still ‘fit for purpose’ and contributing to sustainable exploitation.

The recently convened ICES working group on scallops should help inform assessment areas and reference points for the fishery. Through IFGs Marine Scotland are developing local initiatives to better control effort in crab and lobster fisheries. Sitting alongside IFGs, there is the Inshore Fisheries Management and Conservation Group (IFMAC) that focuses on inshore issues between 6 and 12 nautical miles or inshore issues of a national nature and the Fisheries Management and Conservation Group (FMCG) co-management group that focuses on fisheries management out to 20 nautical miles.

Bangor University’s School of Ocean Sciences is conducting a suite of research programmes that the Welsh Government are funding. When it reports its data in 2015, the Welsh Government will have a better evidence base to enable adequate assessment.

The Department of Agriculture and Rural Development (DARD), through the IFPG, will undertake further research on crab and lobster stocks

that will enable policies that further promote sustainable fishing within Northern Ireland inshore waters to be developed.

Descriptor 5: Human-induced eutrophication

Section 1: Status of eutrophication in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that most eutrophication problems (ie where there are undesirable direct or indirect effects arising from nutrient enrichment mainly from agriculture and sewage treatment plants) are restricted to a number of small estuaries, embayments and coastal waters where water circulation is restricted and conditions are favourable.

Further regional detail can be found in:

Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)

Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)

Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 5: Eutrophication	Human-induced eutrophication in UK seas is minimised and all UK marine waters are non-problem areas: Nutrient concentrations do not lead to an undesirable disturbance to the balance of organisms present in the water or to the quality of the water concerned resulting from accelerated growth of algae. The direct effects of nutrient enrichment associated with algal growth do not constitute or contribute to an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.

	Indirect effects of nutrient enrichment associated with growth of macroalgae, sea grasses, and reductions of oxygen concentrations do not constitute an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.
MSFD Criterion 5.1: Nutrient levels	**Targets:** Non Problem Areas 2007/2010: No increase in the assessed dissolved inorganic nitrogen and phosphorus concentration, resulting from anthropogenic nutrient input using data from periodic surveys. Problem Areas 2007/2010: A downward trend in dissolved inorganic nitrogen and phosphorus concentration, resulting from decreasing anthropogenic nutrient input over a 10 year period. **MSFD Indicator 5.1.1:** Nutrients in the water column
MSFD Criterion 5.2: Direct effects of nutrient enrichment	**Targets:** Non Problem Areas 2007/2010: No increase in the chlorophyll 90 percentile in the growing season (linked to increasing anthropogenic input) based on periodic surveys; and, if there is evidence of nutrient enrichment and accelerated growth, then: No trend in a eutrophication-relevant plankton index that is attributable to increases in nutrient loading, winter nutrient concentrations or trends in nutrient ratios. Problem Areas 2007/2010: A downward trend in the chlorophyll 90 percentile in the growing season over a 10 year period (linked to decreasing anthropogenic input); and: Changes in a eutrophication-relevant plankton index that is attributable to decreases in nutrient loading, winter

	nutrient concentrations or trends in nutrient ratios. **MSFD Indicator 5.2.1:** Chlorophyll concentration in the water column **MSFD Indicator 5.2.2:** Water transparency related to increase in suspended algae, where relevant[24] **MSFD Indicator 5.2.3:** Abundance of opportunistic macroalgae **MSFD Indicator 5.2.4:** Species shift in floristic composition such as diatom to flagellate ratio, benthic to pelagic shifts, as well as bloom events of nuisance/toxic algal blooms (eg cyanobacteria) caused by human activities
MSFD Criterion 5.3: Indirect effects of nutrient enrichment	**Target:** Problem Areas 2007/2010: WFD macroalgae and seagrass tools at good status; Oxygen (concentrations/5 percentile) in bottom waters should remain above area-specific oxygen assessment levels (eg 4 to 6 mg/l); and There should be no kills in benthic animal species as a result of oxygen deficiency that are directly related to anthropogenic input of nutrients. **MSFD Indicator 5.3.1:** Abundance of perennial seaweeds and seagrasses (eg fucoids, eelgrass and Neptune grass) adversely impacted by a decrease in water transparency **MSFD Indicator 5.3.2:** Dissolved oxygen, ie changes due to increased organic matter decomposition and size of the area concerned
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good	

[24] This indicator is not considered relevant for UK waters

Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	Eutrophication occurs when nutrient levels in the water column lead to elevated growth of phytoplankton, which in turn leads to undesirable effects in the waters. Our targets are aimed at reducing elevated nutrient levels and any associated eutrophication effects that may arise so that eutrophication is minimised and eventually does not occur. The main sources of nutrients leading to eutrophication problems in UK seas originate from sewage treatment works and run-off from agriculture which enter the marine environment via rivers and through direct and diffuse discharges. Some inputs also arise from the atmosphere originating from industrial installations and vehicles but these are small and not thought to be significant for the UK's identified problem areas. The measures set out in section 4 are therefore specifically focussed on reducing discharges, emissions and losses of nutrients from sources affecting specific eutrophication problem areas. The sources are already well known from knowledge of the associated catchments. It can take many years for measures to reduce eutrophication to take effect. There are signs of improvement in some of the places where measures are in place.
Section 4: Existing, planned and new measures needed to achieve GES for eutrophication	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC):** These include measures to achieve the objectives for specific water bodies, particularly where nitrogen thresholds set under the WFD have resulted in the classification of 'moderate status' and an additional assessment of the biological quality indicates that measures to tackle eutrophication are necessary. The particular river basin districts concerned are indicated in the RBMPs and associated documents. The particular types of measure which have been included in the RBMPs are as follows: • Reduced use of fertilisers, better fertiliser and manure management and farm management practices to reduce nutrient run-off, eg through the Nitrates Directive (91/676/EEC) and the WFD. There are also more

	general measures to tackle diffuse agricultural pollution including codes of good agricultural practice, agri-environment schemes and Catchment Sensitive Farming (CSF). • In Scotland specific legislative measures have been introduced, by the Water Environment (Controlled Activities)(Scotland) Regulations, to implement WFD and which contain general binding rules to mitigate diffuse pollution • Measures are in place across the UK to work with farmers to secure good practice and improve environmental protection measures, including the Rural Development Programmes in England, Wales, Scotland and Northern Ireland. The above programmes which contribute to reducing nitrates from entering rivers and coastal areas are contributing to a significant reduction of diffuse pollution from agriculture. • Some of the measures proposed in the RBMPs are voluntary. However, these have been developed following extensive consultation through the draft RBMPs, the liaison panels and location specific workshops, and are considered to be deliverable and achievable within the next cycle and will complement the suite of basic measures that are in place. • Reduced nutrient inputs arising from sewage treatment works (STWs), eg through application of the EC Urban Waste Water Treatment (UWWT) Directive (91/271/EEC), the creation of 'UWWT Directive Sensitive Areas' and the implementation of STW nutrient reduction measures for the Habitats Directive (92/43/EEC). • Reduced emissions of nutrients to the atmosphere through the setting of appropriate emission limits through the Industrial Emissions Directive (2010/75/EU) which sets emission limits for nitrogen in line with the best available abatement technologies. This measure is also aimed at reducing any possible contribution to trans-boundary impacts of nutrients to the waters of other countries. • Reduced emissions of nitrogen oxides and ammonia though implementation of the National Emissions Ceiling Directive (2001/81/EC) which sets emission ceilings on forms of nitrogen. This measure is also aimed at reducing any possible contribution to transboundary impacts of nutrients to the waters of other

	countries. The organisations responsible for these WFD-related measures are: in England, Defra; in Wales, the Welsh government for western Wales and for the river Severn and the river Dee joint responsibility between England and Wales; in Scotland, the Scottish Government; and in Northern Ireland, the Department of the Environment (DOE). **The control of Nitrogen Oxides (NOx) emissions from ships through the Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 (as amended):** This measure, which requires engines installed on a ship to meet the specified NOx emission standard, is primarily designed to improve air quality. It will also contribute to the reduction of NOx inputs to both UK waters and the waters of other countries. The organisation responsible for implementation of these regulations is the Department for Transport.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	The RBMPs are reviewed at the end of each 6-year cycle as outlined in the WFD and a programme of measures is agreed to meet the objectives outlined in the plan. National environment agencies are currently updating the WFD RBMPs referred to above. In England, the New Environmental Land Management Scheme (NELMS) from 2016, under the Rural Development Programme, will be an important future mechanism for reducing diffuse agricultural water pollution. . In Northern Ireland new agri-environment scheme for the Northern Ireland Rural Development Programme 2014-2020 is being developed and will run from 2016 to 2020.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered?	As part of the revision of the RBMPs under the WFD, a consultation has been undertaken on possible new measures to achieve the objectives required.

Which organisation is responsible for the measures?	
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The EU legislation mentioned above is implemented through common implementation strategies or rules which are developed by joint working of the European Commission and EU Member States, which provides a level of coordination at a regional level. The UK then implements the legislation through national legislative instruments and associated 'directions' or guidance to the relevant departments or agencies that develop the relevant standards or licences with which the industries or sectors which discharge or emit the chemicals have to comply. The Devolved Administrations develop their own arrangements to implement the legislation where powers are devolved. In some cases there are UK groups where officials from the various governments and agencies can review the evidence and agree common standards across the UK (eg the UK Technical Advisory Group, UKTAG, for the WFD). There is also a great deal of consultation with stakeholders at national, river basin district and catchment levels under the WFD which helps to determine the programmes of measures and priorities at different scales.
Do any of the measures have any impact on the waters of other countries in the subregion?	The measures taken to reduce the inputs of nutrients from sources in the UK to water and the atmosphere will have a beneficial effect on the waters of other countries (for example, the three river basins that Northern Ireland shares with Ireland) because they will reduce any trans-boundary transport through the water column and the air.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
The measures referred to above will make a significant contribution towards the achievement of GES in coastal and marine waters by 2020; indeed, the status is already achieved for a large proportion of the area. In addition, there is an ongoing 4- yearly review process under both UWWT and Nitrates Directive, to ensure measures are effective in reducing the eutrophication risk. However, in spite of nutrient reduction programmes, a number of the small marine eutrophication problem areas in coastal waters are likely to remain at their current status, because it can take many years for the reservoirs of nutrients which have built up in estuarine and marine sediments in the locality as the result of historic	

discharges to disperse. The removal and remediation of such sediments on a large scale is regarded as being technically infeasible. This could mean that a few of these small areas may still be eutrophic after 2020.
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?
No.
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)
Revisions of the directives and ongoing refinements to approaches to implementation can mean that revised standards or control measures might be adopted, which might require adjustments to existing measures. Also, the primary production of phytoplankton, and how they respond to nutrients, depends on temperatures in the sea which are subject to climate change. Furthermore, nutrient run-off to rivers and the sea can be greatly influenced by rainfall and flooding.
Section 8: Additional information
No additional information.

Descriptor 7: Hydrographical conditions

Section 1: Status of hydrographical conditions in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that there are no significant broad-scale alterations of hydrographic conditions resulting from human developments, with consequent effects on marine ecosystems in UK waters, beyond those coastal developments currently covered by provisions of the WFD, through classification as heavily-modified water bodies. The impacts of human developments at local or subregional scales need to be considered in the context that there is an increasing body of evidence that wider regional-scale shifts in hydrographical conditions are occurring as a result of changing climate and increased levels of atmospheric CO_2.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 7: Hydrographical conditions	The nature and scale of any permanent changes to the prevailing hydrographical conditions (including but not limited to salinity, temperature, pH and hydrodynamics) resulting from anthropogenic activities (individual and cumulative), having taken into account climatic or long-term cyclical processes in the marine environment, do not lead to significant long-term impacts on those biological components considered under Descriptors 1, 4, and 6.

MSFD Criterion 7.1: Spatial characterisation of permanent alterations **MSFD Criterion 7.2: Impact of permanent hydrographical changes**	**Target:** All developments must comply with the existing regulatory regime and guidance should be followed to ensure that regulatory assessments are undertaken in a way that ensures the full consideration of any potential impacts, including cumulative effects at the most appropriate spatial scales to ensure that GES is not compromised. **MSFD Indicator 7.1.1:** Extent of area affected by permanent alterations **MSFD Indicator 7.2.1:** Spatial extent of habitat affected by the permanent alteration
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	Our approach is to maintain GES by ensuring man-made changes to marine physical characteristics do not lead to significant long-term impacts on the marine environment, whilst taking natural variability into account. All marine structures have the potential to alter hydrographical conditions locally. This Descriptor is concerned only with those that have the potential to have an effect at a regional or subregional scale. This might include developments such as a major barrage or estuary airport. While sections of the coast are modified and do affect hydrological conditions on a local scale, particularly in the Greater North Sea subregion, it is not anticipated that the scale and nature of current developments (eg navigation dredging, aggregate extraction, offshore wind farms, port and harbours) will cumulatively influence achievement of GES. Furthermore, projects of this size already require an environmental impact assessment (EIA) which would necessitate that any impacts to hydrographical conditions be taken into account. The UK Marine Policy Statement 2011 (MPS) sets the direction for the licensing and consenting process and the Marine and Coastal Access Act 2009 states that licensing decisions, including those projects most likely to affect hydrographical conditions (eg Nationally Significant Infrastructure Projects, NSIPs) must have regard to the MPS and any relevant marine plans. New marine plans are subject to a sustainability appraisal (SA) which incorporates the requirements of the Strategic Environmental Assessment (SEA) Directive, assessing the social, economic and environmental impacts of a plan on a range of factors including hydrographical conditions.

	The target reflects the fact that we expect to achieve GES under current marine consenting regimes; therefore no new measures are being proposed. The target requires all new developments to continue to comply with the existing regulatory regime and guidance, in order that any developments large enough to have the potential to alter hydrographical conditions, at the regional or subregional scale, individually or through acting cumulatively with other developments, are identified and potential impacts are monitored and, where relevant, mitigated. For coastal developments this may involve both marine and terrestrial planning systems. The existing regulations with which the licensing regime complies are described in section 4.
Section 4: Existing, planned and new measures needed to achieve GES for hydrographical conditions	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **Marine licensing, as introduced by part 4 of the Marine and Coastal Access Act 2009 (MCAA) and Part 4 of the Marine (Scotland) Act 2010:** The marine licensing system ensures that any marine or coastal developments large enough to have the potential to alter hydrographical conditions relevant to this Descriptor are identified and potential impacts are monitored and, where relevant, mitigated. The licensing decision must also be compliant with a range of European directives and other national and international requirements and plans (see below). Where required, a licensing authority can impose conditions on a marine licence for monitoring (including real-time assessment) of impacts of an activity to enable any change as a direct result of the project to be measured and highlight areas where further mitigation is required. Measures can include scale controls/limitations of offshore/coastal developments. For example, the Northern Ireland Offshore Renewable Energy Strategic Action Plan 2012-2020 Project Level Mitigation Strategy sets out basic mitigation measures to avoid or minimise impacts of offshore renewable energy developments on the environment or other marine users. It is aimed as a reference guide for regulators, developers and stakeholders for the licensing and consenting process. In the longer term, measures delivered under marine licensing will be in combination with marine planning (see below) as part of a plan-led regulatory system. For responsible authorities, see the Generic Measures section. **Planning Act 2008, Planning Act (Northern Ireland) 2011, Planning etc. (Scotland) Act 2006, national policy statements and the National Planning Framework:** These apply to, and manage, applications for NSIPs and for

	equivalent projects in Devolved Administrations. These are usually large-scale developments such as new harbours and power generating stations (including large-scale wind farms), which may have the potential to affect hydrographical conditions at the broad scale. Where MMO are the regulator, they act as statutory consultees and work with developers and the national planning authorities to assess potential impacts and advise on and enforce appropriate licence conditions. In Scotland the Planning etc. (Scotland) Act 2006 sets a statutory requirement to prepare a National Planning Framework. The latest iteration of this framework, published in 2014, sets out a spatial plan of the Scottish Government's development priorities over the next 20 to 30 years. **Marine planning, as provided for in the MCAA 2009, Marine (Scotland) Act 2010 and Marine Act (Northern Ireland) 2013:** All public authorities must take any authorisation or enforcement decision in accordance with the UK Marine Policy Statement 2011 and marine plans, unless relevant considerations indicate otherwise It is anticipated that as our understanding of hydrographical impacts improves, marine plans will provide insight into where best to conduct certain activities, particularly regarding multiple use (cumulative effects). At present there is insufficient evidence to do this comprehensively. For relevant marine planning authorities, see the Generic Measures section. **Environmental Impact Assessment (EIA) Directive (85/337/EEC), Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) and Harbour Works (Environmental Impact Assessment) Regulations Northern Ireland 2003 (as amended) and terrestrial planning:** These put into practice the EIA Directive in relation to licences and consents. A developer wishing to apply for a marine licence for a new EIA development at sea must provide the relevant marine licensing authority with an assessment of the potential environmental impacts of the new development. This system plays a role in identifying where developments are likely to have an impact at scales relevant to this Descriptor. Terrestrial planning extends to the low water mark, and land-based developments can have a direct impact upon the marine area (eg development along the coast can require extensive sea defences). **Habitats Directive (92/43/EEC) Annex I, Conservation of Habitats and Species Regulations 2010, Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 and Offshore Habitats Regulations 2007 (as amended):** These set strict rules concerning adverse effects on certain habitats designated as SACs and SPAs. The Habitats Regulations Assessment process ensures that impact is identified and mitigation measures developed. The appropriate marine licensing authority is responsible for ensuring that these

	assessments are carried out to an adequate standard, with input from relevant inshore/offshore statutory nature conservation bodies. **River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC) and shoreline management plans:** These will have an important role in marine planning in inshore areas, defining good ecological status and ensuring best practice so that new developments such as flood defence schemes and maintenance regimes are designed to minimise any impacts on, and maximise any benefits to improve, water quality and hydromorphology. For responsible authorities, see the Generic Measures section.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	**Marine planning:** In accordance with the Maritime Spatial Planning Directive (2014/89/EU) the remainder of UK marine plans will be completed by 2021.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.

To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	Coordination of the above measures is mainly undertaken at the national scale although other EU Member States are consulted where relevant. For example, the Marine Policy Statement requires coordination of marine plans at a national level and with other countries sharing the same regional seas. Indeed, development of the East Inshore and East Offshore Marine Plans for England and Scotland's National Marine Plan involved consultation with neighbouring Member States. Similarly, under the EIA Directive there is a requirement, implemented through the Marine Works Regulations, to consult other EU states if a project impacts on them.
Do any of the measures have any impact on the waters of other countries in the subregion?	Subject to the location and impact of any future large scale project causing significant broad-scale alterations of hydrographic conditions, relevant mitigation measures would also reduce negative impacts on waters of neighbouring countries.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
We are confident that the existing regulatory system is sufficient to maintain GES for Descriptor 7.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
While existing measures are sufficient to maintain GES, there are areas where our understanding of the impacts of development, including cumulative impacts, on hydrographical conditions could be improved. Relevant areas include: prevailing conditions; the aggregation of subregional impacts into a regional level assessment; and climate change.	

The UK's Productive Seas Evidence Group (PSEG) is currently undertaking a scoping study to assess what data industry have and how they might be useful for marine management, in order to explore whether it may be possible to extract data relevant to Descriptor 7.
Section 8: Additional information
The Cefas Scoping Tool: This tool has been developed to aid regulators and developers to identify those projects that have the potential to impact hydrographic conditions on the regional or subregional scale, making them relevant to Descriptor 7. **Review of existing guidance:** Work is underway to review existing guidance for developers on addressing impacts on hydrographical conditions, and on addressing cumulative impacts, as part of the EIA and SEA processes. The UK is also involved in various initiatives to develop its understanding and evaluation of cumulative effects at both national and European levels. Careful consideration will be needed to ensure that impacts from groups of smaller scale developments can be distinguished from changes in prevailing conditions. **Regional Environmental Assessments:** In England the marine aggregate extraction industry is developing Regional Environmental Assessments and associated monitoring (see www.marine-aggregate-rea.info/about-marea). In Wales, the Interim Marine Aggregates Dredging Policy (2004) for South Wales (http://gov.wales/docs/desh/policy/120522planningmarineaggregatesen.pdf) acts as a similar tool.

Descriptor 8: Concentrations of contaminants

Section 1: Status of contaminants in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that most problems (ie where concentrations or biological effects parameters exceed assessment thresholds) are local in nature and close to the sources, particularly in industrialised estuaries and coasts, and largely caused by historic pollution. The volume of oil accidentally spilled varies widely from year to year and is generally small and of relatively minor significance unless there is a major spill.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 8: Contaminants	Concentrations of contaminants in water, sediment, or biota are kept within agreed[25] levels and these concentrations are not increasing; and The effects of contaminants on selected biological processes and taxonomic groups, where a cause/effect relationship has been established, are kept within agreed[26] levels.
MSFD Criterion 8.1: Concentrations of contaminants	**Target:** Concentrations of substances identified within relevant legislation and international obligations are below the concentrations at which adverse effects are likely to occur (eg are less than Environmental Quality Standards applied within the Water Framework Directive and Environmental Assessment Criteria applied within OSPAR). **MSFD Indicator 8.1.1:** Concentrations of the contaminants mentioned in the COM DECISION, measured in the relevant matrix (such as biota, sediment and water) in a way that ensures comparability with the assessments under Directive 2000/60/EC
MSFD Criterion 8.2: Effects of contaminants	**Target:** The intensity of those biological or ecological effects due to contaminants agreed by OSPAR as appropriate for MSFD purposes are below the toxicologically-based standards. **MSFD Indicator 8.2.1:** Levels of pollution effects on the ecosystem components concerned, having regard to the selected biological processes and taxonomic groups where a cause/effect relationship has been established and needs to be monitored
MSFD Criterion 8.2: Effects of contaminants	**Target:** Occurrence and extent of significant acute pollution effects (eg slicks resulting from spills of oil and oil products or spills of chemical) and their impact on biota affected by this pollution should be minimised

[25] Agreed at a national/EU/International level eg within domestic legislation, Regional Seas Conventions etc.
[26] Agreed at a national/EU/International level eg within domestic legislation, Regional Seas Conventions etc.

	through appropriate risk-based approaches. **MSFD Indicator 8.2.2:** Occurrence, origin (where possible), extent of significant acute pollution events (eg slicks from oil and oil products) and their impact on biota physically affected by this pollution
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	The targets on concentrations of contaminants in biota, sediment and water, and on levels of biological effects, are set to achieve conditions in the marine environment in which contaminants do not adversely affect marine life. The UK initial assessment showed that the standards are mainly exceeded for legacy chemicals which are toxic, persistent and liable to accumulate in sediments and biota samples which are taken close to the sources of historic pollution, particularly in industrialised estuaries and coasts. These chemicals have been largely phased out. The sources of the chemicals concerned are generally well known through local knowledge of the catchments concerned, and the risk evaluation procedures that have been carried out under the Water Framework Directive (WFD) and OSPAR. The measures set out below in section 4 therefore focus on those which are already in place to prevent the chemicals of concern from reaching the marine environment through various EC Directives (eg controls at source such as emission and discharge limits, good practice codes to address diffuse sources, and marketing and use controls, which ban the use of particular chemicals).
Section 4: Existing, planned and new measures needed to achieve GES for contaminants	
What **existing** measures are in place to address the above targets? How are	The main existing measures to address the above targets are taken through: **River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC):** These outline the objectives for water bodies and identify measures required to achieve

they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	good chemical status (www.gov.uk/government/collections/river-basin-management-plans, www.sepa.org.uk/water/river_basin_planning.aspx). The types of measures include: • environmental permitting of various activities, which sets maximum allowable limits of chemicals in discharges and emissions for various activities; • statutory codes of practice on the application and use of chemicals (eg good agricultural practice on agri-chemicals), which specify how various operations should be carried out to prevent chemicals entering surface waters; • catchment action plans and safeguard zones for specific groups of chemicals to protect drinking water sources; • pollution prevention advice and local campaigns, which provide targeted advice and enforcement in high risk areas on all rural diffuse pollution issues, in order to prevent chemicals from entering surface waters; and • environmental quality standards for pollutants of national concern ('specific pollutants' under the WFD). **Industrial Emissions Directive (2010/75/EU):** This sets emissions and discharge limits for hazardous chemicals (eg heavy metals and polycyclic aromatic hydrocarbons, PAHs) discharged and emitted from industrial installations, in line with the best available abatement technologies. **Biocides Regulation (528/2012):** This ensures that only approved biocidal products are available for use and prevents those legacy pesticides with persistent bioaccumulative toxic (PBT) properties from being used. **Marketing and Use Directives (76/769/EEC):** These ban or restrict the use of specified hazardous chemicals from being used or placed on the market, including in products, such as the use of PCBs which

	have been banned for several decades, or the use of cadmium as a hardener in plastics). **Directive on ship-source pollution (2009/123/EC):** This incorporates international standards for ship-source pollution into Community law, in order to ensure that persons responsible for discharges are subject to adequate penalties. **The Marine and Coastal Access Act and the Marine (Scotland) Act 2010:** All forms of dredging including dispersive dredging techniques are licensable and regulated under the acts or related local harbour acts. **OSPAR Guidelines for Dredged Materials:** Relevant authorities will continue to take these guidelines into consideration in their authorisation or regulation procedures for dredged material, so that it can be managed in ways that will prevent and eliminate pollution of the marine environment. **REACH Regulation (1907/2006):** This EU regulation concerns the **R**egistration, **E**valuation, **A**uthorisation and **R**estriction of **Ch**emicals and prevents those which have hazardous properties from going onto the market. **International source control legislation, eg Persistent Organic Pollutants (POPs) under Stockholm Convention :** This requires countries to take measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POP wastes in an environmentally sound manner. **Oslo and Paris Convention for the Protection of the North East Atlantic (OSPAR) measures:** Particularly PARCOM Decision 90/3 which requires Contracting Parties to reduce atmospheric emissions from existing chlor-alkali plants.
What **planned** (already agreed but not yet implemented) measures	The RBMPs are reviewed at the end of each 6-year cycle as outlined in the WFD and a programme of measures is agreed to meet the objectives outlined in the plan. National environment agencies are

are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	currently updating the WFD RBMPs referred to above. The Priority Substances Directive (2013/39/EU) has recently amended the Environmental Quality Standards Directive (2008/105/EC). It introduces more standards to be measured in biota and a 'watch list' mechanism to identify emerging pollutants across the EU. These will be implemented by the UK environment agencies.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	As part of the revision of the RBMPs under the WFD, a consultation has been undertaken on possible new measures to achieve good status.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The EU legislation mentioned above is implemented through common implementation strategies or rules which are developed by joint working of the European Commission and EU Member States, providing a level of coordination at a regional level. The UK then implements the legislation through national legislative instruments and associated 'directions' or guidance to the relevant departments or agencies that develop the relevant standards or licences with which the industries or sectors which discharge or emit the chemicals have to comply. The Devolved Administrations develop their own arrangements to implement the legislation where powers are devolved. In some cases there are UK groups where officials from the various governments and agencies can review the evidence and agree common standards across the UK (eg the UK Technical Advisory Group (UKTAG) for the WFD). There is also a great deal of consultation with stakeholders at national, river basin district and catchment levels under the WFD, which helps to determine

	the programmes of measures and priorities at different scales.
Do any of the measures have any impact on the waters of other countries in the subregion?	The measures taken to reduce the inputs of contaminants from sources in the UK to water and the atmosphere will have a beneficial effect on the waters of other countries (for example, the 3 river basins that Northern Ireland shares with Ireland) because they will reduce any trans-boundary transport through the water column and the air.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
The status of coastal waters under the WFD is generally good in most areas, but a number of the contaminants are so persistent that the concentration and effects targets in sediments and biota may not be met in some areas close to the sources, even though effective measures to reduce inputs are in place. The removal and remediation of contaminated sediments on a large scale is regarded as being technically infeasible. This means that, in marine waters, GES is already being largely achieved, but the aim to achieve the objectives for Good Chemical Status under the WFD in some coastal areas close to the sources will be delayed beyond 2020 due to 'natural conditions' or technical feasibility. Given it is technically infeasible to remove contaminated sediments on a large scale and because of the risk this would pose to the marine environment, the exception provided in Article 14(4) is applicable. This states that Member States are not required to take action where the costs would be disproportionate taking account of the risks to the marine environment and provided there is no further deterioration.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	

Revisions of the directives (eg the Environmental Quality Standards Directive in 2015) may mean that new chemicals are adopted for controls, or bans introduced, for which additional measures will need to be developed. Also, some of the chemicals which exceed environmental quality standards in water, sediments and biota are extremely persistent, and although they have been phased out of use, will take many decades to dissipate or break down, meaning that the standards may be exceeded for many years to come. ‘uPBTs’ as defined under the Priority Substances Directive (2013/39/EU), provide an indicator to this issue.
Section 8: Additional information
No additional information.

Descriptor 9: Contaminants in fish and other seafood

Section 1: Status of contaminants in seafood in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) noted that monitoring of fish and other seafood for human consumption indicates that contaminant levels rarely exceed maximum levels established by Community legislation. However, data from commercial fish species of marketable size were not considered. Data from Food Standards Agency surveys are not generally related to specific geographical areas in UK waters, but based on surveys of marketed fish and seafood, although data from bivalves often have geographical information. More recent work in Scottish waters has found mercury and lead in fish from representative sea areas in both the Greater North Sea and Celtic Seas subregions were at levels below the maximum permissible limits in EU legislation. Cadmium levels were below maximum permissible limits in all areas apart from in roundnose grenadier from the Rockall Bank. Raised cadmium levels may be associated with localised geochemical sources – as these are non-anthropogenic in origin.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 9: Contaminants in seafood	Concentrations of contaminants in fish and other seafood caught or harvested for human consumption in UK seas do not exceed the relevant maximum levels listed in EU Regulation 1881/2006 (as amended), or other relevant standards, and are not increasing[27].
MSFD Criterion 9.1: Levels, number and frequency of contaminants	**Target:** For contaminants where regulatory levels have been set, there should be a high rate of compliance based on relevant surveys and including samples originating from commercial fishing grounds in the Greater North Sea and the Celtic Seas. **MSFD Indicator 9.1.1:** Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels **MSFD Indicator 9.1.2:** Frequency of regulatory levels being exceeded
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	The UK MSFD initial assessment indicated that contaminant levels rarely exceed maximum levels established by Community legislation. It is therefore considered that GES for this Descriptor is broadly achieved. However, the adoption of new standards to protect human health, and additional surveys currently being carried out, may lead to a reconsideration of this view. Furthermore, the measures taken to minimise discharges, emissions and escapes of contaminants under Descriptor 8 will also contribute to achieving the target we have set for this Descriptor. Where monitoring carried out in support of Descriptor 8 indicates raised, localised contamination, additional testing of potentially contaminated seafood will be undertaken by the Food Standards Agency in some areas to assess any impact on meeting the criteria for GES under Descriptor 9. Findings from an initial pilot study into establishing baseline data for chemical contaminants in fish on a

[27] With the exception of fish liver, for which a high rate of non-compliance is expected

	geographical basis indicates that, although there are some failures, the target set to achieve GES for Descriptor 9 is already largely met for UK waters. .
Section 4: Existing, planned and new measures needed to achieve GES for contaminants in seafood	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	The main existing measures to address the above targets are taken through: **EU legislation on contaminants in food:** Limits for certain environmental contaminants in food, including seafood, are set out in Commission Regulation 1881/2006 as amended. Under Regulation 178/2002, which establishes the general principles of food law, action to protect public health can also be taken for unregulated contaminants on the basis of a risk assessment. Regulation 854/2004 lays down specific rules for official controls of products of animal origin, including fish and shellfish, and Regulation 882/2004 stipulates that official controls should be carried out on a risk basis. See the food law guide at www.food.gov.uk/enforcement/regulation/foodlaw/foodlawguide. Previous retail surveys and monitoring exercises for chemical contaminants in fish and shellfish, carried out by the Food Standards Agency, have not identified compliance issues and therefore fish and shellfish have been considered a low risk. Official controls for fish and shellfish are therefore conducted at a low frequency and the responsibility for these controls rests with local authorities in the UK. If any non-compliant samples are detected, an investigation is carried out and enhanced controls introduced as appropriate. The aim is to prevent non-compliant seafood from being placed on the market. Furthermore there are a number of measures that are in place under Descriptor 8, such as those in the Water Framework Directive (WFD) river basin management plans (RBMPs), which have actions to address and prevent contaminants of concern from entering the sea and subsequently the food chain.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above	There are currently no 'planned measures' in the pipeline to address the target set for this Descriptor. Any new additional measures would be based on the findings of the current surveys.

targets? How will they contribute? Which organisation is responsible for the measures? are envisaged at this stage	
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage. However, should fresh evidence come to light indicating that GES is not being met for Descriptor 9, additional measures would be considered.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The existing measures to prevent non-compliant seafood from entering the food chain in are implemented in a coordinated way across the UK by the Food Standards Agency in London and its offices in Wales, and Northern Ireland, working closely with Food Standards Scotland. This ensures consistency of approach while allowing for specific regional approaches and circumstances to be fully taken into account in the implementation of food safety and standards legislation and policy. The EU legislation is implemented through common implementation strategies or rules which are developed by joint working of the European Commission and representatives from EU Member States, providing a level of coordination at a regional level.

Do any of the measures have any impact on the waters of other countries in the subregion?	No.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
Although there are some failures, the target set to achieve GES for Descriptor 9 is largely met for UK waters. Also, if food regulation standards are not met in seafood from established fishing grounds, then steps will be taken to investigate why and, if appropriate, produce can be taken off the market.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
It is possible that non-anthropogenic sources of localised contamination, such as geochemical sources of heavy metals, may result in local failures. New standards adopted by the EU under EU food legislation may also lead to a reconsideration of measures. The presence of micro-plastics in seafood might also pose a risk, and although at his stage we know very little about the possible health implications which might arise, this potential risk clearly needs to be investigated together with other countries.	
Section 8: Additional information	
No additional information.	

Descriptor 10: Marine litter

Section 1: Status of marine litter in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated some problems from marine litter in all regions within the Greater North Sea and the Celtic Seas where there are systematic surveys of beach litter density. However, the Marine Strategy Part One did not provide an assessment of marine litter and its impacts because there is 'a limited understanding of current levels, properties and impacts of marine litter'. This situation is common to many EU Member States. Due to this limited understanding, experts were unable to propose quantitative targets indicating the point at which GES would be achieved. Instead, a trend-based target for litter on coastlines was proposed which requires an absolute reduction in visible litter items on coastlines. Similarly, for litter on the seafloor and in the water column, it was not considered possible to set specific targets due to uncertainties surrounding impacts and the lack of data to set suitable baselines. Instead a number of surveillance indicators were agreed to improve our understanding of trends and allow targets to be set in the future as appropriate.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 10: Marine litter	The amount of litter, and its degradation products[28], on coastlines and in the marine environment are reducing over time and levels do not pose a significant risk to the coastal and marine environment, either as a result of direct mortality such as through entanglement, or by way of indirect impacts such as reduced fecundity or bioaccumulation of contaminants within food chains.
MSFD Criterion 10.1: Characteristics of litter in the marine environment	**Targets:** Overall reduction in the number of visible litter items within specific categories/types on coastlines. Surveillance indicator to monitor the quantities of litter on the seafloor. Surveillance indicator to monitor the amounts of plastic found in the contents of fulmars stomachs as a method of determining litter floating at the surface (in line with OSPAR Ecological Quality Objective). **MSFD Indicator 10.1.1:** Trends in the amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source **MSFD Indicator 10.1.2:** Trends in the amount of litter in the water column (including floating at surface) and deposited on the seafloor, including analysis of its composition, spatial distribution and, where possible, source
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	

[28] Degradation products of litter include small plastic particles and micro plastic particles

What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	Avoiding littering and inappropriate disposal of waste is the best way to reduce the amount of debris getting into the environment. It is generally agreed that a significant proportion of the debris found in the marine environment originates from land, before being blown or washed into the marine environment. The rest is released directly into the marine environment, eg accidental and intentional releases from ships. Marine litter is therefore a result of a complex mix of social issues and waste management practices. Behaviour change to stop littering at source on land and sea is considered the most effective and efficient way of addressing the problem. In the UK it is an offence for anyone to drop litter. Local authorities are also obliged to keep their relevant land, beaches and designated bathing waters clear of litter and refuse and the UK government works with relevant charities to support educational programmes, campaigning activity and research into the best means to achieve the necessary behaviour change. That said there is still a limited understanding of current levels, properties and impacts of marine litter. Therefore our targets for marine litter are designed to achieve both a reduction in visible litter and the introduction of monitoring in order to develop our understanding of the problem. The measures set out below are designed to help achieve our targets by addressing both terrestrial and marine sources of litter as well as removing litter that has reached the environment.
Section 4: Existing, planned and new measures needed to achieve GES for marine litter	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	There are many measures in place to address both methods of reducing sources of litter (terrestrial and marine) and methods of removing litter. Methods of reducing litter include reductions in potential litter (eg packaging substitutes), incentives to not litter (eg providing appropriate infrastructure for proper litter disposal including signage and bins, as well as initiatives to promote public pride in local amenity/natural beauty or reinforce social norms against littering) and disincentives to litter (eg fines). Methods of removing litter include beach cleans and methods of removing litter from the water bodies themselves. The main existing measures to address the above targets are taken through: **Cross cutting measures to promote action across communities and businesses to reduce and clean**

	up litter **OSPAR Regional Action Plan on Marine Litter (RAP) 2014** (www.ospar.org/documents/dbase/decrecs/agreements/14-01e_rap_marine_litter.doc): This lists actions for contracting parties to consider implementing, encompassing actions to combat sea-based litter, land-based sources of marine litter, removal measures, education and outreach. It supports existing measures (eg the Fishing For Litter initiative), encourages the take up of new measures and ensures integration with existing instruments, eg Waste Framework, Landfill Directive (1999/31/EC) or Port Reception Facilities Directive (2000/59/EC). The RAP was agreed in 2014 but elements within it are not yet implemented. The UK has signed up to the RAP and all elements relevant to our marine environments. Timescales are being developed for each action. **The Waste Prevention Programmes for England, Wales, Scotland and Northern Ireland, Scotland's Zero Waste Plan (of which Scotland's Marine Litter Strategy is a key part**), **Keep Britain Tidy, Keep Wales Tidy, Keep Northern Ireland Beautiful, Keep Scotland Beautiful and their schemes such as the 'Love Where You Live' campaign, the Litter Prevention Commitment in England and Towards a Litter Free Scotland:** These involve a strong focus on action being taken across society by government, businesses, the wider public sector, civil society and communities. Measures include research, public campaigns and award schemes to raise awareness, promote behaviour change and investigate novel solutions to address waste and littering, and encourage and promote community clean-up activities and improved monitoring. **Environmental Protection Act 1990 (as amended) (England, Wales and Scotland), Litter (Northern Ireland) Order 1994 (as amended), Clean Neighbourhoods and Environment Act 2005 (England and Wales), Code of Practice on Litter and Refuse (England) 2007, Clean Neighbourhoods and Environment Act (Northern Ireland) 2011, Code of Practice on Litter and Refuse (Scotland) 2006:** These make littering a criminal offence, set out the standards that land managers (primarily local authorities) are expected to meet in keeping their land clear of litter, including beaches above mean high water springs, and provide local authorities with powers to take enforcement action against littering.

	Councils also have a number of other relevant powers in respect of maintaining public amenity and controlling anti-social behaviour. **Northern Ireland Marine Litter Strategy 2013, Scottish Marine Litter Strategy 2014:** These include measures such as improving public and business attitudes and behaviours around marine and coastal litter, increased beach cleaning and litter enforcement, improved facilities for litter deposit/recycling, and contributing to a low carbon economy by treating 'waste as a resource'. **Measures to reduce the sources of terrestrial and marine litter** **The revised Waste Framework Directive (2008/98/EC; rWFD), Environmental Permitting (England and Wales) Regulations 2010, Waste (England and Wales) Regulations 2011, Waste Regulations (Northern Ireland) 2011, Waste (Scotland) Regulations 2012, Producer Responsibility Regulations:** Through application of the waste hierarchy the government is seeking to reduce the amount of waste produced in the first place, and thereafter to encourage greater reuse and recycling of goods and materials. This range of regulations seek to appropriately manage waste including preventing its escape and becoming litter. The rWFD requires that waste be managed without harming human health or the environment. **Measures to address terrestrial sources of litter** **The Packaging and Packaging Waste Directive (94/62/EC), Eco-design Directive (2009/125/EC), Producer Responsibility Obligations (Packaging Waste) Regulations 2007 and Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 2007:** These regulate packaging and packaging waste. They minimise packaging waste, restrict the use of certain substances and promote the recovery, recycling and re-use of packaging, by obliging large packaging producers to fund the recovery and recycling of a proportion of packaging they place on the market. **Industry Code of Practice on Sky Lanterns, DCLG byelaw provision covering the release of sky lanterns on council owned land and local authority bans on the use of sky lanterns and Zero Waste**

	Scotland guidance on the release of balloons and sky lanterns: These restrict the production and use of sky lanterns and ensure that they are safe, biodegradable and sold responsibly. They also help to raise public awareness of risks of these items. The Welsh Government is discouraging the use of sky lanterns on council owned and controlled land by raising awareness of the risks that they pose and by encouraging voluntary bans. **Single use carrier bags charge regulations (in Wales, 2010; Northern Ireland, 2013; Scotland, 2014; and England, 2015):** These introduce a 5p charge on single use carrier bags. In Wales, Scotland and Northern Ireland, these charges affect all retailers; in England, charging is obligatory for large businesses and voluntary for smaller ones. **National Fly-tipping Prevention Group:** This group is chaired by Defra and includes representatives of the Devolved Administrations, local authorities, the Environment Agency, the waste industry, Keep Britain Tidy and landowners. It works with the common aim to help prevent and tackle fly-tipping through influencing, advising and raising awareness about the antisocial nature and potential health and environmental damage fly-tipping can cause. The Fly-tipping Partnership Framework, published in 2014, outlines best practice for the prevention, reporting, investigation and clearance of fly-tipping (www.tacklingflytipping.com/files/20140410%20Fly-tipping%20framework%20FINAL.pdf). It encourages interested parties, eg enforcement authorities, residents and landowners, to work together at the local level to address the problem according to their own particular circumstances. **Welsh Government's strategy for tackling fly-tipping:** The Welsh Government has worked closely with Natural Resources Wales and Fly-tipping Action Wales (FtAW) to develop the strategy 'A Fly-tipping Free Wales'. The strategy contains a range of actions to tackle fly-tipping effectively and include a mixture of education, enforcement and community engagements initiatives. **Landfill tax:** This is designed to encourage reuse and recycling and to reduce the amount of waste destined for landfill, and by consequence the amount at risk of being lost and becoming litter.

	Measures to address litter from waste water treatment works and urban drainage **Urban Waste Water Treatment Directive (UWWTD; 91/271/EEC), Bathing Waters Directive (BWD; 2006/7/EC) and Water Framework Directive (WFD; 2000/60/EEC; including river basin management plans):** These drive measures to reduce intermittent discharges from sewage treatment works and sewerage systems. The water industry has been working to reduce the amount of litter entering the environment from sewage and waste water systems through extensive investment measures to improve coastal sewage treatment works and collecting systems, including adding screening to and/or reducing volumes from overflows to limit polluting events. In addition, campaigns by water companies educate the public and businesses on items and material that should not be disposed of in sewers, avoiding blockage and reducing items that might otherwise pass through sewers and treatment processes. Measures to address pollution from surface water runoff and drainage are also likely to reduce litter entering rivers and other water bodies. Further investment is planned between now and 2020. **Measures to address marine sources of litter** **Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries (CCRF):** This provides a framework for national and international efforts to ensure sustainable exploitation of aquatic living resources in harmony with the environment. It includes retrieval of lost or abandoned fishing gear (and fragments of gear) and banning of dumping. Whilst the code is voluntary the UK's Seafish[29] organisation and the Marine Stewardship Council[30] (which certifies sustainable seafood) are signed up to it. **Responsible Fishing Scheme (RFS**, http://www.seafish.org/rfs**):** Currently around 40% of the total UK registered fishing tonnage is engaged with the scheme and it is anticipated that this proportion will continue to grow as major retail businesses are expected to make membership a condition of supply. A refreshed

[29] Seafish is a Non-Departmental Public Body (NDPB) set up by the Fisheries Act 1981 to improve efficiency and raise standards across the seafood industry www.seafish.org

[30] The Marine Stewardship Council develops standards for sustainable fishing and seafood traceability. They ensure that MSC-labelled seafood comes from, and can be traced back to, a sustainable fishery www.mcs.org

	version of the RFS is being rolled out following a public consultation process. **EC Port Reception Facilities Directive (2000/59/EC, amended in 2002/84/EC and in Regulation (EC) No 1137/2008), Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2003 (amended 2009), International Convention for the Prevention of Pollution from Ships (MARPOL) and Annex V, Paris MoU, Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, Council Regulation (EC) No 1224/2009 establishing a community control system for ensuring compliance with the rules of the common fisheries policy (and its detailed rules 404/2011) and Council Regulation (EC) No 850/98 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms:** These instruments significantly restrict the range of material that can be disposed of at sea from ships, increase and improve port reception facilities for ship-generated waste and extend port waste reception facilities to cover fishermen, in order to increase waste disposal and so reduce the amount of litter entering the marine environment. They also include gear marking requirements, restrictions on the discharge of synthetic fishing nets at sea and the requirement for certain classes of vessels to retrieve and/or report lost gear. **London Convention 1972 (Convention on the Prevention of Maritime Pollution by Dumping of Wastes and Other Matter) and 1996 Protocol; and OSPAR Convention 1992:** These promote the effective control of all sources of marine pollution and the need to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter including bulky items of iron, steel and concrete. **Measures to remove litter from the marine environment** **Bathing Water Directive (2006/7/EC):** This requires that bathing waters are inspected visually for pollution including glass, rubber and plastic, and that adequate measures are taken to remove any such items found and, if necessary, to inform the public. **Beach clean schemes:** A number of third sector organisations, such as the Marine Conservation Society (MCS), carry out regular beach clean-ups and many volunteers ‘adopt’ sections of coast, removing litter

	from our coastal environments. These measures have a localised impact in removing litter, and may help to tackle the sources of litter through awareness raising. **Fishing For Litter (FFL) scheme:** As defined by the OSPAR FFL Guidelines, this is a voluntary, unpaid litter bycatch removal scheme by commercial fishermen, run by Kommunenes Internasjonale Miljøorganisasjon (KIMO), which is currently in place in some areas in the UK. The scheme provides fishing boats with large bags to collect marine-sourced litter. When full, these bags are deposited on the quayside and collected for disposal. This reduces both the volume of debris washing up on our beaches and the amount of time fishermen spend untangling their nets, and creates awareness amongst the fishing industry and the public.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	**OSPAR Regional Action Plan on Marine Litter (RAP) 2014:** As mentioned above, elements of this plan will be implemented over the coming years. **Circular Economy Strategy for Scotland:** The Scottish Government is creating the first Circular Economy Strategy for Scotland, which aims to keep resources in the economy at as high a value as possible for as long as possible. A public consultation on this ended on 30th October 2015 (www.gov.scot/publications/2015/08/2820). **Litter Strategy for England:** Defra will work with local government and relevant stakeholders to develop a national litter strategy which clarifies the contributions that different sectors can make to tackling terrestrial litter, and to set the context for ongoing anti-litter activity. **Marine planning:** Marine plan authorities within the UK are committed to having marine plans in place by 2021. Marine planning is in its early stages but is already beginning to address marine litter. For example, Scotland's National Marine Plan includes a policy whereby users of the marine environment must take measures to address marine litter where appropriate. One of the pilot areas for Scottish regional marine spatial plans, Shetland, has included a policy on the development of waste/litter minimisation and management plans and Northern Ireland marine plans, subject to the consultative process, will require

	decision-makers to consider the potential risks of litter entering the marine area and demonstrate proportionate measures to reduce the risk. It is anticipated that future plans will play a stronger role in shaping activities and their impacts in the marine environment, including marine litter.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The UK is a signatory to the conventions listed in section 4, eg London Protocol and Convention, and OSPAR Convention, which coordinate activity at a regional/international level, and is an active member of the IMO. In particular, the UK is a contracting party in OSPAR and also participates in the European Commission's Technical Group on Marine Litter. The OSPAR RAP Marine Litter 2014 coordinates activities of contracting parties to address the problems of litter at a regional North East Atlantic scale. The UK is also a member of G7 which has recently announced its own Action Plan on Marine Litter which closely aligns with the OSPAR RAP.
Do any of the measures have any impact on the waters of other countries in the subregion?	It is anticipated that independent national litter reductions will contribute towards a regional reduction of litter in the North-East Atlantic.

Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?
Beach litter: It is expected that the existing and planned measures described above will contribute towards an overall reduction in the number of visible litter items within specific categories/types on coastlines. **Floating litter and litter on the seafloor:** As set out in the Marine Strategy Part One, it was not considered possible to set specific targets due to uncertainties surrounding impacts and a current lack of data to set suitable baselines and therefore a number of surveillance indicators were agreed to improve our understanding of trends and allow us to set targets in the future as appropriate. The surveillance indicators adopted will allow relevant monitoring data to be collected with a view to developing targets for 2018 where necessary. In the meantime, the measures identified above are expected to contribute towards an overall reduction in the amount of litter entering the marine environment.
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?
No.
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)
Further work is needed to better understand marine litter and its impacts because of the limited understanding of current levels, properties and impacts of marine litter on the seabed and in the water column. The UK has undertaken research into the potential for microplastics to cause ‘harm’ in the marine environment. This research suggests that harm may be both toxicological, where microplastics act as a vector for persistent organic pollutants (POPs), and biological, where the physical presence of small plastics particles could impair basic biological functions of marine organisms. The monitoring programmes we are putting in place will further contribute to improving our understanding of these issues. Once the extent of the problem is better understood we will be able to assess the need for any additional measures. In addition, the government will be working with the Government Office Science to look at how a

genuinely biodegradable plastic bag could best be achieved. There are a number of standards for plastic biodegradability but the government will need to conduct further work before any of these could be used as the basis for determining biodegradability within the open environment.

Further action may need to be taken should the monitoring programme show that the effect of the combined measures will not deliver GES in line with expectations.

Section 8: Additional information

The Marine Litter Action Network: This is an initiative established by the Marine Conservation Society to encourage stakeholders from various sectors to work together where their objectives overlap. It aims to to raise awareness of the sources and problems associated with marine litter.

Hang onto Your Tackle and Line out: These are campaigns organised by the Marine Conservation Society in partnership with other organisations to combat problems associated with lost angling tackle by promoting guidance to minimise gear loss and providing dedicated waste bins to encourage correct disposal of waste. The initiative operates across the Pembrokeshire and Swansea areas and in the Coleraine area of Northern Ireland respectively.

Operation Clean Sweep: This is an initiative from the British plastics industry to reduce the loss of plastic resin pellets (nurdles). This is a voluntary code of practice, supported by a manual, posters and other resources, in which companies commit to good housekeeping and pellet containment practices.

Natura 2000 programme for Wales: An EU funded programme to produce a strategic prioritised and costed plan for the conservation, management and restoration of existing Welsh Natura 2000 sites, comprising Special Areas of Conservation (SAC) and Special Protection Areas (SPA). A marine litter thematic plan will be produced as part of this programme, to facilitate the delivery of strategic actions to address the impacts of marine litter on Natura 2000 sites.

Celtic Seas Partnership Project: The EC Life + funded Celtic Seas Partnership Marine Litter Task Group has developed a detailed proposal for a measure to use the established international Eco-Schools framework and accreditation system, which drives both

education and direct action by schools on environmental issues in over 50 countries worldwide, to create a multi-step methodology and process for developing area-based plans. The plans, undertaken by schools and other partner organisations, will involve actions to increase awareness and understanding (including research and monitoring), prevention, and direct measures to reduce marine litter in the Celtic Seas. The group is now seeking support to pilot this methodology in approximately 20-25 schools in at least 5 of the 6 Celtic Seas countries.

Descriptor 11: Underwater noise

Section 1: Status of underwater noise in UK seas

The UK initial assessment for the MSFD (www.gov.uk/government/publications/marine-strategy-part-one-uk-initial-assessment-and-good-environmental-status) indicated that it was not possible to provide an assessment of underwater noise and its impacts, nor to provide a relevant baseline. It concluded that there was currently insufficient evidence to provide a quantitative assessment of underwater noise. This situation is common to many EU Member States.

Further regional detail can be found in:

- Scotland's Marine Atlas (http://www.gov.scot/Topics/marine/education/atlas)
- Northern Ireland's State of the Seas Report (https://www.doeni.gov.uk/publications/state-seas-report)
- Wales' Marine Evidence Report (http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/other-supporting-evidence/wales-marine-evidence-report/?lang=en)

Section 2: Marine Strategy Part One characteristics of GES, targets and indicators

Characteristics of GES for Descriptor 11: Underwater noise	Loud, low and mid frequency impulsive sounds and continuous low frequency sounds introduced into the marine environment through human activities do not have adverse effects on marine ecosystems: Human activities potentially introducing loud, low and mid frequency impulsive sounds into the marine environment are managed to the extent that no significant long-term adverse effects are incurred at the population level or specifically to vulnerable/threatened species and key functional groups. Continuous low frequency sound inputs do not pose a significant risk to marine life at the population level,

	or specifically to vulnerable/threatened species and key functional groups, eg through the masking of biologically significant sounds and behavioural reactions.
MSFD Criterion 11.1: Distribution in time and place of loud, low and mid frequency sounds **MSFD Criterion 11.2: Continuous low frequency sound**	**Target:** To establish a 'noise registry' to record, assess, and manage the distribution and timing of anthropogenic sound sources measured over the frequency band 10 Hz to 10 kHz, exceeding the energy source level 186 dB re 1 μPa² m² s; or the zero to peak source level of 224 dB re 1 μPa² m² over the entire UK hydrocarbon licence block area. **MSFD Indicator 11.1.1:** Proportion of days and their distribution within a calendar year over areas of a determined surface, as well as their spatial distribution, in which anthropogenic sound sources exceed levels that are likely to entail significant impact on marine animals measured as Sound Exposure Level (in dB re 1μPa2.s) or as peak sound pressure level (in dB re 1μPa peak) at one metre, measured over the frequency band 10 Hz to 10 kHz **Target:** Surveillance indicator to monitor trends in the ambient noise level within the ⅓ octave bands 63 and 125 Hz (centre frequency) (re 1μPa RMS; average noise level in these octave bands over a year) measured by observation stations. **MSFD Indicator 11.1.2:** Trends in the ambient noise level within the 1/3 octave bands 63 and 125 Hz (centre frequency) (re 1μPa RMS; average noise level in these octave bands over a year) measured by observation stations and/or with the use of models if appropriate
Section 3: The extent that UK targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are	Adverse effects of underwater noise on vulnerable/threatened species and key functional groups at a population level may occur through physical harm or behavioural change, such as changes in distribution and communication, leading to reduced productivity. Our approach is to establish a monitoring programme for continuous low frequency (ambient) sounds and a registry for impulsive sounds. With respect to ambient

they already met and how will the measures be targeted to help achieve them?	sound, there are currently insufficient monitoring data to support an assessment of current ambient noise levels or of any impact on marine noise sensitive species. For impulsive sound there is evidence for the noise levels that can cause physical harm to some species, notably marine mammals and some fish species, but less understanding of the physical effects to other species. There is also less certainty about the negative behavioural effects of noise. The behavioural effects of noise have been studied in some species, but are context dependent, leading to greater variability and lower levels of certainty. It should be noted that behavioural effects have the potential for impact at a population level. On the basis of present and estimated future levels of activity, the conclusion by experts is that activity levels are not currently anticipated to pose a significant threat to marine noise sensitive species at the population level. However, because of the high level of uncertainty about the effects of noise it has not been possible to recommend specific targets for either impulsive sounds or ambient sounds which we believe to be equivalent to GES. Instead, an operational target has been developed for impulsive sounds and a surveillance indicator developed for ambient sounds. This approach is designed to gather data and information to inform future research in order to enable us to better monitor, understand, assess and manage the impacts of noise; no new measures will be implemented at this stage. As with other Member States, our approach, including our targets and indicators, is reviewed by the EU Technical Group on Noise (TG Noise) and we may adjust the scope of our approach in response to their recommendations.
Section 4: Existing, planned and new measures needed to achieve GES for underwater noise	
What **existing** measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which	The main existing measures to address the above target are taken through: **Marine Noise Registry:** This will record in space and time noise-generating activities. This noise registry is currently being developed and coordinated by the Joint Nature Conservation Committee (JNCC) on behalf of Defra and the Devolved Administrations. These data will then be used in future research to assess levels and patterns of noise in order to determine whether these could potentially compromise the achievement of GES.

organisation is responsible for the measures?	UK regulations, detailed below, mean most activities creating sounds exceeding levels of Indicator 11.1.1, such as pile driving, must be licensed or notified and conducted under strict conditions. Licences are issued by a range of bodies including the Marine Management Organisation (MMO), UK government Department of Energy and Climate Change (DECC), Marine Scotland (MS), Department of the Environment (DOE, Northern Ireland) and Natural Resources Wales (NRW). As part of the licensing process, details of noise-generating activities are recorded. These data will be brought together in the noise registry. Where noise-generating activities are not licensed, noise information will be collected via a voluntary reporting scheme. For example, military activity is not licensed but the Ministry of Defence (MOD) is voluntarily co-operating with the system. Inclusion of activities in the Marine Noise Registry does not automatically mean that they will be regulated or restricted in future. The Marine Noise Registry will enable a greater understanding of the noise-generating activities occurring in our seas. Once we have a baseline, these data will be able to inform models to predict future impacts, including cumulative impacts. It is anticipated that it will then be possible to use data from the registry in a tool to assess and manage the impacts of noise-generating activities on the marine environment. **Marine licensing, as introduced by part 4 of the Marine and Coastal Access Act 2009 (MCAA) and part 4 of the Marine (Scotland) Act 2010:** As part of marine licensing, potential impacts associated with a development are considered by regulators before licences are granted and this can include levels and impacts of noise where relevant. The regulators (the MMO, DECC, MS, DOENI and NRW) and statutory consultation bodies (eg statutory nature conservation agencies, Environment Agency) will determine what, if any, mitigation measures are needed. Mitigation measures may include: timing restrictions on noisy activities during periods when marine organisms are at their most vulnerable to disturbance (eg fish spawning seasons or marine mammal breeding seasons); use of noise dampening technologies to reduce source levels or the use of alternative designs. The Northern Ireland Offshore Renewable Energy Strategic Action Plan 2012-2020 Project Level Mitigation Strategy sets out basic mitigation measures to avoid or minimise impacts of offshore renewable energy developments on the environment or other marine users. It is aimed as a reference guide for regulators, developers and stakeholders for the licensing and consenting

	process. **Habitats Directive (92/43/EEC): European Protected Species (EPS) and Natura 2000 sites:** One pillar of the Habitats Directive is to ensure that Member States implement a regime of strict protection for certain species within their whole territory. These species are listed in Annex IV (a) of the directive and, in UK waters, consist of several species of cetaceans, turtles, and the Atlantic Sturgeon. Noise risk assessments are a standard component of the impact assessment processes for many noise-generating activities occurring in our seas. Marine Scotland has produced guidance on EPS legislation (www.gov.scot/Topics/marine/marine-environment/species/19887/20813/epsguidance) and JNCC has produced statutory nature conservation agency guidelines for minimising the risk of injury to marine mammals from seismic activities, piling and explosive use (http://jncc.defra.gov.uk/page-1534, http://jncc.defra.gov.uk/page-4274, http://jncc.defra.gov.uk/page-4900 and http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Explosives%20Guidelines_August%202010.pdf). The application of these guidelines is frequently set as a licence condition. The other pillar of the Habitats Directive is the creation of Natura 2000 sites. Member States must 'take appropriate steps, in the Special Areas of Conservation, to avoid the deterioration of natural habitats and the habitats of species as well as significant disturbance of the species for which those areas have been designated'. This includes conducting a Habitats Regulations Assessment for any plans or projects that have the potential to cause a significant effect on the sites either in isolation or in combination with other plans and projects, to begin to identify appropriate mitigation strategies.
What **planned** (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which	The noise registry, as detailed above, will continue to be developed in the coming months. In time, it should enable regulators to make assessments of the potential cumulative effects of noise in a location and/or time period and whether current, and where possible projected, noise-generating activities may have a significant negative effect on the distribution of populations of noise-sensitive species. **Marine planning:** It is anticipated that as our understanding of the levels, patterns and impacts of underwater noise improves, marine plans will provide insight into where best to conduct certain activities,

organisation is responsible for the measures?	particularly regarding multiple use (cumulative effects). In due course, Scottish Regional Marine Plans may also provide a mechanism through which to deliver further measures.
What **new** (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the development of the noise registry no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a UK, subregional and/or regional level?	The Marine Noise Registry is coordinated at a UK level by JNCC, working closely with regulators including MMO, DECC, MS, DOE and NRW. Nationally, the registry covers all UK waters, and offers the potential to examine noise at a subregional level. The UK co-chairs and actively participates in both the EU Technical Group on Noise, tasked with providing guidance and direction on the development and implementation of the indicators, and the OSPAR group tasked with coordinating a noise registry at a regional sea level. The OSPAR group has drawn up and will keep under review an inventory of noise mitigation technology and techniques.
Do any of the measures have any impact on the waters of other countries in the subregion?	Since underwater sound can cross international boundaries, any mitigation measures against the impacts of noise-generating activities may reduce transboundary effects. The OSPAR noise registry will enable the possibility to manage at a regional sea level.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by	

2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?
Development of the noise registry will enable us to achieve our target. By 2020 a baseline will have been achieved for 11.1, and these data will be able to inform models to predict future impacts, informing decisions on any further measures required to reach or maintain GES. For ambient noise, once a monitoring programme has been put in place it will contribute towards achieving a baseline and an ability to monitor trends in ambient noise. This will help inform work to determine the impacts of ambient noise and what, if any, measures are required to achieve GES.
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?
No.
Section 7: Gaps and issues (eg are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)
Both D11.1.1 and D11.2.1 are pressure indicators, ie they describe the temporal and spatial distribution of noise pressures. They do not transcribe this to describe impact, other than the thresholds recommended in the TSG-Noise Guidance, which are levels above which significant behavioural responses may occur. The links between this pressure indicator and environmental status are poorly understood, so as a consequence it is not yet possible to ascertain our proximity to GES. We have commissioned research to further assess ambient noise in UK waters and develop recommendations for a coordinated monitoring programme. The science is evolving and this will be an iterative process. Further action may need to be taken should the monitoring programme show that the effect of the combined measures will not deliver GES in line with expectations.

Section 8: Additional information
International Maritime Organization (IMO) guidelines: Non-mandatory technical guidelines known as the ‘Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life’ have been issued as an IMO Circular (MEPC.1/Circ.833, dated 7 April 2014). They promote ship quietening technologies for both propellers and equipment. More efficient propulsion means less noise.