



Effective UK Marine Planning: Delivery of Good Environmental Status by 2020

A paper commissioned by Wales Environment Link in partnership with Wildlife and Countryside Link, Scottish Environment LINK and the Northern Ireland Marine Task Force

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The Joint Links

Wildlife and Countryside Link, Scottish Environment LINK, Wales Environment Link and the Northern Ireland Marine Task Force work together to achieve better protection for marine wildlife and effective management of all UK seas. Each is a coalition of environmental voluntary organisations, united by their common interest in the conservation and enjoyment of wildlife, the countryside and the marine environment

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Executive Summary

Introduction

1. Marine Spatial Planning is entering a critical stage in the UK, with the UK and its Devolved Administrations developing Marine Plans to inform future development of their marine waters. Collectively the UK is developing a Programme of Measures, to be operational by 2016, that will be used to deliver Good Environmental Status (GES) of UK waters by 2020 at the latest in line with the Marine Strategy Framework Directive (MSFD). The Wales Environment Link (WEL) Marine Working Group is seeking to understand and highlight how Marine Plans in the UK can proactively contribute towards achieving targets for MSFD descriptors and support effective management of the UK Marine Protected Area Network.
2. Marine Planning will play an important role in supporting the delivery of GES and it is highly likely that Marine Planning will be identified as a measure in the UK Governments' forthcoming consultation on EU MSFD Programme of Measures in early 2015. It is unclear, however, how Marine Plans can proactively support the delivery of GES at a strategic level, including contributing to the effectiveness of the Marine Protected Areas Network, given the way in which plan policies have been developed to date. So far, Marine Plan development in the UK has often prioritised the growth of maritime sectors with environmental considerations often deferred to project-level assessments.

Aims & Objectives

3. The aim of this study was to assess the extent to which marine planning can be used as an effective tool within the UK's Programme of Measures to support delivery of GES waters by 2020. The objectives of this study are as follows:
 1. Undertake literature review of existing work relating to Marine Planning and how it can contribute to achieving GES, including implications of the EC Marine Spatial Planning Directive.
 2. Review UK's MSFD Descriptor indicators and targets and determine those that can be advanced through marine planning objectives.
 3. Review objectives and plan policies of existing and emerging Marine Plans across the UK and assess to what extent they support progress of MSFD Descriptor targets identified in part 2.
 4. Review how marine planning can support an effective Marine Protected Area network.
 5. Identify actions that Marine Planning Authorities can and should adopt to strengthen their Marine Plans contribution to GES.

Method

4. The study was desk based and the approach taken to information gathering and analysis was qualitative, as is appropriate for the exploratory and investigative nature of the research. A focused literature review was undertaken to explore the key links between marine planning and the Marine Strategy Framework Directive (MSFD) and how it can contribute to achieving GES, including the implications of the MSPD. Relevant literature was identified using a variety of techniques including academic databases and internet search engines.
5. A systematic approach was taken to the review of GES descriptors and emerging Marine Plans. A detailed review of five emerging Marine Plans was carried out to consider how they address GES descriptor targets and indicators. The review identified any relevant objectives, policies or indicators, including any links made to GES descriptor targets and indicators. Recommendations were then made for how Marine Plan Authorities could strengthen Marine Plans and improve the progression of GES descriptor targets and indicators. The review helped to inform the development of recommendations for how Marine Plans can support an effective Marine Protected Area network.

Literature Review

6. Historically, the EU approach to the protection of the marine environment and Marine Planning has been characterised by a complex array of sectoral policies, which resulted in a patchwork of EU legislation and resultant national legislation. More recently, the introduction of the EU MSFD and EU Marine Spatial Planning Directive as progressed and now proposes a more holistic approach to the marine environment¹.
7. The literature identifies the difficulties of implementing the MSFD and putting into practice the GES concept², which includes a lack of clarity with regard to the meaning of GES as well as data deficiencies³. This results in policy decisions being based on inadequate information. The approach of the UK Government has been to adapt the MSFD into the UK environmental culture of balancing environmental objectives against socio-economic objectives rather than as a means of implementing the MSFD.⁴

¹ Boyes, S.J., & Elliot, M. (2014) Marine legislation - The ultimate 'horrendogram', International law, European directives & national implementation. *Marine Pollution Bulletin*, Volume 86, pages 39-47.

² Borja, A. et al. (2013) Good Environmental Status of marine ecosystems: What is it and how do we know when we have attained it? *Marine Pollution Bulletin*, Volume 76, Pages 16-27.

³ Brennan et al (2014) EU marine strategy framework directive (MSFD) and marine spatial planning (MSP): Which is the more dominant and practicable contributor to maritime policy in the UK? *Marine Policy*, Volume 43, Pages 359-366.

⁴ Brennan et al (2014) EU marine strategy framework directive (MSFD) and marine spatial planning (MSP): Which is the more dominant and practicable contributor to maritime policy in the UK? *Marine Policy*, Volume 43, Pages 359-366.

8. The literature demonstrates that there are a number of challenges in trying to implement the MSFD as well as progress GES through Marine Spatial Planning. Data deficiencies as well as a lack of clear guidance on how to implement GES descriptors, make it difficult for Marine Plans to effectively progress GES descriptor targets and indicators. While further data and guidance is needed in this regard, the UK Marine Policy Statement requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle, stating that Marine Plans will be based on a sound evidence base, as far as possible⁵.

Review of emerging Marine Plans and their progression of GES Descriptor Targets and Indicators

9. The Marine Plans available at the time of the study and considered through the review are set out below:
- East Inshore and East Offshore Marine Plans (April 2014)
 - Scotland's National Marine Plan Consultation Draft (July 2013⁶)
 - Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013)
 - Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011)
 - Firth of Clyde Marine Spatial Plan (July 2010)
10. The review found that the emerging Marine Plans progress the majority of GES descriptor targets and indicators indirectly at a strategic level through objectives and policies that seek to protect and enhance marine ecosystems (including environmental conditions) and important biodiversity. However, for the majority of the Plans, opportunities have been missed to clearly identify the key issues for the Marine Plan Area and priority areas for action.
11. The UK Marine Policy Statement states that "Marine Plans will provide a clear, spatial and locally-relevant expression of policy, implementation and delivery".⁷ The strategic nature of existing marine plan policies, which often repeat existing international & national policy, are not spatially prescriptive meaning that they are unlikely to effectively progress GES descriptor targets and indicators or inform lower tier planning including decision making, such as marine licensing decisions. Generally, the plans considered do not provide any clear spatial guidance in terms of the location of potential activities/ developments or set out any detailed actions or proposals to address issues that are

⁵ HM Government (2012) Marine Strategy Part One: UK Initial Assessment and Good Environmental Status.

⁶ It should be noted that shortly following the review of existing and emerging Marine Plans the Scottish Government published a revised National Marine Plan in December 2014 to take account of consultation responses. This study had considered the Scotland's National Marine Plan Consultation Draft published in July 2013.

⁷ HM Government (2011) UK Marine Policy Statement, Chapter 2, Pg. 10, Para 2.2.1.

specific to their Marine Plan, which means that there is a lack of detail in terms of implementation and delivery.

12. The majority of the emerging Marine Plans do not make any clear links between GES descriptor targets and indicators and objectives, policies and proposed monitoring. This makes it difficult to see how they have been progressed through plan-making. It is also evident from the review that the majority of emerging Marine Plans have not been developed using an ecosystem-based approach as required by the Marine Strategy Framework Directive. While there are background evidence documents for some of the Plans⁸ that consider how an ecosystem-based approach can be applied, for the majority it is not made clear if it has been applied, and if it has, how it has been progressed to inform plan policies.

Key Challenges and Barriers to the effective progression of the UK's GES MSFD Descriptor Targets and Indicators through marine planning

13. There are a number of challenges and barriers to the effective progression of GES descriptor targets and indicators through Marine Planning, including:
 - Current lack of information and evidence, particularly with regard to environmental conditions and biodiversity. This can make it difficult for Marine Plans to produce spatially prescriptive strategic policies and more detailed actions and proposals⁹; however, the UK Marine Policy Statement (2012) requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle within an overall risk-based approach.
 - Dynamic nature of the marine environment, which must be considered in three dimensions. There is also a lack of clear boundaries (environmental and administrative) and the integration of terrestrial planning as well as various different legislative drivers make it a complex area for strategic planning.
 - Culture of project-based sectoral decision making in the marine environment, which is reliant on impact assessment rather than holistic and integrated planning.
 - Qualitative and non-prescriptive nature of the GES descriptor targets, which can make it more difficult for Marine Planning Authorities to determine how their Marine Plans can best support the delivery of GES.

Recommendations for Marine Planning Authorities to strengthen progression of UK's GES MSFD Descriptor Targets and Indicators

⁸ SSMEI (2010) How can the Ecosystem Approach be applied to Scottish (Regional) Marine Planning?

⁹ MMO (2014) Marine Planning Guide for Local Authority Planners.

14. A number of recommendations as to how Marine Planning could be strengthened to help progress GES descriptor targets and indicators were proposed as a result of the review of existing and emerging Marine Plans. These recommendations are summarised below:
- **Marine Plan Authorities should consider two tiers of marine planning (MP1):**
 - **Strategic objectives and policy** - The objectives should set out the key issues and priorities for the Marine Plan Area supported by policies that progress these objectives and address the key issues and conflicts. The strategic policies should provide spatial guidance wherever possible, identifying priority areas that require further detailed proposals and direct marine activities away from sensitive areas. Strategic policies should also include priorities, indicating under what circumstances certain policies may over-ride others or how competing uses may be mediated spatially.
 - **Detailed actions, proposals or programmes** - These can address a priority area or particular issue identified within the strategic policies and provide further detail in terms of implementation and delivery - what will be carried out, by when and by whom. This will help to make marine planning more effective as the detailed actions will address spatially specific issues and provide time periods over which policies are expected to be effective.
 - **An ecosystem-based approach should be applied throughout the plan-making process (MP3)** - As required in the Marine Strategy Framework Directive, this will help to support the delivery of GES descriptor targets and indicators. Recommendations for how Marine Plan Authorities can apply an ecosystem-based approach to Marine Planning are set out WEL's Discussion Paper¹⁰ to the Welsh Government.
 - **Proactively use Sustainability Appraisal (SA)/ Strategic Environmental Assessment (SEA) early and iteratively (MP4)** - This can help scope the key stakeholders as well as issues for the plan, including key sensitive receptors, methods and boundaries for cumulative effects assessment, and identification/evaluation of alternatives for the plan. The SA/SEA process should begin at an early stage and clearly set out how the findings have influenced the development of the Plan.
 - **Assess the capacity of the marine ecosystem and ecosystem services provided within the Plan area for their ability to accommodate change or further activities (MP10)** - The outcomes could be the identification and mapping of areas of least

¹⁰ Wales Environmental Link (2014) The Extent to which UK Marine Plans have embedded the Ecosystem Approach Principles and Wales Environment Link's Recommendations for the Welsh National Marine Plan.

constraint that could accommodate particular activities in the future.

- **Robust data gathering and monitoring (MP6 - MP8 & MP16):**
 - Prepare a comprehensive list of all key stakeholders and organisations within the Plan area to help inform the engagement strategy and data gathering.
 - Collate all relevant existing data and evidence relating to the GES descriptor targets and indicators.
 - Identify and map the spatial boundaries for all existing terrestrial and marine plans/programmes of relevance to the Marine Plan Area (including those bordering the marine area).
 - Where there are information gaps or paucity of data the Marine Plan Authority should seek to address them and signpost priority research areas within the Plan Area as well as use the precautionary principle within an overall risk-based approach.
 - Marine Plans should incorporate and monitor the GES descriptor targets and indicators and these should be aligned with objectives, policies and detailed proposals.

- **Seek opportunities to secure funding to improve the evidence base and monitoring (MP13)** - This could be achieved by requesting financial contributions from commercial marine users who are beneficiaries of marine licences and the services provided by the marine environment. This would help to address the current lack of available evidence and data gaps that are making it difficult for Marine Planning Authorities to provide more focussed and spatially prescriptive policies and actions.

- **Early, ongoing and effective review (MP17)** - The review of Marine Plans should be an ongoing and iterative process that is flexible and adaptive to changes in the evidence base and unforeseen circumstances.

Recommendations for how Marine Plans can support an effective Marine Protected Area network

15. In addition to the recommendations above, the study also proposed a number of recommendations for how Marine Plans can support an effective Marine Protected Area network as summarised below:
- **Early and ongoing contact with the with organisations responsible for the management of Marine Protected Areas (MPA5)** - in particular Natural England, JNCC, Natural Resources Wales, Scottish Natural Heritage and Northern Ireland Environment Agency.

 - **Ensure that all relevant information relating to Marine Protected Areas is collated and used to inform plan-making (MPA6)** - This includes all relevant management plans, site improvement plans and any available data relating to qualifying features (habitats and species).

- **A precautionary approach should be applied throughout the development of the Plan (MPA3)** - In line with the Habitats Directive and UK Marine Policy Statement where evidence is inconclusive, decision makers should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach.
- **Marine Plan Authorities must ensure that the potential effects of the Marine Plan on all Marine Protected Areas are thoroughly considered (MPA8)** - The Habitats Directive and Regulations only require the consideration of SACs (including candidate sites) and SPAs (including proposed sites), with guidance further suggesting the inclusion of Ramsar sites. Therefore, Marine Plan Authorities must ensure that all other Marine Protected Areas, including SSSIs and MCZs, are given appropriate consideration through the SA/SEA process as well as plan-making.
- **Take a strategic approach to the protection and enhancement of Marine Protected Areas (MPA4)** - Marine planning provides an opportunity to consider the Marine Protected Areas strategically, considering the interconnectedness of the protected sites and mobile species that move between them. The consideration of in-combination effects, including the interactions between different plans and programmes as well as marine activities will be extremely important.
- **Develop strategic policies that identify key issues and areas of conflict for Marine Plan Areas within and surrounding the Plan area (MPA13)** - The policies should provide spatial direction for marine activities so they avoid the most sensitive qualifying features (habitats and/or species) where conflicts are most likely to occur.
- **Develop detailed actions, proposals or programmes to address the key issues and areas of conflict identified within strategic policy (MPA14)** - These should provide more detail in terms of implementation, what will be carried out, by when and by whom. It is crucial that any actions or proposals are consistent with and support the measures proposed within the management and improvement plans for Natura 2000 sites.
- **Marine Planning Authorities should seek opportunities to secure funding to improve the evidence base and monitoring of Marine Protected Areas within the Plan Area (MPA15)** - This could be achieved by requesting financial contributions from commercial marine users who are beneficiaries of MPA goods and services. The financial contributions could be towards supporting the priority research actions being proposed through the Natura 2000 improvement programmes in England and Wales and management plans.

- **Marine Plans should incorporate into the monitoring framework any existing indicators relating to Marine Protected Area qualifying features (MPA16)** - In particular those features that are identified through policy and more detailed actions as being a priority within the Plan Area.

Recommendations for how marine planning could support the delivery of specific GES descriptor targets and indicators

16. The study also proposed a number of recommendations for how marine planning could support the delivery of specific GES descriptor targets and indicators, as summarised below:

Descriptors 1 (Biodiversity), 4 (Food Webs) and 6 (Sea-Floor Integrity)

- **R1** - At a strategic level Marine Plans should include policies that seek to protect, conserve and enhance designated biodiversity, which includes any non-designated habitats and species of importance or relevance to GES Descriptors 1, 4 and 6. The strategic policies should identify important areas or habitats/species of particular importance as well as any potential areas of conflict with marine activities. Any key issues within the Plan area should be highlighted and where possible spatial direction should be provided to ensure that marine activities avoid the most sensitive areas.

Descriptor 2 - Non-indigenous species

- **R2** - Marine Planning Authorities should identify any non-indigenous species that are of particular concern for their Plan area along with any pathways for introduction or activities that pose the greatest risk.
- **R3** - They should also seek to identify/scope the habitats within their Plan area that are most suitable for identified non-indigenous species and then illustrate which developments or activities currently occur in those areas.

Descriptor 3 - Commercially exploited fish and shellfish

- **R4** - Marine Plan Authorities should identify and map spawning and nursery areas as well as important migration corridors. Marine activities should be directed away from these important areas if necessary.

Descriptor 5 - Eutrophication

- **R5** - Marine Plan Authorities should be able to identify which marine developments/activities are most likely to either result in increased nutrient levels either as a point source or contributing to diffuse inputs.
- **R6** - Policies can then direct particular marine activities (that may increase nutrient levels), such as finfish aquaculture, away from

potential areas of risk or sensitivity. They could also require proposals to demonstrate how they intend to minimise the introduction of nutrients.

Descriptor 7 - Permanent alteration of hydrographical conditions

- **R7** - The Marine Plan Authorities should identify the prevailing hydrographical conditions and particular areas that are of significant importance for the Plan area. Any hydrographical conditions or areas of fundamental importance must be maintained and should be identified and mapped.
- **R8** - The potential impacts of different large scale developments should be considered alongside the key prevailing conditions and areas to enable the Marine Plan Authorities to develop policy and propose indicators that are focussed on the key issues for the Plan area.

Descriptor 8 - Concentrations of contaminants

- **R9** - Marine Plan Authorities should be able to identify the types of development and activities that have the greatest likelihood and risk of introducing hazardous substances. They should also be able to identify key receptors within the plan area that are sensitive to contamination, such as particular habitats or species.
- **R10** - A sectoral policy could require any proposal to demonstrate how they intend to minimise the potential risk of introducing hazardous substances. The Marine Plan could also require proposals or activities that could result in a significant accidental release of hazardous substances to include an emergency response plan.

Descriptor 10 - Marine litter

- **R11** - Marine Plans should identify the marine activities that are most likely to generate litter as well as identify and map priority areas where there is an existing issue. The Marine Plan could seek the development of a coordinated marine litter strategy for the Plan area, such as Policy ENV 11 in the Firth of Clyde Marine Spatial Plan, which encourages agencies and local authorities to work collaboratively.
- **R12** - Sectoral policies relating to marine activities identified as generating litter within the strategic policy could require any proposal to demonstrate how they intend to reduce the generation of marine litter and/or submit a litter minimisation and management plan.

Descriptor 11 - Introduction of energy, including underwater noise

- **R13** - Marine Plans should identify underwater noise as a priority research area and seek any opportunities to help address the current lack of data. Once the JNCC marine noise registry is operational, it is recommended that Marine Plans require all developments or activities within their Plan are to submit noise data to the registry.

- **R14** - If the evidence gathering and assessment stages of plan-making identify that there is an existing issue then a strategic policy must be developed to identify priority areas within the Marine Plan area where there are conflicts. The policy must be spatially specific and supported by a map identifying the priority/conflict areas and linked to prevalent occurrence of the sensitive species in that area.
 - **R15** - Sectoral policies relating to marine activities identified as generating noise within the strategic policy could require any proposal to demonstrate how they intend to address any noise generated and minimise potential negative effects. It could also require any proposals to be accompanied by a noise impact assessment.
17. The recommendations set out above will help to strengthen marine planning, making it more effective in the delivery of GES descriptor targets and indicators as well as supporting a coherent Marine Protected Area network. An improved evidence base and more focussed Marine Plan policies and detailed actions/proposals will also provide time and cost efficiencies in the long term for lower level decision making.

1.0 Introduction

- 1.1 Wales Environment Link (WEL) is a network of environmental and countryside Non-Governmental Organisations in Wales, which is officially designated as the intermediary body between the Welsh Government and the environmental NGO sector in Wales. WEL's Marine Working Group (MWG) is the forum in which WEL members define and execute WEL's Marine Campaign, a core objective of which is to support the delivery of Good Environmental Status (GES) in UK Waters by 2020.
- 1.2 WEL secured funding and commissioned Enfusion Ltd in association with Jim Claydon to carry out a piece of research to assess how Marine Planning can help to deliver GES of the UK's marine waters by 2020 under the EU Marine Strategy Framework Directive. The project was advised by a steering group comprised of the Marine Planning expert leads from the Marine Conservation Society (MCS), Royal Society for the Protection of Birds (RSPB), Royal Society of Wildlife Trusts (RSWT) and World Wildlife Fund (WWF).

Background

EU Marine Strategy Framework Directive

- 1.3 The European Union's Integrated Maritime Policy was launched in 2007 and seeks to provide a more coherent approach to maritime issues, with increased coordination between different policy areas. The environmental pillar for the Integrated Maritime Policy is the Marine Strategy Framework Directive¹¹ (MSFD) which was formally adopted by the EU in 2008. The overall aim of the MSFD is to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend.
- 1.4 The definition of GES is provided in Article 3 (5) of the MSFD, which states that it 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".
- 1.5 The Directive outlines eleven high level descriptors of GES in Annex I, which are set out below:

¹¹ Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy

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.
 2. Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
 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.
 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.
 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.
 6. Sea-floor 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.
 7. Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
 8. Concentrations of contaminants are at levels not giving rise to pollution effects.
 9. Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.
 10. Properties and quantities of marine litter do not cause harm to the coastal and marine environment.
 11. Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.
- 1.6 The MSFD outlines the legislative framework for an ecosystem-based approach to the management of human activities that are having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use. In order to achieve GES, the Directive established four European Marine Regions based on geographical and environmental criteria. The North East Atlantic Marine Region is divided into four subregions, with UK waters lying in two of these (the Greater North Sea and the Celtic Seas). The MSFD requires each Member State to develop a marine strategy for their waters in coordination with other countries within the same marine region or subregion, which must be kept up-to-date and reviewed every 6 years.
- 1.7 The Directive requires that the marine strategies include the following:
1. An initial assessment of the current environmental status of that Member State's marine waters;
 2. A determination of what Good Environmental Status means for those waters;
 3. Targets and indicators designed to show whether a Member State is achieving GES;

4. A monitoring programme to measure progress towards GES;
5. A programme of measures designed to achieve or maintain GES.

UK Marine Strategy

- 1.8 The MSFD was transposed into UK law by the Marine Strategy Regulations in 2010¹². Part one of the UK Marine Strategy was published in 2012 and contained information on the first three requirements of the MSFD set out above. Part two was published in 2014 and focuses on a co-ordinated monitoring programme for the ongoing assessment of GES. Part 3 is still in development and will set out a programme of measures designed to achieve or maintain GES. The MSFD does not state a specific programme of measures that Member States should adopt to achieve GES, except for the establishment of Marine Protected Areas. GES Descriptors 1, 4 and 6 are closely linked to Marine Protected Areas as they relate to biological diversity, food webs and sea-floor integrity. The establishment of an effective Marine Protected Area network will play an important role in the achievement of GES with regard to Descriptors 1, 4 and 6.

The UK Marine Acts

- 1.9 Prior to the adoption of the MSFD in 2008, the UK Government was already in the process of proposing a new marine planning system. The Marine and Coastal Access Act (England and Wales) 2009¹³, Marine Act Scotland 2010¹⁴ and Marine Act Northern Ireland 2013¹⁵ provide the legal mechanism to help ensure clean, healthy, safe, productive and biologically diverse oceans and seas by putting in place a new system for improved management and protection of the marine and coastal environment. The Marine and Coastal Access Act includes provision for:
- The establishment of a Marine Management Organisation
 - A strategic marine planning system
 - A streamlined marine licensing system
 - A new Marine Conservation Zone designation
 - New arrangements for management of inshore fisheries
 - Common, and amended, marine enforcement powers
 - Coastal access
 - Coastal and estuarine management through the use of Integrated Coastal Zone Management (ICZM)

¹² Marine Strategy Regulations 2010:
<http://www.legislation.gov.uk/ukxi/2010/1627/contents/made>

¹³ The Marine and Coastal Access Act 2009:
<http://www.legislation.gov.uk/ukpga/2009/23/contents>

¹⁴ Marine Scotland Act 2010: <http://www.legislation.gov.uk/asp/2010/5/contents>

¹⁵ Marine Act Northern Ireland 2013: <http://www.legislation.gov.uk/nia/2013/10/contents>

UK Marine Policy Statement

- 1.10 The MCAA 2009 required the production of a jointly agreed (by UK and Devolved Administrations) Marine Policy Statement¹⁶ (MPS) to set out the short and longer term objectives for the sustainable use of the marine environment in the UK. The MPS would then be followed by a series of marine plans which implement marine planning at a national or regional level. In 2011, the UK MPS was published and adopted by the UK Government, the Scottish Government, the (then) Welsh Assembly Government and the Northern Ireland Executive. The MPS sets the framework for preparing Marine Plans (expected to be in place by 2022) and taking decisions affecting the marine environment, enables an appropriate and consistent approach to marine planning across UK waters.
- 1.11 The UK MPS reflects the requirements of the MSFD stating that the marine planning process will need to take an ecosystem-based approach and will be a key tool to ensure that GES is achieved. The Convention on Biological Biodiversity (CBD) states that, "The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way".¹⁷

UK Marine Plans

- 1.12 Following the publication of the UK MPS, the UK and Devolved Administrations are developing Marine Plans to inform future development of their marine waters. The Plans are at varying stages of development, a summary of their progress for each of the Administrations is provided below.
- **England:** The Marine Management Organisation¹⁸ (MMO) is responsible for preparing Marine Plans for each of England's Marine Plan Areas and are undertaking this at a regional scale with the identification of 11 Marine Plan Areas. The East Inshore and East Offshore Marine Plan Areas were the first two areas to be selected for Marine Plans, with Final Plans published in June 2014. The MMO is now in the process of preparing Marine Plans for the South Inshore and South Offshore Marine Plan Areas. The MMO expects that a consultation draft of the South Inshore and South Offshore marine Plans will be ready for consultation in winter 2015-16¹⁹.

¹⁶ HM Government (March 2011) UK Marine Policy Statement. Available online: <https://www.gov.uk/government/publications/uk-marine-policy-statement>

¹⁷ Convention on Biological Diversity. Available online: <http://www.cbd.int/ecosystem/description.shtml>

¹⁸ <https://www.gov.uk/government/organisations/marine-management-organisation>

¹⁹ <https://www.gov.uk/government/collections/marine-planning-in-england>

- **Scotland:** Marine Scotland²⁰ is a Directorate of the Scottish Government and is responsible for the integrated management of Scotland's seas. In Scotland Marine Planning will be implemented at a national and regional level. A National Marine Plan for Scotland's Inshore and Offshore waters has been prepared and laid before Parliament on 11 December 2014. Regional Marine Plans will eventually be developed for each Scottish Marine Region by Marine Planning Partnerships. The Scottish Sustainable Marine Environment Initiative (SSMEI) aims to develop and test new approaches to improve the sustainable management of Scotland's marine environment through the establishment of pilot projects²¹. Four pilot areas have been involved; the Firth of Clyde; Shetland Islands; the Sound of Mull and Berwickshire Coast. The Firth of Clyde Marine Spatial Plan was published in July 2010; the Shetland Island's Marine Spatial Plan published in November 2013; the Sound of Mull Marine Spatial Plan Part One published in August 2010 and Part 2 published in June 2011 and finally the Berwickshire Coast pilot focused primarily on the socio-economic benefits of a high quality marine environment on the local economy through work packages addressing fisheries, integrated harbour and visitor management.
- **Wales:** The Marine and Fisheries Division of the Welsh Government are responsible for creating Marine Plans for both the inshore and offshore regions of Wales. A single National Marine Plan for Wales is being prepared, which will cover both the inshore and offshore regions. A draft scope, vision and related objectives for the Wales National Marine Plan (WNMP) were published for consultation in August 2014. A draft WNMP is expected to be published for consultation in 2015.
- **Northern Ireland:** A Marine Plan for Northern Ireland is being prepared by the Department of the Environment Marine Plan Team. A Statement of Public Participation was published in June 2012.

EU Marine Spatial Planning Directive

- 1.13 In 2014, the European Parliament adopted the Maritime Spatial Planning Directive²² (MSPD), which forms a fundamental part of the EC's Blue Growth Strategy²³. The MSPD seeks to improve understanding on the distribution of marine resources and offer investors greater certainty about potential economic development. The EC intends that Marine Spatial Planning will help to reduce existing over-regulation and administrative complexity as well as contribute to a more efficient implementation of EU environmental legislation in

²⁰ <http://www.scotland.gov.uk/About/People/Directorates/marinescotland>

²¹ <http://www.scotland.gov.uk/Topics/marine/seamanagement/regional/SSMEI>

²² Directive 2014/89/EU establishing a framework for maritime spatial planning [online] <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0089&from=EN> [accessed December 2014]

²³ http://ec.europa.eu/maritimeaffairs/policy/blue_growth/

marine waters, helping Member States reach good environmental status of their waters by 2020²⁴.

Aims and Objectives

- 1.14 Marine Spatial Planning is entering a critical stage in the UK, with the UK and its Devolved Administrations developing Marine Plans to inform future development of their marine waters. Collectively the UK is developing a Programme of Measures, to be operational by 2016, that will be used to deliver Good Environmental Status (GES) of UK waters by 2020 at the latest in line with the Marine Strategy Framework Directive (MSFD). The Wales Environment Link (WEL) Marine Working Group is seeking to understand and highlight how Marine Plans in the UK can proactively contribute towards achieving targets for MSFD descriptors and support effective management of the UK Marine Protected Area Network.
- 1.15 Marine planning will play an important role in supporting the delivery of GES and it is highly likely that Marine Planning will be identified as a measure in the UK Governments' forthcoming consultation on measures in early 2015. It is unclear, however, how Marine Plans can proactively support the delivery of GES at a strategic level, including contributing to the effectiveness of the Marine Protected Areas Network, given the way in which plan policies have been developed to date. So far, Marine Plan development in the UK has often prioritised the growth of maritime sectors with environmental considerations often deferred to project-level assessments.
- 1.16 The aim of this study is to assess the extent to which marine planning can be used as an effective tool within the UK's Programme of Measures to support delivery of GES waters by 2020.
- 1.17 The objectives of this study are as follows:
1. Undertake literature review of existing work relating to Marine Planning and how it can contribute to achieving GES, including implications of the EC MSP Directive.
 2. Review UK's MSFD Descriptor indicators and targets and determine those that can be advanced through marine planning objectives.
 3. Review objectives and plan policies of existing and emerging Marine Plans across the UK and assess to what extent they support progress of MSFD Descriptor targets identified in part 2.
 4. Review how marine planning can support an effective Marine Protected Area network.
 5. Identify actions that Marine Planning Authorities can and should adopt to strengthen their Marine Plans contribution to GES.

²⁴ European Commission Press Release (17 April 2014). Available online: http://europa.eu/rapid/press-release_IP-14-459_en.htm

Method

- 1.18 The study was desk based and the approach taken to information gathering and analysis was qualitative, as is appropriate for the exploratory and investigative nature of the research.
- 1.19 A focused literature review was undertaken to explore the links between Marine Planning and the MSFD and how it can contribute to achieving GES, including the implications of the MSPD. Relevant literature was identified using a variety of techniques including academic databases and internet search engines. The review focussed on UK published data but also investigated international marine planning where it may be relevant.
- 1.20 A systematic approach was taken to the review of GES descriptors and emerging Marine Plans. The detailed review is presented within a matrix (Appendix I) and structured according to the GES descriptor targets and indicators identified within the UK Marine Strategy Part 1. Using professional judgement the review sets out how each of the GES descriptor targets and indicators can be progressed through Marine Plans. Five emerging Marine Plans were then reviewed to consider how they individually address each of the GES descriptor targets and indicators, identifying any relevant objectives, policies or indicators, including any links made to GES descriptor targets and indicators. Recommendations were then made to strengthen Marine Plans and improve the progression of GES descriptor targets and indicators.
- 1.21 The review of GES descriptors and emerging Marine Plans above helped to inform the development of recommendations for how Marine Plans can support an effective Marine Protected Area network.

Structure of Report

- 1.22 Following this introductory Section 1, this report is structured into four further sections:
- Section 2 presents the findings of a focused review of existing literature, highlighting links between marine planning and MSFD and how it can contribute to achieving GES.
 - Section 3 provides the summary findings of the review of the UK's MSFD GES Descriptor Targets and Indicators, including how they are being progressed through emerging Plans and recommendations for strengthening their progression in marine planning.
 - Section 4 sets out recommendations for how marine planning can support an effective Marine Protected Area network.
 - Section 5 provides a summary of the key findings and recommendations emerging from the study.

2.0 Literature Review

- 2.1 Until relatively recently, the EU approach to the protection of the marine environment and marine planning has been characterised by a complex array of sectoral policies, which resulted in a patchwork of EU legislation and resultant national legislation. Since 2000, the evolution of EU policy has progressed and now proposes a more holistic approach to the marine environment (Boyes and Elliot 2014²⁵).
- 2.2 The MSFD was formally adopted by the EU in 2008 and is regarded as being the 'environmental pillar' of the European Union's Integrated Maritime Policy; however, the MSFD's relationship with other objectives or 'pillars' is not clear (Qiu and Jones 2012²⁶). The overall aim of the MSFD is to achieve Good Environmental Status (GES) of the EU's marine waters by 2020.
- 2.3 Borja et al (2013²⁷) discusses the difficulties of putting into practice the GES concept and states that the precise means of implementing the MSFD in most Member States is not clear. It is suggested that there is little understanding of what to consider as a meaningful quantitative definition of GES for a marine area. The key task for implementing the MSFD is to determine how the different descriptor indicators should be combined into an integrative assessment framework (Borja et al 2013).
- 2.4 Borja et al (2013) proposes an operational definition of GES that not only summarises the status but could also be used in real-time assessments and the operational management of the marine system. GES "is achieved when physio-chemical (including contaminants, litter and noise) and hydrographical conditions are maintained at a level where the structuring components of the ecosystem are present and functioning, enabling the system to be resistant (ability to withstand stress) and resilient (ability to recover after a stressor) to harmful effects of human pressures/activities/ impacts, where they maintain and provide the ecosystem services that deliver societal benefits in a sustainable way (i.e. that pressures associated with uses cumulatively do not hinder the ecosystem components in order to retain their natural diversity, productivity and dynamic ecological processes, and where recovery is rapid and sustained if a use ceases)" (Borja et al 2013).
- 2.5 The difficulty in producing quantitative targets and indicators for GES descriptors and combining them into a holistic assessment of environmental status is demonstrated in the UK Marine Strategy Part One

²⁵ Boyes, S.J., & Elliot, M. (2014) Marine legislation - The ultimate 'horrendogram', International law, European directives & national implementation. *Marine Pollution Bulletin*, Volume 86, pages 39-47.

²⁶ Qiu, W. & Jones, P.J.S. (2012) The emerging policy landscape for marine spatial planning in Europe. *Marine Policy*, Volume 39, Pages 182-190

²⁷ Borja, A. et al. (2013) Good Environmental Status of marine ecosystems: What is it and how do we know when we have attained it? *Marine Pollution Bulletin*, Volume 76, Pages 16-27.

(2012)²⁸. Data limitations and a lack of consideration as to how they will be implemented through Marine Spatial Planning have resulted in qualitative and non-prescriptive targets.

- 2.6 The lack of clarity about the meaning of GES is identified by Brennan et al (2014)²⁹ as one of a number of weaknesses of the MSFD. It is suggested that the root this, as well as a number of other issues for the MSFD is the problem of data deficiency, which results in policy decisions being based on inadequate information.
- 2.7 A comparative analysis of the contribution to UK marine governance of the MSFD and Marine Spatial Planning (MSP), found that MSP should be regarded as the dominant player in the relationship between the two initiatives (Brennan et al 2014). The approach of the UK Government has been to adapt the MSFD into the UK environmental culture of balancing environmental objectives against socio-economic objectives rather than as a means of implementing the MSFD (Brennan et al 2014).
- 2.8 The literature demonstrates that there are a number of challenges in trying to implement the MSFD as well as progress GES through Marine Spatial Planning. Data deficiencies as well as a lack of clear guidance on how to implement GES descriptors, make it difficult for Marine Plans to effectively progress GES descriptor targets and indicators. While further data and guidance is needed in this regard, the UK Marine Policy Statement requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle, stating that Marine Plans will be based on a sound evidence base, as far as possible³⁰.

²⁸ HM Government (2012) Marine Strategy Part One: UK Initial Assessment and Good Environmental Status.

²⁹ Brennan et al (2014) EU marine strategy framework directive (MSFD) and marine spatial planning (MSP): Which is the more dominant and practicable contributor to maritime policy in the UK? *Marine Policy, Volume 43*, Pages 359-366.

³⁰ HM Government (2012) Marine Strategy Part One: UK Initial Assessment and Good Environmental Status.

3.0 Review of existing and emerging Marine Plans across the UK and progression of MSFD GES Descriptor Targets and Indicators

Introduction

- 3.1 The EU MSFD outlines eleven high level descriptors of GES (listed in Annex I) and requires that Member States establish a comprehensive set of environmental targets and associated indicators for their marine waters in order to guide progress towards achieving GES. The UK Marine Strategy Part One published in 2012 sets out the targets and indicators for GES descriptors for UK marine waters.
- 3.2 Targets and indicators for GES descriptors 1 (biodiversity), 4 (food webs) and 6 (sea-floor integrity) are dealt with together in the UK Marine Strategy (Part one) due to the significant degree of overlap between them. The strategy states that the approach for these descriptors is the most complex to describe due to their wide coverage. The targets and indicators are organised according to six ecosystem components: three species groups (fish, birds, marine mammals), and three habitats groups (pelagic habitats, sediment habitats, rock and biogenic reef habitats), rather than descriptor by descriptor. This reflects the fact that there is significant overlap between the descriptors and helps to minimise duplication. The targets and indicators for the remaining GES descriptors are dealt with individually. A selected example of GES descriptor targets and indicators are set out in the Table below:

Table 3.1: Examples of GES Descriptor targets and Indicators

Target	Indicator
Descriptors 1 (Biodiversity), 4 (Food Webs) and 6 (Sea-Floor Integrity)	
<p>Bird targets - Productivity of key species</p> <p>At the scale of the MSFD sub-regions 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 (i.e. sea surface temperature).</p>	<p>Annual breeding success of kittiwakes</p> <p>Indicator Metric: Annual mean breeding success (no. offspring per pair) of kittiwake at sampled colonies. (Missing annual observations can be predicted by models - separate models recommended for the Celtic Seas, the Northern Isles and the Greater North Sea (except the Northern Isles))</p>
<p>Pelagic habitat targets - Habitat distribution</p> <p>At the scale of the MSFD sub-regions, distribution of plankton community is not significantly adversely influenced by anthropogenic drivers, as assessed by indicators of changes in plankton functional types (life form) indices.</p>	<p>Change of plankton functional types (life form) index</p> <p>Indicator Metric: Lifeforms: Ratio between: Diatoms & Dinoflagellates; Large copepods & Small copepods; Copepod grazers & Non-copepod grazers</p>
Descriptor 7 (hydrographical conditions)	

Target	Indicator
<p>Spatial Characteristics of Permanent Alterations / Impact of Permanent Hydrographical Changes</p> <p>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.</p>	<p>No detailed indicator identified as the target is based on the application of the existing regulatory regime.</p>
Descriptor 10 (Marine Litter)	
<p>Characteristics of Litter in the Marine Environment</p> <p>Overall reduction in the number of visible litter items within specific categories/types on coastlines</p>	<p>Surveillance indicator to monitor the quantities of litter on the seafloor</p> <p>Surveillance indicator to monitor the amounts of plastic found in the contents of fulmars stomachs (in line with the OSPAR Ecological Quality Objective)</p>

- 3.3 The targets and indicators build on the characteristics of GES for the UK's seas, which provide a high-level qualitative description of what the marine environment will look like when GES is achieved. The UK Marine Strategy Part One (2012) states that the targets and indicators should provide more detailed, quantitative assessment framework for guiding progress towards GES. However, the reality is that due to acknowledged uncertainties and data gaps a number of targets and indicators are qualitative and do not necessarily provide further detail.³¹
- 3.4 The UK Marine Policy Statement (2012) identifies that, "Marine Planning will be a key tool for ensuring that the targets and measures to be determined by the UK for the MSFD can be implemented".³² It also states that Marine Plan Authorities need to take into account the targets and indicators aimed at achieving GES under the MSFD.

How are GES targets and indicators being currently being progressed through emerging Marine Plans?

- 3.5 In order to identify actions that can help to strengthen Marine Plans contribution to GES, it is important to firstly understand how GES

³¹ Brennan et al (2014) EU marine strategy framework directive (MSFD) and marine spatial planning (MSP): Which is the more dominant and practicable contributor to maritime policy in the UK? *Marine Policy, Volume 43*, Pages 359-366.

³² HM Government (2012) UK Marine Policy Statement. Pg. 18, Para 2.6.1.3.

descriptor targets and indicators are currently being progressed through emerging and existing Marine Plans. A review of existing and emerging Marine Plans across the UK was carried out, to determine if and how they are progressing GES descriptor targets and indicators. The detailed review is presented in Appendix I with a summary of the findings presented below.

- 3.6 The Marine Plans selected for consideration were available at the time the study was being carried out. The review considered the following Marine Plans, which are at different stages of development:
- East Inshore and East Offshore Marine Plans (April 2014)
 - Scotland's National Marine Plan Consultation Draft (July 2013³³)
 - Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013)
 - Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011)
 - Firth of Clyde Marine Spatial Plan (July 2010)
- 3.7 The review found that the emerging Marine Plans progress the majority of GES descriptor targets and indicators indirectly at a strategic level (through objectives and policies that seek to protect and enhance marine ecosystems (including environmental conditions) and important biodiversity. However, for the majority of the Plans opportunities have been missed to clearly identify the key issues for the Marine Plan Area and priority areas for action.
- 3.8 The UK Marine Policy Statement states that "Marine Plans will provide a clear, spatial and locally-relevant expression of policy, implementation and delivery".³⁴ The strategic nature of existing marine plan policies, which often repeat existing international & national policy, are not spatially prescriptive meaning that they are unlikely to effectively progress GES descriptor targets and indicators or inform lower tier planning including decision making, such as marine licensing decisions. Generally, the plans considered do not provide any clear spatial guidance in terms of the location of potential activities/developments or set out any detailed actions or proposals to address issues that are specific to their Marine Plan, which means that there is a lack of detail in terms of implementation and delivery.
- 3.9 The East Inshore and East Offshore Marine Plans (April 2014) contain a number of strategic objectives and policies that seek to protect and enhance protected sites and sensitive receptors. They also contain a number of sectoral based policies, which set out various criteria for the consideration of proposals and generally support growth. While the

³³ It should be noted that shortly following the review of existing and emerging Marine Plans the Scottish Government published a revised National Marine Plan in December 2014 to take account of consultation responses. This study had considered the Scotland's National Marine Plan Consultation Draft published in July 2013.

³⁴ HM Government (2011) UK Marine Policy Statement, Chapter 2, Pg. 10, Para 2.2.1.

Plans identify and map protected sites and sensitive receptors, the policies do not provide any spatial direction for marine activities to reduce potential conflicts. The Plans also do not provide any detailed actions or proposals for specific issues or areas of conflict within the Marine Plan Areas. This makes the progression of GES descriptor targets and indicators less effective as the strategic policies are less likely to inform decision-making at the lower tier of plan making.

- 3.10 The Marine Plans produced for the SSMEI pilot areas in Scotland are generally more prescriptive and provide more detailed proposals than the East Inshore and East Offshore Marine Plans. For example, the Sound of Mull Marine Spatial Plan is split into two Parts, with Part 2 providing policy guidance for sub-areas which includes further detail in relation to particular activities and species in that area. The Plan includes a policy that discourages mobile gear fishing activity around the southern end of Calve Island, where eelgrass beds, knotted wrack and maerl beds are known to be present to safeguard these sensitive marine habitats for the Tobermory sub-area. The Firth of Clyde Marine Spatial Plan (2010) includes a policy specifically relating to an important individual species (Policy R&T 5 Migratory Salmonids). However, despite the above, opportunities have still been missed to set out specific actions and proposals to provide more detail on implementation and delivery.
- 3.11 The strategic nature of policies within Scotland's Marine Spatial Plan are not surprising given that it is a national level plan, which sets out the key issues and priority marine features for regional Marine Plans to take into account.
- 3.12 The majority of the emerging Marine Plans do not make any clear links between GES descriptor targets and indicators and objectives, policies and proposed monitoring. This makes it difficult to see how they have been progressed through plan-making. It is also evident from the review that the majority of emerging Marine Plans have not been developed using an ecosystem-based approach as required by the EU Marine Strategy Framework Directive. Whilst there are background evidence documents for some of the Plans³⁵ that consider how an ecosystem-based approach can be applied, for the majority it is not made clear if it has been applied, and if it has, how it has been progressed to inform plan policies.

Key Challenges and Barriers to the effective progression of UK's GES MSFD Descriptor Targets and Indicators through marine planning?

³⁵ SSMEI (2010) How can the Ecosystem Approach be applied to Scottish (Regional) Marine Planning?

- 3.13 There are a number of challenges and barriers to the effective progression of GES descriptor targets and indicators through marine planning. One of the key challenges to effective progression is the current lack of information and evidence, particularly with regard to environmental conditions and biodiversity. The UK Marine Strategy Part 1 acknowledges this, stating that it is not possible to cover all the criteria and indicators included in the Commission Decision on GES due to gaps in the knowledge base. It also recognises that there are significant gaps in relation to some of the GES descriptors.
- 3.14 The Marine Planning Guide for Local Authority (LA) Planners³⁶ produced by the Marine Management Organisation also recognises this, referring to a lack of information and patchwork of data, where there are pockets of detailed information within an area of sparse evidence. The lack of current information makes it difficult for Marine Plans to produce spatially prescriptive strategic policies and more detailed actions and proposals. The Marine Planning Guide for LA Planners states that it is not possible to produce sound deliverable spatial policies for all of the marine area. It also states that, "direction given in the plans can only be made where sufficient sound evidence exists to inform each plan's specific objectives and policies". Where information is inconclusive, the UK Marine Policy Statement requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle within an overall risk-based approach. The UK MPS states that "Marine Plans will be based on a sound evidence base, as far as possible"³⁷.
- 3.15 Other challenges for marine planning also include the dynamic nature of the marine environment, which must be considered in three dimensions. There is also a lack of clear boundaries (environmental and administrative) and the integration of terrestrial planning as well as various different legislative drivers make it a complex area for strategic planning. There is a culture of project-based sectoral decision making in the marine environment, which is reliant on impact assessment rather than holistic and integrated planning.
- 3.16 Another challenge to their effective progression is the qualitative and non-prescriptive nature of the GES descriptor targets. This can make it more difficult for Marine Planning Authorities to determine how their Marine Plans can best support the delivery of GES.³⁸

Recommendations for Marine Planning Authorities to strengthen progression of UK's GES MSFD Descriptor Targets and Indicators through Marine Plans

³⁶ MMO (2014) Marine Planning Guide for Local Authority Planners.

³⁷ HM Government (2012) UK Marine Policy Statement, Pg. 12, Para 2.3.1.2.

³⁸ Brennan et al (2014) EU marine strategy framework directive (MSFD) and marine spatial planning (MSP): Which is the more dominant and practicable contributor to maritime policy in the UK? Marine Policy, Volume 43, Pages 359-366.

3.17 A number of recommendations as to how Marine Planning could be strengthened to help progress GES descriptor targets and indicators were proposed as a result of the detailed review of existing and emerging Marine Plans presented in Appendix I. These recommendations have been collated and set out in the table below, which is structured according to the key stages in plan-making.

Table 3.2: Recommendations for Marine Plan Authorities to progress GES Descriptor Targets and Indicators

Plan-Making Stage and Recommendations for Marine Planning	
No.	Overall Approach to Marine Planning
MP1	<ul style="list-style-type: none"> ▪ Marine Plan Authorities should consider two tiers of marine planning: <ol style="list-style-type: none"> 1. Strategic objectives and policy - The objectives should set out the key issues and priorities for the Marine Plan Area supported by policies that progress these objectives and address the key issues and conflicts. The strategic policies should provide spatial guidance wherever possible, identifying priority areas that require further detailed proposals or directing marine activities away from sensitive areas. Strategic policies should also include priorities, indicating under what circumstances certain policies may over-ride others or how competing uses may be mediated spatially. 2. Detailed actions, proposals or programmes - These can address a priority area or particular issue identified within the strategic policies and provide further detail in terms of implementation and delivery, what will be carried out, by when and by whom. This will help to make marine planning more effective as the detailed actions will address spatially specific issues and provide time periods over which policies are expected to be effective. <p>The recommendations above will help Marine Plans to meet the requirements of the UK Marine Policy Statement (2011) by providing a clear, spatial and locally-relevant expression of policy, implementation and delivery.</p>
MP2	<p>The two tier planning process above can be presented in a number of different ways, which includes:</p> <ol style="list-style-type: none"> 1. A single national or regional Marine Plan, which could contain both strategic policies and then more detailed proposals/ programmes where necessary to address particular issues/conflicts. <ul style="list-style-type: none"> ▪ Pros - everything is contained within one Plan (similar to a terrestrial Local Plan), possibly less confusing and fewer rounds of consultation required. ▪ Cons - if circumstances change in one sector or locality the entire Plan would need to be reviewed. 2. Splitting the Marine Plan into two parts, with Part 1 containing the strategic issues/policies while Part 2 contains all the detailed proposals/programmes. The Sound of Mull Marine Plan was split into two parts. <ul style="list-style-type: none"> ▪ Pros - Part 2 of the Plan could be reviewed more regularly to reflect changing circumstances.

	<ul style="list-style-type: none"> ▪ Cons - Possibly more for confusing for stakeholders and more consultation required; however, this could potentially be mitigated through effective stakeholder engagement at all levels. <p>3. A single Strategic Marine Plan followed by a number of individual Action Plans to address specific issues/conflicts.</p> <ul style="list-style-type: none"> ▪ Pros - Individual action plans could be removed or amended as needed to reflect changing circumstances. ▪ Cons - A number of individual Action Plans could be confusing for stakeholders and more difficult to manage. More consultation would be required; however, this could potentially be mitigated through effective stakeholder engagement at all levels.
<p>MP3</p>	<ul style="list-style-type: none"> ▪ An ecosystem-based approach should be applied throughout the plan-making process - As required in the Marine Strategy Framework Directive, this will help to support the delivery of GES descriptor targets and indicators. An ecosystem based approach encourages the need for holistic management of an area, ensuring conservation of ecosystems to support sustainable use of ecosystem goods and services. <p>Recommendations for how Marine Plan Authorities can apply an ecosystem-based approach to Marine Planning are set out WEL's Discussion Paper³⁹ to the Welsh Government. The paper undertook a review into the extent to which existing UK marine plans have adopted an ecosystem based approach. Findings from the report indicate that, whilst some areas of the ecosystem based approach have been applied effectively (for instance, stakeholder engagement), current plans are limited in their application of this approach and further work needs to be undertaken on:</p> <ul style="list-style-type: none"> ▪ ensuring the vision and objectives of plan area give equal weight to the need for strategic growth with that of social and environmental requirements (recognising that growth and prosperity requires a healthy marine environment); ▪ develop a more robust analysis of cumulative impacts of human activities on the marine environment; ▪ greater understanding the environmental limits of a plan area, consideration of the ways in which Marine Plans can advance targets of MSFD Descriptors in order to achieve GES; ▪ valuing ecosystem goods and services and how these will change in response to management; ▪ identification of monitoring techniques that can effectively review objectives of Marine Plans; greater ability to predict long-term future change. <p>The Marine Plan Authority should set out at an early stage how they propose to use an ecosystem-based approach to develop the Marine Plan and seek views from all key stakeholders.</p>
<p>MP4</p>	<ul style="list-style-type: none"> ▪ Proactively use Sustainability Appraisal (SA)/ Strategic Environmental Assessment (SEA) early and iteratively - to help scope the key issues for

³⁹ Wales Environmental Link (2014) The Extent to which UK Marine Plans have embedded the Ecosystem Approach Principles and Wales Environment Link's Recommendations for the Welsh National Marine Plan.

	<p>the plan, including key sensitive receptors, methods and boundaries for cumulative effects assessment, and evaluation of policy options for the plan. The SA/SEA process should also be used to develop and refine potential reasonable alternatives for the Marine Plan and should clearly set out how it has influenced the Plan.</p>
	<p>Evidence Gathering</p>
MP5	<ul style="list-style-type: none"> ■ Prepare a comprehensive list of all key stakeholders and organisations within the Plan area - this should be done as early as possible and will inform the engagement strategy as well as be helpful in identifying useful sources of information.
MP6	<ul style="list-style-type: none"> ■ The Marine Plan Authority should identify and map the spatial boundaries for all existing terrestrial and marine plans/programmes of relevance to the Marine Plan Area (including those bordering the marine area) - which may include River Basin Management Plans, Shoreline Management Plans or Mineral Plans, Natura 2000 Site Improvement Plans and existing coastal strategies for resource management such as Integrated Coastal Zone Management. This will allow the Marine Plan Authority to quickly see where there are potential overlaps with the Marine Plan and should help to ensure consistency of information sources as well as policies, proposals and programmes. This will help to signpost Marine Plan Authorities to relevant statutory authorities who need to use the Plan and involve them early in the process. This will also help to coordinate and be consistent with Marine Plans in adjacent Marine Plan Areas as well as consider cross-boundary issues, such as mobile species.
MP7	<ul style="list-style-type: none"> ■ The Marine Plan Authority should collate all relevant existing data, in particular any information of relevance to the GES descriptor targets and indicators set out within the UK Marine Strategy Part 1 - A comprehensive evidence base is extremely important as it will help to effectively scope the key issues and trends within the Plan area, informing the development of the Plan.
MP8	<ul style="list-style-type: none"> ■ Where there are information gaps or paucity of data the Marine Plan Authority should seek to address them and signpost priority research areas within the Marine Plan Area as well as use the precautionary principle - The Marine Plan Authority should become the champion of data collection and coordination and should ensure that all data collection is standardised across all platforms (such as marine and terrestrial). Marine Plans should seek opportunities to improve the evidence base wherever possible. The evidence gathering stage should be an ongoing and iterative process, being updated to reflect changes and inform the monitoring framework and review of policies and proposals. Where information is inconclusive, the UK Marine Policy Statement requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle within an overall risk-based approach.
	<p>Assessment of Effects</p>
MP9	<ul style="list-style-type: none"> ■ The information collated as part of the previous evidence gathering stage should then be used to identify:

	<ul style="list-style-type: none"> ○ key habitats within the regional plans, key features and their conservation status; ○ potential impacts of current and future activities within the Plan area; ○ the ecosystem services provided by the marine environment within the Plan area, and associated values (however it is recognised that it is not always possible to quantify the values of biological diversity); ○ key sensitive receptors (including internationally, nationally and locally important habitats, species, seascape etc.) within the Plan area; ○ and map significant issues or areas of conflict between current and future activities and key sensitive receptors;
MP10	<ul style="list-style-type: none"> ■ Marine Plan Authorities should assess the capacity of the marine ecosystem/ ecosystem services provided within the Plan area and their ability to accommodate change or further activities (i.e. are they close to tipping points/ thresholds?) - The outcomes could be the identification and mapping of areas of least constraint that could accommodate particular activities in the future and thresholds should be used to inform plan policies.
Policy-Making	
MP11	<ul style="list-style-type: none"> ■ Strategic policies should set out the key issues, priorities and potential areas of conflict within the Plan area, rather than just repeating existing international and national policy - these policies should be informed by the assessment of effects stage above.
MP12	<ul style="list-style-type: none"> ■ Detailed actions or proposals should then be developed to address the key issues, priorities and potential areas of conflict identified through the higher level policy - these should include specific proposals, programmes and measures that address spatially specific issues and provide time periods over which policies are expected to be effective. The supporting text should provide detail with regard to implementation and delivery, what will be carried out, by when and by whom. Any proposals, programmes or measures should be clearly linked to indicators, particularly any GES descriptor targets and indicators, which in turn should be clearly linked to the monitoring framework for the Plan. Any links or potential conflicts with existing plans, proposals or programmes should also be clearly identified.
MP13	<ul style="list-style-type: none"> ■ Marine Planning Authorities should seek opportunities to secure funding to improve the evidence base and monitoring with the Marine Plan Area through the Plan - this could be achieved by requesting financial contributions from commercial marine users who are beneficiaries of marine licenses and the services provided by the marine environment. This would help to address the current lack of available evidence and data gaps that are making it difficult for Marine Planning Authorities to provide more focussed and spatially prescriptive policies and proposals.
MP14	<ul style="list-style-type: none"> ■ Strategic policies and detailed actions/ proposals should be expressed spatially through the planning portal - which could help to signpost competent authorities and marine users to the priority areas and detailed actions and proposals set out in the Plan as well as environmental assessments that may be required.
Monitoring	

MP15	<ul style="list-style-type: none"> ▪ Marine Plans should incorporate and monitor the GES descriptor targets and indicators set out in the UK Marine Strategy Part 1 and these should be aligned with objectives, policies and detailed proposals - If it is not feasible to incorporate any of the proposed GES target and indicators then comparable alternative targets and indicators should be identified and included, using indicators within existing terrestrial and marine monitoring frameworks where possible. Monitoring should be reported annually and the findings from each Marine Plan will help to provide a more accurate determination if GES is being met for the UK.
MP16	<ul style="list-style-type: none"> ▪ Suitable indicators should be identified and incorporated into the monitoring framework for any policies or detailed proposals/ programmes to address a particular issue or conflict - indicators within existing terrestrial and marine monitoring frameworks should be used where possible. This will help the Marine Plan Authority to determine if the implementation of the Plan and proposals/ programmes are addressing the identified issue. It will also help to identify any potential unforeseen adverse effects at an early stage and allow the Marine Plan Authority to undertake appropriate remedial action.
Review	
MP17	<ul style="list-style-type: none"> ▪ Marine Plan Authorities should ensure that there are mechanisms in place to allow for the review of Marine Plans if there are any significant changes to the evidence - Marine Planning Authorities are required to review their Marine Plans every 6 years. Marine Planning should be an ongoing and iterative process that is flexible and adaptive to changes in the evidence base and unforeseen circumstances. The more detailed actions and proposals set out in the Plan should be reviewed more frequently to adapt to changing circumstances and ensure effective implementation of strategic policies.

3.16 The detailed review in Appendix I also proposed a number of recommendations as to how Marine Plans could progress individual GES descriptor targets and indicators. These GES descriptor specific recommendations have been collated and set out in the table below.

Table 3.3: Recommendations for Marine Plan Authorities to progress specific GES Descriptor Targets and Indicators

No.	Recommendations for specific GES Descriptor Targets and Indicators
Descriptors 1 (Biodiversity), 4 (Food Webs) and 6 (Sea-Floor Integrity)	
R1	<ul style="list-style-type: none"> ▪ At a strategic level Marine Plans should include policies that seek to protect, conserve and enhance designated biodiversity, which includes any non-designated habitats and species of importance or relevance to

	GES Descriptors 1, 4 and 6. The strategic policies should identify important areas or habitats/species of particular importance as well as any potential areas of conflict with marine activities. Any key issues within the Plan area should be highlighted and where possible spatial direction should be provided to ensure that marine activities avoid the most sensitive areas.
	Descriptor 2 - Non-indigenous species
R2	<ul style="list-style-type: none"> Marine Planning Authorities should identify any non-indigenous species that are of particular concern for their Plan area along with any pathways for introduction or activities that pose the greatest risk.
R3	<ul style="list-style-type: none"> If possible, Marine Plan Authorities should seek to identify/scope the habitats within their Plan area that are most suitable for identified non-indigenous species and then illustrate which developments or activities currently occur in those areas.
	Descriptor 3 - Commercially exploited fish and shellfish
R4	<ul style="list-style-type: none"> Marine Plan Authorities should identify and map spawning and nursery areas as well as important migration corridors. Marine activities should be directed away from these important areas if necessary.
	Descriptor 5 - Eutrophication
R5	<ul style="list-style-type: none"> Marine Plan Authorities should identify which marine developments/activities are most likely to either result in increased nutrient levels either as a point source or contributing to diffuse inputs.
R6	<ul style="list-style-type: none"> At a strategic level the Marine Plan can include policy that directs particular development types (that may increase nutrient levels), such as finfish aquaculture, away from potential areas of risk or require proposals to demonstrate how they intend to minimise the introduction of nutrients.
	Descriptor 7 - Permanent alteration of hydrographical conditions
R7	<ul style="list-style-type: none"> The Marine Plan Authorities should identify the prevailing hydrographical conditions and particular areas that are of significant importance for the Plan area. Any hydrographical conditions or areas of fundamental importance must be maintained and should be identified and mapped.
R8	<ul style="list-style-type: none"> The potential impacts of different large scale developments should be considered alongside the key prevailing conditions and areas to enable the Marine Plan Authorities to develop policy and propose indicators that are focussed on the key issues for the Plan area.
	Descriptor 8 - Concentrations of contaminants
R9	<ul style="list-style-type: none"> Marine Plan Authorities should be able to identify the types of development and activities that have the greatest likelihood and risk of introducing hazardous substances. They should also be able to identify key receptors within the plan area that are sensitive to contamination, such as particular habitats or species.

R10	<ul style="list-style-type: none"> ■ A sectoral policy could require any proposal to demonstrate how they intend to minimise the potential risk of introducing hazardous substances. The Marine Plan could also require proposals or activities that could result in a significant accidental release of hazardous substances to include an emergency response plan, such as Policy MSP OAG1 (Oil and Gas Proposals) in the Shetland Islands' Marine Spatial Plan Draft Fourth Edition (Nov 2013).
Descriptor 9 - Contaminants in fish and other seafood	
Please refer to the recommendations made under Descriptor 8.	
Descriptor 10 - Marine litter	
R11	<ul style="list-style-type: none"> ■ Marine Plan Authorities should identify the marine activities that are most likely to generate litter as well as identify and map priority areas where there is an existing issue. The Marine Plan could seek the development of a coordinated marine litter strategy for the Plan area, such as Policy ENV 11 in the Firth of Clyde Marine Spatial Plan, which encourages agencies and local authorities to work collaboratively. Where possible links should be made to existing national/ regional/ local schemes for reducing litter (both inshore and offshore).
R12	<ul style="list-style-type: none"> ■ Sectoral policies relating to marine activities identified as generating litter within the strategic policy could require any proposal to demonstrate how they intend to reduce the generation of marine litter and/or submit a litter minimisation and management plan, such as Policy MSP LITT1 in the Shetland Islands' Marine Spatial Plan. It should also set out any specific measures that are applicable for that particular development/ activity that could help to reduce the generation of litter.
Descriptor 11 - Introduction of energy, including underwater noise	
R13	<ul style="list-style-type: none"> ■ Marine Plans should identify underwater noise as a priority research area and seek any opportunities to help address the current lack of data. Once the JNCC marine noise registry is operational, it is recommended that Marine Plans require all developments or activities within their Plan are to submit noise data to the registry.
R14	<ul style="list-style-type: none"> ■ If the evidence gathering and assessment stages of plan-making identify that there is an existing issue then a strategic policy must be developed to identify priority areas within the Marine Plan area where there are conflicts. The policy must be spatially specific and supported by a map identifying the priority/conflict areas and linked to prevalent occurrence of the sensitive species in that area.
R15	<ul style="list-style-type: none"> ■ Sectoral policies relating to marine activities identified as generating noise within the strategic policy could require any proposal to demonstrate how they intend to address any noise generated and minimise potential negative effects. It could also require any proposals to be accompanied by a noise impact assessment, such as Policy MSP NOISE1 (Minimising Levels of Noise Including Underwater Noise) in Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013).

4.0 Marine Planning - Supporting an Effective Marine Protected Area Network

Introduction

- 4.1 The UK has signed up to international agreements, such as the OSPAR Convention for the Protection of the Marine Environment of the North East Atlantic⁴⁰, which aims to establish an ecologically coherent network of well-managed Marine Protected Areas. The network is made up of both national (Marine Conservation Zones (MCZs) and Marine Protected Areas under legislation applying to Scottish waters and Sites of Special Scientific Interest (SSSIs)) as well as European designations, which include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and sites of international importance (Ramsar⁴¹).
- 4.2 The Marine Strategy Framework Directive⁴² (MSFD) requires Member States to establish Marine Protected Areas, seeing them as an important contribution to the achievement of good environmental status (GES) under the Directive. The MCAA introduced the legislative basis upon which MCZs could be designated and the UK Marine Policy Statement⁴³ reflects this, seeing the network of Marine Protected Areas as a key tool in contributing to the delivery of GES, in particular helping to ensure that biodiversity is protected, conserved and where appropriate recovered, and loss of biodiversity is halted.
- 4.3 In the UK there are currently 108 Special Areas of Conservation (SACs) with marine components, 108 Special Protection Areas (SPAs) with marine components, 28 Marine Conservation Zones and 30 Nature Conservation Marine Protected Areas and one Marine Nature Reserve, which protect 16% of UK waters. Sites of Special Scientific Interest (SSSIs) with marine components and Ramsar sites also contribute to the existing UK Marine Protected Area network⁴⁴. The Joint Nature Conservation Committee (JNCC) provides an interactive map containing information on Marine Protected Areas⁴⁵.
- 4.4 In English waters the main types of MPAs are identified as⁴⁶:
 - European Marine Sites giving legal protection to species and habitats of European importance (SACs & SPAs)

⁴⁰ <http://www.ospar.org/content/content.asp?menu=01481200000000000000000000000000>

⁴¹ <http://www.ramsar.org/>

⁴² Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy.

⁴³ HM Government (December 2012) UK Marine Strategy Part 1, Para 366, Pg. 115.

⁴⁴ <http://jncc.defra.gov.uk/marineprotectedareas>

⁴⁵ JNCC (2014) Marine Protected Areas in the UK [Online] Available from: <http://jncc.defra.gov.uk/mczmap>

⁴⁶ <https://www.gov.uk/government/policies/protecting-and-sustainably-using-the-marine-environment/supporting-pages/marine-protected-areas>

- Marine Conservation Zones and SSSIs with marine components giving protection to species and habitats of national importance
 - Ramsar sites
- 4.5 In Welsh waters, MPAs are identified as any area of sea, seabed or shore reserved by law or other means for the protection of the environment within, which includes⁴⁷:
- Special Areas of Conservation
 - Special Protection Areas
 - Marine Conservation Zones
 - Ramsar Sites
 - Sites of Special Scientific Interest
- 4.6 In Scottish waters, MPAs can either be designated for nature conservation, demonstration and research purposes or historic reasons⁴⁸. To date 30 MPAs have been designated for nature conservation. They have been identified for features (the collective term for species, habitats and geology that is looking to be protected in the MPA network) that Marine Scotland believes require more protection than that offered by existing protected areas⁴⁹.
- 4.7 In Northern Ireland waters, MPAs are identified as⁵⁰:
- European marine sites (SACs & SPAs)
 - Areas of Special Scientific Interest (ASSIs)
 - Ramsar sites
 - Marine Conservation Zones (MCZs)

How can Marine Planning support an Effective Marine Protected Area Network?

- 4.8 The MSFD identifies that it is crucial for the achievement of the objectives of the Directive to ensure the integration of conservation objectives, management measures and monitoring and assessment activities set up for SACs, SPAs and Marine Protected Areas. This reinforces the environmental focus of the MSFD and the need for the integration and consistency with existing measures.
- 4.9 The UK Marine Policy Statement states that the UK administrations are committed to allowing damaged ecosystems to recover in order to realise the benefits from the marine environment, which will be achieved through integrating conservation objectives into marine planning and decision making, and incorporating the requirements for specific designated conservation areas.

⁴⁷ <http://www.ccg.gov.uk/landscape-wildlife/managing-land-and-sea/marine-policies/planning-management/marine-protected-areas.aspx>

⁴⁸ Marine (Scotland) Act 2010

⁴⁹ <http://www.scotland.gov.uk/topics/marine/marine-environment/mpanetwork>

⁵⁰ http://www.nimf.org/marine_protection

- 4.10 Marine Protected Areas are generally underpinned by a variety of designations, which can include SSSIs, SACs, SPAs and Ramsar sites. MCZs build on these existing designations by offering protection to features (species and/or habitats) which do not qualify for protection under European legislation. Each of the designated sites referred to above can have their own conservation objectives and management measures, which often seek to maintain or restore the designated features to a favourable condition or status. In some cases there may be a coordinated approach to the management of sites, such as for European Marine Sites; however, this is not always the case.
- 4.11 The challenge for Marine Planning Authorities is to try and effectively integrate the various conservation objectives, management measures and monitoring and assessment activities for all these different designations into the Marine Plan. Not only are there often numerous underlying designations within a Marine Plan Area, the conservation objectives and management measures for each of the sites are often at different stages of development, with the organisations responsible for their management often focussing on those sites at greatest risk. A lack of existing information also makes it difficult to understand and identify the carrying capacity and environmental limits of these protected sites.
- 4.12 In England and Wales there are ongoing programmes to produce strategic plans for the management and restoration for all SACs and SPAs both on the land and sea. The Welsh Life Natura 2000 Programme⁵¹ is being run by Natural Resources Wales with the improvement programme for England's Natura 2000 Sites⁵² (IPENS) being run by Natural England. Their purpose is to develop a strategic approach to achieving favourable condition for SACs and SPAs by reviewing:
- the evidence available and trying to address gaps in knowledge,
 - the risks and issues that are impacting on and/or threatening the condition of the site;
 - which actions and measures could be used to address them; and
 - how much it will cost and where the money could come from.
- 4.13 The strategic plans for each site will outline the priority measures needed to achieve and maintain the European species and habitats within a site in favourable condition, which includes a number of actions, measures and funding options. There may also be thematic plans to address common issues across multiple sites. NRW and NE

⁵¹

<http://wales.gov.uk/topics/environmentcountryside/consmanagement/conservationbiodiversity/habitatdirective/paf-for-natura-2000-sites/?lang=en>

⁵² Improvement programme for England's Natura 2000 sites (IPENS) (2012). Available online: <https://www.gov.uk/government/publications/improvement-programme-for-englands-natura-2000-sites-ipens/improvement-programme-for-englands-natura-2000-sites-ipens>

intend for the programmes to be completed before the end of 2015. Ensuing consistency and supporting the delivery of measures within these strategic site and thematic plans will be crucial if Marine Plans are going to support an effective Marine Protected Area network.

Recommendations for Marine Planning Authorities to Support an Effective Marine Protected Area Network

4.14 The table below sets out the recommendations for how marine planning can help to support an effective network of Marine Protected Areas. The recommendations set out below build on the findings and recommendations of the review work presented in Section 3; however, they are focused on Marine Protected Areas. For consistency, the recommendations are also structured according to stages in plan-making.

Table 4.1: Recommendations for Marine Plan Authorities to support an effective Network of Marine Protected Areas.

No.	Plan-Making Stage and Recommendations
	Overall Approach to Marine Planning
MPA1	<ul style="list-style-type: none"> ▪ Development of strategic policy which is supported by detailed actions, proposals or programmes - Table 3.1 recommends that Marine Plan Authorities should consider two tiers of marine planning; higher level strategic objectives and policies followed by detailed actions, proposals and programmes. This approach is also recommended to help marine planning support an effective Marine Protected Area network. The strategic policies can focus on the key issues and areas of conflict, providing spatial direction where possible. Detailed actions, proposals or programmes would then address the key issues and areas of conflict set out in the policies and provide more detail in terms of implementation and delivery.
MPA2	<ul style="list-style-type: none"> ▪ An ecosystem-based approach should be applied throughout the marine planning process - The application of an ecosystem-based approach (as highlighted in table 3.1) will help support delivery of GES descriptor targets and indicators as well as Marine Protected Areas. Recommendations for how Marine Plan Authorities can apply an ecosystem-based approach to Marine Planning are set out in WEL's Discussion Paper⁵³ to the Welsh Government. For the Plan to meet the requirements of the MSFD for an ecosystem-based approach and achieve GES, plans should attempt to fully understand the environmental limits of MPAs and the marine ecosystem as a whole (including areas outwith MPAs which indirectly support the network) as well as the value of MPAs (singular and as a network). Plans should also ensure protected sites are signposted

⁵³ Wales Environmental Link (2014) The Extent to which UK Marine Plans have embedded the Ecosystem Approach Principles and Wales Environment Link's Recommendations for the Welsh National Marine Plan.

	spatially and undertake robust analysis of cumulative and in-combination effects of plan policies on the MPA network.
MPA3	<ul style="list-style-type: none"> ▪ In line with the Habitats Directive and UK Marine Policy Statement, a precautionary approach should be applied to the consideration of Marine Protected Areas throughout the development of the Plan - The UK Marine Policy Statement states that where evidence is inconclusive, decision makers should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach.
MPA4	<ul style="list-style-type: none"> ▪ Marine Plans provide an opportunity to take a strategic approach to Marine Protected Areas as an interconnected network of sites - Marine planning provides an opportunity to consider the Marine Protected Areas strategically, considering the interconnectedness of the protected sites and mobile species that move between them. The consideration of in-combination effects, including the interactions between different plans and programmes as well as marine activities will be extremely important.
Evidence Gathering	
MPA5	<ul style="list-style-type: none"> ▪ Early and ongoing contact with the with organisations responsible for the management of Marine Protected Areas - in particular Natural England, JNCC, Natural Resources Wales, Scottish Natural Heritage and the Department of the Environment Marine Division. Consultation with other Member States may also be required depending on which Marine Protected Areas are likely to be affected.
MPA6	<ul style="list-style-type: none"> ▪ Ensure that all relevant information relating to Marine Protected Areas is collated and used to inform plan-making - This includes all relevant management plans and any available data relating to qualifying features (habitats and species).
MPA7	<ul style="list-style-type: none"> ▪ Where there are information gaps or paucity of data the Marine Plan Authority should seek to address them and signpost priority research areas - The Marine Plan Authority should become the champion of data collection and coordination. The Site Improvement Plans/ Strategic Plans being prepared by NE and NRW as part of the Natura 2000 improvement programmes set out further studies and research that is required as part of the proposed actions. Where information is inconclusive, the UK Marine Policy Statement requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle within an overall risk-based approach.
Assessment of Effects	
MPA8	<ul style="list-style-type: none"> ▪ Marine Plan Authorities must ensure that the potential effects of the Marine Plan on all Marine Protected Areas are thoroughly considered - The Habitats Directive and Regulations only require the consideration of SACs (including candidate sites) and SPAs (including proposed sites), with guidance also suggesting the inclusion of Ramsar sites. Therefore, Marine Plan Authorities must ensure that all other Marine Protected Areas, including SSSIs and MCZs, are given appropriate consideration through the SA/SEA process.
MPA9	<ul style="list-style-type: none"> ▪ Marine Planning Authorities should ensure that the qualifying features

	<p>for Marine Protected Areas are scoped into the SA/SEA process and adequately considered through SA Objectives - The SA/SEA process should also help to identify sensitive receptors and potential conflicts. The SA/SEA and HRA processes should help to identify the interactions going on within the Plan area, in particular the potential impacts of human activities on the habitats and species. The findings of the assessments should inform the development of Marine Plans and the SA/SEA and HRA Reports should clearly set out how they have influenced the Plan.</p>
MPA10	<ul style="list-style-type: none"> <p>Marine Plan Authorities should assess the capacity of the marine ecosystem/ ecosystem services provided within the Plan area and their ability to accommodate change or further activities (i.e. are they close to tipping points/ thresholds?) - The outcomes could be the identification and mapping of areas of least constraint that could accommodate particular activities in the future. It could also be used to quantify the 'importance' of biodiversity in the Marine Plan Area (e.g. the value of ecosystem goods and services), which will provide a better foundation for the development of policy as well as subsequent impact assessments. It is important this information is expressed spatially wherever possible.</p>
MPA11	<ul style="list-style-type: none"> <p>A robust appraisal process is extremely important, in particular cumulative effects assessment - Marine Planning should help avoid significant cumulative and in-combination effects of human activities on biodiversity by highlighting sensitive areas spatially and setting thresholds for the level of development. SA/SEA and HRA provide an opportunity to carry out a thorough appraisal of cumulative or in-combination effects.</p>
Policy-Making	
MPA12	<ul style="list-style-type: none"> <p>Develop a strategic objective that seeks to protect, conserve, restore and enhance important biodiversity (which includes Marine Protected Areas) within and surrounding the Marine Plan Area.</p>
MPA13	<ul style="list-style-type: none"> <p>Develop a strategic policy that identifies the key issues for Marine Protected Areas within and surrounding the Plan area - this should be informed by the evidence gathering and assessment stages (which should have identified and mapped important areas, including habitats and species as well as potential areas of conflict) and informed by existing management plans (in particular strategic plans for Natura 2000 sites in England and Wales). The policy should provide spatial direction for marine activities so they avoid the most sensitive qualifying features (habitats and/or species) where conflicts are most likely to occur. It should also highlight any significant data gaps and signpost priority research areas.</p>
MPA14	<ul style="list-style-type: none"> <p>Develop detailed actions, proposals or programmes to address the key issues and areas of conflict identified within the strategic policy - These should provide more detail in terms of implementation, what will be carried out, by when and by whom. It is crucial that any actions or proposals are consistent with and support the measures proposed within the strategic management/improvement plans for Natura 2000 sites. The Plan must make any links with existing action plans or programmes clear. Any proposed actions or proposals</p>

	should also be clearly linked to indicators, particularly any GES descriptor targets and indicators, which in turn should be clearly linked to the monitoring framework for the Plan.
MPA15	<ul style="list-style-type: none"> ▪ Marine Planning Authorities should seek opportunities to secure funding to improve the evidence base and monitoring of Marine Protected Areas within the Plan Area - This could be achieved by requesting financial contributions from commercial marine users who are beneficiaries of MPA goods and services. The financial contributions could towards supporting the priority research actions being proposed through the Natura 2000 improvement programmes in England and Wales and management plans.
	Monitoring
MPA16	<ul style="list-style-type: none"> ▪ Marine Plans should incorporate into the monitoring framework any existing indicators relating to Marine Protected Area qualifying features - In particular those features that are identified through policy and detailed actions as being a priority within the Plan Area.

5.0 Summary and Key Recommendations for Marine Planning Authorities

- 5.1 The review of emerging Marine Plans in the UK found that in general, GES descriptor targets and indicators are not being effectively progressed through Marine Planning. The majority of policies being produced are strategic in nature and lack any spatial definition in terms of directing future marine activities. Opportunities have been missed to highlight and address the key issues for Marine Plan Areas and set out specific proposals to help achieve GES and provide further detail in terms of implementation and delivery. Marine Plans are supposed to provide a clear, spatial and locally-relevant expression of policy, implementation and delivery.⁵⁴
- 5.2 It is recognised that there are a number of challenges and barriers facing marine planning and the effective progression of GES descriptor targets and indicators. A key one of these being the current lack of information and gaps in data, which is acknowledged as an issue within the higher level UK Marine Strategy as well as guidance⁵⁵. This can make it difficult to provide spatially prescriptive strategic policies and more detailed actions and proposals. The lack of existing data and different layers of designated sites for nature conservation also makes it difficult for Marine Planning to support an effective Network of Marine Protected Areas. However, the UK Marine Policy Statement requires decision makers to make reasonable efforts to fill evidence gaps and apply the precautionary principle within an overall risk-based approach. The UK MPS also states that "Marine Plans will be based on a sound evidence base, as far as possible"⁵⁶.

Recommendations for Marine Planning Authorities to strengthen progression of UK's GES MSFD Descriptor Targets and Indicators

- 5.3 A number of recommendations as to how Marine Planning could be strengthened to help progress GES descriptor targets and indicators were proposed as a result of the review of existing and emerging Marine Plans. These recommendations are summarised below:
- **Marine Plan Authorities should consider two tiers of marine planning (MP1):**
 - **Strategic objectives and policy** - The objectives should set out the key issues and priorities for the Marine Plan Area supported by policies that progress these objectives and address the key issues and conflicts. The strategic policies should provide spatial guidance wherever possible, identifying priority areas that require further detailed proposals or directing marine activities away from sensitive areas. Strategic policies should also include

⁵⁴ HM Government (2011) UK Marine Policy Statement, Chapter 2, Pg. 10, Para 2.2.1.

⁵⁵ MMO (2014) Marine Planning Guide for Local Authority Planners.

⁵⁶ HM Government (2012) UK Marine Policy Statement, Pg. 12, Para 2.3.1.2.

priorities, indicating under what circumstances certain policies may over-ride others or how competing uses may be mediated spatially.

- **Detailed actions, proposals or programmes** - These can address a priority area or particular issue identified within the strategic policies and provide further detail in terms of implementation and delivery - what will be carried out, by when and by whom. This will help to make marine planning more effective as the detailed actions will address spatially specific issues and provide time periods over which policies are expected to be effective.
- **An ecosystem-based approach should be applied throughout the plan-making process (MP3)** - As required in the Marine Strategy Framework Directive, this will help to support the delivery of GES descriptor targets and indicators. Recommendations for how Marine Plan Authorities can apply an ecosystem-based approach to Marine Planning are set out WEL's Discussion Paper⁵⁷ to the Welsh Government.
- **Proactively use Sustainability Appraisal (SA)/ Strategic Environmental Assessment (SEA) early and iteratively (MP4)** - This can help scope the key stakeholders as well as issues for the plan, including key sensitive receptors, methods and boundaries for cumulative effects assessment, and identification/evaluation of alternatives for the plan. The SA/SEA process should begin at an early stage and clearly set out how the findings have influenced the development of the Plan.
- **Assess the capacity of the marine ecosystem and ecosystem services provided within the Plan area for their ability to accommodate change or further activities (MP10)** - The outcomes could be the identification and mapping of areas of least constraint that could accommodate particular activities in the future.
- **Robust data gathering and monitoring (MP6 - MP8 & MP16):**
 - Prepare a comprehensive list of all key stakeholders and organisations within the Plan area to help inform the engagement strategy and data gathering.
 - Collate all relevant existing data and evidence relating to the GES descriptor targets and indicators.
 - Identify and map the spatial boundaries for all existing terrestrial and marine plans/programmes of relevance to the Marine Plan Area (including those bordering the marine area).
 - Where there are information gaps or paucity of data the Marine Plan Authority should seek to address them and signpost priority

⁵⁷ Wales Environmental Link (2014) The Extent to which UK Marine Plans have embedded the Ecosystem Approach Principles and Wales Environment Link's Recommendations for the Welsh National Marine Plan.

research areas within the Plan Area as well as use the precautionary principle within an overall risk-based approach.

- Marine Plans should incorporate and monitor the GES descriptor targets and indicators and these should be aligned with objectives, policies and detailed proposals.
- **Seek opportunities to secure funding to improve the evidence base and monitoring (MP13)** - This could be achieved by requesting financial contributions from commercial marine users who are beneficiaries of marine licences and the services provided by the marine environment. This would help to address the current lack of available evidence and data gaps that are making it difficult for Marine Planning Authorities to provide more focussed and spatially prescriptive policies and actions.
- **Early, ongoing and effective review (MP17)** - The review of Marine Plans should be an ongoing and iterative process that is flexible and adaptive to changes in the evidence base and unforeseen circumstances.

Recommendations for how Marine Plans can support an effective Marine Protected Area network

5.4 In addition to the recommendations above, the study also proposed a number of recommendations for how Marine Plans can support an effective Marine Protected Area network as summarised below:

- **Early and ongoing contact with the with organisations responsible for the management of Marine Protected Areas (MPA5)** - in particular Natural England, JNCC, Natural Resources Wales, Scottish Natural Heritage and Northern Ireland Environment Agency.
- **Ensure that all relevant information relating to Marine Protected Areas is collated and used to inform plan-making (MPA6)** - This includes all relevant management plans, site improvement plans and any available data relating to qualifying features (habitats and species).
- **A precautionary approach should be applied throughout the development of the Plan (MPA3)** - In line with the Habitats Directive and UK Marine Policy Statement where evidence is inconclusive, decision makers should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach.
- **Marine Plan Authorities must ensure that the potential effects of the Marine Plan on all Marine Protected Areas are thoroughly considered (MPA8)** - The Habitats Directive and Regulations only require the consideration of SACs (including candidate sites) and SPAs (including proposed sites), with guidance further suggesting the inclusion of Ramsar sites. Therefore, Marine Plan Authorities

must ensure that all other Marine Protected Areas, including SSSIs and MCZs, are given appropriate consideration through the SA/SEA process as well as plan-making.

- **Take a strategic approach to the protection and enhancement of Marine Protected Areas (MPA4)** - Marine planning provides an opportunity to consider the Marine Protected Areas strategically, considering the interconnectedness of the protected sites and mobile species that move between them. The consideration of in-combination effects, including the interactions between different plans and programmes as well as marine activities will be extremely important.
- **Develop strategic policies that identify key issues and areas of conflict for Marine Plan Areas within and surrounding the Plan area (MPA13)** - The policies should provide spatial direction for marine activities so they avoid the most sensitive qualifying features (habitats and/or species) where conflicts are most likely to occur.
- **Develop detailed actions, proposals or programmes to address the key issues and areas of conflict identified within strategic policy (MPA14)** - These should provide more detail in terms of implementation, what will be carried out, by when and by whom. It is crucial that any actions or proposals are consistent with and support the measures proposed within the management and improvement plans for Natura 2000 sites.
- **Marine Planning Authorities should seek opportunities to secure funding to improve the evidence base and monitoring of Marine Protected Areas within the Plan Area (MPA15)** - This could be achieved by requesting financial contributions from commercial marine users who are beneficiaries of MPA goods and services. The financial contributions could be towards supporting the priority research actions being proposed through the Natura 2000 improvement programmes in England and Wales and management plans.
- **Marine Plans should incorporate into the monitoring framework any existing indicators relating to Marine Protected Area qualifying features (MPA16)** - In particular those features that are identified through policy and detailed actions/proposals as being a priority within the Plan Area.

Recommendations for how marine planning could support the delivery of specific GES descriptor targets and indicators

- 5.5 The study also proposed a number of recommendations for how marine planning could support the delivery of specific GES descriptor targets and indicators, as summarised below:

Descriptors 1 (Biodiversity), 4 (Food Webs) and 6 (Sea-Floor Integrity)

- **R1** - At a strategic level Marine Plans should include policies that seek to protect, conserve and enhance designated biodiversity, which includes any non-designated habitats and species of importance or relevance to GES Descriptors 1, 4 and 6. The strategic policies should identify important areas or habitats/species of particular importance as well as any potential areas of conflict with marine activities. Any key issues within the Plan area should be highlighted and where possible spatial direction should be provided to ensure that marine activities avoid the most sensitive areas.

Descriptor 2 - Non-indigenous species

- **R2** - Marine Planning Authorities should identify any non-indigenous species that are of particular concern for their Plan area along with any pathways for introduction or activities that pose the greatest risk.
- **R3** - They should also seek to identify/scope the habitats within their Plan area that are most suitable for identified non-indigenous species and then illustrate which developments or activities currently occur in those areas.

Descriptor 3 - Commercially exploited fish and shellfish

- **R4** - Marine Plan Authorities should identify and map spawning and nursery areas as well as important migration corridors. Marine activities should be directed away from these important areas if necessary.

Descriptor 5 - Eutrophication

- **R5** - Marine Plan Authorities should be able to identify which marine developments/activities are most likely to either result in increased nutrient levels either as a point source or contributing to diffuse inputs.
- **R6** - Policies can then direct particular marine activities (that may increase nutrient levels), such as finfish aquaculture, away from potential areas of risk or sensitivity. They could also require proposals to demonstrate how they intend to minimise the introduction of nutrients.

Descriptor 7 - Permanent alteration of hydrographical conditions

- **R7** - The Marine Plan Authorities should identify the prevailing hydrographical conditions and particular areas that are of significant importance for the Plan area. Any hydrographical conditions or areas of fundamental importance must be maintained and should be identified and mapped.
- **R8** - The potential impacts of different large scale developments should be considered alongside the key prevailing conditions and

areas to enable the Marine Plan Authorities to develop policy and propose indicators that are focussed on the key issues for the Plan area.

Descriptor 8 - Concentrations of contaminants

- **R9** - Marine Plan Authorities should be able to identify the types of development and activities that have the greatest likelihood and risk of introducing hazardous substances. They should also be able to identify key receptors within the plan area that are sensitive to contamination, such as particular habitats or species.
- **R10** - A sectoral policy could require any proposal to demonstrate how they intend to minimise the potential risk of introducing hazardous substances. The Marine Plan could also require proposals or activities that could result in a significant accidental release of hazardous substances to include an emergency response plan.

Descriptor 10 - Marine litter

- **R11** - Marine Plans should identify the marine activities that are most likely to generate litter as well as identify and map priority areas where there is an existing issue. The Marine Plan could seek the development of a coordinated marine litter strategy for the Plan area, such as Policy ENV 11 in the Firth of Clyde Marine Spatial Plan, which encourages agencies and local authorities to work collaboratively.
- **R12** - Sectoral policies relating to marine activities identified as generating litter within the strategic policy could require any proposal to demonstrate how they intend to reduce the generation of marine litter and/or submit a litter minimisation and management plan.

Descriptor 11 - Introduction of energy, including underwater noise

- **R13** - Marine Plans should identify underwater noise as a priority research area and seek any opportunities to help address the current lack of data. Once the JNCC marine noise registry is operational, it is recommended that Marine Plans require all developments or activities within their Plan area to submit noise data to the registry.
- **R14** - If the evidence gathering and assessment stages of plan-making identify that there is an existing issue then a strategic policy must be developed to identify priority areas within the Marine Plan area where there are conflicts. The policy must be spatially specific and supported by a map identifying the priority/conflict areas and linked to prevalent occurrence of the sensitive species in that area.
- **R15** - Sectoral policies relating to marine activities identified as generating noise within the strategic policy could require any proposal to demonstrate how they intend to address any noise generated and minimise potential negative effects. It could also require any proposals to be accompanied by a noise impact assessment.

- 5.6 The recommendations set out above will help to strengthen marine planning, making it more effective in the delivery of GES descriptor targets and indicators as well as supporting a coherent Marine Protected Area network. An improved evidence base and more focussed Marine Plan policies and detailed actions/ proposals will also provide time and cost efficiencies in the long term for lower level decision making.

Appendix I: Review of existing and emerging Marine Plans to assess what extent they progress MSFD Descriptor Targets and Indicators

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Descriptor 1 (Biodiversity) 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.</p> <p>Descriptor 4 (Food Webs) 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.</p> <p>Descriptor 6 (Sea-Floor Integrity) Sea-floor 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.</p> <ul style="list-style-type: none"> • Marine Mammal Targets: species distribution; population size; population condition; productivity of key species and abundance/ distribution of key species/ trophic groups. • Bird Targets: species distribution; population size; population condition; productivity of key species and abundance/ distribution of key species/ trophic groups, risks of invasive mammals on seabird islands. • Fish Targets: species distribution; population size; ecosystem structure and proportion of selected species at the top of the food webs. • Pelagic Habitat Targets: habitat distribution; habitat condition; ecosystem structure; abundance/distribution of key species/trophic groups and condition of the benthic community. • Rock & Reef Targets: habitat distribution; habitat extent; habitat condition; physical damage and condition of the benthic community. • Sediment Habitat Targets: habitat distribution; habitat extent; habitat condition; physical damage and condition of the benthic community. 		
<p>At a strategic level Marine Plans can directly progress the GES descriptor targets and indicators outlined above by identifying the important habitats and</p>	<p>East Inshore and East Offshore Marine Plans (April 2014): Objectives 6, 7 & 8 seek to support, protect, conserve and enhance biodiversity, which includes the marine ecosystem and Marine Protected Areas. Potential environmental issues within the plan areas are linked to GES descriptors in Para 185 on Pg. 62.</p> <p>Policies within the Plan that have the potential to directly progress GES descriptor targets and indicators include Policy ECO1, which seeks that cumulative effects on</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to descriptor targets and indicators. This includes any available information on the quality and occurrence of the relevant habitats and abundance and</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>species within the Marine Plan Area and then developing objectives and policies that seek to protect and enhance them. The Plan could identify potential areas of conflict between a particular species and ongoing or future activities and propose measures to avoid and/or reduce them.</p> <p>At a lower tier of plan-making the Plan could set out detailed proposals, programmes and measures that address spatially specific issues and provide time periods over which policies are expected to be effective. These could relate to a particular species/habitat or to a particular activity/development.</p>	<p>ecosystems are taken into account through decision-making and plan implementation. Policy BIO1 sets out that appropriate weight should be attached to biodiversity reflecting the need to protect and taking account of best available evidence. Where appropriate, Policy BIO2 seeks that proposals for development should incorporate features that enhance biodiversity. Policy MPA1 requires any impacts on the MPA network to be taken into account in strategic level measures and assessments. Where possible, Policy GOV2 seeks proposals to maximise opportunities for co-existence between activities and with the environment.</p> <p>The introductory text for policies under Objective 7 (Para 208, pg. 70) identifies some of the important habitats and species within the Plan area. The justification text for Policy BIO1 in Para 215 (pg. 73) states that, "the plan policy is made locally and spatially specific, by reference to figures 5 - 8 which show the location or distribution of broadscale habitats, and of some of the habitats and species that are protected or of conservation concern, based on best available evidence".</p> <p>Policy CC2 could indirectly progress GES descriptor targets and indicators as it seeks proposals to minimise greenhouse gas emissions which could have indirect positive effects for habitats and species through improved air quality. There are no clear links made between the policies and GES descriptor, targets or indicators. It should also be noted that there is no policy wording relating to any specific habitats or species of importance or activities where there may be conflicts.</p> <p>Relevant indicators incorporated into the Implementation and Monitoring Plan (June 2014) include: Objective 6 <i>Output indicator:</i></p> <ul style="list-style-type: none"> • 6.1 - Decision makers report improved consideration cumulative impact 	<p>distribution of the relevant species as well as pressures and impacts on habitats resulting from marine activities. A robust evidence base is essential to inform the assessment stage of plan-making and the development of policy.</p> <p>Where there are gaps or paucity of data then the Plan must highlight them and signpost priority research areas. These should be linked to existing or emerging research studies, in particular those being set out within the emerging Natura 2000 Site Improvement Plans in England and Wales.</p> <p>The Marine Planning Authority should ensure that all GES descriptors are scoped into the SA/SEA process and adequately considered through SA Objectives. The SA/SEA process can also help to identify sensitive receptors and potential conflicts.</p> <p>The Marine Plan should clearly set</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Indirectly, Marine Plan objectives and Policies can seek to minimise and mitigate for the impacts of activities/development. This could include policies that seek to reduce marine litter or collision risk. It could also include policies that seek to reduce atmospheric pollution and pollution incidents. These policies have the potential to indirectly progress GES descriptor targets and indicators by having indirect positive effects on habitats and species.</p> <p>Marine Plans could also incorporate and monitor the detailed species indicators set out in</p>	<p>assessments.</p> <p><i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 6A Marine Strategy Framework Directive GES Reporting. • 6B WFD Good Ecological/Chemical Status/Potential Reporting. <p>Objective 7</p> <p><i>Output indicators:</i></p> <ul style="list-style-type: none"> • 7.1 Decision makers report an improved consideration of a) biodiversity and b) opportunities to incorporate features that enhance biodiversity and geological interests. This will be coupled with a quality check of assessments of larger proposals. <p><i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 7A Marine Strategy Framework Directive GES Reporting. • 7B WFD Good Ecological/Chemical Status/Potential Reporting. <p>Objective 8</p> <p><i>Output indicators:</i></p> <ul style="list-style-type: none"> • 8.1 Decision makers report an improved consideration of the MPA network in strategic level assessments. <p><i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 8A Site condition assessment reports show increased percentage of MPAs have achieved or are progressing towards favourable status. <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan includes objectives relating to the protection, conservation and recovery of biodiversity as well as healthy marine and coastal habitats which are able to support strong, bio diverse biological communities and the functioning of health ecosystems. This also</p>	<p>out how it has been developed using an ecosystem-based approach. For the Plan to meet the requirements of the MSFD for an ecosystem-based approach and achieve GES, "a multi species and multi habitat approach will be needed, together with a robust assessment of human pressures (and impacts) on these components"⁵⁸.</p> <p>An assessment should be carried out using the information collected in relation to habitats and species alongside evidence relating to environmental conditions (water, air, sediment quality etc.) and socio-economic activities (levels and types of recreation, aquaculture, oil & gas developments etc.) to determine the interactions going on within the Plan area, in particular the potential impacts of human</p>

⁵⁸ HM Government (December 2012) UK Marine Strategy Part 1, Para 366, Pg. 115.

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Annex A of the UK Marine Strategy Part 1 within the Plan Area. The UK Marine Policy Statement requires Marine Plan Authorities to take account of any relevant targets, indicators or measures aimed at achieving good environmental status under the MSFD.</p>	<p>includes oceans that support viable populations of representative, rare, vulnerable and valued species. The plan also includes all eleven GES descriptors as strategic objectives (pg. 14, Chapter 3).</p> <p>The Plan states that marine planning policies were developed to deliver the objectives provided by the High Level Marine Objectives and GES descriptors with a particular relevance to Scottish issues. Policies within the Plan that have the potential to directly progress GES descriptor targets and indicators include Policy GEN 11 (Pg. 28, Chapter 4), which requires development to take account of the achievement or maintenance of GES for UK waters as it develops under the MSFD. Policy GEN 12 (Pg. 28, Chapter 4) which seeks to ensure that development and the use of the marine environment complies with legal requirements for protected areas and protected species and does not result in a significant adverse effect on the national conservation status of other habitats or populations of species of conservation concern. There is a specific policy that addressed wild salmon and migratory fish. The policy seeks consideration of the impact of development and use of the marine environment on migratory fish species in planning and decision making.</p> <p>Policies that could indirectly progress GES descriptor targets and indicators include the following:</p> <ul style="list-style-type: none"> • GEN 15: Marine planning and decision making authorities should consider air quality issues, especially relevant statutory air quality limits, when progressing development and use of the marine environment. • GEN 16: Marine planning and decision making authorities should consider man-made noise sources, especially their effects on sensitive species, in the marine area, when progressing development and use of the marine environment. • GEN 18: Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy 	<p>activities on the habitats and species.</p> <p>This assessment should also consider the sensitivity of the habitats/species to the potential impacts. Ideally, this information could then be used to determine the potential capacity of ecosystems within and surrounding the Plan area to accommodate change/ reverse existing decline and base spatial sectoral policies on the sensitivity of species and habitats identified in the MSFD as well as other factors. This will allow the Marine Plan Authority to identify and map areas of conflict and direct future development and activities in the most appropriate locations. It could also be used to quantify the 'value' of biodiversity in the Marine Plan Area (e.g. the value of ecosystem goods and services), which will provide a better foundation for the development of policy as well as subsequent impact assessments. It</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>Framework Directive or other related directives apply.</p> <ul style="list-style-type: none"> • GEN 19: Developers and users of the marine environment should seek to minimise emissions of greenhouse gases. Marine planning should seek to increase resilience of the marine environment to climate change impacts by reducing human pressure, safeguarding significant examples of natural carbon sinks and allowing natural coastal change where possible. • Policies relating to fisheries that seek to ensure the sustainability of fish stocks, including the protection of vulnerable stocks and the seabed as well as managing potential conflicts. • Policies relating to aquaculture that restrict fish farm development in sensitive areas and propose a risk based approach to their location and potential impacts on the environment. • A Policy relating to oil & gas activities seeks them to be carried out using principles of Best Environmental Practice and proposes consideration be given to key environmental risks including impacts of noise and chemical pollution. • Policies relating to renewables which propose that specific impacts on species and habitats should be mitigated through appropriate design, construction and operation methods and that developers should report on the effects of offshore projects and their onshore elements within a single EIA and a single HRA document. • Policies relating to recreation & tourism that seek to avoid unacceptable impacts on sensitive or important habitats and require compliance with codes of practice with regard to non-native species. <p>There are no clear links made between the policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): One of the</p>	<p>is important this information is expressed spatially wherever possible.</p> <p>A robust appraisal process is extremely important, in particular cumulative effects assessment. Marine Planning should help avoid significant cumulative effects of human activities on biodiversity by highlighting sensitive areas and setting thresholds for the level of development. The SA/SEA and HRA processes provide an opportunity to carry out a thorough appraisal of cumulative or in combination effects.</p> <p>To be effective and achieve GES Marine Plans need to develop policy that seeks to address the key issues and areas of conflict within the Plan area rather than repeating existing international and national policy.</p> <p>Emerging Marine Plan policies are generally repeating existing policy</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>plan's three objectives is to protect and enhance Shetland's marine waters and coastal environment, in particular where there are locally, nationally or internationally important biodiversity and geodiversity features, whilst taking account of natural changes. There are no clear links made between the objectives and GES descriptors or indicators.</p> <p>Policies within the Plan that have the potential to directly progress GES descriptor targets and indicators include those relating Nature Conservation and Marine Protected Areas (Policy MSP HER5), Priority Marine Features (Policy MSP HER6) and Local Nature Conservation Sites (Policy MSP HER7). Policy MSP HER2 only permits development if there is no adverse impact on SSSIs or there is no reasonable alternative or less damaging ecologically damaging location.</p> <p>Policy MSP HER3 (Development near to European Protected Species) relates more directly to species by only permitting development that is likely to have an adverse effect on a European Protected Species if there are no alternatives, the development is required for reasons of overriding public interest or health and/or if it would not be detrimental to the maintenance of the population in its natural range. There is also a similar policy in relation to the protection of wild birds outwith designated sites (Policy MSP HER4).</p> <p>Policy MSP HER5 only permits development where it has had due regard to the conservation objectives of Marine Protected Areas. Policy MSP WAT2 (Improving Water Quality and Ecology) relates to the MSFD and seeks, where possible, for development to contribute towards objectives to improve the ecological status of coastal water bodies and the environmental status of marine waters.</p> <p>The policies are linked to maps where possible to illustrate where the protected areas</p>	<p>in relation to the protection of biodiversity and designated sites. In general, opportunities have been missed to develop policy that focusses in on the key issues for that Plan area and proposes measures to avoid and reduce conflicts that could be implemented through the lower tier of planning.</p> <p>At a strategic level Marine Plans should include policies that seek to protect, conserve and enhance designated biodiversity, which includes any non-designated habitats and species of importance or relevance to GES Descriptors 1, 4 and 6. Policies should be clearly linked to the evidence base, including GES descriptors, and supported with maps whenever possible. The strategic policies should identify important areas or habitats/species of particular importance as well as any potential areas of conflict with marine activities. Any key issues within the Plan area should be highlighted</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>and important habitats and species are present within the Plan area.</p> <p>Policies that could indirectly progress GES descriptor targets and indicators include the following:</p> <ul style="list-style-type: none"> • Policy MSP WAT1 (Water Ecology) relates to the WFD and seeks development to not cause any water body to deteriorate in status nor prevent the achievement of objectives set out in the Scotland RBMP and Orkney and Shetland AMP. • Policies relating to minimising waste/litter (Policy MSP LITT1) and noise (Policy MSP NOISE1). • Policy MSP HER1 sets out the requirement under the Habitats Directive that any development that is likely to have a significant effect on European sites should be subject to an Appropriate Assessment. • Policy MSP INNS1 seeks to reduce the spread of invasive Non-Native Species. • Policy MSP SHIP2 relates to Marine Environmental High Risk Areas (MEHRAs) and trying to minimise the impact of accidents and operations on the marine environment. • Policy MSP CLIM1 relates to climate change and seeks development proposals to minimise emissions. • Policy MSP CD1 ensures that any proposals for flooding or coastal defence developments retain or enhance ecological characteristics and Policy MSP CD2 ensures that there are no adverse impacts on the environment as a result of their demolition. • Policy MSP HER8 only permits development where appropriate measures are taken to protect and/or enhance important marine geomorphological and geomorphological sites. • Policy MSP DEV1 requires proposals for marine-related development to comply with all the policies set out above as well as demonstrate that individual and cumulative effects have been addressed. 	<p>and where possible spatial direction should be provided to ensure that marine activities avoid the most sensitive areas. The supporting text should highlight any significant data gaps and signpost priority research areas.</p> <p>Focused policies or detailed actions/ proposals should then be developed to address the key issues and areas of conflict identified within the strategic policy. These should provide more detail in terms of implementation, what will be carried out, by when and by who. Any proposals, programmes or measures should be clearly linked to indicators, particularly any GES descriptor targets and indicators, which in turn should be clearly linked to the monitoring framework for the Plan. The Plan must make any links with existing action plans or programmes clear.</p> <p>There may be opportunities for the</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<ul style="list-style-type: none"> • Policies MSP AQ1 (aquaculture); AQ4 (seaweed cultivation); OAG1 (Oil & Gas), NRG1 (renewable energy); NRG3 (wave & tidal); EX1 (extraction of sand, gravel and single); TR1 (tourism and leisure); SA1 (shore access and moorings); CBP2 (wastewater pipelines); MO1 (moorings); TRANS1 (port and harbour developments); TRANS2 (Fixed Links/ Ferry Terminals) and DD1 (dredging and disposal of dredged material) require any proposal to comply with all the policies set out above. <p>There are no clear links made between the policies listed above and GES descriptors, targets or indicators.</p> <p>The Plan sets out a number of indicators in Appendix G which were proposed through the SEA. These include:</p> <ul style="list-style-type: none"> • Conservation status of seabirds, otters and marine mammals (Source: SIC, Shetland Biological Records Centre, RSPB, Marine Scotland, SNH/JNCC) • Number of developments permitted with an impact on designated sites/species (Source: SIC and SNH) • Marine waters achieving GES under the MSFD - current status on biological diversity i.e. healthy fish stocks, abundant foodwebs (Source: Marine Scotland) • Reported condition of Natura 2000 sites, SSSIs, locally important sites (Source: SNH/ SIC) • Conservation status of proposed MPAs and PMFs (Source: Marine Scotland, SNH/ JNCC and Shetland Shellfish Management Organisation (SSMO)) <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): The plan has objectives relating to the safeguard and promotion of areas important for natural heritage as well as encouraging a diverse, balanced mix of sectors to develop sustainably with consideration for environmental capacity. There are no clear links</p>	<p>Marine Plan to require financial contributions through licensing for certain marine activities/ development where there is evidence of adverse effects. The financial contributions could go towards research studies, the management of a Marine Protected Area or monitoring of indicators for GES. They could also be used to help the recovery of biodiversity.</p> <p>Any links or potential conflicts with existing plans, proposals or programmes should also be clearly identified.</p> <p>Marine Plans should incorporate and monitor the detailed species indicators set out in Annex A of the UK Marine Strategy Part 1 within the Plan Area. The UK Marine Policy Statement requires Marine Plan Authorities to take account of any relevant targets, indicators or measures aimed at achieving good environmental status under</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>made between the objectives and GES descriptors, targets or indicators.</p> <p>Policies within the Plan that have the potential to directly progress GES descriptor targets and indicators include Policy SOM G2 (Part A), which supports development and activities that can demonstrate they will not have any significant adverse effects on a number of features which include European sites and SSSIs, species and habitats with statutory protection and wider impacts on ecosystem function that may adversely affect good environmental status of marine waters. Policy NHE 1 (Enhancing the Natural and Historic Environment) seeks the maintenance of a functional and productive ecosystem. It supports existing measures to protect sensitive and ecologically important sites and areas, species and habitats and encourages projects that will map the extent of known fragile species and habitats.</p> <p>The Plan also provides policy guidance for sub-areas which includes further detail in relation to particular activities or species in that area. The policies for sub-areas take into account the features of interest for safeguarding listed in Policy SOM G2, and is informed by the constraints and priorities identified for each individual sub-area. For example, for the Tobermory sub-area there is policy to discourage mobile gear fishing activity around the southern end of Calve Island, where eelgrass beds, knotted wrack and maerl beds are known to be present to safeguard these sensitive marine habitats.</p> <p>Policies that could indirectly progress GES descriptor targets and indicators include the following:</p> <ul style="list-style-type: none"> • Policies IF1 (Inshore Fishing Development & Activity); AQ1 (Aquaculture); RT1 (Recreation & Tourism); ST1 (Shipping & Transport); CMI 1 (Coastal and Marine Infrastructure); MR 1 (Marine Energy) support development if it complies with Policy SOM G2, which is outlined above. 	<p>the MSFD. The monitoring should be properly resourced and developed to align with the 'targets' under the objectives of the Plan.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): The Plan includes objectives that seek to improve the knowledge base of habitats, species and pressures to better underpin decision making as well as safeguard and enhance the quality of marine, coastal and intertidal habitats and species. There are no clear links made between the objectives and GES descriptors, targets or indicators.</p> <p>The Plan states that policies have been developed in accordance with a set of six overarching guiding principles, which includes the adoption of the ecosystem approach to sustainable development (Para 89, pg. 29).</p> <p>Policies within the Plan that have the potential to directly progress GES descriptor targets and indicators include the following:</p> <ul style="list-style-type: none"> • Policy ENV 1 Improving the knowledge base of the marine environment – seeks the development of a strategic approach to the gathering and recording of data on the marine environment, giving priority to improving knowledge on mobile and migratory species, developing a better understanding of seabed species and delivering accurate habitat maps. • Policy ENV 2 Identifying and mapping species, habitats and sensitivities - location of internationally, nationally and locally important species and habitats should be identified and mapped with levels of sensitivity assessed to determine appropriate management and compatible uses. • Policy ENV 3 Mobile species - Existing information on the occurrence of mobile and migratory species should be collated and analysed in order to determine whether there are important areas or times mobile and migratory species may be 	

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>disturbed by activities.</p> <ul style="list-style-type: none"> • Policy ENV 4 Pressure/sensitivity indicators - A suite of Clyde specific pressure/sensitivity indicators for important species and habitats should be developed. Where possible, these should be established from existing national indicators but, where no appropriate indicators currently exist, they should be developed to enable their adoption elsewhere in Scotland. • Policy ENV 6 Appropriate location and scale - Developments and activities should be in locations appropriate to their scale and impact upon the wider environment in order to minimise damage or disturbance. Developers, marine users and regulators should be encouraged to take account of information on environmental and sectoral interactions that is gathered through further development of the Plan. • Policy ENV 7 Natura sites – Any development likely to have a significant effect on Natura 2000 sites (including Special Protection Areas, Special Areas of Conservation, and Ramsar Sites) will be subject to an appropriate assessment. • Policy ENV 8 Sites of Special Scientific Interest - Development affecting Sites of Special Scientific Interest (SSSIs) will not be permitted unless it can be demonstrated that the overall objectives of the designation and the overall integrity of the designated area would not be compromised, or any adverse effects are clearly outweighed by social or economic benefits of national importance and mitigation measures put in place. • Policy ENV 9 Other approaches to protection - Voluntary approaches to protect or enhance important areas of marine biodiversity should be encouraged and promoted in locations where activities have negative impacts upon important species and habitats. • Policy R&T 4 (Sea Angling) supports initiatives to improve fish stocks to encourage diverse and fully functioning ecosystems. • Policy R&T 5 (Migratory Salmonids) supports initiatives to further improve 	

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	<p>environmental conditions and thus increase the number of migratory salmonids able to pass through the estuary. Any development perceived to limit the ability of salmonids to migrate should only be supported if suitable mitigation measures are in place.</p> <ul style="list-style-type: none"> • Policy MAR 3 (Protecting Wild Fish Stocks) proposes that all finfish producers within the Firth of Clyde should be encouraged to sign up to and operate within the relevant Area Management Agreement. <p>Policies that could indirectly progress GES descriptor targets and indicators include the following:</p> <ul style="list-style-type: none"> • Policy ENV 11 (Marine Litter and Debris) seeks the development of a coordinated marine litter strategy for the Firth of Clyde. • Policy R&T 6 (Water quality) proposes the investigation for developing recreational water quality standards and designation for areas where there is high demand for marine recreation. • Policy R&T 7 (Voluntary Codes of Conduct) encourages the adoption of voluntary codes of conduct in relation to wildlife. • Policy S&T 8 (Capital Dredging) proposes a precautionary approach to dredging operations to identify, minimise and mitigate against potential environmental effects. • Policy FISH 4 (Protecting Habitats and Species) encourages the fishing industry to protect habitats and species that are sensitive to fishing activities. • Policy FISH 5 (Voluntary Approaches) proposes that the fishing industry should be supported in developing and implementing voluntary measures to protect marine habitats and species and the Fishing for Litter scheme. <p>There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Descriptor 2 - Non-indigenous species</p> <p>Target: Reduction in the risk of introduction and spread of non native species through improved management of high risk pathways and vectors.</p>		
<p>At a strategic level Marine Plans can directly progress the GES descriptor targets and indicators outlined above by identifying the activities within their Marine Plan Area that could facilitate the introduction and spread of invasive non-indigenous species. It could also identify the non-indigenous species that are of greatest concern for the Plan area.</p> <p>At a lower tier of plan-making the Plan could set out proposals, programmes and measures specifically relating to the key marine</p>	<p>East Inshore and East Offshore Marine Plans (April 2014): the Plan identifies invasive non-indigenous species as an issue and existing problem in the East Marine Plan areas (Para 185, Pg. 63 and Para 193, Pg. 65); however, it does not contain any objectives or policies that directly relate to them.</p> <p>Relevant indicators incorporated into the Implementation and Monitoring Plan (June 2014) include:</p> <p>Objective 6 <i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 6A Marine Strategy Framework Directive GES Reporting. <p>Objective 7 <i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 7A Marine Strategy Framework Directive GES Reporting. <p>Scotland's National Marine Plan Consultation Draft (July 2013): The supporting text of Policy GEN 12 (Pg. 029) defines non-native species and seeks the use of good biosecurity practice and The Code of Practice on Non-Native Species for Scotland to be used where relevant to the marine environment. Opportunities to help reduce, and where possible prevent, the introduction of invasive non-native species should be taken when decisions are being made. Policy GEN11 requires development to take account of the achievement or maintenance of GES for UK waters as it develops under the Marine Strategy Framework Directive.</p> <p>Invasive non-native species are identified as a key issue for marine planning (Pg. 101).</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to this descriptor target and indicators. In particular any relevant data relating to the abundance, distribution and impact of invasive non-indigenous species within the Plan area. It is recognised that this information may not be readily available but this should not stop Marine Planning Authorities from identifying any non-indigenous species that are of particular concern for their Plan area along with any pathways for introduction or activities that pose the greatest risk.</p> <p>If possible, Marine Plan Authorities should seek to identify/scope the habitats within their Plan area that are most suitable for identified non-indigenous species and then illustrate which developments or</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>activities or non-indigenous species identified within the strategic policy. These could provide more detail in terms of implementation, what will be carried out, by when and by who.</p> <p>Marine Plans could also incorporate and monitor indicators relating to the abundance, distribution and number of new introductions of invasive non-indigenous species.</p>	<p>Policy REC & TOURISM 7 seeks compliance with codes of practice on invasive non-native species. The Plan contains no further policy wording in relation to invasive non-native species. There are no clear links made between the policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): Policy MSP INNS1 (Reducing the Spread of Invasive Non-Native Species) sets out that applications for marine-related developments will need to demonstrate that the potential risks of spreading invasive non-native species have been adequately considered in their proposal, particularly when moving equipment, boats or live stock (e.g. fish and shellfish) from one water body to another or introducing structures suitable for settlement of invasive non-native species. Development proposals in areas where invasive non-native species are known to exist must include mitigation measures or a contingency plan approved by the local authority that seeks to minimise the risk of spreading the invasive non-native species or identifies ways to eradicate the organisms and set up a scheme to prevent reintroduction. The Plan identifies some examples of invasive non-native species with the potential to cause adverse effects in and around Shetland waters on Pg. 44.</p> <p>Policy MSP AQ4 (Seaweed Cultivation) supports applications for the development of seaweed cultivation if they demonstrate measures to prevent the introduction and spread of invasive non-native species. There are no clear links made between the policies listed above and GES descriptors, targets or indicators.</p> <p>The Plan does not propose any specific monitoring indicators with regard to invasive non-native species; however, it does contain one relating to marine waters achieving GES under the MSFD - current status on biological diversity i.e. healthy fish stocks, abundant foodwebs.</p>	<p>activities currently occur in those areas.</p> <p>A robust evidence base is essential to inform the assessment stage of plan-making and the development of policy. Where there are gaps or paucity of data then the Plan must highlight them and signpost priority research areas. These should be linked to existing or emerging research studies.</p> <p>At a strategic level Marine Plans should include a policy that seeks to reduce the introduction and spread of non-indigenous species, if it is an issue for the Marine Plan Area. Policies should be clearly linked to the evidence base, including GES descriptors, and supported with maps whenever possible. The strategic policy should identify the non-indigenous species of relevance to the Plan area as well as any important pathways for introduction or activities that could lead to their</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): The introduction of non-native species is identified as a potential negative interaction with recreation and tourism in Section 5.3.6 and shipping and transport in Section 5.4.7. Non-native species are also identified as a potential threat in relation to the natural environment in Section 5.6.7. There are no objectives or policies within the Plan that specifically refer to non-native species. The policy guidance for sub-areas set out in Part 2 of the Plan also does not include any specific reference to non-native species.</p> <p>Part 2 of the Plan sets out some recommendations in the monitoring section which includes improving awareness of non-native marine species. The details of the recommendation include providing more information on invasive non-native marine species and reporting methods as well as promoting cleaning of equipment to reduce transmission and the inclusion of appropriate cleaning in recreational codes of conduct.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): Policy ENV 5 (Non-native invasive species) proposes the development of a guiding framework for invasive non-native species mitigation within the Firth of Clyde. The supporting text states that the “guiding framework should identify the sensitivity and vulnerability [sic] of native habitats and species to specific non-native invasive species. An action plan to reduce any significant detrimental impact of existing invasive non-native species on such sensitive and vulnerable habitats and species should be included. It should also promote compliance with best practice guidance to reduce risks of introduction and spread” (Para 116, Pg. 35). Wireweed is identified on Pg. 35 as being a non-native species of relevance to the Plan area.</p> <p>The introduction of non-native species is identified within the supporting text of Policy</p>	<p>introduction. The supporting text should highlight any significant data gaps and signpost priority research areas.</p> <p>Similar to the Shetland Islands' Marine Spatial Plan they could include a policy that requires proposals for development to demonstrate how they intend to reduce the risk of introducing and spreading non-indigenous species.</p> <p>Focused policies or detailed actions/ proposals should then be developed if there is a specific issue relating to a particular non-indigenous species or activity within the Plan area. The more detailed proposals could help to reduce the introduction or spread of that non-indigenous species. The focused proposals should provide more detail in terms of implementation, what will be carried out, by when and by who. Any proposals, programmes or measures should be clearly linked to indicators,</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>S&T 7 (Ballast Water) as a potential risk. There are no clear links made between the policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	<p>particularly any GES descriptor targets and indicators, which in turn should be clearly linked to the monitoring framework for the Plan. The Plan must make any links with existing action plans or programmes clear.</p> <p>The monitoring frameworks for the Plans should incorporate indicators relating to the abundance, distribution and number of new introductions of invasive non-ingenious species. However, the UK Marine Strategy Part 1 recognises that this is difficult given the current lack of information and very high costs and lack of feasibility with widespread management or eradication programmes. The UK Marine Strategy Part 1 therefore proposes the following operational targets:</p> <p>a) Taking measures to reduce the risk of introduction and spread of NIS (by managing key pathways and vectors more effectively), and;</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
		<p>b) Putting in place management plans for dealing with key high risk species should they arrive in UK waters.</p>
<p>Descriptor 3 - Commercially exploited fish and shellfish</p>		

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Targets:</p> <ul style="list-style-type: none"> ▪ The exploitation of living marine biological resources restores and maintains populations of harvested species at least at levels which can produce MSY. This exploitation rate shall be achieved by 2015, where possible, and by 2020 for all stocks at the latest. ▪ 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 B_{pa}. 		
<p>This Descriptor relates to commercially exploited fish and shellfish and the MSFD requirement for them to be within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock. The UK Marine Strategy Part 1 identifies that the Common Fisheries Policy (CFP) is the principle legal mechanism for managing fish stocks in EU waters. It recognises that the achievement of Maximum Sustainable Yield is largely dependent on the success of the fisheries</p>	<p>The review of emerging Marine Plans under this GES Descriptor will focus on any objectives or policies that specifically relate to the management of fishing and in particular commercial fish and shellfish stocks. Objectives and policies that could indirectly progress the GES descriptor targets and indicators above, which more widely relate to the protection and enhancement of marine ecosystems and reducing the impacts of developments are considered under other GES Descriptors.</p> <p>East Inshore and East Offshore Marine Plans (April 2014): Policy FISH2 seeks proposals to demonstrate that they will not have an adverse impact upon spawning and nursery areas and any associated habitat. If there is the potential for adverse impacts they must be minimised and if this is not possible mitigated. Policy AQ1 seeks proposals to demonstrate that they will avoid adverse impacts on future aquaculture development by altering the sea bed or water column in ways which would cause adverse impacts to aquaculture productivity or potential. If there is the potential for adverse impacts they must be minimised and if this is not possible mitigated. There are no clear links made between the policies listed above and GES descriptors, targets or indicators.</p> <p>The Implementation and Monitoring Plan does not include any indicators that specifically relate to fish stocks.</p> <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan incorporates</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to this descriptor target and indicators. In particular any relevant data relating to the population and distribution of commercial fish and shellfish species within the Plan area as well as the pressures and effects of marine activities on commercial fish. This will help the MPA to identify if there is an issue for a particular commercial fish species within the Plan area.</p> <p>Spawning and nursery areas as well as important migration corridors should be identified and mapped. Although it is understood that this is not always possible given data gaps and deficiencies in information.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>management measures that will be determined and agreed under the reformed CFP.</p> <p>Given the above it is unlikely that Marine Plans will be able to directly progress the GES descriptor targets and indicators above through more detailed actions and measures. However, they can still indirectly progress them by seeking to protect and enhance marine ecosystems, which includes habitats and water quality, and reduce the impacts of development, such as noise and contamination.</p> <p>Marine Plans could also incorporate and monitor existing indicators relating to the population and distribution of</p>	<p>all eleven GES descriptors as strategic objectives, which includes GES 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. (Chapter 3, Pg. 16).</p> <p>The Plan contains a fisheries objective that seeks to ensure fish stocks are harvested sustainably leading to exploitation of Scotland's commercial fish stocks at maximum sustainable yield and with increased long term stability (Chapter 6, Pg. 42).</p> <p>Policy Fisheries 3 proposes that within the CFP's parameters, Marine Planning should held to ensure protection for vulnerable stocks (in particular of juvenile and spawning stocks through continuation of sea area closures where appropriate) and that other sectors take into account the need to protect fish stocks and sustain healthy fisheries for both economic and conservation reasons. Policy Fisheries 4 sets out a number of key factors that should be taken into account when deciding on the uses of the marine environment sand the potential impacts on fishing, which includes:</p> <ul style="list-style-type: none"> • the potential impact (positive and negative) of marine developments on the sustainability of fish and shellfish stocks and resultant opportunities for exploitation of new fishing opportunities in any given area; • the environmental impact on fishing grounds (such as nursery, spawning areas), commercially fished species, habitats and species more generally; • the potential effect of displacement activity on fish stocks; the wider environment; use of fuel; socio-economic costs to fishers and their communities; and other marine users. <p>Policy Fisheries 5 seeks the preparation of a fisheries management plan should an impact on an existing fishing activity occur, which should include reasonable measures to mitigate any potential impacts on sustainability of fish stocks (e.g.</p>	<p>At a strategic level Marine Plans could include a policy that seeks to protect any identified areas of importance for spawning, nursery or migration or commercially exploited fish within the Plan area. The important areas can be mapped, with the policy directing marine activities away from these important areas if necessary.</p> <p>Policies should be clearly linked to the evidence base, including GES descriptors. The supporting text should highlight any significant data gaps and signpost priority research areas.</p> <p>It is difficult for Marine Plans to propose any detailed actions or measures as the management of fish stock is dealt with through other legal mechanisms. However, there is still the potential for the Marine Plan to indirectly support this GES descriptor through objectives and policies that seek to protect and</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>commercial fish and shellfish species.</p>	<p>impacts on spawning grounds or areas of fish or shellfish abundance) and any socio-economic impacts.</p> <p>The Plan contains a wild salmon and migratory fish objective that seeks to maintain and where possible improve healthy salmon and migratory fish stocks in support of sustainable fisheries through sound science-based management (Chapter 8, Pg. 67).</p> <p>There are no clear links made between the objectives and policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): Policy MSP FISH1 (Safeguarding Fishing Opportunities) sets out a number of criteria for the permission of development in relation to fishing. One of the criteria is that there will be no damage to a known/designated spawning or nursery area for commercially exploited species of fish. There are no clear links made between the policy above and GES descriptors, targets or indicators. There are no monitoring indicators within Appendix G that directly relate to the population and distribution of commercial fish and shellfish species.</p> <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): Neither Part 1 or Part 2 of the Plan contains any objectives or policies that directly relate to ensuring sustainable exploitation of commercial species. It should be noted that Policy IF1 (Inshore Fishing Development and Activity) encourages sustainable inshore fishing developments to reserve a portion of stock for vessels based in the Sound of Mull. There are no clear links made between the objectives and policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): Policy R&T 4 (Sea Angling) supports</p>	<p>enhance marine ecosystems, hydrographical conditions and reduce the concentration of contaminants. The Marine Plan can also help to ensure that synergistic and cumulative effects are given appropriate consideration through any proposals for marine activities.</p> <p>The synergistic and cumulative effects of the Marine Plan should be considered through the SA/SEA process.</p> <p>Marine Plans should incorporate and monitor existing indicators relating to the population and distribution of commercial fish and shellfish species. These should be clearly linked to ongoing monitoring programmes as well as GES descriptor targets and indicators.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>initiatives to improve finfish stocks in the Clyde. Policy R&T 5 Migratory Salmonids supports initiatives to further improve environmental conditions in the Firth of Clyde and thus increase the numbers of migratory salmonids able to pass through the estuary. The Plan also encourages all finfish producers within the Firth of Clyde to sign up to and operate within the relevant Area Management Agreement. There are no clear links made between the objectives and policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	
<p>Descriptor 5 - Eutrophication</p> <p>Targets: Human-induced eutrophication in UK seas is minimised and all UK marine waters are non-problem areas</p>		
This Descriptor relates	East Inshore and East Offshore Marine Plans (April 2014): The Plan does not make any	Marine Plan Authorities should

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>human-induced eutrophication, seeking its minimisation to ensure that nutrient concentrations do not lead to undesirable disturbance⁵⁹. The UK Marine Strategy Part 1 identifies that as the main sources of nutrients in UK waters arise from discharges from sewage treatment, industry and agriculture, any measures which are required to meet GES targets for eutrophication would already need to be taken under consideration through the WFD, the Nitrates Directive and the Urban Waste Water Treatment Directive.</p>	<p>direct reference to eutrophication or identify it as a particular issue within the Plan area. While there is no policy specifically relating to eutrophication it does contain policies that seek to ensure that cumulative effects on ecosystems are taken into account through decision-making and plan implementation (Policy ECO1). The Implementation and Monitoring Plan (June 2014) does not contain any specific indicators on nutrient levels; however, it does include indicators relating to WFD Good Ecological/Chemical Status/Potential Reporting and Marine Strategy Framework Directive GES Reporting.</p> <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan includes all eleven GES descriptors as strategic objectives, which includes GES 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. (Chapter 3, Pg. 17). While there is no policy specifically relating to eutrophication it does contain policies that seek to protect water quality and as well as require development to take account of GES. Policy GEN 18 seeks developments and activities to not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related directives apply. Policy GEN11 requires development to take account of the achievement or maintenance of GES for UK waters as it develops under the Marine Strategy Framework Directive. There are no clear links made between the policy above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	<p>collate and list all existing evidence relating to this descriptor target and indicator. In particular any relevant data relating to the sources and concentrations of nutrients within the Plan area. This information should already be available through existing monitoring programmes relating to the WFD, Nitrates Directive and Urban Waste Water Treatment Directive.</p> <p>The Marine Plan Authority should be able to identify which marine developments/activities are most likely to either result in increased nutrient levels either as a point source or contributing to diffuse inputs.</p> <p>If the evidence base and assessment of effects indicates that eutrophication is not a current issue</p>

⁵⁹ UK Marine Strategy Part 1 states that "undesirable disturbance is demonstrated when adverse effects resulting from nutrient enrichment and accelerated growth of algae occur, such as losses to biodiversity, ecosystem degradation, harmful algal blooms and oxygen deficiency in bottom waters" (Pg. 133).

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>While the licences for discharges from sewage treatment, industry and agriculture are dealt under separate legal and decision-making frameworks, there is still the potential for Marine Plans to progress these GES descriptor targets and indicators.</p> <p>At a strategic level Marine Plans could progress the GES target and indicator outlined above by developing policy that seeks to minimise the introduction and reduce the concentration of nutrients in the water.</p> <p>Given the above it is unlikely that Marine Plans will be able to directly progress the GES</p>	<p>Policy Aquaculture 4 seeks to locate marine fish farms in relation to potential nutrient enhancement and benthic impacts. There are no clear links made between the policy above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): The Plan does not make any direct reference to eutrophication except to say that is one of a number of issues that are not of concern for the Plan area (Section 1, Pg. 11). While there is no policy specifically relating to eutrophication it does contain policies that seek to protect water quality and ecology. Policy MSP WAT1 (Water Ecology) relates to the WFD and seeks development to not cause any water body to deteriorate in status nor prevent the achievement of objectives set out in the Scotland RBMP and Orkney and Shetland AMP. Policy MSP WAT2 (Improving Water Quality and Ecology) seeks development to contribute towards objectives to improve the ecological status of coastal water bodies and the environmental status of marine waters. There are no clear links made between the policies listed above and GES descriptors, targets or indicators.</p> <p>The Plan proposes the inclusion of indicators relating to number of water bodies achieving GES as required by WFD and RBMP and marine waters achieving GES under the MSFD - current status on eutrophication, contamination, marine litter.</p> <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): The Plan does not make any direct reference to eutrophication or identify it as a particular issue within the Plan area. While there is no policy specifically relating to eutrophication it does contain Policy SOM G2 (Part A), which supports development and activities that can demonstrate they will not have any significant adverse effects on wider impacts on ecosystem function that may adversely affect good environmental status of marine</p>	<p>within the Plan area then this should be clearly stated. Even if it isn't a current issue for the Plan area there is still the potential to identify and map potential areas of risk or particular sensitivity to nutrient inputs as it could be an issue in the future.</p> <p>At a strategic level the Marine Plan can include policy that directs particular development types (that may increase nutrient levels), such as finfish aquaculture, away from potential areas of risk or require proposals to demonstrate how they intend to minimise the introduction of nutrients.</p> <p>Marine Plans should incorporate existing indicators in relation to nutrients levels within their monitoring framework. The UK Marine Strategy Part 1 sets out the indicators for GES Descriptor 5 in Table 3.10 (Pg. 133 to 134).</p> <p>Any policies or proposed indicators</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>descriptor targets and indicators above through more detailed actions and proposals. However, they can still indirectly progress them through measures seeking to protect and enhance water quality.</p> <p>Marine Plans could incorporate and monitor existing indicators relating to nutrient levels.</p>	<p>waters. Part 2 of the Plan sets out some actions and recommendations in the monitoring section which includes reducing incidences of marine pollution (Section 7.3). There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): The Plan does not make any direct reference to eutrophication or identify it as a particular issue within the Plan area. There are no policies that are likely to progress this GES descriptor targets and indicators. Monitoring indicators not yet available.</p>	<p>should be clearly linked to GES descriptor targets and indicators as well as the existing legislative and regulatory requirements within the UK that control pollution on the land and sea.</p>
<p>Descriptor 7 - Permanent alteration of hydrographical conditions</p> <p>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.</p>		

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>The UK Marine Strategy Part 1 states that the purpose of this descriptor is to manage the potential hydrographical impacts (including cumulative and in-combination environmental effects) arising from large scale projects, such as significant marine infrastructure (Para 449, Pg. 135).</p> <p>At a strategic level Marine Plans can progress this GES descriptor target and indicator by including policy that seeks to maintain and enhance hydrographical conditions and avoid and reduce the impacts of large scale development. This</p>	<p>East Inshore and East Offshore Marine Plans (April 2014): The Plan does not include any policy specifically relating to hydrographical conditions, nor does it contain any seeking to avoid permanent alteration of hydrographical conditions for large scale infrastructure development. The Plan includes policies relating to various types of potentially large infrastructure development, such as offshore renewable energy and oil and gas, however these policies mainly seek to support their development rather than reduce impacts on hydrographical conditions. The Plan does contain objectives and policies that seek to protect and enhance marine ecosystems. Hydrographical conditions play a vital role in ensuring a healthy, resilient and adaptable marine ecosystem. There are no clear links made between the policies and GES descriptor, targets or indicators.</p> <p>The Implementation and Monitoring Plan (June 2014) does not contain any specific indicators relating to hydrographical conditions; however, it does include indicators relating to WFD Good Ecological/Chemical Status/Potential Reporting and Marine Strategy Framework Directive GES Reporting.</p> <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan includes all eleven GES descriptors as strategic objectives, which includes GES 7 - Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems. (Chapter 3, Pg. 17). The Plan does not include any policy specifically relating to hydrographical conditions; however, it does contain policies that seek to ensure that development takes account of GES (Policy GEN 11). There are no clear links made between the policies listed above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>The Plan states in Section 2 that a Scottish Coastal Shelf model is being constructed to</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to this descriptor target and indicator. Existing Shoreline Management Plans could contain some useful information with regard to hydrographical conditions.</p> <p>This information should help the MPA to identify the prevailing conditions that are of significant importance for the Plan area. It may also be possible to identify and map key areas where prevailing hydrographical conditions are of fundamental importance and must be maintained. The potential impacts of different large scale developments can then be considered alongside the key prevailing conditions and areas to enable the Marine Plan Authorities to develop policy and propose indicators that are focussed on the key issues for the Plan area.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>includes the identification of any key hydrographical conditions for marine ecosystems in the Plan area.</p> <p>At a lower tier of plan-making the Plan could set out proposals, programmes and measures specifically to address the improvement of a hydrographical condition that is being affected by marine activities. These could provide more detail in terms of implementation, what will be carried out, by when and by who.</p> <p>Marine Plans could incorporate and monitor existing indicators relating to hydrographical conditions.</p>	<p>examine the hydrological processes around the coast and the potential consequences of major development with regard to hydrological change and the potential to alter sedimentary processes. The Plan states that where this strategic model identifies the potential for process changes a regional model assessment approach should be considered (Pg. 90).</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): The Plan does not include any policy specifically relating to hydrographical conditions, nor does it contain any seeking to avoid permanent alteration of hydrographical conditions for large scale infrastructure development. The Plan includes policies relating to various types of potentially large infrastructure development, such as renewable energy, however these policies do not include reference to hydrographical conditions. The Plan does contain objectives and policies that seek to protect and enhance marine ecosystems (Policies HER 5 - HER7) and relate to GES (Policy MSP WAT2). It also contains a policy relating to the protection and enhancement of important marine geomorphological and geomorphological sites (Policy MSP HER8). Hydrographical conditions play a vital role in ensuring a healthy, resilient and adaptable marine ecosystem. There are no clear links made between the policies listed above and GES descriptors, targets or indicators.</p> <p>The Plan proposes the inclusion of indicators relating to number of water bodies achieving GES as required by WFD and RBMP and marine waters achieving GES under the MSFD - current status on eutrophication, contamination, marine litter. It also includes an indicator relating to the extent of areas vulnerable to coastal erosion.</p> <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): Policy SOM G2 (Part A) supports development and activities that can demonstrate they will not have</p>	<p>At a strategic level Marine Plans can include policy that seeks to maintain and improve hydrographical conditions within the Plan area. The policy could identify the hydrographical conditions that are of key importance and must be maintained. These areas should be mapped and large scale infrastructure development directed away from them. Policies should be clearly linked to GES descriptor targets and indicators.</p> <p>Marine Plans could also ensure that any overarching policies relating to the protection and enhancement of marine ecosystems includes reference to the maintenance of hydrographical conditions or the avoidance of permanent changes as a result of anthropogenic activities.</p> <p>There is an opportunity for policies relating to particular development types to include specific criteria</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>any significant adverse effects on a number of features which include wider impacts on ecosystem function that may adversely affect good environmental status of marine waters. Policies CMI 1 and MR 1 support coastal/marine infrastructure and marine energy development if they comply with Policy SOM G2. Policy NHE 1 (Enhancing the Natural and Historic Environment) seeks the maintenance of a functional and productive ecosystem. Hydrographical conditions play a vital role in ensuring a functional and productive ecosystem. There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): The Plan does not include any policy specifically relating to hydrographical conditions, nor does it contain any seeking to avoid permanent alteration of hydrographical conditions for large scale infrastructure development. It does contain policies that seek to protect biodiversity (Policy ENV7 & 8) as well as minimise the damage of development through appropriate location and scale (Policy ENV 6). There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	<p>relating to the key prevailing conditions and sensitive areas identified. For example, a policy relating to aggregate extraction could include criteria to ensure that any proposal gives particular consideration to salinity or does not support development in particularly sensitive areas.</p> <p>The target put forward for this GES descriptor in the UK Marine Strategy Part 1 reflects the fact that it is considered that GES will be achieved under the current licensing regime. It requires all new developments to continue to comply with the existing regulatory regime, and guidance to be followed to ensure that regulatory assessments are undertaken.</p> <p>Monitoring frameworks for the Plans should still try and incorporate existing indicators, where available, relating to hydrographical conditions.</p>
Descriptor 8 - Concentrations of contaminants		

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Target:</p> <ul style="list-style-type: none"> Concentrations of substances identified within relevant legislation and international obligations are below the concentrations at which adverse effects are likely to occur (e.g. are less than Environmental Quality Standards applied within the Water Framework Directive and Environmental Assessment Criteria applied within OSPAR). For biological effects: 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. For oil/chemical spills: Occurrence and extent of significant acute pollution effects (e.g. 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 through appropriate risk based approaches. 		
<p>At a strategic level Marine Plans could progress the GES target and indicator outlined above by developing policy that seeks to minimise the introduction and reduce the concentration of contaminants⁶⁰ in the water, sediment and biota.</p> <p>At a lower tier of plan-</p>	<p>East Inshore and East Offshore Marine Plans (April 2014): Policy ECO2 seeks that proposals take into account the risk of release of hazardous substances as a secondary effect due to any increased collision risk. There are no clear links made between the policy above and GES descriptors, targets or indicators.</p> <p>Relevant indicators incorporated into the Implementation and Monitoring Plan (June 2014) include:</p> <p>Objective 6 <i>Output indicator:</i></p> <ul style="list-style-type: none"> 6.2 The ratio of near misses to collisions leading to hazardous substance release increases. <p><i>Outcome indicators:</i></p> <ul style="list-style-type: none"> 6B WFD Good Ecological/Chemical Status/Potential Reporting. <p>Objective 7</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to this descriptor target and indicator. In particular any relevant data relating to the concentration and their effects on selected biological process and taxonomic groups within the Plan area. This information should already be available through existing monitoring programmes as part of the UK's robust legislative framework for controlling pollution. If possible, Marine Plan Authorities</p>

⁶⁰ The UK Marine Strategy Part 1 states that, "contaminants include synthetic compounds (e.g. pesticides, antifoulants, pharmaceuticals etc), non-synthetic compounds (e.g. heavy metals, hydrocarbons etc), and other substances considered pollutants, whether solid, liquid or gas" (Para 456, Pgs. 137 & 138).

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>making the Plan could set out actions or proposals to address an existing issue relating to contaminants within the Plan area. These could provide more detail in terms of implementation, what will be carried out, by when and by who.</p> <p>Marine Plans could also incorporate and monitor indicators relating to the concentration and effects of contaminants using existing standards and thresholds.</p> <p>The GES descriptor target and indicator can be indirectly progressed through Marine Plan policies that seek to improve the environment,</p>	<p><i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 7A Marine Strategy Framework Directive GES Reporting. • 7B WFD Good Ecological/Chemical Status/Potential Reporting. <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan includes all eleven GES descriptors as strategic objectives, which includes GES 8 - concentrations of contaminants are at a levels not giving rise to pollution effects (Chapter 3, Pg. 17). There is no policy specifically relating to the release or concentration of contaminants; however, there are a number that are indirectly related. Policy GEN 18 seeks developments and activities to not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related directives apply. Policy GEN11 requires development to take account of the achievement or maintenance of GES for UK waters as it develops under the Marine Strategy Framework Directive. It should be noted that oil and gas policy 1 states that consideration will be given to chemical pollution (Pg. 75). There are no clear links made between the policy above and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): Part of Policy MSP OAG1 (Oil and Gas Proposals) directly relates to the GES descriptor targets and indicators identified above as it only permits exploration and extraction for oil and gas where a proposal includes an acceptable emergency response plan in agreement with the appropriate consenting authority for any accidental release of oil or gas and related hazardous substances. Policy MSP SHIP2 indirectly progresses the GES descriptor targets and indicators as it relates to Marine Environmental High</p>	<p>should then try to identify the main sources of contamination currently within their Plan area.</p> <p>Any hot spots or particular areas of concern should be identified and mapped. Marine Plan Authorities should be able to identify the types of development and activities that have the greatest likelihood and risk of introducing hazardous substances. They should also be able to identify key receptors within the plan area that are sensitive to contamination, such as particular habitats or species. It is important for the Marine Plan Authorities to remember that "hazardous substances can enter the marine environment through natural sources and as a result of anthropogenic activities, either as direct inputs or via rivers, estuaries and the atmosphere"⁶¹.</p>

⁶¹ HM Government (December 2012) UK Marine Strategy Part 1, Para 463, Pg. 138.

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>which includes water and sediment quality. They could also be indirectly progressed through policies that seek to improve safety and therefore the accidental release of hazardous substances, for example, reducing the risk of collision between ships, as well as implementing codes of practice.</p>	<p>Risk Areas (MEHRAs) and trying to minimise the impact of accidents and operations on the marine environment.</p> <p>Policy MSP WAT1 (Water Ecology) relates to the WFD and seeks development to not cause any water body to deteriorate in status nor prevent the achievement of objectives set out in the Scotland RBMP and Orkney and Shetland AMP. Policy MSP WAT2 (Improving Water Quality and Ecology) seeks development to contribute towards objectives to improve the ecological status of coastal water bodies and the environmental status of marine waters. There are no clear links made between the policies listed above and GES descriptors, targets or indicators.</p> <p>The Plan proposes the inclusion of indicators relating to number of water bodies achieving GES as required by WFD and RBMP and marine waters achieving GES under the MSFD - current status on eutrophication, contamination, marine litter.</p> <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): There is no policy specifically relating to the release or concentration of contaminants; however, there are some that are indirectly related. Policy SOM G2 (Part A), which supports development and activities that can demonstrate they will not have any significant adverse effects on wider impacts on ecosystem function that may adversely affect good environmental status of marine waters. Part 2 of the Plan sets out some actions and recommendations in the monitoring section which includes reducing incidences of marine pollution (Section 7.3). There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): There is no policy specifically relating to the release or concentration of contaminants; however, there are some that are indirectly related. Policy R&T 6 (Water quality) proposes the investigation for</p>	<p>At a strategic level the Marine Plan can include a policy that seeks to minimise the risk of introducing hazardous substances and reduce the concentration and effects of contamination. The evidence and assessment information above should allow the Marine Planning Authority to identify if there are any key issues relating to contamination, which includes any key activities or sensitive receptors as well as identify and map any problem areas.</p> <p>A sectoral policy could require any proposal to demonstrate how they intend to minimise the potential risk of introducing hazardous substances. The Marine Plan could also require proposals or activities that could result in a significant accidental release of hazardous substances to include an emergency response plan, such as Policy MSP OAG1 (Oil and Gas Proposals) in the Shetland Islands' Marine Spatial Plan Draft Fourth</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>developing recreational water quality standards and designation for areas where there is high demand for marine recreation. Policy S&T 8 (Capital Dredging) proposes a precautionary approach to dredging operations to identify, minimise and mitigate against potential environmental effects. There are no clear links made between the policies and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	<p>Edition (Nov 2013).</p> <p>Focused policies or detailed actions/ proposals should be developed to address any key existing issues identified within the strategic policy. These could focus on a particular marine activity or area and seek to remediate any existing contamination. The actions/proposals should provide more detail in terms of implementation, what will be carried out, by when and by who. These should be linked to exiting actions/ proposals where possible and any links must be made clear within the Plan.</p> <p>Any policies, proposals or programmes should be clearly linked to indicators, particularly any GES descriptor targets and indicators, which in turn should be clearly linked to the monitoring framework for the Plan. Links to existing legislative and regulatory requirements within the UK that</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
		<p>control pollution on the land and sea should also be clear.</p> <p>Monitoring frameworks for the Plans should incorporate the following indicators that are set out in the UK Marine Strategy Part 1 for GES Descriptor 8:</p> <ul style="list-style-type: none"> • Concentrations of contaminants in water, sediment, or biota are kept within agreed levels⁶² 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 levels⁶³.
<p>Descriptor 9 - Contaminants in fish and other seafood</p> <p>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.</p>		

⁶² Agreed at a national/EU/International level e.g. within domestic legislation, Regional Seas Conventions etc.

⁶³ Ibid.

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>The UK Marine Strategy states that this Descriptor is intended to ensure contaminants, specifically organic chemicals and trace metals found in fish and shellfish destined for human consumption do not exceed thresholds laid out in Community legislation or other agreements.</p> <p>The targets and indicators set out in the UK Marine Strategy Part 1 are based on existing thresholds for contaminants set out in existing EU legislation or other internationally and nationally agreed standards. The Strategy states that, "It is unlikely that additional measures will be needed to</p>	<p>Please refer to the review for Descriptor 8 above to see how emerging Marine Plans could progress this GES target and indicator.</p> <p>It should be noted that Scotland's National Marine Plan Consultation Draft (July 2013) incorporates all eleven GES descriptors as strategic objectives, which includes GES 9 - Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards. (Chapter 3, Pg. 17).</p>	<p>Please refer to the review Descriptor 8 to see how Marine Plans can be strengthened with regard to contaminants.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>achieve GES for this Descriptor beyond those already being put in place to meet existing legislative requirements on contaminants (including the WFD, the UWWTD, the Shellfish Waters Directive, the revised Bathing Waters Directive, the IPPC Directive and REACH)⁶⁴.</p> <p>This GES Descriptor is closely linked to GES Descriptor 8 (Concentrations of contaminants).</p> <p>Please refer to the review for Descriptor 8 above to see how Marine Plans could progress this GES target and indicator.</p>		
Descriptor 10 - Marine litter		

⁶⁴ HM Government (December 2012) UK Marine Strategy Part 1, Para 477, Pg. 141.

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Target: The amount of litter, and its degradation products, on coastlines and in the marine environment is 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.</p>		
<p>At a strategic level Marine Plans can progress the GES target and indicator outlined above by developing objectives and policy that seeks to reduce the amount of marine litter⁶⁵ generated by development/activities (both inshore and offshore) within the Plan area. The strategic policy could identify any marine activities that generate significant amounts of marine litter or particular areas where marine litter is a particular issue.</p>	<p>East Inshore and East Offshore Marine Plans (April 2014): Reference to litter is made in the introductory text relating to policies under Objective 6; however, it is mentioned when referring to the MSFD and existing policies/measures. There is no specific reference to litter in the policies or supporting text within the Plan.</p> <p>Relevant indicators incorporated into the Implementation and Monitoring Plan (June 2014) include:</p> <p>Objective 6 <i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 6A Marine Strategy Framework Directive GES Reporting. <p>Objective 7 <i>Outcome indicators:</i></p> <ul style="list-style-type: none"> • 7A Marine Strategy Framework Directive GES Reporting. <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan includes all eleven GES descriptors as strategic objectives, which includes GES10 - properties and quantities of marine litter do not cause harm to the coastal and marine environment. (Chapter 3, Pg. 17). A summary of the overall assessment of the Scottish Marine Area provided in the Plan states that the impacts of pressures such as marine litter are not</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to this descriptor target and indicator. This includes any relevant data relating to the quantity of litter in the Plan area as well as potential sources (both inshore and offshore). This should enable the identification of activities that are generating litter and priority areas where it is an issue. This will help to provide a robust base from which to develop policy and specific measures to reduce quantity of marine litter in the Plan area.</p> <p>At a strategic level Marine Plans can include an objective to reduce</p>

⁶⁵ The UK Marine Strategy Part 1 defines litter as, "any persistent, manufactured or processed solid material discarded, disposed of, abandoned or lost in the marine and coastal environment" (Para 483, Pg. 142).

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>At a lower tier of plan-making the Plan could set out actions or proposals to address an existing issue relating to marine litter within the Plan area. These could provide more detail in terms of implementation, what will be carried out, by when and by who. The proposals could focus on a particular marine activity or area.</p> <p>Marine Plans could also incorporate and monitor indicators relating to the quantity of marine litter in the Plan area.</p>	<p>well understood (Box A, Pg. 21). The supporting text of Policy GEN12 (Nature conservation, biodiversity and geodiversity) states that opportunities to reduce marine litter, with reference to Marine Scotland's Litter Strategy, should be taken when plans are being developed". Policy GEN11 requires development to take account of the achievement or maintenance of GES for UK waters as it develops under the Marine Strategy Framework Directive. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): Policy MSP LITT1 (Waste Minimisation) seeks applications for marine-related developments to submit a waste/litter minimisation and management plan to ensure the safe disposal of waste material and debris associated with the construction, operation and decommissioning stages of the development in a format to the satisfaction of the consenting authority or regulator. It also states that disposal of marine waste/ litter at sea is prohibited. The introductory text to the policy links it to the relevant GES target and indicator (Pg. 45).</p> <p>The Plan proposes the inclusion of indicators relating to marine waters achieving GES under the MSFD - current status on eutrophication, contamination, marine litter and number of bags of coastal litter collected annually as part of the Da Voar Redd up.</p> <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): Litter is identified as a weakness in relation to aquaculture as shellfish farms can be a significant source of marine litter if inappropriately managed. There is no reference to litter within any of the objectives or policies set out in Part 1 or Part 2 of the Plan.</p> <p>Part 2 of the Plan sets out some actions and recommendations in the monitoring section which includes reducing incidences of marine pollution and investigating</p>	<p>marine litter. A strategic policy can then be developed to progress this objective and set out the marine activities that are most likely to generate litter as well as priority areas where there is an existing issue. The policy should be supported by a map identifying the priority areas.</p> <p>The strategic policy could also seek the development of a coordinated marine litter strategy for the Plan area, such as Policy ENV 11 in the Firth of Clyde Marine Spatial Plan, which encourages agencies and local authorities to work collaboratively. Where possible links should be made to existing national/ regional/ local schemes for reducing litter (both inshore and offshore).</p> <p>Sectoral policies relating to marine activities identified as generating litter within the strategic policy could require any proposal to demonstrate how they intend to</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
	<p>measures for the reduction of litter and pollution from marine users (Section 7.3).</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): Policy ENV 11 (Marine Litter and Debris) seeks the development of a coordinated marine litter strategy for the Firth of Clyde. This should include establishing a systematic monitoring network in the Firth of Clyde to assess the extent of the problem, identify priority areas and the main sources of marine litter and debris. It also supports existing initiatives in their efforts to combat the problem of marine litter.</p> <p>Policy FISH 5 (Voluntary Approaches) proposes that the fishing industry should be supported in developing and implementing voluntary measures to protect marine habitats and species and the Fishing for Litter scheme. The Fishing for Litter project enables rubbish that is trawled up as part of normal fishing activity to be disposed of on land. The project provides large hardwearing bags so the waste can be easily collected and deposited on the quayside.</p>	<p>reduce the generation of marine litter and/or submit a litter minimisation and management plan, such as Policy MSP LITT1 in the Shetland Islands' Marine Spatial Plan. It should also set out any specific measures that are applicable for that particular development/ activity that could help to reduce the generation of litter.</p> <p>Focused policies or detailed actions/ proposals should be developed to address priority areas identified within strategic policy. These could focus on a particular marine activity or area and set out specific measures to reduce the generation and concentration of marine litter. The actions/proposals should provide more detail in terms of implementation, what will be carried out, by when and by who. These should be linked to exiting actions/ proposals where possible and any links must be made clear within the Plan.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
		<p>Monitoring frameworks for the Plans should incorporate indicators relating to the quantity of inshore and offshore (including the seabed) litter in the Plan area.</p> <p>The Plans should clearly link objectives, strategic policy and any detailed actions/ proposals and proposed indicators to the GES descriptor target and indicator.</p>
<p>Descriptor 11 - Introduction of energy, including underwater noise</p> <p>Targets: 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.</p>		
<p>The UK Marine Strategy Part 1 states that this descriptor is intended to address the impacts of</p>	<p>East Inshore and East Offshore Marine Plans (April 2014): the Plan identifies noise as an issue and existing problem in the East Marine Plan areas (Para 185, Pg. 63 and Para 193, Pg. 65); however, it does not contain any objectives, policies or supporting text that directly relates to it. It does not identify any specific activities within the plan</p>	<p>Marine Plan Authorities should collate and list all existing evidence relating to this descriptor target and indicator. This should enable</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>noise on the marine environment. The Descriptor is divided into two indicators, impulsive⁶⁶ and ambient⁶⁷ sound.</p> <p>If the evidence gathering and assessment stages of plan-making identify that there is an existing issue then strategic policy can be developed to identify priority areas within the Marine Plan area where noise is currently an existing issue and affecting biodiversity.</p> <p>Marine Plans can indirectly progress this GES descriptor target and indicator through</p>	<p>area that are most likely to generate noise.</p> <p>The Implementation and Monitoring Plan (June 2014) does not contain any indicators that directly relate to noise. Indirectly there are indicators relating to MSFD GES Reporting.</p> <p>Scotland's National Marine Plan Consultation Draft (July 2013): The plan includes all eleven GES descriptors as strategic objectives, which includes GES11 - Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment (Chapter 3, Pg. 17). A summary of the overall assessment of the Scottish Marine Area provided in the Plan states that the impacts of pressures such as noise are not well understood (Box A, Pg. 21).</p> <p>The Plan directly progresses GES descriptor targets and indicators through Policy GEN 16, which seeks marine planning and decision making authorities to consider man-made noise sources, especially their effects on sensitive species, in the marine, when progressing development and use of the marine environment. The supporting text proposes the development of systems for monitoring noise and further research that quantifies the related risks to the marine environment. It should also be noted that oil and gas policy 1 states that consideration will be given to noise (Pg. 75).</p> <p>There are no clear links made between the policies above and GES descriptors,</p>	<p>the identification of activities that are generating noise, sensitive receptors (links to GES descriptor targets and indicators 1, 4 & 6) and priority areas where there are conflicts.</p> <p>The UK Marine Strategy Part 1 recognises that there is a lack of data in relation to the current status and trend of underwater noise in UK seas. It does go on to state that, "Further research, monitoring and investigation is necessary to fully understand the effects of noise at an individual and population level, the risks and significance of sound inputs to the environment, and appropriate options for mitigation"⁶⁸. The Marine Plan should identify this as a priority research area and seek any</p>

⁶⁶ Impulsive sounds are loud, low and mid frequency impulsive sounds which tend to be caused by activities such as oil and gas seismic activity and pile driving for wind farms.

⁶⁷ Ambient sounds are continuous low frequency sounds caused primarily by shipping.

⁶⁸ HM Government (December 2012) UK Marine Strategy Part 1, Para 498, Pg. 145.

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>objectives and policy that seek to protect and enhance and/or avoidance disturbance to marine ecosystems (in particular species).</p> <p>At a lower tier of plan-making the Plan could set out actions or proposals to address an existing issue relating to noise within the Plan area. These could provide more detail in terms of implementation, what will be carried out, by when and by who. The proposals could focus on a particular marine activity or area.</p> <p>Marine Plans could also incorporate and monitor the indicators for GES Descriptor 11 set out in the UK Marine Strategy Part 1. The UK Marine</p>	<p>targets or indicators. Monitoring indicators not yet available.</p> <p>Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013): The Plan directly progresses GES descriptor targets and indicators through Policy MSP NOISE1 (Minimising Levels of Noise Including Underwater Noise), which seeks applicants to do the following:</p> <ul style="list-style-type: none"> a) submit a noise impact assessment or supporting information to describe the duration, type and level of noise expected to be generated at all stages of the development (construction, operation, decommissioning); and b) include mitigation measures to minimise the adverse impacts associated with the duration and level of noise activity. <p>The policy also requires development to consider the potential cumulative effects of noise within the marine area as well as whether the level of surface or underwater noise has the potential to affect a European Protected Species (EPS). The supporting text also advises that developers consult with the local planning authority, Marine Scotland and SNH in relation to potential noise impacts as early as possible in the design and development of any marine-related project. The supporting text also list some potential mitigation measures.</p> <p>The Plan proposes the inclusion of indicators relating to marine waters achieving GES under the MSFD in Appendix G. It also includes an indicator relating to the number of noise incidents but this is related to impacts on human health rather than underwater noise and impacts on biodiversity.</p> <p>Sound of Mull Marine Spatial Plan Part 1 & 2 (updated June 2011): Neither Part 1 or Part 2 of the Plan contains any objectives, policies or supporting text that directly relates to noise. Species which are sensitive to noise are identified in Part 1 of the</p>	<p>opportunities to help facilitate this work. The JNCC are in the process of developing a marine noise registry that will help to capture noise activity in UK waters. This should help to significantly improve the evidence base in relation to this GES descriptor. Once the marine noise registry is operational, it is recommended that Marine Plans require all developments or activities within their Plan are to submit noise data to the registry.</p> <p>If the evidence gathering and assessment stages of plan-making identify that there is an existing issue then a strategic policy must be developed to identify priority areas within the Marine Plan area where there are conflicts. The policy must be spatially specific and supported by a map identifying the priority/conflict areas and linked to prevalent occurrence of the sensitive species in that area.</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
<p>Policy Statement requires Marine Plan Authorities to take account of any relevant targets, indicators or measures aimed at achieving good environmental status under the MSFD.</p>	<p>Plan (Pgs. 69 - 71). Monitoring indicators not yet available.</p> <p>Firth of Clyde Marine Spatial Plan (July 2010): The Plan does include any objectives or policies directly relating to the generation of noise. However, Policy ENV 6 (Appropriate location and scale) proposes that developments and activities should be in locations appropriate to their scale and impact upon the wider environment in order to minimise damage or disturbance. The supporting text clarifies that the impacts of development is considered to include noise. There are no clear links made between this policy and GES descriptors, targets or indicators. Monitoring indicators not yet available.</p>	<p>Sectoral policies relating to marine activities identified as generating noise within the strategic policy could require any proposal to demonstrate how they intend to address any noise generated and minimise potential negative effects. It could also require any proposals to be accompanied by a noise impact assessment, such as Policy MSP NOISE1 (Minimising Levels of Noise Including Underwater Noise) in Shetland Islands' Marine Spatial Plan Draft Fourth Edition (November 2013).</p> <p>Focused policies or detailed actions/ proposals should be developed to address priority areas identified within strategic policy. These could focus on a particular marine activity or area and set out specific measures to reduce the generation of noise and minimise negative effects on important species. The actions/proposals should provide more detail in terms of implementation, what will be</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
		<p>carried out, by when and by who. These should be linked to exiting actions/ proposals where possible and any links must be made clear within the Plan.</p> <p>There may be opportunities for the Marine Plan to require financial contributions through licensing for certain marine activities/ development where there is evidence of adverse effects as a result of noise. The financial contributions could go towards research studies to improve the evidence base.</p> <p>Monitoring frameworks for the Plans should incorporate indicators relating to noise and its effects on important species within the Plan area. The UK Marine Strategy Part 1 states that setting specific targets for this GES is difficult, given current uncertainties. The aim of the proposes targets and indicators, "is to take a precautionary approach, allowing continued management,</p>

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
		<p>collection and evaluation of better evidence relating to behavioural impacts of noise at population level"⁶⁹. It sets out the following indicators for this GES Descriptor:</p> <ul style="list-style-type: none"> • 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 183 dB re 1 $\mu\text{Pa}^2 \text{m}^2 \text{s}$; or the zero to peak source level of 224 dB re 1 $\mu\text{Pa}^2 \text{m}^2$ over the entire UK hydrocarbon licence block area. • Surveillance indicator to monitor trends in the ambient noise level within the 1/3 octave bands 63 and 125 Hz (centre frequency) (re 1 μPa RMS; average noise level in these octave bands over a year) measured by observation

⁶⁹ HM Government (December 2012) UK Marine Strategy Part 1, Para 505, Pg. 147.

Can GES descriptor targets and indicators be progressed through Marine Plan objectives and policies?	Are GES descriptor targets and indicators being addressed through emerging Marine Plans across the UK?	Recommendations for how Marine Plans can be strengthened
		<p>stations.</p> <p>The Plans should clearly link objectives, strategic policy and any detailed actions/ proposals and proposed indicators to the GES descriptor target and indicator.</p>