



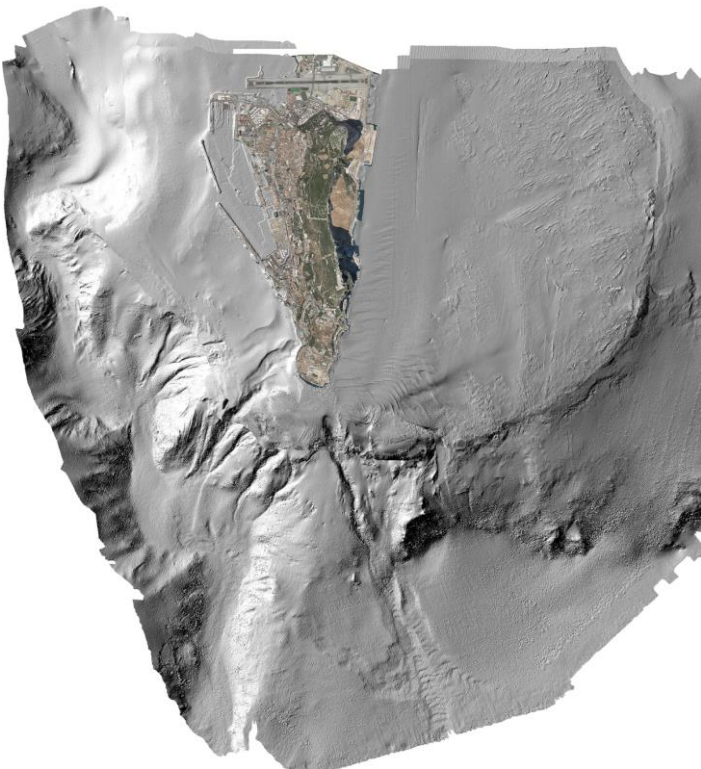
Department of the Environment, Heritage & Climate Change

HM Government of Gibraltar

Programme of Measures for British Gibraltar Territorial Waters

Marine Strategy Framework Directive

March 2017



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Cover photos:

Left: Multi-beam bathymetry map of BGTW. Top right: Scientific divers carrying out a marine litter survey in the Rosia MPA © DECC.

Bottom right: Mediterranean Bluefin tuna (*Thunnus thynnus*) feeding in the Southern Waters of Gibraltar © Nicholas Ferrary.

Part 1: Context for Gibraltar's Marine Strategy

Part 1: Section 1 – Introduction

This document sets out Gibraltar's programme of measures (PoM) that will help to achieve or maintain Good Environmental Status (GES) as defined in the Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters (BGTW) (Part 1). In doing so it fulfils the requirement in the Marine Strategy Framework Directive (2008/56/EC; MSFD) for Member States to identify the measures that need to be taken in order to achieve or maintain GES.

The MSFD aims to ensure sustainable use of marine waters: GES involves protecting the marine environment, preventing its deterioration and restoring it where practical, while using marine resources sustainably.

This is consistent with Her Majesty's Government of Gibraltar's (HMGoG) vision of a clean, safe, productive and biologically diverse environment. The initial assessment of Gibraltar's marine environment set out in the Initial Assessment and Proposals for Good Environmental Status in BGTW (Phase 1), recognised that although many aspects of Gibraltar's marine environment are improving, other aspects (e.g. fish populations) continue to be affected by human activity.

HMGoG has already put in place and has committed to taking measures that will improve the state of Gibraltar's marine environment as part of ensuring sustainable development, most notably through the Nature Protection Act (1991), Marine Protection Regulations (2014) and the Tuna Preservation Regulations (2014). Equally, measures taken as a result of existing EU legislation, such as the Water Framework Directive (WFD), the Birds and Habitats Directive also contribute to improving the state of Gibraltar's marine and coastal environments. These existing and planned measures form the core of Gibraltar's proposed PoM. Part 2, section 2 provides more details on the generic measures that apply across several MSFD Descriptors.

Part 1: Section 2 – Background to the MSFD

The MSFD requires Member States to take measures to achieve or maintain GES for their seas by 2020. It came into force on 15 July 2008 and was transposed into Gibraltar law by the Marine Strategy Regulations 2011 (<http://www.gibraltarlaws.gov.gi/articles/2011s013.pdf>). The Directive is wide-ranging and sets out 11 Descriptors of GES (see Table 1).

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

MSFD Descriptors of GES

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

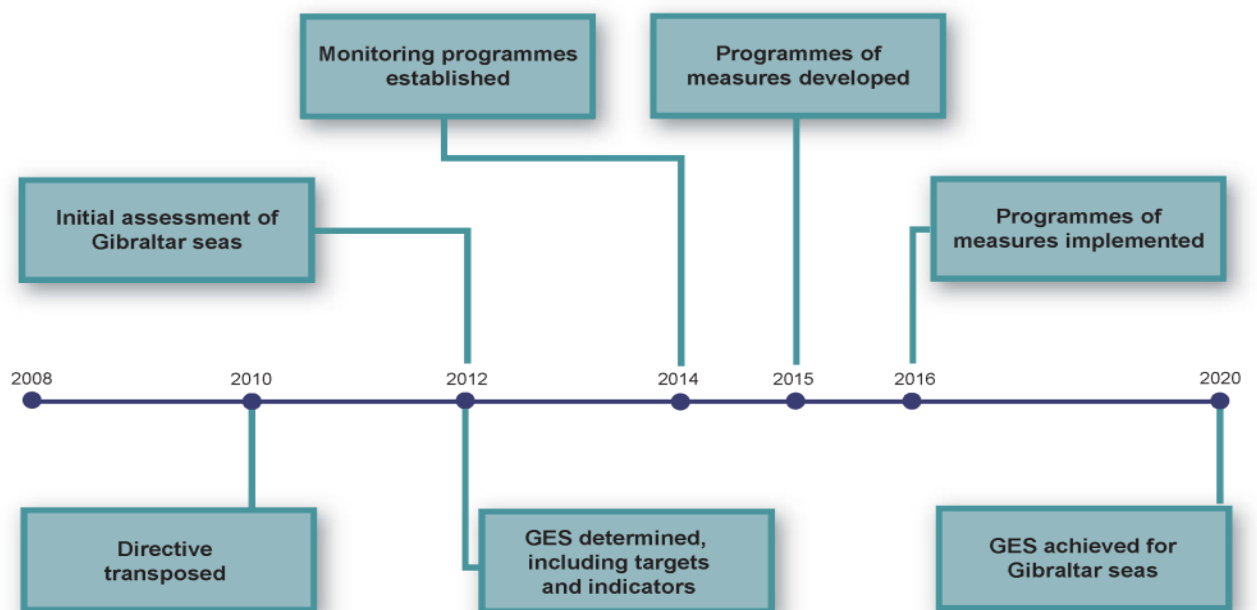
The aims of the Directive are to:

- i. 'Protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected.'
- ii. 'Prevent and reduce inputs in the marine environment, with a view to phasing out pollution, so as to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.'

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

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

Figure 1: Key stages in the MSFD implementation process



Gibraltar completed the first implementation stage of the MSFD in December 2012 with the publication of the Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters.

(https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine_Strategy_Framework-Initial_Assessment-Final_version_8-7-13.pdf).

The second phase was the development of the Gibraltar marine monitoring programme to monitor progress towards GES. This was completed in July 2015 with the publication of the Monitoring Programme for British Gibraltar Territorial Waters.

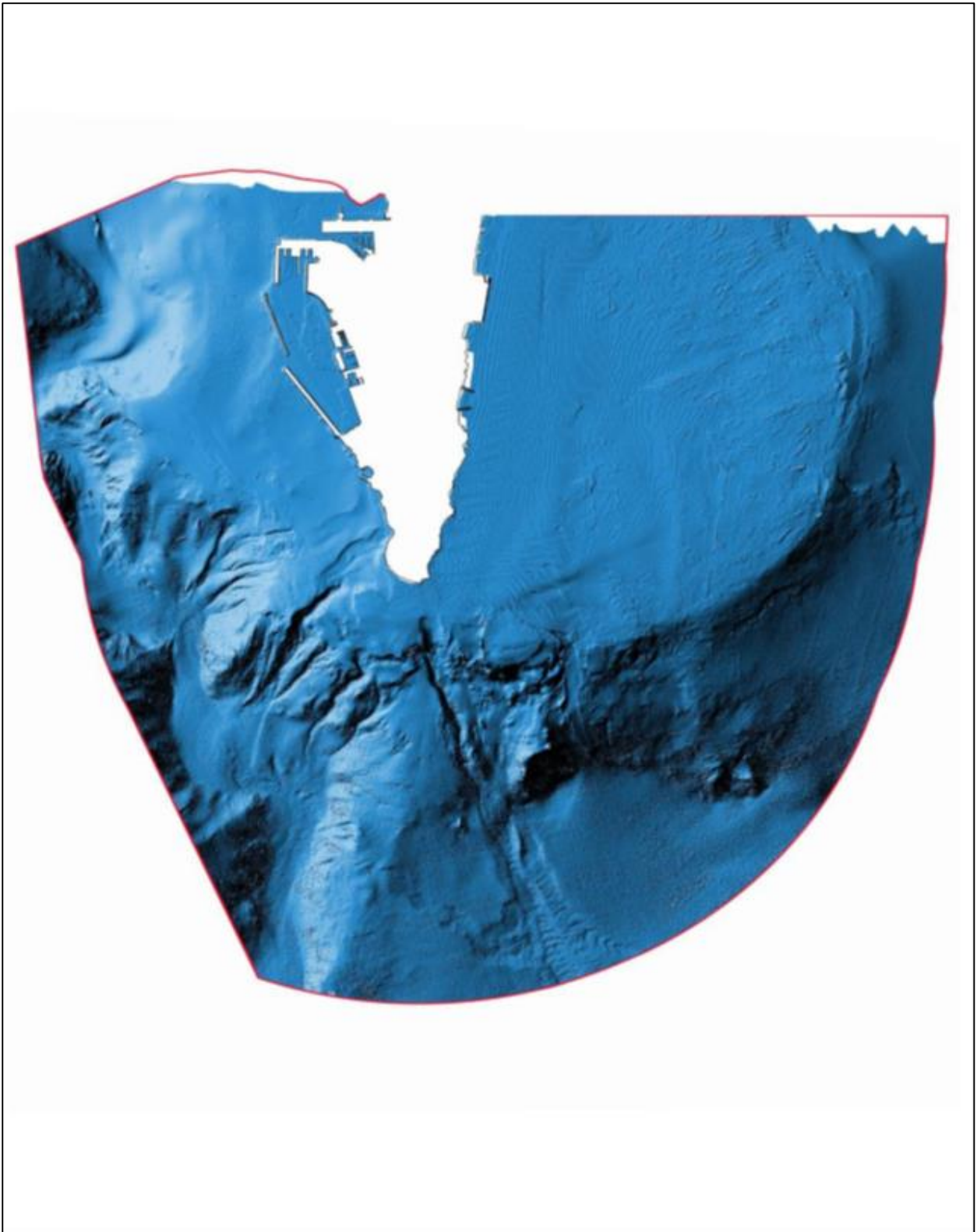
(https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/MSFD_Marine_Monitoring_Programme.pdf).

This PoM constitutes the third phase in the implementation of the MSFD. The PoM has to be implemented by December 2016.

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

The Directive applies to the whole of the BGTW area (Figure 2) i.e. up to the median line in the Bay of Gibraltar and extending three nautical miles (nm) to the south, east and south west.

Figure 2: British Gibraltar Territorial Waters (BGTW)



The Directive is being implemented in a coordinated way across all administrations. The Gibraltar PoM has been developed at a national scale with input from experts and policy makers across HMGoG, authorities and agencies.

Part 1: Section 3 – The European and regional context

Regional coordination requirements of the Directive

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

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

Table 2: MSFD marine regions and associated sub-regions

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

Gibraltar falls within the Mediterranean Sea region, and the Western Mediterranean Sea sub-region.

Gibraltar has one marine strategy covering the whole of our marine waters. Gibraltar's initial assessment, characteristics of GES and associated targets were developed at this scale.

European-level coordination

Coordination between countries under the MSFD jurisdiction is at both a European-wide level, for generic issues, and regionally for local, specific issues. At the European level, coordination is managed through a series of informal Working Groups led by the European Commission. These Working Groups include:

- i. The Working Group on GES: this working group focuses on issues concerning the characteristics of GES and the associated targets and indicators, with the aim of ensuring comparable approaches are taken across the EU.
- ii. The Working Group on Economic and Social Analysis: this working group focuses in meeting the economic and social assessment requirements of the Directive, with the aim of ensuring comparable approaches are taken across the EU.
- iii. The Working Group on Data, Information and Knowledge Exchange: this working group has been set up to develop a coordinated MSFD information and data reporting process. The working group is addressing the development of the data infrastructures that are needed to facilitate the implementation of the Directive at European and Member State level, working as far as possible to use existing data initiatives and to remove duplication of reporting with related directives.

In addition, there are European Union (EU) technical sub-groups on marine litter and on noise, with the remit to review monitoring methodologies, and develop proposals for new approaches.

Regional-level coordination

Article 6 of the MSFD recommends that Member States use existing regional cooperation structures to achieve coherence and coordination of their marine strategies, and build upon existing programmes and activities where relevant. For the Mediterranean Sea, the key forum is the Barcelona Convention, implemented through the United Nations Environment Programme (UNEP) Mediterranean Action Plan (MAP). Recent activities in relation to the MSFD, carried out at a regional level, include:

- The Contracting Parties to the Barcelona Convention developed a set of ecological objectives, operational objectives, and indicators, which reflect Mediterranean priorities and are coherent with the MSFD. The ecological objectives were defined through an intensive process of consultation led by the UNEP/MAP Secretariat.
- The publication of UNEP's MAP final report for the 'Support to the Barcelona Convention for the Implementation of the Ecosystem Approach, Including the Establishment of MPAs in Open Seas Areas, Including Deep Sea Final Report'.

- As a result an adaptive and integrated strategy for the implementation of the Ecosystems Approach in the Mediterranean will aim to achieve 11 ecological objectives, which are all in line with the MSFD objectives.
- The publication of the report ‘State of the Mediterranean Marine and Coastal Environment, Highlights for Policy Makers’ (UNEP, 2012) as an overarching regional-scale assessment of the environmental quality status of the Mediterranean. The work to prepare this report and its underlying thematic assessment reports provide the primary basis for coordination of national initial assessments across the region.
- Gibraltar, through the United Kingdom is currently seeking extension of the Barcelona Convention and increased involvement in UNEP’s Regional Mediterranean Action Plan. Coordination between the Port of Gibraltar and Algeciras (Spain) takes place as and when required.

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

Requirements of the Directive

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

Table 3: Key articles and what they mean

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

	<p>relate to the Member States' initial assessment and the environmental targets. The PoM should take into consideration the types of measures listed in Annex VI and be coherent and coordinated across the relevant marine region.</p>
Article 13(7): How the PoM will address pressures/improve status	The PoM should indicate how measures identified contribute towards the maintenance or achievement of GES.
Article 13(2): Existing EU and other policies	The PoM should take into account relevant measures required under existing and planned EU legislation and other international agreements.
Article 13(3): Socio-economic impacts	Member States must give 'due consideration to sustainable development and, in particular, to the social and economic impacts of the measures envisaged and that measures are cost effective and technically feasible and carry out impact assessments, including cost-benefit analyses, prior to the introduction of any new measures'.
Article 13(4): Spatial protection measures	Member States are required to include spatial protection measures in their PoM that contribute towards 'coherent and representative networks of Marine Protected Areas, adequately covering the diversity of the constituent ecosystems'.
Article 13(8): Impacts on waters of other Member States	Member States should consider the implications of their PoM on waters beyond their marine waters.
Article 16: Assessment	The European Commission will assess Member States' PoM within 6 months of them being received.
Article 17(2) (d): Updates	An update of the programmes is required every 6 years, i.e. by 31 March 2022 at the latest.
Article 14: Exceptions	There are 2 broad categories of exceptions, under Article 14(1) and 14(4), with different obligations attached. Article 14(1) covers exceptions to reaching GES or

the associated targets. These can fall within distinct subcategories:

- action or inaction for which the Member State concerned is not responsible;
- natural causes;
- force majeure;
- modifications or alterations to the physical characteristics of marine waters brought about by actions taken for reasons of overriding public interest which outweigh the negative impact on the environment, including any trans-boundary impact;
- natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Article 14(4) allows for 2 additional subcategories of exceptions: 'significant risk' and 'disproportionate costs'.

The Gibraltar PoM has been developed following the European Commission guidance document 'Programmes of Measures under the MSFD: Recommendations for establishment / implementation and related reporting'. This document sets out basic principles for the establishment of the PoM, guidance for their implementation and the main elements to be considered when reporting the PoM to the European Commission. It includes the following definitions:

- A measure in the MSFD should be considered as any action on a national-, European- or international-level with a view to achieving or maintaining GES and with reference to the environmental targets.
- While MSFD measures will primarily focus on changing the intensities of predominant pressures, activities to improve environmental status directly, such as restoration of habitats and reintroductions of species, can also be defined as measures under the MSFD.
- A programme of measures (PoM) is a set of measures that the Member State is responsible for implementing, put into context with each other, referring to the

environmental targets they address. The programme of measures includes existing and new measures.

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

HMGoG is already committed to numerous measures, which have and will continue to improve the state of Gibraltar's marine environment. As part of these measures, several monitoring regimes are already in place. In order to maximise efficiency and ensure compatibility between datasets, where it is appropriate to do so, existing monitoring protocols will be incorporated into the PoM.

In summary, HMGoG believes that the existing and planned measures will be sufficient to meet Gibraltar's MSFD targets and to help achieve or maintain GES as defined in the Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters (phase 1).

Part 2: Programme of measures summaries

Part 2: Section 1 – Introduction

The Gibraltar PoM (phase 3) provides summaries of the measures for each of the 11 Descriptors of GES. They are presented in a series of annexes and for each Descriptor provide:

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

Table 4 provides some background to each individual section.

Table 4: Rationale for the sections used to help articulate the summary of Gibraltar's Programme of Measures

Section	Reason for the inclusion
Section 1: Status of the Descriptor in BGTW	This gives a picture of the current state of knowledge about the extent to which GES has been achieved and where there are still problems. It provides context on the extent of measures that might be needed.
Section 2: Characteristics of GES, targets and indicators	This summarises the characteristics, targets and indicators set out in Gibraltar to achieve GES. These are as set out in the Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters.
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve Good Environmental Status	This section provides a summary of the approach for that particular Descriptor and how the measures will address the associated targets.
Section 4: Existing measures	This provides a summary of existing measures which are already being implemented and which will help achieve or maintain GES.
Section 4: Planned measures	This provides a summary of any new proposed measures which will help achieve or maintain GES.
Section 4: New measures	This provides a summary of any new proposed measures which will help achieve or maintain GES.
Section 4: Extent to which measures are coordinated and coherent at a Gibraltar regional level	This provides an overview of the degree of coordination for the measures identified.
Section 4: Impact measures have on waters of other countries	This provides information on how the measures identified could impact neighbouring Member States' waters.
Section 5: Contribution of the measures to achieving GES	This provides an assessment of the extent that the proposed measures are sufficient to achieve or maintain GES by 2020. It also identifies where exceptions under Article 14 are relevant.

Section 6: Contribution of the measures to marine Protected Areas	This provides information on how the measures identified could contribute to the development of a coherent network of Marine Protected Areas (MPAs).
Section 7: Gaps and issues	This sets out any: <ul style="list-style-type: none"> • gaps in our understanding of the Descriptor or aspects of the Descriptor; • gaps in the PoM that are preventing Gibraltar from meeting its targets; • further development of targets needed to help achieve or maintain GES.
Section 8: Additional information	This sets out any relevant additional information.

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

As in the Initial Assessment and Proposals for Good Environmental Status in BGTW and the Monitoring Programme for BGTW, Descriptors 1 (biodiversity), 4 (food webs) and 6 (seafloor integrity) are addressed on the basis of five ecosystem components: fish; marine mammals; birds; pelagic habitats; and benthic habitats. In addition, Descriptors 8 (concentrations of contaminants) and 9 (concentrations of contaminants in fish and other seafood) are also addressed together as concentrations of contaminants.

Separate annexes are provided for Descriptors 2 (non-indigenous species), 3 (commercially exploited fish and shellfish), 5 (human-induced eutrophication), 7 (hydrographical conditions), and 10 (marine litter) and 11 (underwater noise).

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

Part 2: Section 2 – Generic Measures

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

Marine planning and marine licensing

Gibraltar adopts an ecosystem-based approach to the management of human activities in the marine environment. Plans and regulations that contribute to this management approach include:

- The Nature Protection Act, 1991;
- Marine Protection Regulations, 2014;
- Tuna Preservations Regulations, 2014;
- Public Health (Water Framework) Rules 2004;
- Southern Waters of Gibraltar Management Scheme;
- Gibraltar River Basin District Management Plan;
- Gibraltar Biodiversity Action Plan

Marine planning in Gibraltar is the responsibility of HMGoG with support of the Department of the Environment and Climate Change (DECC). All Gibraltar marine management plans and regulations will comply with the Maritime Spatial Planning Directive (2014/89/EU).

Marine plans are being developed in accordance with National and EU legislation and policies. These will aim to manage human impacts on marine ecosystems so that they continue to provide goods and services to benefit society.

Marine plans will contribute to meeting the objectives of the MSFD, particularly in relation to any measures, which have a spatial dimension. Pertinent authorities will consider how marine plans may shape activities within the relevant marine area to support the goals of the MSFD, as well as those of other relevant pieces of EU legislation. It is further anticipated that marine plans will be used to highlight the need for decision makers to take account of impacts that may affect the achievement or maintenance of GES. Marine plans may also contribute to GES by highlighting relevant issues to be addressed by future policies.

Marine planning policies allow decision makers to formalise general frameworks and provide direction where appropriate. To that effect, this provides decision makers an opportunity to consider important and related factors such as the economic, social and environmental impacts in relation to the development and use of the marine environment. Marine plans are also subject to the Strategic Environmental Assessment

Directive. In addition, the process of preparing marine plans requires extensive stakeholder engagement, which in turn provides a range of opportunities for communication, and to raise awareness of issues related to the marine environment.

Marine plans set direction for the licensing and consenting process. Public authorities must take any authorisation or enforcement decision in accordance with Gibraltar National Legislation and Marine Plans.

Marine licensing is the system by which regulated marine activities are addressed and consented. Where appropriate, it may impose license conditions that limit the impacts of licensed activities. In Gibraltar, licensed activities are managed through the DECC. All marine licenses must be compliant with the following:

- Environmental Impact Assessment Directive (85/337/EEC);
- the Habitats Directive (92/43/EEC) ;
- the Birds Directive (2009/147/EC);
- the Water Framework Directive (2000/60/EC);
- National Legislation.

Environmental Impact Assessment/Strategic Environmental Assessment/Appropriate Assessment (under the Habitats Directive)

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

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

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

The Habitats Directive protects certain species of plants and animals which are particularly vulnerable and requires the designation of Special Areas of Conservation (SACs). These, along with Special Protection Areas (SPAs) classified under the Birds Directive make up the Natura 2000 network of European protected sites. The Gibraltar regulations used to implement the EU directive require an Appropriate Assessment in the event that EU protected habitats or species may be affected by a development.

Water Framework Directive

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

There is some overlap between the waters covered by the WFD and the MSFD. The WFD relates to surface waters throughout a river basin district from rivers, lakes and groundwaters through to transitional and coastal waters to 1 nautical mile out to sea and overlaps with the MSFD in coastal waters. The MSFD includes WFD coastal waters for Descriptors not already covered by the WFD. The MSFD does not include WFD transitional waters (e.g. estuaries and coastal lagoons). The MSFD recognises these overlaps with the WFD and makes it clear that in coastal waters the MSFD is only intended to apply to those aspects of GES, which are not already covered by the WFD (e.g. noise, litter, most commercial fish species and aspects of biodiversity).

For Descriptors 8 (concentrations of contaminants), 9 (concentrations of contaminants in fish and other seafood), and Descriptor 5 (eutrophication), given that most of the anthropogenic activities which cause these pressures are either terrestrial in nature or are taking place in the coastal zone, it is considered highly likely that measures taken under the WFD and its related directives will be sufficient to achieve and maintain GES for these Descriptors across Gibraltar's marine area. For Descriptor 7 (hydrographical conditions), it is considered that the application of the WFD in the coastal area, plus the wider application of the Environmental Impact Assessment Directive through the marine licensing process, will be sufficient to achieve GES for this Descriptor across Gibraltar's marine waters.

Marine Protected Areas

Gibraltar's Marine Protected Areas (MPAs) will play a significant role in supporting achievement in a number of GES characteristics and targets set out in this strategy; in particular, for Descriptors 1 (biodiversity) and 6 (seafloor integrity). Gibraltar's MPA network forms an integral element of the proposed PoM for GES, contributing to the directive requirements to put in place spatial protection measures, which contribute to a coherent and representative network of MPAs.

Gibraltar has established a network of MPAs. This network consists of SACs, SPAs and Marine Conservation Zones (MCZs). The network covers both special habitats and species and is continuously monitored with the intention of expanding it in future. The aim is for the network to be representative and ecologically coherent and for it to play a critical role in improving the status of Gibraltar's marine habitats and species.

Habitats and Birds Directive

Significant habitat and species protection is also already provided in BGTW through the implementation of the Nature Protection Act (which transposes the Habitats and Birds Directives) and the Marine Protection Regulations. The spatial protection aspects of these legislative instruments have already been mentioned under the section on MPAs, but these two directives also set a number of specific conservation objectives for particular species and habitats. Measures taken under the Habitats Directive are designed to achieve Favourable Conservation Status (FCS) for listed species and habitats. The aims of the Birds Directive relate to the conservation of all species of naturally-occurring birds in the wild state in the European territory of the Member State to which the treaty applies.

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

Part 3: Gibraltar programme of measures for the MSFD

Descriptors 1 to 11

Descriptors 1 and 4 – Biodiversity (Fish) & Marine Food Webs	
Section 1: Status of fish in British Gibraltar Territorial Waters	
<p>There is limited information on the current status of fish communities in BGTW. A separate report looking at the management of marine living resources in BGTW has been produced by an independent Fishing Expert Working Group (Tydeman & Lutchman, 2013), and this report arrived at similar conclusions to the Initial Assessment in that the data available has been insufficient in providing clear trends.</p> <p>There have been recent improvements in the status of some fish communities, which have primarily resulted from a reduction in fishing pressures as a result of the licensing of all fishing activities in BGTW. Improved information is needed on all species.</p> <p>Further national detail can be found in:</p> <ul style="list-style-type: none"> • Southern Water of Gibraltar Management Scheme – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern_Waters_of_Gibraltar_Management_Scheme_2012.pdf • Gibraltar River Basin Management Plan 2015-2021 – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/Gibraltar_River_Basin_Management_Plan_Public_Consultation_Main_Report.pdf • Marine Protection Regulations 2014 – http://www.gibraltarlaws.gov.gi/articles/2014s180.pdf • Tuna Preservation Regulations 2014 – http://www.gibraltarlaws.gov.gi/articles/2014s184.pdf • Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine_Strategy_Framework-Initial_Assessment-Final_version_8-7-13.pdf • Monitoring Programme for British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/MSFD_Marine_Monitoring_Programme.pdf • The Management of Marine Living Resources in the Waters around Gibraltar – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management_of_marine_living_resources_in_the_waters_around_Gibraltar.pdf • http://www.thinkinggreen.gov.gi/index.php/underwater-camera 	
Section 2: Marine Strategy Part One characteristics of GES, targets and indicators	
Characteristics of GES for Descriptors 1 and 4: Fish	<p>Descriptor 1: At the scale of the MSFD sub-regions, and in line with prevailing conditions, the loss of biodiversity has been halted and where possible restored, with key ecosystems maintained or recovered:</p> <p>The abundance, distribution and condition of species and habitats in BGTW reflects, or is consistent with, prevailing environmental conditions, taking into account sustainable use of the marine environment;</p>

	<p>The extent and natural range of habitats and species is not being significantly reduced (nor likely to be so in the foreseeable future) and the specific structures and functions necessary for their long-term maintenance exist and are likely to exist for the foreseeable future;</p> <p>Habitats and species defined as rare or threatened under existing national or international agreements are conserved effectively through appropriate national mechanisms; and</p> <p>Impacts of human activities do not lead to significant degradation of marine habitats or adversely affect species at the population or key functional group level.</p> <p>Descriptor 4: At the level of the MSFD sub-regions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats.</p> <p>There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards.</p>
<p>MSFD Criterion 1.1: Species Distribution</p>	<p>Target: In all of the indicators monitored there is no statistically significant contraction in the distribution of marine mammals caused by human activities.</p> <p>Target: The geographic and depth distribution of sensitive fish should meet individual indicator targets in a statistically significant proportion of species monitored.</p> <p>Target: Ensuring the breeding population of Mediterranean Shag is not adversely impacted due to fishing by-catch, disturbance and other key pressures.</p> <p>Indicator: 1.1.1 Distributional range.</p> <p>Indicator: 1.1.2 Distributional pattern within the distributional range, where appropriate.</p> <p>Indicator: 1.1.3 Area covered by the species (for sessile / benthic species).</p>
<p>MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species</p>	<p>Target: Populations of key species groups within the food web occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part of, with an age and size structure for these and other key species towards sustainable populations.</p> <p>Indicator: 4.3.1 Abundance trends of functionally-important selected groups/species.</p>

<p>MSFD Criterion 1.7: Ecosystem structure – fish relative abundance</p>	<p>Target: Mortality of cetaceans is sufficiently low so as not to inhibit population targets being met.</p> <p>Target: Continued recruitment of seabirds from donor populations in the area.</p> <p>Target: Ensuring adequate fish stocks in BGTW, including key seabird prey species.</p> <p>Target: Ensuring the risk of mortality in seabirds due to by-catch, oil spills and other key pressures are sufficiently low so as not to affect seabird population ecology.</p> <p>Target: The population abundance density and population biomass density of sensitive fish species should meet individual indicator targets for recovery in a statistically significant proportion of species monitored.</p> <p>Target: The size-composition of fish communities should reflect a healthy status and not be significantly impacted by human activity.</p> <p>Indicator: 1.7.1 Composition and relative proportions of ecosystem components (habitats and species).</p>
<p>MSFD 4.2: Proportion of selected species at the top of food webs</p>	<p>Target: No specific target was set for this criterion; however, through successful delivery of other, species-specific criteria, the proportion of species within each trophic level of the food-web within BGTW should remain healthy.</p> <p>Indicator: 4.2.1 Large fish (by weight).</p>
<p>Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES</p>	
<p>What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?</p>	<p>In line with the wider UK, targets have been established in relation to abundance and distribution of sensitive fish species and also in relation to the overall health of the fish community. Sensitive fish species include both targeted and non-targeted species. They are those species which are least able to withstand additional mortality, and tend to be slow growing, large bodied species with low rates of reproduction.</p> <p>There is currently limited data available on fish populations in BGTW. However the Government of Gibraltar is seeking to address this situation by implementing a series of additional fisheries management measures in line with the requirements of the Marine Protection Regulations, as well as habitat enhancement measures. An overview of the fisheries management measures that are currently being implemented in BGTW is provided by Tydeman & Lutchman, 2013.</p>

Section 4: Existing, planned and new measures needed to achieve GES for fish

What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?

Gibraltar is already undertaking a range of initiatives which have the objective of reducing fishing mortality and increasing a recovery of fish stocks such as:

Marine Protected Areas: The Habitats and Birds Directives, Marine Protection Regulations 2014 and Tuna Preservation Regulations 2014: Gibraltar has established and continues to extend its network of MPAs. It is expected that MPAs will contribute to reducing pressure on sensitive species (Descriptor 1), on community size structure (Descriptors 1 and 4), and on the seabed (Descriptor 6). Some Marine Conservation Zones identify specific fish species as protected features, such as seahorses. Special Areas for Conservation (SACs) have been established; in Gibraltar this includes the Southern Waters SAC/SPA as well as the Rock of Gibraltar Nature Reserve SAC/SPA.

The MPAs cover over 10% of BGTW and will play an important role in delivering a healthy, productive and biologically diverse marine environment and will contribute to work towards the achievement of the targets for Descriptors 1 and 4. The Department of the Environment and Climate Change has extended its marine monitoring programme by carrying out analysis of contaminants in biota. This includes sampling of fish (White Bream) for contaminants as a result of human impacts and activity in BGTW.

In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that **HMGOG has made representations to extend the Barcelona Convention to BGTW**. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.

What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?

In addition to the existing programmes that are currently in place, a new voluntary (citizen science) marine monitoring programme will be operating in 2017. This will enable local amateur divers to register with the Department of the Environment and Climate Change and report information on fish species, crustaceans, invasive species and the condition of different habitat types (i.e. coral, sandy seabed, rocky outcrops etc.). Observations reported as part of this scheme will provide information relevant to Indicators 1.1.1, 1.1.2, 1.1.3, 1.4.1, 1.4.2, 1.5.1, 1.5.2, 1.6.1, 6.1.1, 6.1.2 and 6.2.1.

This work will support the monitoring of habitat extents and their condition with restoration works contributing to the overall health of habitats within BGTW.

The Department of the Environment and Climate Change has installed an underwater camera that has been placed in the Rosia 'no take/no fishing zone' providing users with an insight into Gibraltar's underwater environment

	as well as vital scientific data on fish species richness and abundance and physico-chemical parameters. Moreover, the camera will provide unprecedented data on the effects of declaring a 'no take/ no fishing zone'.
What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Although not ratified by the UK, Gibraltar is currently seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) .
To what extent are the measures coordinated and coherent at a Gibraltar national level?	<p>Marine management activities are coordinated and managed by HMGoG through the DECC. NGOs and other stakeholders form major proponents in key management measures. To that effect, stakeholders also contribute largely with data gathering and monitoring all of which is coordinated and collated by HMGoG.</p> <p>The Habitats and Birds Directives are managed on a national basis with monitoring and surveillance carried out by the DECC and also through local non-governmental organisations (NGOs). The surveillance-monitoring programme is also managed by the DECC.</p> <p>The WFD is coordinated at national level with river basin management plans (RBMPs) covering respective river basin districts, although the management of the Gibraltar RBD is dependent on HMGoG's DECC.</p>
Do any of the measures have any impact on the waters of other countries in the sub-region?	Measures in MPAs will positively affect other areas considering that species will migrate into/through other countries' waters.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
It is expected that the implementation and enforcement of the Marine Protection and the Tuna Preservation Regulations 2014 will lead to an overall reduction in pressures, subsequently lessening impacts on sensitive fish species and fish communities more generally. This is expected to lead to an improvement in the status of fish stocks and to the achievement of GES and all related targets. However, the extent to which this will be achieved for all fish, and whether it will be achieved by 2020 remains uncertain.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
Yes. All types of MPAs (marine SACs, marine SPAs, MCZs) will contribute to a wider ecologically coherent network in BGTW and the Western Mediterranean sub-region.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
<p>Through the implementation of this PoM, the intention is to move towards an ecosystem-based approach to fisheries management. Monitoring will be used to assess whether this approach has adverse impacts on the achievement of targets, and if so, whether further measures are needed. Mechanisms exist to deliver such measures.</p> <p>It is recognised that gaps exist in terms of data availability, monitoring and analysis at a national level. It is HMGoG's intention to initiate research projects and assessments, including the proposed voluntary monitoring scheme due to start in 2017, which should be able to provide information in relation to this</p>	

aspect ahead of the next reporting cycle. The results of this work will be used to address these gaps and provide a robust baseline of data to establish accurate environmental status and enable comprehensive monitoring of specific habitat and species improvements into the future.

It is also fundamental that Gibraltar forms part of the Barcelona Convention and the Mediterranean Action Plan to ensure consistency with other regional programmes aimed at protecting the marine environment.

Descriptors 1 and 4 – Biodiversity (Marine Mammals) & Marine Food Webs

Section 1: Status of marine mammals in British Gibraltar Territorial Waters

Cetaceans are common throughout all of BGTW. Both Common Dolphin (*Delphinus delphis*) and Striped Dolphin (*Stenella coeruleoalba*) have nurseries within the Bay (Shaw, 1998). The most common cetacean species seen in BGTW include:

- Common Dolphin (*Delphinus delphis*)
- Long-finned Pilot Whale (*Globicephala melas (melaena)*)
- Risso's Dolphin (*Grampus griseus*)
- Killer Whale (*Orcinus Orca*)
- Striped Dolphin (*Stenella coeruleoalba*)
- Bottle-nosed Dolphin (*Tursiops truncatus*)
- Sperm Whale (*Physeter microcephalus*)
- Cuvier's Beaked Whale (*Ziphius cavirostris*)
- Northern Hemisphere Minke Whale (*Balaenoptera acutorostrata*)
- Fin Whale (*Balaenoptera physalus*)
- Humpback Whale (*Megaptera novaeangliae*)

Many of these cetaceans migrate through BGTW throughout the year so defining numbers is difficult. The Department of the Environment and Climate Change together with the Gibraltar Port Authority implements a Cetacean Protocol that is imposed on all operators within BGTW. Species that are regularly found in BGTW include the Common, Striped and Bottle-nosed dolphins. Whales are also frequent in the Bay of Gibraltar but are more commonly seen in the Strait of Gibraltar and on the eastern side of the Rock. Small resident populations of Sperm Whales, Killer Whales and Long-Finned Pilot Whales are found in the Strait of Gibraltar. The Department of the Environment and Climate Change gathers data from numerous research entities operating within BGTW, and the wider region, in order to monitor the status of cetacean populations in BGTW.

Results of cetacean monitoring programmes are reported in line with the requirements of the Habitats Directive.

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

Characteristics of GES for Descriptors 1 and 4:
Marine mammals

Descriptor 1: At the scale of the MSFD sub-regions, and in line with prevailing conditions, the loss of habitat has been halted and where possible restored, with key ecosystems maintained or recovered:

The abundance, distribution and condition of species and habitats in BGTW reflects, or is consistent with, prevailing environmental conditions, taking into account sustainable use of the marine environment;

The extent and natural range of habitats and species is not being significantly reduced (nor likely to be so in the foreseeable future) and the specific structures and functions necessary for their long-term maintenance exist and are likely to exist for the foreseeable future;

Habitats and species defined as rare or threatened under existing national or international agreements are conserved effectively through appropriate national mechanisms; and

Impacts of human activities do not lead to

	<p>significant degradation of marine habitats or adversely affect species at the population or key functional group level.</p> <p>Descriptor 4: At the level of the MSFD sub-regions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats.</p> <p>There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards.</p>
MSFD Criterion 1.1: Species Distribution	<p>Target: In all of the indicators monitored there is no statistically significant contraction in the distribution of marine mammals caused by human activities.</p> <p>Target: The geographic and depth distribution of marine mammals should meet individual indicator targets in a statistically significant proportion of species monitored.</p> <p>Indicator: 1.1.1 Distributional range.</p> <p>Indicator: 1.1.2 Distributional pattern within the distributional range, where appropriate.</p>
MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species	<p>Target: Populations of key species groups within the food web occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part of, with an age and size structure for these and other key species towards sustainable populations.</p> <p>Indicator: 4.3.1 Abundance trends of functionally-important selected groups/species.</p>
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>In line with the wider UK, for marine mammals the targets reflect existing commitments under the Habitats Directive, which covers all marine mammal species. They aim to ensure that marine mammal distribution is not significantly affected by human activities and that their abundance is not decreasing as a result of human activities, using baselines consistent with those used for the Habitats Directive.</p> <p>Foraging and breeding areas of cetaceans within BGTW and the Bay of Gibraltar generally require strict monitoring and enforcement, particularly in relation to fishing and maritime activities that</p>

	<p>could affect marine mammals. Marine Conservation Zones have been designated within BGTW and this should assist in conserving important habitats used by both cetaceans and marine reptiles. Further research and regional co-operation is also required to help improve the conservation status of cetaceans and marine reptiles in BGTW and the wider region.</p>
<p>Section 4: Existing, planned and new measures needed to achieve GES for marine mammals</p>	
<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>Cetaceans are protected by a number of national, European and international conventions, agreements and regulations which also establish the broad parameters for monitoring.</p> <p>Habitats Directive (92/43/EEC): All cetacean species are protected under the Habitats Directive where they are specifically listed in Annex IV (Animal and Plant Species of Community Interest in Need of Strict Protection). The obligations of the Habitats Directive are transposed through domestic legislation, which makes it an offence to kill, injure, capture or disturb all cetaceans. As European protected species they must be protected throughout their natural range.</p> <p>Convention on the International Trade of Endangered Species (CITES): All whale species are listed on CITES with most given the highest level of protection, prohibiting any international commercial trade except in certain exceptional specific circumstances.</p> <p>Nature Protection Act 1991 and the Marine Protection Regulations 2014 – an integral part of the regulations consists of the cetacean protocol, which provides guidelines whenever pods of cetaceans are sighted within BGTW. The protocol also establishes the appropriate measures for injured marine mammals.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGOG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>In addition to the existing programmes that are currently in place, a new voluntary (citizen science) marine monitoring programme will be operating in 2017. This will enable boat users and amateur divers to register with the DECC and report information on sightings of marine mammals. Observations reported as part of this scheme will provide information relevant to</p>

	Indicators 1.1.1, 1.1.2, 1.1.3, 1.4.1, 1.4.2, 1.5.1, 1.5.2, 1.6.1, 6.1.1, 6.1.2 and 6.2.1.
What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) as well as any programmes developed under the Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS) .
To what extent are the measures coordinated and coherent at a Gibraltar national level?	As migratory species, the majority of cetacean measures require collaboration internationally or regionally. Limited specific domestic action (beyond what has been agreed at regional or EU level) is required, but national work to support delivery is effective and on-going.
Do any of the measures have any impact on the waters of other countries in the sub-region?	It is believed that the existing and planned measures described above will contribute to maintaining GES for those species whose status is 'favourable' and to achieving GES for the other cetacean species. Although we will assess progress once all the targets and indicators for cetaceans are fully operational, assessments carried out under the Habitats Directive lend support to the robustness of existing and planned measures.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
We believe that the existing and planned measures described above will contribute to maintaining GES for those species whose status is 'favourable' and to achieving GES for other cetacean species. Although we will assess progress once all the targets and indicators for cetaceans are fully operational, assessments carried out under the Habitats Directive lend support to the robustness of existing and planned measures.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
The Southern Waters of Gibraltar SAC/SPA have been designated within BGTW and provide protection to all cetaceans found within and migrating through the site. This along with the Gibraltar network of MCZs will help to support both the Common, Bottlenose and Striped Dolphins, which are known to have nurseries within the Bay of Gibraltar (Shaw 1998).	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
It is recognised that gaps exist in terms of data availability, monitoring and analysis at a national level. It is HMGoG's intention to initiate research projects and assessments, including the proposed voluntary monitoring scheme due to start in 2017, which should be able to provide information in relation to this aspect ahead of the next reporting cycle. The results of this work will be used to address these gaps and provide a robust baseline of data to establish accurate environmental status and enable comprehensive monitoring of specific habitat and species improvements into the future.	
Some of the targets and indicators for cetaceans are pending further works and as yet are not operational. The elaboration and definition of baseline trends will enable targets and indicators to cover those cetacean species for which there are sufficient data to enable estimates of abundance and trends over time. These are expected to be operational for the next reporting cycle. The baselines for the marine mammal targets will be consistent with those used for the Habitats Directive.	

It is also fundamental that Gibraltar forms part of the **Barcelona Convention**, the **Mediterranean Action Plan** and **ACCOBAMS** to ensure consistency with other regional programmes aimed at protecting marine mammals.

Section 8: Additional information

Further national details can be found in:

- Southern Water of Gibraltar Management Scheme – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern_Waters_of_Gibraltar_Management_Scheme_2012.pdf
- Gibraltar River Basin Management Plan 2015-2021 – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/Gibraltar_River_Basin_Management_Plan_Public_Consultation_Main_Report.pdf
- Marine Protection Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s180.pdf>
- Tuna Preservation Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s184.pdf>
- Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine_Strategy_Framework-Initial_Assessment-Final_version_8-7-13.pdf
- Monitoring Programme for British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/MSFD_Marine_Monitoring_Programme.pdf
- The Management of Marine Living Resources in the Waters around Gibraltar – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management_of_marine_living_resources_in_the_waters_around_Gibraltar.pdf
- <http://www.thinkinggreen.gov.gi/index.php/underwater-camera>

Descriptor 1 and 4 – Biodiversity (Birds) & Marine Food Webs

Section1: Status of birds in British Gibraltar Territorial Waters

BGTW, particularly the Southern Waters of Gibraltar SAC/SPA, are an important feeding ground for migratory birds that continuously fly through the Straits of Gibraltar. Each year an estimated 300 million birds pass over the Strait of Gibraltar in each direction. Some species, such as the Cory's shearwater, forage extensively in the Southern Waters of Gibraltar SAC/SPA. Other species, such as Gannets, Black-headed Gulls and Sandwich Terns for example, rely on the nutrient-rich productive waters for feeding in winter months. Many of the seabirds that use or migrate through BGTW are listed in the EU Birds Directive such as for example:

- Cory's shearwater
- Scopoli's shearwater
- Black tern
- Gull-billed tern
- Audouin's gull
- Mediterranean gull
- Northern Gannet
- Mediterranean shag
- Cormorant
- Balearic shearwater
- Little tern
- Black-headed gull
- Common tern
- Sandwich tern

The status of these and other seabird species in BGTW are reported as part of the Article 17 Reporting Process in line with the requirements of the Habitats Directive. In view that the Mediterranean Shag is the only seabird that breeds in Gibraltar (along with the Yellow-legged Gull which has a more widespread distribution), further particulars are provided below.

Mediterranean shag: Although the shag in general has a favourable status, the Mediterranean shag has a restricted global distribution. Gibraltar hosts one of the few remaining breeding colonies of the Mediterranean shag subspecies (*Phalacrocorax aristotelis desmarestii*) in the mainland Iberian Peninsula. A small population (5-10 pairs) uses the sea caves on the East side of the Rock to breed. Under Gibraltar's Biodiversity Action Plan, a Species Action Plan has been prepared for the Mediterranean shag. This plan incorporates clear steps that are being taken to enhance their survival. The population has suffered declines in the past but is now considered stable.

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

Characteristics of GES for Descriptors 1 and 4: Birds

Descriptor 1: At the scale of the MSFD sub-regions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway:

The abundance, distribution, extent and condition of species

	<p>and habitats in Gibraltar waters are in line with prevailing environmental conditions as defined by specific targets for species and habitats.</p> <p>Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities as such so that the specific structures and functions for their long-term maintenance exist for the foreseeable future.</p> <p>Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms.</p> <p>Descriptor 4: At the level of the MSFD sub-regions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats.</p> <p>There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards.</p>
MSFD Criterion 1.1: Species Distribution	<p>Target: Ensuring the population of Mediterranean shag is not adversely impacted by fishing, disturbance or other marine activities.</p> <p>Indicator: 1.1.2 distributional pattern with distributional range, where appropriate.</p> <p>Indicator 1.2.1: Population abundance</p>
MSFD Criterion 4.1: Productivity	<p>Target: No specific target was set for this criterion, however, through successful delivery of other species-specific criteria, productivity levels within the marine ecosystem should remain at healthy levels. This will be supported by the successful delivery of other Descriptors and associated criteria, e.g. those in relation to eutrophication and nutrient levels.</p>
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>Targets have been developed for bird population distribution and abundance, and for the condition of bird species in this case using the Mediterranean Shag as an indicator species. The overall aim is to ensure that marine bird species are not significantly impacted by human activity.</p> <p>The Department of the Environment and Climate Change is provided with data collected by the Gibraltar Ornithological & Natural History Society (GONHS), which continuously assesses which Annex I or regularly occurring migratory bird species occur in BGTW. Ornithological research within GONHS is coordinated by the Strait of Gibraltar Bird Observatory. This is divided into monitoring and research with emphasis on the migration of passerines, seabirds and raptors and an annual passerine ringing programme. The GONHS has a database of</p>

	<p>records dating back to the 1960's and publishes an annual account of avian records in Gibraltar including the Southern Waters of Gibraltar (Gibraltar Bird Report). Additionally, records of note are published online [http://www.gonhs.org/records.htm].</p> <p>The Southern Waters of Gibraltar have been designated as a dual SAC/SPA, affording the nesting site for the Mediterranean shag a high level of protection. On-going monitoring of the colony will continue to ensure its survival.</p> <p>There needs to be improved monitoring of maritime traffic and tougher enforcement of laws with regards to fishing using proscribed methods (e.g. illegal nets used by Spanish commercial fishing vessels entering BGTW) to protect sensitive species such as the European Shag and the Balearic Shearwater. These issues are currently and increasingly, being addressed through the Marine Protection Regulations 2014, which provide the necessary instruments for enforcement of rules, and continued monitoring and conservation of bird species.</p>
<p>Section 4: Existing, planned and new measures needed to achieve GES for birds</p>	
<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>The combined measures proposed for birds under Descriptors 1 and 4 will address the species distribution, population size and abundance targets as well as those on population condition and productivity. The main existing measures to address the targets are those taken through:</p> <p>Birds Directive and Nature Protection Act 1991: This legislation puts in place:</p> <ul style="list-style-type: none"> • a ban on activities that directly threaten birds, such as the use of fishing nets in BGTW to prevent by-catch, deliberate killing or capture of birds, the destruction of their nests and taking of their eggs; • the classification and subsequent management of Special Protected Areas (SPAs, e.g. seabird breeding colonies and wintering areas in order to achieve site-specific conservation objectives; • obligations for the protection of endangered migratory waterbird species; and • the protection of sites important for waterbird species (SPAs and SACs). <p>Habitats Directive: Management of MPAs (including Marine Conservation Zones) designated under national legislation could have beneficial effects on bird populations, particularly in terms of maintaining good foraging conditions and by managing disturbance impacts from tourism/recreational activities (both voluntary and regulatory measures to manage access/activity levels).</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature</p>

	protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW . All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.
What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	In addition to the existing programmes that are currently in place, a new voluntary (citizen science) marine monitoring programme will be operating in 2017. This will enable the public to report information on marine birds.
What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at protecting marine birds.
To what extent are the measures coordinated and coherent at a Gibraltar national level?	The implementation of all measures is coordinated by HMGoG's DECC.
Do any of the measures have any impact on the waters of other countries in the sub-region?	All the measures can potentially have a positive impact on birds that also use waters of other countries in the sub-region and, in some cases, in other sub-regions. Most marine bird species are wide-ranging throughout their lifetime and also throughout a single year.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
<p>Non-breeding shorebirds and breeding waterbirds: We are confident the measures are sufficient on the basis of current knowledge and conditions for the achievement of GES in 2020 for non-breeding shorebirds and breeding waterbirds because the latest assessment of indicators of abundance and distribution showed Gibraltar populations to be on target. The most relevant measures for these species are site-based protection through designation of terrestrial and intertidal areas such as SPAs under the Birds Directive and as marine conservation zones (MCZs) under the Marine Protection Regulations. Management measures in these areas are aimed at reducing disturbance from human activities (e.g. recreation and illegal fishing with nets by Spanish commercial vessels) and from predators.</p> <p>Breeding seabirds: An increased level of protection under the Marine Protection Regulations and other national legislation (by supporting prosecutions) has had a beneficial effect on Gibraltar's breeding seabird populations. Licensed culling and nest removal/disturbance of Yellow Legged Gulls is kept under review to ensure it does not affect the achievement of environmental targets.</p>	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
Yes. Existing measures within the Southern Waters of Gibraltar SAC/SPA and within MCZs designated within BGTW will contribute to regional network of MPAs.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
It is recognised that gaps exist, particularly in terms of data collection and analysis at a national level, but not in terms of measures to attain GES. It should be noted that some MSFD indicators and targets for birds are influenced by a set of anthropogenic pressures. The impacts of these are difficult to distinguish from natural factors and from impacts of prevailing climatic conditions and this requires further research.	

Section 8: Additional information

Further national details can be found in:

- Southern Water of Gibraltar Management Scheme – [https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern Waters of Gibraltar Management Scheme 2012.pdf](https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern_Waters_of_Gibraltar_Management_Scheme_2012.pdf)
- Gibraltar River Basin Management Plan 2015-2021 – [https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG Documents/Gibraltar River Basin Management Plan Public Consultation Main Report.pdf](https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/Gibraltar_River_Basin_Management_Plan_Public_Consultation_Main_Report.pdf)
- Marine Protection Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s180.pdf>
- Tuna Preservation Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s184.pdf>
- Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters – [https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine Strategy Framework-Initial Assessment-Final version 8-7-13.pdf](https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine_Strategy_Framework-Initial_Assessment-Final_version_8-7-13.pdf)
- Monitoring Programme for British Gibraltar Territorial Waters – [https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG Documents/MSFD Marine Monitoring Programme.pdf](https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/MSFD_Marine_Monitoring_Programme.pdf)
- The Management of Marine Living Resources in the Waters around Gibraltar – [https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management of marine living resources in the waters around Gibraltar.pdf](https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management_of_marine_living_resources_in_the_waters_around_Gibraltar.pdf)
- <http://www.thinkinggreen.gov.gi/index.php/underwater-camera>
- Gibraltar Biodiversity Action Plan – <http://www.gonhs.org/bapsum1.htm>
- Gibraltar Ornithological and Natural History Society, Recent Records – <http://www.gonhs.org/records.htm>

Descriptors 1, 4 and 6 – Biodiversity (Pelagic habitats), Marine Food Webs & Seafloor Integrity

Section 1: Status of pelagic habitats in British Gibraltar Territorial Waters

Gibraltar's marine waters extend out 3 nm to the East and South and along the median line to the West in the Bay of Gibraltar. Sea temperatures do not vary significantly, with winter minimum temperatures recorded at 14°C and summer maximum temperatures recorded at 22°C. Salinity is influenced by Atlantic and Mediterranean waters and also by the rivers Palmones and Guadarranque within the Bay which create localised salinity stratification. Under the WFD monitoring, salinity is measured on a monthly basis. Results show the range of salinity within Gibraltar's water to average at 36.5 practical salinity units. The degree of turbidity in BGTW is slight, with good visibility all year round. Under the WFD, Gibraltar's marine waters have been classified as 'clear'.

The Strait of Gibraltar is an area of upwelling. Upwellings are more evident in summer when thermal contrasts are stronger as can be observed in infrared satellite images. These oceanographic characteristics are influenced by the Atlantic surface water that enters the Mediterranean Sea through the Strait of Gibraltar, flowing with an estimated speed of about 1 ms⁻¹. In addition to the salinity gradient, one of the main mechanisms governing the upwelling is the predominant westerly winds. Another important mechanism is the unsteadiness of the Atlantic Jet front position, which fluctuates in a north-south direction in connection with changes in the position and shape of the anticyclonic gyre, namely the Azores High.

Although small, the coastline of Gibraltar supports numerous habitat types of conservation importance. The confluence of the Atlantic and Mediterranean Seas provides a unique set of conditions that have shaped the marine habitats of Gibraltar. The main habitats found within BGTW include rocky shores, sandy sea beds, maerl, natural and artificial reefs as well as submerged and partially submerged sea caves.

Intertidal habitats: In Gibraltar and the Mediterranean generally, the intertidal zone is relatively narrow with the tidal range rarely exceeding 1 m, even during spring tides, and the average vertical tidal range is usually between 0.8 – 0.9 m. When considering the slight gradient of the shoreline, especially on beaches, the distance between high and low water mark is approximately 3 – 4 m. The narrow strip of intertidal habitat in Gibraltar is nonetheless extremely important for a wide variety of marine organisms. It includes the vertical harbour walls, natural rocky shorelines and sandy or pebble beaches, each containing a variety of marine life. Of these, the rocky shoreline is by far the richest in biodiversity although there are interesting species in other intertidal biotopes that also merit conservation. Approximately 60% of Gibraltar's littoral zone remains in a natural state. The rest is comprised of the harbour and port area, marinas, the airport and reclaimed areas.

The larger part of Gibraltar's coastline consists of rocky or man-made hard surfaces, especially on the western side of the Rock. The majority of the Rock is limestone although other substrates such as sandstone are present. Coupled with the differing physical factors such as exposure and orientation, this has created varied habitats along the coastline with different species composition and diversity on opposite sides of Gibraltar's coast. Artificial intertidal habitat primarily consisting of groynes and rock armour are also prevalent in the West side of Gibraltar. Some of these artificial reef habitats have become well colonised by a variety of sessile and motile intertidal species including European protected species such as *Patella ferruginea* and *Lithophaga Lithophaga*.

Sandy habitat: A larger proportion of Gibraltar's benthic areas are composed of sand. This is the most common habitat found within BGTW, covering most of the eastern and western sides of the Rock.

Sea caves: Submerged and partly submerged sea caves are predominantly found along the southern half of BGTW, distributed along a stretch of approximately 4.5 km. The partly submerged caves provide ledges used as nesting sites by Mediterranean shags, Pallid Swifts and by wintering Crag Martins. The underwater sections of caves provide an important habitat for a wide variety of sponges and tunicates that have and continue to be researched.

Subtidal habitats: In the sub-tidal zones, on both sides of the Rock the seabed is primarily made up of soft sand/maerl /gravel substrate. On the west side the coastline drops away quickly to a depth of 400m+,

this is where the harbour and docks are located. The east side coastline drops to 100m gradually over a 4km wide shelf which then steeply drops down to 400m+. Sharp drops extending down to 700+ metres are found in the South of BGTW.

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

<p>Characteristics of GES for Descriptors 1, 4 and 6: Pelagic habitats</p>	<p>Descriptor 1: At the scale of the MSFD sub-regions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway:</p> <p>The abundance, distribution, extent and condition of species and habitats in Gibraltar’s waters are in line with prevailing environmental conditions as defined by specific targets for species and habitats.</p> <p>Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities such that the specific structures and functions for their long-term maintenance exist for the foreseeable future.</p> <p>Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms.</p> <p>Descriptor 4: At the level of the MSFD sub-regions, populations of key species groups within the food web have an age and size structure indicative of sustainable populations and occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part, in line with prevailing conditions, as defined by specific targets for species and pelagic habitats.</p> <p>There should be no significant adverse change in the function of different trophic levels in marine food webs as a result of human activities, including as a result of bycatch and discards.</p> <p>Descriptor 6: Sea-floor habitats (physically and structurally) are both productive and sufficiently extensive at the level of the MSFD sub-regions to carry out natural functionality, including the necessary ecological processes, which underpin ecosystem goods and services, and are capable of supporting a healthy and sustainable ecosystem for the long term.</p>
<p>MSFD Criterion 1.4: Habitat Distribution</p>	<p>Target: No deterioration in qualifying features of designated sites, including a reduction of extent.</p> <p>Indicator: 1.4.1 Distributional range.</p> <p>Indicator: 1.4.2 Distributional pattern.</p>
<p>MSFD Criterion 1.5: Habitat extent</p>	<p>Target: No deterioration in qualifying features of designated sites, including a reduction of extent.</p> <p>Indicator: 1.5.1 Habitat area.</p>
<p>MSFD Criterion 1.6: Habitat condition</p>	<p>Target: No deterioration in qualifying features of designated sites, including a reduction of extent.</p> <p>Indicator: 1.6.1 Condition of the typical species and</p>

	<p>communities.</p> <p>Indicator: 1.6.2 Relative abundance and/or biomass, as appropriate.</p> <p>Indicator: 1.6.3 Physical, hydrological and chemical conditions.</p>
MSFD Criterion 1.7: Ecosystem structure	<p>Target: The population abundance density and population biomass density of sensitive fish species should meet indicator targets for recovery in a statistically significant proportion of species monitored.</p> <p>Indicator: 1.7.1 Composition and relative proportions of ecosystem components (habitats and species).</p>
MSFD Criterion 4.1: Productivity	<p>Target: No specific target was set for this criterion; however, through successful delivery of other, species-specific criteria, productivity levels within the marine ecosystem should remain at healthy levels. This will be supported by the successful delivery of other Descriptors and associated criteria, e.g. those in relation to eutrophication and nutrient levels.</p> <p>Indicator: 4.1.1 Performance of key predator species using their production per unit biomass.</p>
MSFD Criterion 4.2: Proportion of selected species at the top of food webs	<p>Target: No specific target was set for this criterion; however, through successful delivery of other, species-specific criteria, the proportion of species within each trophic level of the food-web within BGTW should remain healthy.</p> <p>Indicator: 4.2.1 Large fish (by weight).</p>
MSFD Criterion 4.3: Abundance/distribution of key trophic groups/species	<p>Target: Populations of key species groups within the food web occur at levels that ensure the long-term sustainability of the marine ecosystem of which they are part of, with an age and size structure for these and other key species towards sustainable populations.</p> <p>Indicator: 4.3.1 Abundance trends of functionally-important selected groups/species.</p>
MSFD Criterion 6.1: Physical damage, having regard to substrate characteristics	<p>Target: The sea-floor habitats (physically and structurally) are both productive and sufficiently extensive to carry out natural functionality, including the necessary ecological processes (e.g. cycling carbon and nutrients) and to provide ecological goods and services (e.g. food security and climate regulation).</p> <p>Target: Those sea-floor habitats most susceptible to the significant detrimental impacts of human activity are protected to ensure their extent and functioning is maintained.</p> <p>Indicator: 6.1.1 Type, abundance, biomass and areal extent of relevant biogenic substrate.</p> <p>Indicator: 6.1.2 Extent of the seabed significantly affected by human activities for the different substrate types.</p>
MSFD Criterion 6.2: Condition of	<p>Target: The sea-floor habitats (physically and structurally) are</p>

<p>benthic community</p>	<p>both productive and sufficiently extensive to carry out natural functionality, including the necessary ecological processes (e.g. cycling carbon and nutrients) and to provide ecological goods and services (e.g. food security and climate regulation).</p> <p>Target: The sea-floor habitats are capable of supporting a healthy and sustainable ecosystem for the long-term.</p> <p>Indicator: 6.2.1 Presence of particularly sensitive and/or tolerant species.</p> <p>Indicator: 6.2.2 Multi-metric indices assessing benthic community condition and functionality, such as species diversity and richness, proportion of opportunistic to sensitive species.</p> <p>Indicator: 6.2.3 Proportion of biomass or number of individuals in the macrobenthos above some specified length/size.</p> <p>Indicator: 6.2.4 Parameters describing the characteristics (shape, slope, intercept) of the size spectrum of the benthic community.</p>
<p>Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES</p>	
<p>What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?</p>	<p>For pelagic habitats, all the targets were developed specifically for MSFD purposes. The targets and indicators focus on fish and plankton as these play a crucial role in the pelagic food-web and the whole marine ecosystem. Other components of the pelagic ecosystem such as benthic assemblages are addressed by measures under other groups.</p> <p>Changes in plankton are driven largely by climatic conditions but can also be affected by human pressures, particularly nutrient enrichment and fishing. Phytoplankton numbers and concentration in BGTW have been monitored as part of the wider WFD monitoring programme. Phytoplankton is the main food resource for many marine food webs. It is important for both pelagic and benthic ecosystems to provide an abundant food resource for smaller fish and invertebrates which then support larger species. Phytoplankton is also an important indicator species, which can provide a good deal of information on the health and status of a marine environment, particularly water quality in the area.</p> <p>Given the current positive status of pelagic habitats, no additional measures are envisaged at this stage. The achievement of the targets under Descriptor 3 and Descriptor 5 will also support the maintenance of GES for pelagic habitats.</p>
<p>Section 4: Existing, planned and new measures needed to achieve GES for pelagic habitats</p>	
<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute?</p>	<p>The main existing measures to address the above targets are under Descriptors 3 and 5 – please refer to the relevant Descriptor section.</p>
<p>What planned (already agreed but not</p>	<p>There are currently no planned measures.</p>

yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?	
What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	Other than the measures for Descriptors 3 and 5 mentioned above, no further measures are envisaged at this stage.
To what extent are the measures coordinated and coherent at a Gibraltar national level?	See sections for Descriptors 3 and 5.
Do any of the measures have any impact on the waters of other countries in the sub-region?	See sections for Descriptors 3 and 5.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
While there is evidence of changes in the composition, abundance and spatial and temporal abundance of both phytoplankton and zooplankton in Gibraltar waters, plankton as a whole are considered healthy and are subject to few human pressures. In the absence of pressures we are confident that GES will be maintained and that the measures under Descriptor 3 and 5 will support this.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
Yes.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
Based on our current scientific understanding of the key human pressures on pelagic habitats we believe that no further measures are required at present. The monitoring programme we are developing will provide further information of the state of pelagic ecosystems and help address any knowledge gaps.	
Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at protecting pelagic habitats.	
Section 8: Additional information	
Measures for the protection of habitats through the development and implementation of the WFD programme of measures, the management of MPAs and other legislative drivers under the measures for benthic habitats (Descriptor 6) will help maintain the GES of the pelagic habitat.	

Descriptors 1 and 6 – Biodiversity (Benthic habitats) & Seafloor Integrity

Section1: Status of benthic habitats in British Gibraltar Territorial Waters

Although small in scale, BGTW supports a remarkably diverse range of benthic habitats, including submarine canyons (and their associated submarine fans), shallow, deep-water (500m+) and artificial reefs, maerl and sandy seabeds as well as submerged sea caves, all of which support a range of habitat-specific benthic marine communities.

A brief overview of the benthic habitats found in BGTW can be found in the Gibraltar Biodiversity Action Plan. Subtidal rocky reefs, both natural and artificial, are particularly common in BGTW. These habitats support complex marine food webs which include an array of Mediterranean fish species, invertebrates, marine mammals and reptiles. A range of rare and endangered benthic species are found in BGTW including the long-spined sea urchin (*Centrostephanus longispinus*), the noble pen shell (*Pinna nobilis*) and the rough pen shell (*Pinna rudis*). The most significant rocky outcrop is Europa Reef, lying south west of Europa Point and extending over 300 m from the shoreline. Water depths across the reef vary from 2-10 m closer inshore, to over 700 m in the southern areas further offshore. Other rocky reef features include the Seven Sister's Reef, Weaver's Pinnacle and Pete's Pinnacle. All of these sites are well-known marine biodiversity hotspots within the region.

A programme of developing artificial reefs in BGTW commenced in the 1970s in the Southern Waters of Gibraltar just off Camp Bay and Rosia Bay. The project is on-going and numerous vessels of a relatively large tonnage have been sunk in different areas within BGTW. A dramatic increase in biodiversity of mid-water and bottom-dwelling species has been recorded including an increase in the number of sessile organisms on the artificial reef structures themselves.

More recently, the DECC is expanding its research capabilities and investigating deep-water habitats in BGTW. There are two notable submarine canyons found in BGTW; the Bay of Gibraltar canyon and the La Linea canyon on the Eastside of BGTW. Multi-beam bathymetry maps have been produced and a programme of monitoring deep-seafloor biodiversity is being planned.

There are a range of biological indices that can be applied to assess the health of a benthic community. The 'Benthic Opportunity Polychaeta Amphipoda' (BOPA) index (amended, in Dauvin and Ruellet, 2007) assesses the number of opportunistic polychaete species against the number of amphipod species, providing a ratio which can be compared against that expected of a healthy benthic community. Monitoring the BOPA value over time will highlight any shifts in population structure towards or away from a population associated with contaminated sediments. The BOPA value has previously been calculated for benthic samples within BGTW, including work undertaken by Fa and Finlayson (2011), giving a history of values against which ongoing monitoring work will be compared to highlight potential trends. Ongoing monitoring of the BOPA value will provide information appropriate for this descriptor. Benthic invertebrate surveys undertaken specifically for ecological classification purposes, in line with the requirement of the WFD, have identified three main communities around the coast of Gibraltar:

- Well-sorted or very shallow sands, with characteristic species present in samples including amphipods *Hippomedon massiliensis* and *Siphonocetes dellavallei*, the decapod *Diogenes pugilator* and the polychaete *Prionospio malmgreni*;
- Transitional community, between well-sorted or very shallow sand and coastal detritic seabeds, with characteristic species including the decapod *Diogenes pugilator* and the polychaete *Sigalion mathildae*; and
- Transitional community, between muddy sands in protected areas and shallow coastal terrigenous mud, with characteristic species including the bivalves *Paphia aurea* and *Nucula sulcate*, the amphipod *Leptocheirus pectinatus* and the polychaetes *Paradoneis lyra* and *Heteromastus filiformis*.

There are also a number of benthic species present in BGTW which are strictly protected under the Habitats Directive, and include:

- Mediterranean Ribbed limpet (*Patella ferruginea*);
- Fan mussels (*Pinna nobilis* and *Pinna rudis*);
- Date mussel (*Lithophaga lithophaga*); and
- Long-spined sea urchin (*Centrostephanus longispinus*).

The main pressures on protected invertebrates are illegal fishing activities (e.g. raking and trawling) by Spanish commercial vessels, contamination and illegal collection.

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

<p>Characteristics of GES for Descriptors 1 and 6: Benthic habitats</p>	<p>Descriptor 1: At the scale of the MSFD sub-regions, and in line with prevailing conditions, the loss of biodiversity has been halted and, where practicable, restoration is underway:</p> <p>The abundance, distribution, extent and condition of species and habitats in BGTW are in line with prevailing environmental conditions as defined by specific targets for species and habitats.</p> <p>Marine ecosystems and their constituent species and habitats are not significantly impacted by human activities such that the specific structures and functions for their long-term maintenance exist for the foreseeable future.</p> <p>Habitats and species identified as requiring protection under existing national or international agreements are conserved effectively through appropriate national or regional mechanisms.</p> <p>Descriptor 6: Sea-floor habitats (physically and structurally) are both productive and sufficiently extensive at the level of the MSFD sub-regions to carry out natural functionality, including the necessary ecological processes, which underpin ecosystem goods and services, and are capable of supporting a healthy and sustainable ecosystem for the long term.</p>
<p>MSFD Criterion 1.4: Habitat Distribution</p>	<p>Target: No deterioration in qualifying features of designated sites, including a reduction of extent.</p> <p>Indicator: 1.4.1 Distributional range.</p> <p>Indicator: 1.4.2 Distributional pattern.</p>
<p>MSFD Criterion 1.5: Habitat extent</p>	<p>Target: No deterioration in qualifying features of designated sites, including a reduction of extent.</p> <p>Indicator: 1.5.1 Habitat area.</p>
<p>MSFD Criterion 1.6: Habitat condition</p>	<p>Target: No deterioration in qualifying features of designated sites, including a reduction of extent.</p> <p>Indicator: 1.6.1 Condition of the typical species and communities.</p> <p>Indicator: 1.6.2 Relative abundance and/or biomass, as appropriate.</p> <p>Indicator: 1.6.3 Physical, hydrological and chemical</p>

	conditions.
MSFD Criterion 6.1: Physical damage, having regard to substrate characteristics	<p>Target: The sea-floor habitats (physically and structurally) are both productive and sufficiently extensive to carry out natural functionality, including the necessary ecological processes (e.g. cycling carbon and nutrients) and to provide ecological goods and services (e.g. food security and climate regulation).</p> <p>Target: Those sea-floor habitats most susceptible to the significant detrimental impacts of human activity are protected to ensure their extent and functioning is maintained.</p> <p>Indicator: 6.1.1 Type, abundance, biomass and areal extent of relevant biogenic substrate.</p> <p>Indicator: 6.1.2 Extent of the seabed significantly affected by human activities for the different substrate types.</p>
MSFD Criterion 6.2: Condition of benthic community	<p>Target: The sea-floor habitats (physically and structurally) are both productive and sufficiently extensive to carry out natural functionality, including the necessary ecological processes (e.g. cycling carbon and nutrients) and to provide ecological goods and services (e.g. food security and climate regulation).</p> <p>Target: The sea-floor habitats are capable of supporting a healthy and sustainable ecosystem for the long-term.</p> <p>Indicator: 6.2.1 Presence of particularly sensitive and/or tolerant species.</p> <p>Indicator: 6.2.2 Multi-metric indices assessing benthic community condition and functionality, such as species diversity and richness, proportion of opportunistic to sensitive species.</p> <p>Indicator: 6.2.3 Proportion of biomass or number of individuals in the macrobenthos above some specified length/size.</p> <p>Indicator: 6.2.4 Parameters describing the characteristics (shape, slope, intercept) of the size spectrum of the benthic community.</p>
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>There are measures already in place, which are expected to reduce the pressures on benthic habitats and support the achievement of the targets for seafloor habitats. These include measures required under the Habitats Directive, the WFD and the Gibraltar Biodiversity Action Plan.</p> <p>For those rock and sediment habitats that are covered by the Habitats Directive it has been assumed that measures taken under the Directive will be sufficient to achieve GES. For pelagic habitats, the targets under the WFD and MSFD have been used as sufficient to achieve GES.</p>

	<p>The BOPA index measures the ratio of abundance of opportunistic polychaetes to amphipods. It is generally a good indicator of the overall health of the benthic community and the extent of which it is being compromised by pollution. Monitoring this ratio will aid in identifying degraded areas and targeting on them to achieve GES. Currently all areas monitored are of GES status, however, monitoring is needed to ensure this stays consistent.</p> <p><i>Corbula gibba</i> and <i>Eunice vittata</i>, amongst other indicator species, are both tolerant of disturbed sediments and tend to be found in areas where there has been seabed disturbance. Monitoring the presence and distribution of these benthic invertebrate species will continue to help in determining whether significant hydrological disturbances have taken place in BGTW.</p> <p>Benthic habitats have been impacted by a wide range of pressures caused by human activities, which in some cases results in cumulative impacts from similar pressures or in-combination impacts from multiple pressures. The current targets are designed to assess progress toward the achievement of GES within Gibraltar waters. For rock and biogenic reef habitats the targets are all based on existing targets for these habitats under the Habitats Directive. The targets require the distribution and extent of rock and biogenic reef habitats to be stable or increasing, using Favourable Reference Area and Favourable Reference Range under the Habitats Directive as a baseline. They also require these habitats to be in good condition and not significantly impacted by human activities. For listed sediment habitats (i.e. those habitats covered by existing legislation) the targets are based on existing requirements under the Habitats Directive and the WFD.</p>
Section 4: Existing, planned and new measures needed to achieve GES for benthic habitats	
<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>The main existing measures to address the above targets are taken through:</p> <p>Habitats Directive (92/43/EEC): requires the establishment of a coherent European ecological network of Special Areas of Conservation. Annex I lists marine habitats that require protection and whose conservation requires the designation of Special Areas of Conservation (SACs). Under the Habitats Directive there are strict rules to prevent deterioration of these habitats and assessment processes that need to be followed in order to assess any potential impacts from plans and projects.</p> <p>Maritime Spatial Planning Directive (2014/89/EU), Environmental Impact Assessment Directive (2011/92/EU) and Strategic Environmental Assessment Directive (2001/42/EC): Benthic habitats and species need to be considered within the relevant EIA where this is required. This includes all habitats and species listed in Annex 1 of the Habitats Directive as well those species listed under the Barcelona Convention.</p>

	<p>River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC): These include measures and delivery mechanisms, which contribute to or will contribute towards the achievement of Good Ecological Status in intertidal and coastal waters.</p> <p>Assessments carried out as part of the WFD have generally shown good water quality. However, research into marine pollution in fish species including shellfish is on-going. Elevated levels of heavy metals and hydrocarbon in some areas have the potential to bio-accumulate throughout the food chain. A fish and shellfish monitoring programme has therefore been launched by the DECC, the results of which will be used for future assessments of fish communities in BGTW.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>Further measures to limit the effect of illegal Spanish commercial fisheries on benthic habitats within BGTW are under consideration.</p> <p>The creation of artificial reefs is likely to have been beneficial to fish and other marine species by creating environments for smaller reef fish that then attract larger predatory species into BGTW. The artificial reef programme is still in operation and new reefs are currently being planned.</p> <p>The DECC's Environmental Protection and Research Unit will assist with the enforcement of the Nature Protection Act 1991.</p>
<p>What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?</p>	<p>Other than the additional measures which are planned, no further measures are envisaged at this stage.</p>
<p>To what extent are the measures coordinated and coherent at a Gibraltar national level?</p>	<p>The implementation of all measures is coordinated by HMGoG's DECC.</p>
<p>Do any of the measures have any impact on the waters of other countries in the sub-region?</p>	<p>Yes. MPAs will contribute to an ecologically coherent network of MPAs in the Western Mediterranean sub-region.</p>
<p>Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?</p>	
<p>It is expected that the blend of current regulation and measures linked to coastal development, marine</p>	

licensing and planning, river basin management plans (under the WFD) and MPAs should be sufficient to ensure the targets on habitat distribution and habitat extent are achieved. These measures will also contribute to reducing impacts and therefore the achievement of the targets on habitat condition and physical damage, although an analysis will need to be undertaken to assess the overall contribution of measures for the achievement of the targets at regional level, and to ascertain if there are any gaps that might be addressed by adapting existing measures.

Habitats Directive measures: The MSFD targets are based on the Habitats Directive Favourable Reference Range.

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

Yes. The Southern Waters of Gibraltar SAC/SPA together with Marine Conservation Zones in BGTW will contribute to the development of an ecologically coherent network of MPAs in the Western Mediterranean sub-region.

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

It is recognised that gaps exist in terms of data availability, monitoring and analysis at a national level. It is HMGoG's intention to initiate research projects and assessments, including the proposed voluntary monitoring scheme due to start in 2017, which should be able to provide information in relation to this aspect ahead of the next reporting cycle. The results of this work will be used to address these gaps and provide a robust baseline of data to establish accurate environmental status and enable comprehensive monitoring of specific habitat and species improvements into the future.

Although not ratified by the UK, Gibraltar will be seeking more active involvement in the **Barcelona Convention's Mediterranean Action Plan (MAP)** to ensure consistency with other regional programmes aimed at protecting benthic habitats.

Section 8: Additional information

Further national details can be found in:

- Southern Water of Gibraltar Management Scheme – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern_Waters_of_Gibraltar_Management_Scheme_2012.pdf
- Gibraltar River Basin Management Plan 2015-2021 – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/Gibraltar_River_Basin_Management_Plan_Public_Consultation_Main_Report.pdf
- Marine Protection Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s180.pdf>
- Tuna Preservation Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s184.pdf>
- Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine_Strategy_Framework-Initial_Assessment-Final_version_8-7-13.pdf
- Monitoring Programme for British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/MSFD_Marine_Monitoring_Programme.pdf
- The Management of Marine Living Resources in the Waters around Gibraltar – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management_of_marine_living_resources_in_the_waters_around_Gibraltar.pdf

- <http://www.thinkinggreen.gov.gi/index.php/underwater-camera>
- Gibraltar Biodiversity Action Plan – <http://www.gonhs.org/bapsum1.htm>

Descriptor 2 – Non-indigenous species

Section 1: Status of non-indigenous species in British Gibraltar Territorial Waters

There is currently insufficient information available to properly assess the status of non-indigenous species (NIS) in BGTW. However, a recent study (Zenetos *et al.*, 2010) summarised the number of NIS within the Western Mediterranean sub-region which includes Gibraltar. This study found four pathogenic protozoa, 91 macrophytes, 49 polychaetes, 52 crustacea, 34 molluscs, 23 miscellaneous invertebrates and 45 fish. However, it is not clear how many of these are present or have the potential to be present within BGTW.

Given the lack of detailed understanding of NIS within BGTW, it is difficult to predict whether there will be an effect on local, indigenous populations. Any increase in development within the area, in particular shipping, brings with it the potential for NIS to be introduced to the area, e.g. in ballast water, on ships' hulls or within construction materials. With high levels of shipping activity through the Strait of Gibraltar, there is increased risk of species import. However, it is noted that the physical conditions within the West Mediterranean region (i.e. localised gyres and currents) mean that not all species transported into the area are able to settle permanently.

The primary aim with regards to NIS in BGTW is that the risk from pathways and vectors, which facilitate the introduction and spread of NIS as a result of human activities is managed in such a way as to significantly reduce the risk of introducing new species which may have adverse impacts.

There has been a range of guidance released regarding the monitoring of NIS, including with specific reference to the Mediterranean region (Otero, M. *et al.*, 2013). This includes advice on a monitoring programme for NIS on which this Monitoring Programme has drawn upon.

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

Characteristics of GES for Descriptor 2:
Non-indigenous species

Descriptor 2: Due to the lack of information on current abundance, distribution and impacts of IAS, the targets proposed for this Descriptor are operational targets, focused on:

- Taking measures to reduce the risk of introduction and spread of NIS (by managing key pathways and vectors more effectively), and;
- Putting in place management plans for dealing with key high risk species should they arrive in BGTW.

The proposed characteristics of GES for this Descriptor are as follows:

- The risk from pathways and vectors, which facilitate the introduction and spread of NIS as a result of human activities is managed in such a way as to significantly reduce the risk of introducing new species which may have adverse impacts. Achievement of this will be based on an assessment of high risk areas and known pathways/vectors aiding the spread of such species; and
- Species specific action plans are developed for key high risk marine non-indigenous species by 2020.

MSFD Criterion 2.1: Abundance and state characterisation of non-indigenous species, in particular

Target: Due to the lack of information on current abundance, distribution and impacts of NIS, targets for this Descriptor are more operational, focusing on:

invasive species	<ul style="list-style-type: none"> • Taking measures to reduce the risk of introduction and spread of NIS (by managing key pathways and vectors more effectively); and • Putting in place management plans for dealing with high-risk species should they arrive in BGTW. <p>Indicator: 2.1.1 Trends in abundance, temporal occurrence and spatial distribution in the wild of non-indigenous species, particularly invasive non-indigenous species, notably in risk areas, in relation to the main vectors and pathways of spreading such species.</p>
MSFD Criterion 2.2: Environmental impact of invasive non-indigenous species.	<p>Target: See Criterion 2.1 for details.</p> <p>Indicator: 2.2.1 Ratio between invasive non-indigenous species and native species in some well-studied taxonomic groups that may provide a measure of change in species composition.</p> <p>Indicator: 2.2.2 Impacts of non-indigenous invasive species at the level of species, habitats and ecosystem, where feasible.</p>
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>Due to the lack of information on current abundance, distribution and impacts of NIS and the very high costs and lack of feasibility associated with widespread management or eradication programmes, the targets for this Descriptor are operational targets. The targets require management measures to reduce the risk from key pathways and vectors of introduction and spread of NIS, and the development and implementation of management plans for dealing with key high risk species should they arrive in Gibraltar waters.</p> <p>Some of the measures needed to reduce the risk of introductions of NIS will need to be implemented at an international scale in order to be effective. The International Maritime Organization (IMO) is leading action to reduce the spread of NIS through international shipping. In addition to this, there are a number of existing statutory and voluntary measures in place, or planned, to manage the key pathways and vectors of the introduction of NIS. They include controls on aquaculture and shipping, as well as legislation to prevent the movement of NIS through aquaculture operations and ban the deliberate release of NIS into the wild.</p> <p>The Gibraltar MSFD monitoring programme will provide the required additional information on NIS. Once this additional information is gathered, the DECC will review whether any additional national measures are likely to be necessary to achieve the targets for this Descriptor.</p>
Section 4: Existing, planned and new measures needed to achieve GES for non-indigenous species	
What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is	The proposed Monitoring Programme for NIS in BGTW draws on the existing Habitats Directive Surveillance Monitoring Programme, required under the Nature Protection Act, alongside the range of networks and alert systems which have been established for NIS both within Europe and at a wider

<p>responsible for the measures?</p>	<p>scale. This approach means that Gibraltar is alerted to any specific risks, which may occur in adjacent waters, i.e. the western Mediterranean. In addition, through the use of baseline characterisation studies, with particular focus on key introduction pathways, it will be possible to monitor for the presence of NIS within BGTW. Should such studies and surveys identify problematic NIS within BGTW, appropriate measures can then be taken.</p> <p>Numerous measures are already in place to manage the key pathways and vectors of introduction of NIS such as controls on shipping and discharge of ballast water, as well as legislation (Nature Protection Act 1991) to ban the deliberate release of NIS into the wild. However, additional measures are likely to be necessary to achieve the targets proposed for this Descriptor, but at this stage it is difficult to say what these might be. Many measures to reduce the risk of introductions of NIS, for example, need to be implemented at an international scale through the International Maritime Organization (e.g. additional management of hull cleansing or ballast water for large vessels). Further analysis of the key pathways and vectors of introduction of marine NIS is currently being carried out in order to establish which, if any, additional management measures are necessary.</p> <p>Description of Monitoring Programme: Due to the importance of NIS as an issue in both the marine and terrestrial environments, there is significant on-going work into ways of preventing introduction of such species, identification before they become established, and measures to remove/eradicate them, as appropriate. EU-wide initiatives from which Gibraltar can benefit include 'NOBANIS', the European Network on Invasive Alien Species, which includes species alerts from around Europe. Such alerts will be monitored to identify any which may subsequently be applicable to Gibraltar.</p> <p>On-going monitoring of alert systems will provide supporting information for all Indicators under Descriptor 2. In addition, the voluntary marine monitoring scheme is to be introduced in Gibraltar in 2017, drawing on amateur divers, spear fishermen and fishermen to undertake survey work within BGTW. One of the aspects this work will focus on will be NIS, including the coordination of a series of workshops hosted by the DECC (including local marine experts) to aid NIS identification and the establishment of a web portal with extra identification information. Another tool that will be used for the monitoring of NIS within BGTW will be the underwater camera(s). This will enable recreational marine users and the DECC to report sightings, and provide information for all Indicators under Descriptor 2.</p> <p>Where resources allow, and in particular following reports of an NIS outbreak in the vicinity of BGTW, targeted survey work will be carried out. Sample stations are based on the species being targeted, i.e. favoured habitats or near key prey sources, and underwater visual surveys completed by experienced marine scientists. This will provide information for all Indicators under Descriptor 2 as well Descriptors 1, 4 and 6.</p>
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	<p>Should NIS be recorded within BGTW, details will be reported as appropriate. If species are recorded within a protected site, this notification process is of particular importance to allow additional assessment and, where necessary, remedial action.</p> <p>It is proposed that for the identification of NIS and associated impacts within BGTW, Gibraltar also draws on the existing planning and licencing regimes, through the utilisation of EIA, AA and other environmental assessment legislation. It should be stipulated that baseline characterisation surveys take particular note of NIS, highlighting them within subsequent Environmental Statements, alongside potential impacts which may arise as a result of the proposed development, e.g. could the project result in further spread of the species? Where applicable, mitigation measures will be identified and enforced through the application of consent conditions.</p> <p>The focus of all measures will be high-risk areas and known pathways / vectors for NIS, in order to establish an early-warning system for Gibraltar. Therefore, particular emphasis will be given to harbour, marina or construction projects, which will increase the introduction of materials into BGTW. Furthermore, the transposition and enforcement of the requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments Ballast Water will significantly help control ballast water discharges in BGTW, and in turn, the associated introduction of NIS.</p> <p>Use of the EIA, AA and other environmental assessment legislation will provide information appropriate for all Indicators under Descriptor 2.</p> <p>With shipping and associated ballast water being acknowledged as a primary source for the transportation of NIS, international legislation will play a key role in their control. The International Convention for the Control and Management of Ships' Ballast Water and Sediment Ballast Water was adopted in February 2004; this will come into force 12 months after ratification by 30 States, thereby representing 35% of global merchant shipping tonnage. As an example of the measures under the Convention, ships will be required to carry a ballast water log-book and carry out ballast water management procedures to given standards.</p> <p>It is also proposed that species-specific action plans are developed for key marine NIS by 2020.</p> <p>Although not targeting any particular Indicator under this Descriptor, adherence to the International Maritime Organisation (IMO) Convention and development of species-specific action plans will reduce the risk of NIS being introduced to BGTW.</p> <p>In January 2015, the EU Regulation on invasive species came into force, foreseeing three types of intervention to limit the spread and impact of NIS: prevention, early warning and rapid response and management. This includes a requirement for Member States to monitor their individual situations with regards to NIS in terms of presence and potential effects. It is</p>
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	<p>stated that within 18 months of adoption of the EU's list of NIS, Member States should establish an appropriate surveillance system, or include it within their existing monitoring regimes.</p> <p>HMGoG can further help with the monitoring of NIS by distributing information, including identification sheets, among regular marine users, in particular the diving and fishing communities which are naturally likely to encounter NIS should they be present. Similar material has already been produced to support the Tuna Preservation and Marine Protection Regulations and NIS identification information is readily available through online resources.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>EU Regulation 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species: This took effect on 1 January 2015 and will apply to a list of invasive alien species (IAS) which are or were brought into the territory of the EU intentionally or otherwise. It will not apply to species that alter their natural range without human intervention or where controls on them exist under other European regulatory regimes (i.e. plant and animal health legislation and the use of alien or locally absent species in aquaculture). The regulation requires 3 types of interventions: prevention; early warning and rapid response; and management. By 2016 a list of invasive alien species of EU concern will be drawn up with Member States using risk assessments, which will be based upon scientific evidence. The scope of the list will include terrestrial, riverine and marine plants and animals.</p> <p>From the point of their listing, Member States must have border controls in place to prevent their introduction into the EU, and restrictions in place on their keeping, using, moving, breeding and selling.</p> <p>Within 18 months of the union list being adopted, Member States are required to:</p> <ul style="list-style-type: none"> • carry out an assessment of the pathways of introduction and spread of species on the union list and identify the priority pathways of introduction; • establish a surveillance system for species on the union list; and • have in place effective management measures for species on the union list. <p>Within 36 months of this union list being adopted, Member States are required to have pathway action plans in place.</p>

	<p>River basin management plans: Measures for the control of NIS will be implemented in the second cycle of river basin management plans. To avoid deterioration, the key measures at the catchment scale are to:</p> <ul style="list-style-type: none"> • slow the spread of high impact invasive NIS by adopting good biosecurity practice and by promoting campaigns such as ‘Check, Clean, Dry’; • contain, eradicate and control high impact invasive NIS as a contribution to national invasive species action plans; and • promote local action groups to engage the support of the third sector in controlling invasive NIS and in promoting key messages. <p>Whilst these are primarily focused on other environments they are also applicable in the marine environment and can play a role in contributing to achievement of GES.</p>
<p>What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?</p>	<p>Other than the additional measures which are planned but which have not yet been implemented set out above, no further measures are envisaged at this stage.</p>
<p>To what extent are the measures coordinated and coherent at a Gibraltar national level?</p>	<p>Although NIS management measures require collaboration internationally and regionally, all measures implemented in Gibraltar will be overseen by HMGoG’s DECC.</p>
<p>Do any of the measures have any impact on the waters of other countries in the sub-region?</p>	<p>Some of the measures can potentially have a positive impact in combating NIS in the Western Mediterranean sub-region.</p>
<p>Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?</p>	
<p>Until the Gibraltar monitoring programme has provided the required additional information, it is not possible to effectively assess whether GES will be achieved by 2020. Gibraltar will keep this under review.</p>	
<p>Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?</p>	
<p>No.</p>	
<p>Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)</p>	
<p>As mentioned above, a key gap is the lack of information on current abundance, distribution and impacts of NIS. The operational targets will help address these gaps. Issues associated with the control on NIS include the prohibitively high costs and lack of feasibility associated with widespread management or eradication programmes and, linked to this, a reliance on voluntary measures.</p>	
<p>Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention’s Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at combating NIS.</p>	

Descriptor 3 – Commercially exploited fish and shellfish

Section 1: Status of commercially exploited fish and shellfish in British Gibraltar Territorial Waters

Gibraltar has no commercial fishing fleet, however, populations of commercially-exploited species do exist within BGTW which are targeted by recreational anglers, cottage fishermen and illegal commercial fishing vessels from Spain which use methods prohibited by Gibraltar and European law. The focus of the Monitoring Programme for commercial fish species is therefore limited and thus reliant on cottage fishing and recreational fisheries data. The major pressures facing commercial fish are overfishing and the use of fishing methods prohibited by Gibraltar and European law. Such commercial fishing is conducted primarily by Spanish fishing vessels based in the ports of La Linea de la Concepcion and Algeciras (Spain) who are usually accompanied by the Spanish Guardia Civil. It is therefore difficult for Gibraltar authorities to assess the levels of catch landed that originate from BGTW. This issue was specifically highlighted in the report produced by Tydeman and Lutchman (2013). The fishing gears used by commercial vessels can be particularly detrimental to reef habitats, coastal seabed communities and larger pelagic species (e.g. sharks, sunfish, etc.) including cetaceans and marine reptiles that frequent BGTW.

There also exist other smaller-scale pressures such as recreational fishing and the illegal harvesting of intertidal bivalves. Due to these issues, the Monitoring Programme for Descriptor 3 will largely rely on recreational and cottage fishing activities carried out in BGTW.

The extensive reef habitat present in BGTW, along with good water exchange and easy access to deep waters means that BGTW support a high abundance and diversity of commercial fish species. However, having no commercial fleet, there is limited information on the stocks of species present in BGTW. Species with the highest commercial value present include tuna, breams, bass, shellfish, cuttlefish, octopus and mackerel to name but a few prominent species that are regularly targeted. In terms of overall fish populations, a total of 324 species of marine fish are listed as being present within BGTW. Tables 3.1 and 3.2 in Section 3 present the main sandy seabed and pelagic fish species present within BGTW.

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

<p>Characteristics of GES for Descriptor 3: Commercially exploited fish and shellfish</p>	<p>Descriptor 3: As Gibraltar has no commercial fishing fleet, there are limited means by which to obtain accurate information on stocks of commercially-exploited fish species in BGTW.</p> <p>It is proposed that this Monitoring Programme draws upon the reporting requirements under the Marine Protection Regulations (2014) and the Tuna Preservation Regulations (2014) which require recreational and cottage fishing catch data to be submitted to the DECC for analysis. This will give an indication of the stocks present and the health of those stocks present in BGTW.</p>
<p>MSFD Criterion 3.1: Level of pressure of recreational and cottage fishing activity</p>	<p>Target: The exploitation rate of each stock should be either at or below Fisheries Mortality Rate - Maximum Sustainable Yield (FMSY) or within the range of plausible fishing mortalities consistent with FMSY.</p> <p>Given the limited amount of fisheries data available, where data does not allow FMSY, or FMSY proxies, to be calculated exploitation of each stock will be based on the precautionary approach with limits defined by agreed proxies for sustainable exploitation and/or and expert opinion.</p> <ul style="list-style-type: none"> • Indicator: 3.1.1 Fishing mortality.

	<ul style="list-style-type: none"> Indicator: 3.1.2 Ratio between catch and biomass index (catch / biomass ratio).
MSFD Criterion 3.2: Reproductive capacity of the stock	<p>Target: The reproductive capacity of the stock shall be maintained at or above levels that will support the long-term exploitation of stocks at FMSY, as indicated by spawning stock biomass of all stocks being above Biomass (Bpa).</p> <p>Where data does not allow, the reproductive capacity of each stock will be based on the precautionary approach and expert opinion.</p> <ul style="list-style-type: none"> Indicator: 3.2.1 Spawning stock biomass. Indicator: 3.2.2 Biomass indices.
MSFD Criterion 3.3: Population age and size distribution	<p>Target: The size-composition of fish communities should reflect a healthy status and not be significantly impacted by human activity.</p> <ul style="list-style-type: none"> Indicator: 3.3.1 Proportion of fish larger than the mean size of first sexual maturation. Indicator: 3.3.2 Mean maximum length across all species found in research vessel surveys. Indicator: 3.3.3 95% percentile of the fish length distribution observed in research vessel surveys. Indicator: 3.3.4 Size at first sexual maturation, which may reflect the extent of undesirable genetic effects of exploitation.
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>Programmes are being implemented by the DECC, via the recreational and cottage fishing sectors, to gather much needed fisheries data.</p> <p>Through analysis of the data collected under the Marine Protection Regulations (2014) and the Tuna Preservation Regulations (2014), it will be possible to gain an understanding of the general trends in commercial fish species within BGTW and whether these stocks can be considered to be healthy.</p> <p>Although more limited than the level of data that would be available through a commercial fishing fleet, the data collected under the Regulations will allow the general health of fish stocks to be assessed and monitored on an on-going basis.</p>
Section 4: Existing, planned and new measures needed to achieve GES for commercially exploited fish and shellfish	
What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal	Description of Monitoring Programme: Under the Nature Protection Act (1991), the Marine Protection Regulations (2014) require all those fishing with a Class A permit (small

<p>basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>scale longlines) to submit catch data to the DECC. It is proposed that this information is used, alongside that collected by recreational fisheries, to establish levels of fishing pressure, population age and size distribution.</p> <p>Under the Tuna Preservation Regulations (2014), the DECC requires permit holders to provide catch data for the purposes of monitoring migratory tuna stocks in BGTW. This data will be used to partially meet the requirements of Criteria 3.1 and 3.3. As from the 15th June 2015, there has been a dedicated landing point operational within Gibraltar in order to aid the monitoring and reporting requirements of the Tuna Preservation Regulations.</p> <p>Information collected under the Tuna Preservation Regulations and Marine Protection Regulations will provide appropriate information for Indicators 3.1.1, 3.3.1, 3.3.2 and 3.3.3.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGOG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>Increased protection (blanket bans and/or increased minimum sizes) for all species listed under the ICCAT by means of the inclusion in the Nature Protection Act 1991, Marine Protection Regulations 2014 and the Tuna Preservation Regulations 2014.</p>
<p>What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?</p>	<p>As above.</p>
<p>To what extent are the measures coordinated and coherent at a Gibraltar national level?</p>	<p>All fisheries related measures are coordinated by the DECC.</p>
<p>Do any of the measures have any impact on the waters of other countries in the sub-region?</p>	<p>Yes. Measures adopted in Gibraltar will contribute to the management of fish stocks in Western Mediterranean sub-region particularly migratory stocks.</p>
<p>Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?</p>	
<p>It is expected that the implementation and enforcement of the Marine Protection and Tuna Preservation Regulations will lead to an overall reduction in pressures, which will reduce impacts on sensitive fish species and the fish community more generally. This is expected to lead to an improvement in the status of fish stocks and to the achievement of GES and the related targets. However, the extent to which this will be achieved for all fish species and whether it will be achieved by 2020 remains uncertain due to the impacts of illegal Spanish fishing.</p>	

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

Yes to a limited extent. This will depend on regional coordination as accurate data analysis of commercial fish species is difficult due to the unregulated Spanish commercial fishing activity in the area.

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

Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at protecting fish stocks. In addition, Gibraltar will be seeking more active involvement in the International Commission for the Conservation of Atlantic Tunas.

Section 8: Additional information

Further national details can be found in:

- Southern Water of Gibraltar Management Scheme – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern_Waters_of_Gibraltar_Management_Scheme_2012.pdf
- Gibraltar River Basin Management Plan 2015-2021 – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/Gibraltar_River_Basin_Management_Plan_Public_Consultation_Main_Report.pdf
- Marine Protection Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s180.pdf>
- Tuna Preservation Regulations 2014 – <http://www.gibraltarlaws.gov.gi/articles/2014s184.pdf>
- Initial Assessment and Proposals for Good Environmental Status in BGTW - https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine_Strategy_Framework-Initial_Assessment-Final_version_8-7-13.pdf
- Monitoring Programme for British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG_Documents/MSFD_Marine_Monitoring_Programme.pdf
- The Management of Marine Living Resources in the Waters around Gibraltar – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management_of_marine_living_resources_in_the_waters_around_Gibraltar.pdf

Descriptor 5 – Human-induced eutrophication

Section1: Status of human induced eutrophication species in British Gibraltar Territorial Waters

There are limited pollutant sources with the potential to contribute to eutrophication within BGTW since there are no rivers in Gibraltar and the main source of nutrients is the point source release of sewage at Europa Point; an area with an extremely high dispersive capacity given its location within the Straits of Gibraltar. However, a new secondary Waste Water Treatment Plant is being built at Europa Point and is expected to be commissioned by 2018. The risk of eutrophication from local sources is therefore considered to be low. Assessments carried out under Gibraltar's 1st and 2nd cycle River Basin Management Plans (RBMP) have categorised Gibraltar's waters as having a 'good' level of nutrients with the exception of the enclosed and heavily-modified water body (HMWB) within the harbour and the Western Beach Basin. The latter basin has been affected by the construction of a combined sewer overflow in Spanish Territorial Waters.

The hydrodynamics of a water body are a key consideration when assessing the potential for any accumulation of material, whether nutrients or contaminants (as discussed and addressed later in this report). Several numerical models have been applied to establish the levels of flow and water circulation within the Bay of Gibraltar (e.g. Sammartino *et al.*, 2012). These have shown noticeable internal tidal movements in the Bay characterised by an inward propagation. This study found that as a result of flow patterns in the area, Atlantic and Mediterranean waters accumulate in the Bay during the rising and falling tides, respectively, the opposite pattern to that observed within the wider Straits of Gibraltar.

With the exception of the HMWBs, there are generally good levels of water exchange within BGTW, therefore levels of nutrients with the potential to cause eutrophication are unlikely to rise to 'at risk' levels.

The WFD also covers monitoring for phytoplankton species in terms of species richness and abundance. As the main food source for many food-webs, it is important for both benthic and pelagic communities. Diatoms are the most frequently-recorded type of phytoplankton with microflagellates also present in high numbers. There are short-lived blooms at most recording sites in February, with higher levels of chlorophyll-a also recorded in the summer months and November. Winter and spring blooms are common in the Mediterranean. Levels of chlorophyll-a recorded at all sites indicate a high ecological status, suggesting that nutrient input is not adversely affecting phytoplankton communities in BGTW generally.

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

Characteristics of GES for Descriptor 5:
Human induced eutrophication

Descriptor 5: The proposed targets are all based on existing WFD targets and how these are used to assess eutrophication. They have therefore already been coordinated regionally and we have high confidence that similar targets will possibly be adopted by other Member States. A risk-based approach is being proposed for the establishment of targets. Where problems do not exist then the target is to maintain non-problem area status.

The proposed characteristics of GES for this Descriptor are as follows:

- Nutrient concentrations do not lead to an undesirable disturbance to the balance of organisms present in the water or to the quality of the water concerned resulting from accelerated growth of algae;
- The direct effects of nutrient enrichment associated with algal growth do not constitute or contribute to an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned; and

	<ul style="list-style-type: none"> • Indirect effects of nutrient enrichment associated with growth of macroalgae, sea grasses, and reductions of oxygen concentrations do not constitute an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned. <p>The proposed indicators for this Descriptor as follows:</p> <ul style="list-style-type: none"> • There should be no or little increase in <i>Abra alba</i> abundance. It is known to be an indicator of eutrophic conditions. Monitoring any increases in population density or abundance will indicate a shift towards eutrophic conditions; and • There should be no or little increase in populations of <i>Aponuphis bilineata</i>, <i>Eunice vittata</i>, <i>Glycera convulta</i>, <i>Lumbris latreilli</i> and <i>Scolelepis ciliata</i>. These species are tolerant of high levels of organic matter typically associated with sewage outfalls and population increases are likely to indicate elevated nutrient levels.
MSFD Criterion 5.1: Nutrient levels	<p>Target: Nutrient concentrations do not lead to an undesirable disturbance to the balance of organisms present in the water or to the quality of the water concerned resulting from accelerated growth of algae.</p> <ul style="list-style-type: none"> • Indicator: 5.1.1 Nutrients concentration in the water column. • Indicator: 5.1.2 Nutrient ratios (silica, nitrogen and phosphorous) where appropriate.
MSFD Criterion 5.2: Direct effects of nutrient enrichment	<p>Target: The direct effects of nutrient enrichment associated with algal growth do not constitute or contribute to an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.</p> <p>Target: There should be no or little increase in populations of indicator species <i>Abra alba</i>, <i>Aponuphis bilineata</i>, <i>Eunice vittata</i>, <i>Glycera convulta</i>, <i>Lumbris latrellie</i> and <i>Scolelepis ciliate</i>. These species are tolerant of high levels of organic matter typically associated with sewage outfalls, and population increases are likely to indicate elevated nutrient levels.</p> <ul style="list-style-type: none"> • Indicator: 5.2.1. Chlorophyll concentration in the water column. • Indicator 5.2.2. Water transparency related to increase in suspended algae, where relevant. • Indicator: 5.2.3. Abundance of opportunistic algae (not including NIS) and algal blooms within BGTW.

	<ul style="list-style-type: none"> Indicator: 5.2.4. Species shift in floristic composition such as diatom to flagellate ratio, benthic to pelagic shifts, as well as bloom events of nuisance/toxic algae blooms (e.g. cyanobacteria) caused by human activities.
MSFD Criterion 5.3: Indirect effects of nutrient enrichment	<p>Target: Indirect effects of nutrient enrichment associated with growth of macroalgae and reductions of oxygen concentrations do not constitute an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.</p> <ul style="list-style-type: none"> Indicator: 5.3.1. Abundance of perennial seaweeds adversely impacted by decrease in water transparency. Indicator: 5.3.2. Dissolved oxygen i.e. changes due to increased organic matter decomposition and size of area concerned.
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>The monitoring programme, drawing on the existing monitoring regime for the RBMP, meets the requirements of the MSFD by establishing the levels of key nutrients within BGTW and monitoring these to establish any occasions where target levels are exceeded. Long-term datasets are already in existence for many of the targets, so trends over time can be compared against any short-term changes. Should the regular monitoring identify any changes, or potential for changes, in nutrient levels within BGTW, there is the opportunity to implement measures to combat this, or undertake additional, investigative monitoring to establish what is causing the increase.</p> <p>In addition, the existing planning and licencing regime in Gibraltar requires appropriate application of the EIA, AA and WFD legislation. As a result, any proposed developments with the potential to affect marine nutrient levels will be identified, and assessment completed as necessary.</p> <p>Through the planning and licencing regime, the application of mitigation measures can be enforced through consent conditions. Baseline characterisation of future projects will act as a means of monitoring the success of mitigation measures.</p>
Section 4: Existing, planned and new measures needed to achieve GES for human induced eutrophication	
What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	<p>The main existing measures to address the above targets are taken through:</p> <p>River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC):</p> <p>These include measures to achieve the objectives for specific water bodies. The particular types of measure which have been included in the RBMPs are as follows:</p>

	<ul style="list-style-type: none"> • Some of the measures proposed in the RBMPs are voluntary. However, these have been developed following extensive consultation through the draft RBMPs and are considered to be deliverable and achievable within the next cycle and will complement the suite of basic measures that are in place. • Reduced nutrient inputs arising from sewage treatment works (STWs), e.g. through application of the EC Urban Waste Water Treatment (UWWT) Directive (91/271/EEC), the creation of 'UWWT Directive Sensitive Areas' and the implementation of STW nutrient reduction measures for the Habitats Directive (92/43/EEC). • Reduced emissions of nutrients to the atmosphere through the setting of appropriate emission limits through the Industrial Emissions Directive (2010/75/EU), which sets emission limits for nitrogen in line with the best available abatement technologies. • Reduced emissions of nitrogen oxides and ammonia through implementation of the National Emissions Ceiling Directive (2001/81/EC), which sets emission ceilings on forms of nitrogen. <p>The organisation responsible for these WFD-related measures is the DECC.</p> <p>The control of Nitrogen Oxides (NOx) emissions from ships through the Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 (as amended): This measure, which requires engines installed on a ship to meet the specified NOx emission standard, is primarily designed to improve air quality. It will also contribute to the reduction of NOx inputs. The organisation responsible for implementation of these regulations is the DECC, the Port Authority and the Gibraltar Maritime Administration (GMA).</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGOG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>Monitoring regimes under the WFD are well-established in BGTW with data collected since 2009 at three sampling sites within the coastal water body and at one site within the harbour, representative of a heavily-modified water body. Samples are collected monthly and analysed for nutrients, chlorophyll-a and suspended solids to obtain an accurate picture of primary production levels in the sea</p>

	<p>throughout the year (AMEC, 2013). This work has resulted in a long-term dataset for: total N; total P; NO₃⁻; NO₂⁻; NH₄⁺; NH₃⁺; PO₄³⁻; dissolved oxygen; chlorophyll-a. Samples are also analysed for the presence and levels of key phytoplankton species.</p> <p>In addition, following initial sample collection and analysis, a series of actions have been put in place through the RBMP, including commitments by HMGoG to prevent storm overflows containing sewage discharges into BGTW, the development of a new sewage treatment plant and specific plans and commitments regarding oil spill contingencies. Investigative work is also undertaken as necessary.</p> <p>Continuation of the RBMP/WFD monitoring will provide information appropriate for Indicators 5.1.1, 5.1.2, 5.2.1, 5.2.2 and 5.3.2.</p> <p>In addition, the existing planning and licencing regime within Gibraltar is used to identify those projects with the potential to affect nutrient discharge levels, and the appropriate level of EIA or AA assessment is undertaken as part of the consenting process. Where applicable, mitigation measures will be identified, and continue to be enforced through the application of consent conditions.</p>
What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	As part of the revision of the RBMPs under the WFD, a consultation has been undertaken on possible new measures to achieve the objectives required.
To what extent are the measures coordinated and coherent at a Gibraltar national level?	The RBMPs are reviewed at the end of each 6-year cycle as outlined in the WFD and a programme of measures is agreed to meet the objectives outlined in the plan. The DECC is regularly working on the WFD RBMPs referred to above.
Do any of the measures have any impact on the waters of other countries in the sub-region?	Yes, the measures taken to reduce the inputs of nutrients from sources in Gibraltar to water and the atmosphere will have a beneficial effect on the waters of other countries.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
The measures referred to above will make a significant contribution towards the achievement of GES in coastal and marine waters by 2020.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona	

Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at combating eutrophication.

Descriptor 7 – Hydrographical conditions

Section 1: Status of hydrographical conditions in British Gibraltar Territorial Waters

Gibraltar forms the eastern edge of the Bay of Gibraltar. The Bay is 8 km wide and extends 10 km into the mainland. It is one of the deepest bays in Europe (over 400 m) and is conditioned by the hydrodynamic movements of the Straits of Gibraltar. Estimates suggest that there is a net surface inflow of Atlantic water through the Straits approximating 53,000 km³. This is compensated by the export of 55,500 km³ of highly saline deep water emanating from the Mediterranean. These mass movements of saline water through the Straits are believed to play a key role in controlling the biogeochemistry of the Mediterranean and even the circulation and climate of the Atlantic Ocean.

Within the stable bi-directional currents moving into and out of the Straits of Gibraltar lie smaller-scale superficial currents that operate within the Bay of Gibraltar itself. Prevailing currents tend to be either easterly or westerly in line with dominant wind patterns observed in the Straits area. The exact direction of the current ultimately depends on the state of the tidal cycle although winds can amplify, cancel and even reverse tidal currents within the Bay.

The bathymetry surrounding Gibraltar is varied. On the West coast there is a narrow shelf area and steep continental slope with deep water (>200 m) within a mile of the shoreline. In the centre of Gibraltar Bay the water depth reaches around 400 m. To the South, the coastal slope separating Gibraltar from Morocco declines to around 900 m within 10 miles of the coast. BGTW extend up to 3 nautical miles from the southern and eastern shores and up to the median line in the Bay of Gibraltar and therefore there are some deep-sea environments in BGTW. The Alboran Sea, situated immediately East of Gibraltar, exhibits strong Atlantic affinities with the incoming influx of water. The incoming Atlantic waters form a permanent clockwise gyre in the Alboran Sea, which is separated from the rest of the western Mediterranean by a well-marked hydrographic front.

There are no rivers in Gibraltar. Freshwater input into the Bay arises from two Spanish rivers, Río Palmones and Río Guadarranque, which create localised salinity gradients in the vicinity of their outfalls. Salinity levels generally lie within the euhaline range (30 to <40 ppt), with the coastal water type of BGTW being considered Mediterranean euhaline intermediate.

A new and detailed Multi-Beam bathymetric survey was carried out in 2013 of the entirety of BGTW.

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

Characteristics of GES for Descriptor 7:
Hydrographical conditions

Descriptor 7: The approach to Hydrographic Conditions is to continue monitoring in line with the requirements of the WFD as well as monitoring the licence applications of any proposed developments around Gibraltar's coastline through building applications which have the potential to alter hydrographic conditions, for example, large-scale marine projects or coastal defences. Any such developments will be monitored, and assessed to confirm whether there is a requirement for additional licencing, monitoring or assessment beyond that necessary as part of the EIA and AA processes.

The characteristics of GES for this Descriptor are as follows:

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

	<p>Proposed indicators for Descriptor 7 – Benthic Invertebrates:</p> <ul style="list-style-type: none"> • There should be no increase in the abundance or density of <i>Corbula gibba</i> or <i>Eunice vittata</i>. These species are known to indicate disturbed sediment and often colonise shortly after dredging or damage from anchoring.
MSFD Criterion 7.1: Spatial characterisation of permanent alterations	<p>Target: All developments must comply with the existing regulatory regime, and guidance should be followed to ensure that regulatory assessments take into consideration all potential impacts, including cumulative effects at an appropriate scale.</p> <ul style="list-style-type: none"> • Indicator: 7.1.1 Extent of area affected by permanent alterations.
MSFD Criterion 7.2: Impact of permanent hydrographic changes	<p>Target: The nature and scale of any permanent changes to the prevailing hydrographical conditions (including, but not limited to, salinity, temperature, pH and hydrodynamics) resulting from anthropogenic activities (individual and cumulative), having taken into account climatic or long-term cyclical processes in the marine environment, do not lead to significant long term impacts on those biological components considered under Descriptors 1, 4 and 6.</p> <p>Target: There should be no increase in the abundance or density of <i>Corbula gibba</i> or <i>Eunice vittata</i>. These species are known to indicate disturbed sediment and often colonise shortly after dredging or damage from anchoring.</p> <ul style="list-style-type: none"> • Indicator: 7.2.1 Spatial extent of habitats affected by the permanent alteration. • Indicator: 7.2.2 Changes in habitats, in particular the functions provided, due to altered hydrographical conditions.
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>The existing planning and licencing regime in Gibraltar requires appropriate application of the EIA, AA and WFD legislation. As a result, any potential large-scale developments within Gibraltar’s waters will be identified, and an assessment completed as necessary.</p> <p>The current planning and licencing regime in Gibraltar requires an assessment of any activity, which may interfere with hydrographical processes, e.g. significant changes to the thermal and/or salinity regime or indeed sediment transport processes. Such assessments will highlight whether activities will result in significant changes to hydrological processes and if mitigation measures are required.</p> <p>Baseline characterisation of future projects will act as a means of monitoring the success of mitigation measures.</p>

Section 4: Existing, planned and new measures needed to achieve GES for hydrographical conditions

<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>Environmental Impact Assessment (EIA) Directive (85/337/EEC): A developer wishing to apply for a marine licence for a new EIA development at sea must provide the relevant marine licensing authority with an assessment of the potential environmental impacts of the new development. This system plays a role in identifying where developments are likely to have an impact at scales relevant to this Descriptor. Terrestrial planning extends to the low water mark, and land-based developments can have a direct impact upon the marine area (e.g. development along the coast can require extensive sea defences).</p> <p>Habitats Directive (92/43/EEC): This Directive sets strict rules concerning adverse effects on certain habitats designated as SACs and SPAs. The Appropriate Assessment process ensures that any impact is identified and mitigation measures developed. The appropriate marine licensing authority is responsible for ensuring that these assessments are carried out to an adequate standard, with input from relevant inshore/offshore statutory nature conservation bodies.</p> <p>River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC): This will have an important role in marine planning in inshore areas, defining good ecological status and ensuring best practice so that new developments such as flood defence schemes and maintenance regimes are designed to minimise any impacts on, and maximise any benefits to improve, water quality and hydromorphology. The organisation responsible for implementation of this Directive is the DECC.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>Marine planning: In accordance with the Maritime Spatial Planning Directive (2014/89/EU) Gibraltar’s marine plans will be completed by 2017.</p>
<p>What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?</p>	<p>Other than the additional measures which are planned no further measures are envisaged at this stage.</p>

To what extent are the measures coordinated and coherent at a Gibraltar national level?	Coordination of the above measures is mainly undertaken at the national scale although other EU Member States are consulted where relevant.
Do any of the measures have any impact on the waters of other countries in the sub-region?	No.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
We are confident that the existing regulatory system is sufficient to maintain GES for Descriptor 7.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
<p>Gibraltar will be monitoring proposals for developments in adjacent waters, which may have the potential to affect hydrographic conditions in BGTW. Although it may not be possible to enforce mitigation measures on such projects, regular review of the situation will identify any major issues.</p> <p>Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at monitoring hydrographical conditions.</p>	
Section 8: Additional information	
<p>Further national details can be found in:</p> <ul style="list-style-type: none"> • Southern Water of Gibraltar Management Scheme – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Southern Waters of Gibraltar Management Scheme 2012.pdf • Gibraltar River Basin Management Plan 2015-2021 – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG Documents/Gibraltar River Basin Management Plan Public Consultation Main Report.pdf • Marine Protection Regulations 2014 – http://www.gibraltarlaws.gov.gi/articles/2014s180.pdf • Initial Assessment and Proposals for Good Environmental Status in British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Marine Strategy Framework-Initial Assessment-Final version 8-7-13.pdf • Monitoring Programme for British Gibraltar Territorial Waters – https://www.gibraltar.gov.gi/new/sites/default/files/HMGoG Documents/MSFD Marine Monitoring Programme.pdf • The Management of Marine Living Resources in the Waters around Gibraltar – https://www.gibraltar.gov.gi/new/sites/default/files/1/15/Management of marine living resources in the waters around Gibraltar.pdf 	

Descriptors 8 & 9 - Concentrations of contaminants (including contaminants in fish and seafood).

Section 1: Status of concentrations of contaminants in British Gibraltar Territorial Waters

As with Descriptors 1, 4 and 6, there is a significant overlap in the status, pressures and effects of contaminants, whether they be present within the water column or adhered to marine sediments. Elevated concentrations of contaminants within the marine environment have the potential to cause harm, not only directly to any marine species which may consume them, but also by bio accumulating in different trophic levels that may eventually affect humans thus giving rise to public health concerns (e.g. elevated levels of heavy metals in tuna species). On-going monitoring of the levels and types of marine contaminants is therefore essential to the overall health of the marine environment.

Under existing water monitoring regimes, there are three monitoring stations within Gibraltar's coastal water body and one within the harbour, which is designated a heavily-modified water body (HMWB). Monitoring of physio-chemical parameters is monitored on a monthly basis, and monitoring of specific pollutants and priority substances is undertaken on a quarterly basis. Sediments are monitored for priority substances on a yearly basis. Water body classification was carried out in 2015 (at the start of the second cycle of RBMP). The coastal water body around Gibraltar was classified as having attained 'Good Ecological and Chemical Status' with an overall 'Good' status and the HMWB as 'Good Ecological Potential' but 'Fail Chemical Status' due to high levels of tributyltin (TBT). Organotin are harmful to marine organisms (e.g. acting as an immunosuppressant in cetaceans), as well as accumulating through the food chain with the potential for affecting fish and shellfish for human consumption. Most notably, TBT causes imposex in marine gastropods. As well as the chemical contaminants described above, other priority and hazardous substances are monitored, such as hydrocarbons.

Environmental radiation is another key concern from a marine perspective, due to the potentially wide-ranging negative effects on both the environment and humans. Although major incidents are the most commonly thought-of source of radioactive material, accumulation of small levels of radiation may occur through the food chain. There are currently no major sources of radio-nucleotides within Gibraltar; however, there is on-going monitoring completed by the Environmental Agency on desalinated drinking water in line with the Drinking Water Directive (98/83/EC). It is noted though, that radioactive pollution tends to be long-lived, with some elements taking centuries to become neutral, with potential for materials to reach levels sufficient to harm upper food chain organisms, including humans. Should elevated levels be identified, measures will be required, due to the potential for bioaccumulation and associated adverse public health effects.

The final key source of contamination is microbial contamination, which is routinely monitored in BGTW in line with the requirements of the Bathing Water Directive. The prime concern with microbial contamination is human health. High concentrations in frequently used bathing waters may result in severe human illness and result in the closure of the beach until the issue is resolved. In a tourism-dominated economic climate, there is, therefore, the socioeconomic element of microbial contamination to consider as well. All the main beaches in Gibraltar are monitored under the Bathing Waters Directive with particular focus on sewage-based contaminants. Due to the high levels of hydrodynamic exchange within BGTW, dispersal occurs relatively quickly, meaning that concentrations of contaminants generally do not reach high levels, with the exception of Western beach due to transboundary microbial contamination from a sewer overflow pipe in La Linea, Spain.

As with all contaminants, microbial contamination can be consumed and carried up through the food chain via bioaccumulation, resulting in potential harm to higher trophic levels, including humans.

Current contaminant control measures

As described previously within this report, high levels of water movement within BGTW mean that any contaminants present are usually rapidly dispersed. In addition, there are a number of measures in place to monitor and reduce the risk of contaminants entering the marine environment such as the Oil Spill Prevention and Contingency Plan produced by the Gibraltar Port Authority. Other salient measures in place include the Environment (Control of Dust) Regulations 2010. These Regulations

require building, construction works and other works to produce a dust control plan for consideration by the Environmental Agency who will then grant a licence once the plan is approved. Guidance has also been produced to control the release of dust into the environment, primarily as a result of construction activities, noting the potential for material to enter water bodies and affecting water quality.

Contaminants in fish and seafood

With regards to levels of contaminants in fish and seafood, the DECC is currently undertaking a biota monitoring programme which looks into levels of contaminants in both fish and shellfish. In addition, ad-hoc investigations carried out on cetaceans in the Bay and Straits of Gibraltar, specifically *Delphinidae*, have shown that the levels of some contaminants are higher than in neighbouring Atlantic populations. This has been attributed to industrial activities in the area of the Straits of Gibraltar although research continues.

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

Characteristics of GES for Descriptors 8 & 9: concentrations of contaminants

Descriptors 8: The characteristics of GES for this Descriptor are as follows:

- Concentrations of contaminants in water, sediment, or biota are kept within agreed levels and these concentrations are not increasing;
- 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 Ecological Quality Standards applied within the WFD);
- For oil/chemical spills - As a wide range of oils and chemicals may be spilled, targets will be incident-specific and will need to be derived at the time. For spilled chemical compounds relevant assessment criteria (e.g. established EQS and EACs) will be used to help establish significance of impact and appropriate response;
- Abundance and distribution of benthic invertebrate species known to indicate contaminant levels should remain constant or, where possible reduced to naturally occurring concentrations; and
- BOPA species index should remain stable and continue to indicate good ecological status.

Descriptors 9: The characteristics of GES for this Descriptor are as follows:

As Gibraltar does not have any commercial fisheries in its waters, it is difficult to determine any proposed characteristics of GES for this descriptor – most, if not all, the fish and shellfish sold in Gibraltar is imported. However Gibraltar does undertake a certain amount of testing on fish and other seafood for human consumption based on the requirements laid out in Commission Regulation 1881/2006. Analytical tests of fish and seafood for retail in Gibraltar are tested by the Environmental Agency.

MSFD Criterion 8.1: Concentration of contaminants

Target: Concentrations of contaminants in water, sediment or biota are kept within agreed levels and these concentrations are not increasing.

Target: Concentrations of substances identified within relevant legislation and international obligations are below

	<p>the concentrations at which adverse effects are likely to occur (e.g. are less than Ecological Quality Standards applied within the WFD).</p> <p>Target: Targets for proposed contaminants are based on existing WFD targets.</p> <ul style="list-style-type: none"> Indicator: 8.1.1 Concentration of the contaminants listed, measured in the relevant matrix, in a way that ensures compatibility with the assessments under WFD.
MSFD Criterion 8.2: Effects of contaminants	<p>Target: Abundance and distribution of benthic invertebrate species known to indicate contaminant levels should remain constant or, where possible, reduced to naturally occurring concentrations.</p> <ul style="list-style-type: none"> Indicator: 8.2.1 Levels of pollution effects on the ecosystem components concerned, having regard to the selected biological processes and taxonomic groups where a cause/effect relationship has been established and needs to be monitored. Indicator 8.2.2 Occurrence, origin (where possible), extent of significant acute pollution events (e.g. slicks) and their impact on biota physically affected by this pollution.
MSFD Criterion 9.1: Levels, number and frequency of contaminants	<p>Target: As with concentration of contaminants in the water column, concentrations are kept within agreed levels and are not increasing.</p> <ul style="list-style-type: none"> Indicator: 9.1.1 Actual levels of contaminants that have been detected and number of contaminants which have exceeded regulatory levels. Regulatory levels used within this Monitoring Programme are those stipulated within the Water Framework Directive (2000/60/EC) and the Priority Substances Directive (2013/39/EU) Indicator: 9.1.2 Frequency of regulatory levels being exceeded. This is established through the current WFD monitoring programme.
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>The review of long-term datasets in the context of newly-collected data will enable the identification of trends in the data and should there be an increase in contaminants above target levels, this will show whether such an increase is an anomaly or a greater cause for concern which may require measures to be put in place.</p> <p>Direct monitoring of contaminant levels will show clearly whether targets for levels of priority substances are being achieved.</p> <p>The requirements of the MSFD are met through the sampling</p>

	<p>regime which will monitor the levels of contaminants within BGTW. Furthermore, where levels exceed the recommended concentrations, this will be immediately highlighted, enabling the DECC to put in place a programme of measures to bring levels back to required levels in order to reach GES.</p> <p>The aim of the Monitoring Programmes and the existing regimes on which they are based is to maintain or restore good water quality based on each set of appropriate parameters. Any measures put in place as a result of these regimes will therefore rely on the aforementioned programmes to assess their effectiveness.</p> <p>The targets on concentrations of contaminants in biota, sediment and water, and on levels of biological effects, are set to achieve conditions in the marine environment in which contaminants do not adversely affect marine life.</p>
<p>Section 4: Existing, planned and new measures needed to achieve GES for concentrations of contaminants</p>	
<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>The main existing measures to address the above targets are taken through:</p> <p>River basin management plans (RBMPs) developed under the Water Framework Directive (2000/60/EC):</p> <p>These outline the objectives for water bodies and identify measures required to achieve good chemical status. The types of measures include:</p> <ul style="list-style-type: none"> • Environmental permitting of various activities, which sets maximum allowable limits of chemicals in discharges and emissions for various activities; • statutory codes of practice on the application and use of chemicals which specify how various operations should be carried out to prevent chemicals entering surface waters; • pollution prevention advice and local campaigns, which provide targeted advice and enforcement in high risk areas on all diffuse pollution issues, in order to prevent chemicals from entering surface waters; and • environmental quality standards for pollutants of national concern ('specific pollutants' under the WFD). <p>Industrial Emissions Directive (2010/75/EU): This sets emissions and discharge limits for hazardous chemicals (e.g. heavy metals and polycyclic aromatic hydrocarbons, PAHs) discharged and emitted from industrial installations, in line with the best available abatement technologies.</p> <p>Marketing and Use Directives (76/769/EEC): These ban or restrict the use of specified hazardous chemicals from being used or placed on the market, including in products, such as</p>

	<p>the use of PCBs which have been banned for several decades, or the use of cadmium as a hardener in plastics).</p> <p>Directive on ship-source pollution (2009/123/EC): This incorporates international standards for ship source pollution into Community law, in order to ensure that persons responsible for discharges are subject to adequate penalties.</p> <p>International source control legislation, e.g. Persistent Organic Pollutants (POPs) under Stockholm Convention: This requires countries to take measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POP wastes in an environmentally sound manner.</p> <p>EU legislation on contaminants in food: Limits for certain environmental contaminants in food, including seafood, are set out in Commission Regulation 1881/2006 as amended. Under Regulation 178/2002, which establishes the general principles of food law, action to protect public health can also be taken for unregulated contaminants on the basis of a risk assessment. Regulation 854/2004 lays down specific rules for official controls of products of animal origin, including fish and shellfish, and Regulation 882/2004 stipulates that official controls should be carried out on a risk basis.</p> <p>As Gibraltar does not have any commercial fisheries in its waters, it is difficult to determine any proposed characteristics of GES for this descriptor – most, if not all, the fish and shellfish sold in Gibraltar is imported. However Gibraltar does undertake a certain amount of testing on fish and other seafood for human consumption based on the requirements laid out in Commission Regulation 1881/2006. Analytical tests of fish and seafood for retail in Gibraltar are tested by the Environmental Agency.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>The RBMPs are reviewed at the end of each 6-year cycle as outlined in the WFD and a programme of measures is agreed to meet the objectives outlined in the plan.</p> <p>The Priority Substances Directive (2013/39/EU) has recently amended the Environmental Quality Standards Directive (2008/105/EC). It introduces more standards to be measured in biota and a ‘watch list’ mechanism to identify emerging pollutants across the EU. These will be implemented in Gibraltar.</p>
<p>What new (planned but not yet agreed) measures are envisaged to</p>	<p>As part of the revision of the RBMPs under the WFD, a consultation has been undertaken on possible new measures</p>

address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?	to achieve good status.
To what extent are the measures coordinated and coherent at a Gibraltar national level?	The DECC ensures that there is a coordinated and coherent implementation of measures. Gibraltar's small size facilitates this requirement.
Do any of the measures have any impact on the waters of other countries in the sub-region?	The measures taken to reduce the inputs of contaminants from sources in the water and the atmosphere will have a beneficial effect on the waters of other neighbouring countries.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
The status of coastal waters under the WFD is generally good in most areas, but a number of the contaminants are so persistent that the concentration and effects targets in sediments and biota may not be met in some areas close to the sources, even though effective measures to reduce inputs are in place.	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at monitoring contaminants in the marine environment.	

Descriptor 10 – Marine Litter

Section 1: Status of marine litter in British Gibraltar Territorial waters

Litter enters the environment via a number of channels with transboundary litter, shipping and litter left behind on Gibraltar’s main beaches and other hotspots being the most likely sources within BGTW. Due to the relatively small size of Gibraltar and its dense population, waste management does pose its challenges with limited space being available for processing or end-disposal of waste materials. Many of the solutions found in other countries, such as large-scale landfill sites, are simply not possible in Gibraltar and therefore Gibraltar currently exports all of its waste streams to dedicated recycling, re-use or end-disposal facilities in Spain. The population increase as a result of tourist visits exacerbates the problem particularly during the summer months.

The Straits of Gibraltar have strong incoming and outgoing currents bringing with them transboundary marine litter, particularly from within the Mediterranean Sea. Gibraltar does have a comprehensive waste management plan (Government of Gibraltar, 2013) although, until very recently, this did not provide for the analysis of marine litter. As well as being unsightly and causing disturbance to marine users, litter in the marine environment has the potential to be ingested by marine species. Galgani *et al* (2014) carried out research into the effects of litter on large vertebrate species in the Mediterranean in the context of the MSFD. The report notes the generally high density of litter within the Mediterranean environment and the increasing harm this is causing to marine populations. It is noted that although larger species tend to be more affected, there is the capacity for microparticles to affect smaller organisms. Post-mortem examination of sea turtles as part of a Mediterranean-wide project found litter in 30-80% of loggerhead turtles, which washed up along the shorelines.

In addition to the regular cleaning of coastal areas carried out by Government appointed contractors, there are also annual clean-ups organised by the Environmental Safety Group who participate in the global ‘Clean up the World Campaign’ and the Nautilus Project. HMGoG’s Litter Committee ensures that all reports of both marine and coastal litter are highlighted and the necessary remedial actions taken. More importantly, HMGoG is presently considering banning the use of all single-use plastic bags as well as the sale of products containing microbeads. Further particulars on the work carried out by HMGoG is elaborated in the following sections.

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

<p>Characteristics of GES for Descriptor 10: Marine Litter</p>	<p>Descriptor 10 : The draft characteristics of GES for the Descriptor are as follows:</p> <ul style="list-style-type: none"> 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>MSFD Criterion 10.1: Characteristics of litter in the marine and coastal environment</p>	<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, e.g. through entanglement or indirectly, e.g. reduced fecundity or bioaccumulation of contaminants within the food web.</p> <ul style="list-style-type: none"> Indicator: 10.1.1 Trends in the amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and source where possible.

	<ul style="list-style-type: none"> Indicator: 10.1.2 Trends in the amount of litter in the water column (including floating at the surface) and deposited on the seafloor, including analysis of its composition, spatial distribution and source where possible. Indicator: 10.1.3 Trends in the amount, distribution and, where possible, composition of micro-particles.
MSFD Criterion 10.2: Impacts of litter on marine life	<p>Target: No specific targets have been set for this criterion.</p> <ul style="list-style-type: none"> Indicator: 10.2.1 Trends in the amount and composition of litter ingested by marine animals.
Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES	
What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?	<p>It is generally agreed that a significant proportion of the debris found in the marine environment originates from land. The rest is released directly into the marine environment, e.g. accidental and intentional releases from ships. Marine litter is therefore a result of a complex mix of social issues and waste management practices. The MSFD requires that the level of litter in the coastal and marine environment shows a downward trend.</p> <p>With no historic data available on the volume, composition and source of litter, the ability to determine whether there is a downward trend in marine litter is presently limited. However, a comprehensive marine litter monitoring programme has now being implemented by DECC scientists. This will go a long way towards establishing an appropriate baseline and thus help determine whether any trends exist and crucially, how the MSFD targets are being achieved. A downward trend in the average volume of litter ingested by stranded marine mammal carcasses, for example, can be taken as a reflective indicator of a downward trend of litter in the marine environment. The requirements of the Directive will therefore be met via on-going review of monitoring results.</p> <p>Any additional measures put in place with regards to Descriptor 10 will seek to reduce the volume of waste being released into the marine environment and potentially seek to reduce the volume of waste being generated in total. The outcome of these measures should therefore contribute to the reduction of material being recorded along beaches, in the water column and in the stomach contents of any stranded animals.</p>
Section 4: Existing, planned and new measures needed to achieve GES for marine litter	
What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?	<p>Description of Monitoring Programme: The European Commission has produced guidelines on monitoring marine litter, with specific reference to the MSFD (EC/Joint Research Centre, 2013). Gibraltar's Monitoring Programme has drawn on this guidance and adapted it to suit Gibraltar's particular needs. Gibraltar's marine litter monitoring programme commenced in 2016.</p> <p>Analysis of material collected during beach clean-ups is</p>

	<p>undertaken to determine trends in the volume and composition of waste material washing up on Gibraltar's coasts. The total weight of litter is recorded along with notes on composition (including percentages where possible) and information regarding potential sources of litter collected. This information is being mapped, allowing regular review throughout the monitoring period. In addition to shoreline surveys, underwater surveys and marine litter cleanups are also being carried out by the DECC's Scientific Dive Team. This information is particularly relevant for Indicator 10.1.1.</p> <p>Water sampling surveys carried out by DECC scientists are also being used to provide an assessment of the level of litter in the water column by analysing both macro- and micro-particles. Micro-particles of litter may result from the direct release of such particles or from the breakdown and fragmentation of larger litter items. The variety of litter sources makes identifying trends in microparticles in the marine environment particularly difficult. Data collected will be used to measure compliance with Indicators 10.1.2 and 10.1.3.</p> <p>Analysing litter ingested by marine animals is being done on an opportunistic basis when and if carcasses are located within BGTW. Should any carcasses be found during the regular review of shoreline litter, this will be retained for further analysis of stomach contents to establish the level of marine litter within. It should be noted that animals washed up on Gibraltar's coasts may have travelled hundreds of kilometres. As with shoreline litter, the total weight and composition of ingested material is recorded.</p> <p>As well as those animals washed up on the shore, wherever possible stomach analyses are undertaken on any large fish species caught by recreational fishermen within BGTW. Although Gibraltar does not have a commercial fishing fleet, recreational and sports fishing activities are licenced under the Tuna Preservation and Marine Protection Regulations (2014) through which the Government of Gibraltar obtains catch information. On-going stomach analysis will provide information relevant to Indicator 10.2.1.</p> <p>As well as the general approach described above, it is proposed that Gibraltar contributes to any proposed Mediterranean-wide schemes, as proposed in Galgani <i>et al.</i> (2014), including coordinated monitoring at a regional level, identification of at risk species and establishment of research protocols</p> <p>HMGoG will monitor on-going work carried out by the MSFD Technical Sub-group on Marine Litter and seek to implement further guidance introduced, where appropriate. Voluntary cleaning campaigns such as Clean up the World and World Ocean Days will continue to be supported by the DECC in conjunction with the official programme.</p> <p>Some of the measures to reduce the sources of terrestrial and marine litter include:</p>
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	<p>The revised Waste Framework Directive (2008/98/EC): Through application of the waste hierarchy, HMGoG is working to reduce the amount of waste produced in the first place, and encourage greater reuse and recycling of goods and materials.</p> <p>Urban Waste Water Treatment Directive (91/271/EEC), Bathing Waters Directive (BWD; 2006/7/EC) and Water Framework Directive (WFD; 2000/60/EEC; including river basin management plans): These drive measures to reduce intermittent discharges from sewage treatment works and sewerage systems. The water industry has been working to reduce the amount of litter entering the environment from sewage and waste water systems through extensive investment measures to improve coastal sewage treatment works and collecting systems, including adding screening to and/or reducing volumes from overflows to limit polluting events.</p> <p>EC Port Reception Facilities Directive (2000/59/EC, amended in 2002/84/EC and in Regulation (EC) No 1137/2008) EC Port Reception Facilities Directive (2000/59/EC, amended in 2002/84/EC and in Regulation (EC) No 1137/2008).</p> <p>These instruments significantly restrict the range of material that can be disposed of at sea from ships, increase and improve port reception facilities for ship-generated waste and extend port waste reception facilities in order to increase waste disposal and so reduce the amount of litter entering the marine environment.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>As part of the implementation of the MSFD MP consultation is underway to assess the possibility of new measures to achieve good Environmental Status.</p>
<p>What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?</p>	<p>The DECC is currently working on the proposed ban of both single-use plastic bags and the sale of products containing microbeads in Gibraltar.</p>
<p>To what extent are the measures coordinated and coherent at a Gibraltar national level?</p>	<p>The DECC ensures that there is a coordinated and coherent implementation of measures. Gibraltar's small size facilitates this requirement.</p>

Do any of the measures have any impact on the waters of other countries in the sub-region?	The measures taken to reduce marine litter in will have a beneficial effect on the waters of other neighbouring countries.
Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in Article 14 relevant?	
<p>Beach litter: It is expected that the existing and planned measures described above will contribute towards an overall reduction in the number of visible litter items within specific categories/types on coastlines.</p> <p>Floating litter and litter on the seafloor: the measures identified above are expected to contribute towards an overall reduction in the amount of litter entering the marine environment.</p>	
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?	
No.	
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)	
<p>It is difficult to determine targets when there is a lack of historic information. As this is redressed, clearer targets will be proposed to achieve GES. Over the short term there is a need for additional socioeconomic analysis in support of the final Impact Assessment, in particular with respect to the costs and effectiveness of different management measures e.g. beach cleaning, waste facilities, behavioural change, etc.</p> <p>Over the longer term there is a pressing need to develop our understanding of the types and amounts of marine litter in the marine environment and how these relate to GES, in particular with respect to ecosystem harm. There is also a need to develop appropriately sensitive and fit for purpose indicators of impact. Finally, further work will be needed on identifying appropriate and cost effective management measures and ensuring an integrated approach is developed to tackling marine and terrestrial sources of litter.</p> <p>Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at monitoring litter in the marine environment.</p>	

Descriptor 11 – Underwater noise

Section 1: Status of underwater noise conditions in British Gibraltar Territorial Waters

There is currently insufficient evidence to provide a comprehensive assessment of trends in underwater noise within BGTW. The Bay of Gibraltar and adjacent waters are one of the world’s most active shipping lanes so the ambient noise levels are likely to be elevated. BGTW are used by various types of vessels but large vessels particularly cruise liners, cargo ships and tankers. Due to their size and propulsion power these types of vessel create loud continuous sounds. These sounds tend to be in the low frequency bracket (>500 Hz) but have relatively large broadband source levels of 180-190 dB re 1µPa. Smaller leisure vessels are also common around Gibraltar. These tend to emit higher frequency sounds, typically above 1 kHz in a range of 160-170 dB re 1µPa, however, cavitation noise from these smaller vessels can be as high as 10 kHz. These frequencies and amplitudes have the potential to interfere with biological signals used by cetaceans (OSPAR, 2009). In addition to shipping noise, seismic surveys are not uncommon around the Strait of Gibraltar.

Globally, it is acknowledged that ambient underwater noise levels are increasing. The IMO Marine Environment Protection Committee has approved guidelines for the reduction of underwater noise from commercial shipping in an attempt to reduce impacts on marine life. During the discussions, it was recognised that such noise can have both short- and long-term impacts on marine life. This work is on-going.

Due to the relatively limited level of information available for BGTW and the general lack of existing monitoring strategies adopted for underwater noise, guidelines for the implementation of MSFD monitoring have been produced and drawn on within this Monitoring Programme.

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

Characteristics of GES for Descriptor 11: Underwater noise

Descriptor 11: Due to the high level of uncertainty about the effects of noise and the lack of historic baseline data in Gibraltar, it has not been possible to recommend a specific target for either impulsive sounds or ambient sounds which are equivalent to GES. Instead, a generic target has been suggested.

The draft characteristics of GES for this Descriptor are as follows:

- Any loud, low and mid-frequency impulsive sounds introduced into the marine environment through anthropogenic activities 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; and
- Continuous low frequency sound inputs do not pose a significant risk to marine life at the population level.

MSFD Criterion 11.1: Distribution in time and place of loud, low and mid frequency impulsive sounds

Target: Any loud, low and mid-frequency impulsive sounds introduced into the marine environment through anthropogenic activities 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.

- **Indicator: 11.1.1** Proportion of days and their distribution within a calendar year over areas of a determined surface, as well as their spatial

	<p>distribution, in which anthropogenic sound sources exceed levels that are likely to entail significant impact on marine animals measured as Sound Exposure Level or as peak sound pressure level at one metre, measured over the frequency band 10 Hz to 10 kHz.</p>
MSFD Criterion 11.2: Continuous low sound	<p>Target: Continuous low-frequency sound inputs do not pose a significant risk to marine life at the population level.</p> <ul style="list-style-type: none"> Indicator: 11.2.1 Trends in the ambient noise level within the 1/3 octave bands 63 and 125 Hz measured by observation stations and/or with the use of models if appropriate.
<p>Section 3: The extent that Gibraltar targets have already been achieved and the nature of the measures that will be used to achieve GES</p>	
<p>What is our approach, what key outcomes are the targets designed to achieve, to what extent are they already met and how will the measures be targeted to help achieve them?</p>	<p>Adverse effects of underwater noise on vulnerable / threatened species and key functional groups at a population level may occur through physical harm or behavioural change, such as changes in distribution and communication, leading to reduced productivity.</p> <p>The proposed approach to MSFD Descriptor 11, Underwater Noise, is through a combination of the existing licencing and planning regimes within Gibraltar, and a newly-designed approach, targeting specific causes and effects of underwater noise.</p> <p>Gibraltar will monitor the licence applications of any proposed developments around Gibraltar's coastline, which have the potential to increase the ambient underwater noise levels, for example large-scale marina or harbour developments, or construction works. Any such developments will be monitored and assessed to confirm whether there is a requirement for additional licencing, monitoring or assessment beyond that necessary as part of the EIA and AA processes.</p> <p>Additional monitoring draws on the advice of Dekeling <i>et al.</i> (2014), including establishing a register of noise generated within BGTW and on-going review of the development of appropriate international standards.</p>
<p>Section 4: Existing, planned and new measures needed to achieve GES for underwater noise</p>	
<p>What existing measures are in place to address the above targets? How are they implemented? What is the relevant legal basis/instrument and how will they contribute? Which organisation is responsible for the measures?</p>	<p>Description of the Monitoring Programme:</p> <p>The DECC is in the process of developing an underwater noise monitoring network, using underwater acoustic equipment. This is being developed to meet the requirements of Descriptor 11. Furthermore, Gibraltar will monitor on-going international and regional discussions regarding the development of standards for ambient underwater noise levels.</p> <p>The existing planning and licence regime will be used to identify projects with the capacity to increase ambient underwater noise levels, and appropriate levels of assessment will be undertaken as part of the EIA process.</p>

	<p>Where applicable, mitigation measures will be identified, and enforced through the application of consent conditions.</p> <p>Use of the appropriate EIA, AA and licencing legislation will provide information appropriate for Indicators 11.1.1 and 11.2.1.</p> <p>Gibraltar will also establish a register of impulsive noise events, as well as those likely to significantly increase ambient noise levels within BGTW. This will provide information appropriate for Indicators 11.1.1 and 11.2.1.</p> <p>In addition, it should be noted that the entirety of BGTW are classified as a Marine Nature Area by means of the Nature protection (Designation of Marine Nature Area) Order 2014 and that HMGoG has made representations to extend the Barcelona Convention to BGTW. All the required legislative instruments have been enacted to allow for the proper implementation of the Convention in BGTW.</p>
<p>What planned (already agreed but not yet implemented) measures are in the pipeline to address the above targets? How will they contribute? Which organisation is responsible for the measures?</p>	<p>The noise monitoring programme will establish an appropriate baseline against which noise data can be compared, showing whether any trends exist and whether the MSFD targets are being achieved. In addition, the existing planning and licence regime in Gibraltar requires appropriate application of the EIA and AA legislation. As a result, any potential large-scale developments within Gibraltar's waters will be identified and assessed in relation to the targets established under the MSFD.</p> <p>The requirements of the Directive will be met via the ongoing analysis and reporting of monitoring results.</p> <p>The aim of the underwater noise monitoring programme is to reduce and prevent underwater noise along with any potential impacts on marine species. Any measures put in place will, therefore, rely on the wider monitoring programme (e.g. cetacean monitoring) to assess its effectiveness.</p>
<p>What new (planned but not yet agreed) measures are envisaged to address the above targets? How will sustainable development and socio-economic impacts be considered? Which organisation is responsible for the measures?</p>	<p>Other than the development of the noise registry no further measures are envisaged at this stage.</p>
<p>To what extent are the measures coordinated and coherent at a Gibraltar national level?</p>	<p>The DECC will ensure that there is a coordinated and coherent implementation of measures. Gibraltar's small size facilitates this requirement.</p>
<p>Do any of the measures have any impact on the waters of other countries in the sub-region?</p>	<p>The measures taken to reduce underwater noise in will have a beneficial effect on the waters of other neighbouring countries.</p>
<p>Section 5: What contribution will the measures make towards the achievement of GES and the related environmental targets by 2020? What is the level of certainty and are any of the exceptions set out in</p>	

Article 14 relevant?
The development of the noise registry will help HMGoG comply with MSFD targets. By 2020 a baseline will have been achieved for 11.1, and these data will be able to inform models to predict future impacts, informing decisions on any further measures required to reach or maintain GES.
Section 6: Do any of the measures contribute to the development of a coherent network of Marine Protected Areas?
No.
Section 7: Gaps and issues (e.g. are there any gaps in the current set of measures that will prevent GES from being achieved and/or will any existing or planned measures need to be changed?)
It is acknowledged that the Monitoring Programme is being established to review an aspect of the marine environment, which is not at the current time fully understood. It is anticipated then that this element in particular will need further review in the future as additional information and understanding is gathered. Although not ratified by the UK, Gibraltar will be seeking more active involvement in the Barcelona Convention's Mediterranean Action Plan (MAP) to ensure consistency with other regional programmes aimed at monitoring underwater noise in the marine environment.
Section 8: Additional information
International Maritime Organization (IMO) guidelines: Non-mandatory technical guidelines known as the 'Guidelines for the reduction of underwater noise from commercial shipping to address adverse impacts on marine life' have been issued as an IMO Circular (MEPC.1/Circ.833, dated 7 April 2014). They promote ship quietening technologies for both propellers and equipment.