EU Marine Strategy Framework Directive

Monitoring Programme: General Report

October 2015

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1. Introduction

The EU Marine Strategy Framework Directive (2008/56/EC) calls for the development of monitoring programmes for the ongoing assessment of the environmental status of marine waters pursuant to Article 11 of the Directive. This monitoring programme shall address marine elements and pressures covered by the descriptors of 'Good Environmental Status' as listed in Annex I to the Directive.

Within this framework, monitoring programmes outlining the parameters or features to be monitored, monitoring methodologies and monitoring stations/areas were developed for the following themes:

- Biodiversity – Birds
- Biodiversity – Mammals and Reptiles
- Biodiversity – Fish
- Biodiversity – Water Column Habitats
- Biodiversity – Seabed Habitats
- Non-indigenous species
- Commercial fish and shellfish
- Eutrophication
- Hydrographical Changes
- Contaminants
- Contaminants in seafood
- Litter
- Underwater Noise

This report provides an evaluation of the adequacy of the monitoring programmes developed for each theme on the basis of the reporting questions included in European Commission (2014)[1].

In addition, this report outlines how the monitoring programmes address, to the extent possible, the shortcomings identified by the EU Commission's Article 12 assessment of the notifications made pursuant to Articles 9 (GES) and 10 (environmental targets) of the

[1] European Commission (2014): Reporting on monitoring programmes for MSFD Article 11

Directive. In accordance with the informal conclusions of the regional meetings held by the Commission to discuss the findings of the Article 12 report with Member States in the different marine regions, "*Member States are expected to, preferably, coordinate throughout a marine region or otherwise unilaterally give a formal response on how the Commission's recommendations in the Article 12 report have been considered and translated into action, together with their report on the implementation of the monitoring programmes*". Recommendations put forward by COM(2014) 97[2] include the need for Member States to:

- use the monitoring programmes to address the shortcomings and gaps identified in the initial assessment;
- systematically use standards stemming from EU legislation as minimum requirements. If such standards do not exist, Member States should use region-specific common indicators developed by the relevant RSCs in their monitoring programmes and programmes of measures;
- review and, where possible, update their GES and targets in preparation for the monitoring and measures programmes to allow for a consistent approach within and among regions and between the different provisions;
- systematically use assessments carried out for other relevant EU legislation or under RSCs by Member States, with preparatory work starting immediately;
- develop action plans, coordinated at (sub-)regional level to rectify the shortcomings identified at the latest by 2018;

Within this context, this report is including to the extent possible, information about whether, when[3] and how the monitoring programme is addressing Article 12 shortcomings as per recommendations listed above and any further plans, where available, to address additional shortcomings.

This report should be read in conjunction with the monitoring factsheets for each marine element covered by the Directive.

2. Reporting Question 1: Overall adequacy of the programmes

1a.
Do the monitoring programmes as a whole constitute an appropriate framework to meet the requirements of the MSFD?

Overall the monitoring programme is deemed to constitute the most appropriate framework to meet the requirements of the EU Marine Strategy Framework Directive on the basis of the current level of knowledge on the marine environment. Major data limitations identified by the MSFD Initial Assessment will, to the extent possible, be addressed through the implementation of the monitoring programme. However, it is also acknowledged that some data or knowledge gaps need to be addressed through research or pilot surveys prior to establishing and implementing monitoring regimes. Plans to address such knowledge gaps have been explored throughout the development of the monitoring programme and need to be further evaluated in parallel to the implementation of the monitoring regimes. Limitations of the individual monitoring programmes are described in subsequent sections of

[2] Report from the Commission to the Council and the European Parliament: the first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC). The European Commission's assessment and guidance {SWD(2014) 49 final}

[3] Short-term, medium-term or long-term

this report. The development of the monitoring programme is an iterative process and the programmes as reported will be updated on the basis of improved knowledge throughout the MSFD reporting cycles.

1b.

Which GES descriptors and criteria relevant for your marine waters (as included in your Member State report for Art. 9) are not yet adequately covered by your Monitoring Programmes?

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
Descriptor 1 - Biodiversity	1.1 Species Distribution	Adequately covered in 2014 monitoring programmes for: ▪ mammals & reptiles;	Seabirds: Applicability of monitoring methodologies for seabirds, still needs to be ascertained through implementation of the monitoring programme and regional collaboration, therefore while the criterion is deemed adequately covered at this stage, monitoring methodologies may need to be re-evaluated in time for the updating of monitoring programmes due in 2020.
	1.2 Population Size	Adequately covered in 2014 monitoring programmes for: ▪ mammals & reptiles;	Seabirds: Applicability of monitoring methodologies for seabirds, still needs to be ascertained through implementation of the monitoring programme and regional collaboration therefore while the criterion is deemed adequately covered at this stage, monitoring methodologies may need to be re-evaluated in time for the updating of monitoring programmes due in 2020. Fish: 'Population Size' is deemed to be adequately covered for 'demersal fish' and 'demersal elasmobranchs'. Methodologies for assessing population size for other fish functional groups (in particular coastal fish) still need to be evaluated, also through further regional

[4] Options for reporting: (a) it is adequately covered in 2014 monitoring programmes; (b) it will be addressed in time for the next assessment due in 2018; (c) in time for the updating of monitoring programmes due in 2020; (d) later than 2020; (e) it is not relevant

[5] Reporting question 1e. *Explain the gaps and describe your plans to complete coverage. Provide justification for not including specific GES criteria, environmental targets and Annex III characteristics in your monitoring programmes which you have reported under Art. 8, 9 and 10 as being relevant to your Member State waters (e.g. based on risk assessment)*

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
			collaboration, in time for updating of monitoring programmes due in 2020.
	1.3 Population Condition	Adequately covered in 2014 monitoring programmes for: ▪ Mammals & reptiles;	Seabirds: the seabirds monitoring programme only addresses 'Population demographic characteristics' for those species of which nests are considered to be relatively accessible; applicability of this criterion for other species will be evaluated in time for the updating of monitoring programmes due in 2020; Fish: 'Population Condition' is deemed to be adequately covered for 'demersal fish' and 'demersal elasmobranchs'. Methodologies for assessing other fish functional groups (in particular coastal fish) still need to be evaluated, also through further regional collaboration, in time for updating of monitoring programmes due in 2020.
	1.4 Habitat Distribution	Adequately covered in 2014 monitoring programme for selected seabed habitat types.	Habitat distribution will be monitored for habitat types for which this criterion is deemed relevant in terms of assessment of status. Such habitat types include seagrasses and macroalgae. Other habitat types known to be present in Malta would need to be studied through pilot or research projects prior to elaborating monitoring regimes for such habitats.
	1.5 Habitat Extent	Adequately covered in 2014 monitoring programme for selected seabed habitat types.	Habitat extent will be monitored for habitat types for which this criterion is deemed relevant in terms of assessment of status. Such habitat types include seagrasses, macroalgae and biogenic substrates. The currently ongoing LIFE BaħAR for N2K (LIFE12 NAT/MT/000845) will be providing an indication of the occurrence and distribution of other habitats in Malta. Any additional monitoring processes will be identified once further knowledge is available, enabling elaboration of monitoring regimes within

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
			localised areas.
	1.6 Habitat Condition	Adequately covered in 2014 monitoring programme for: ▪ seabed habitats; ▪ water column habitats	Seabed Habitats: Habitat condition is adequately addressed for habitat types which are relatively known in Malta. This monitoring builds on existing monitoring regimes pursuant to EU legislation and makes use of established standards where available. The currently ongoing LIFE BaħAR for N2K (LIFE12 NAT/MT/000845) will be providing an indication of the occurrence and distribution of other habitats in Malta. Any additional monitoring processes will be identified once further knowledge is available, enabling elaboration of monitoring regimes within localised areas. Phytoplankton and zooplankton (as constituents of water column habitats) are deemed to be adequately covered by the monitoring programme. This monitoring builds on existing monitoring regimes pursuant to EU legislation and makes use of established standards where available.
	1.7 Ecosystem Structure	Will be addressed in time for the updating of monitoring programmes due in 2020.	Further understanding of ecosystem structure and interactions across habitats and species is required prior to elaborating specific monitoring processes for this criterion. The implementation of the monitoring programmes will provide relevant information for this purpose.

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
Descriptor 2 – Non-indigenous species	2.1. Abundance and state characterisation of non-indigenous species, in particular invasive species	Will be addressed in time for the updating of monitoring programmes due in 2020.	Assessment of abundance of invasive alien species (IAS) will only be considered once further knowledge on the occurrence, distribution and impact of selected IAS is adequate enough to enable elaboration of monitoring processes in this regard. At this stage, the monitoring programme will collect information on non-indigenous species occurring in Malta, with a view to select Invasive Alien Species on which the monitoring regime can focus. In the interim, monitoring of abundance of NIS will be undertaken for specific taxonomic groups by building on existing monitoring processes.
	2.2. Environmental impact of invasive non-indigenous species	Will be addressed in time for the updating of monitoring programmes due in 2020.	While the ratio between invasive NIS and native NIS is covered by the monitoring programme, impacts of NIS at the level of species, habitats and ecosystems are not adequately addressed. These can only be addressed once the distribution and abundance of established invasive alien species are adequately known through the implementation of the monitoring programme.
Descriptor 3 – Commercial Fish	3.1. Level of pressure of the fishing activity	Not relevant at a National scale.	The monitoring programme does not cover 'Fishing Mortality' and 'Spawning Stock Biomass' as indicators for the 'levels of pressure of the fishing activity' and 'reproductive capacity of the stock' respectively. The stocks targeted by Maltese fishers are composed of stocks which are shared with other countries. For almost all of these stocks, due to the small size of the Maltese fleet, the contribution to mortality by Maltese fishers is negligible. Were Malta to calculate these indicators independently, the information gained would not be very meaningful. Thus, for Malta, it would be best to contribute to the calculation of such indicators on a regional level. On the other hand, the use of 'biomass indices' as a proxy indicator of the reproductive capacity of
	3.2. Reproductive capacity of the stock		

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
			the stock will be attempted through implementation of the monitoring programme.
	3.3. Population age and size distribution	Adequately covered in 2014 monitoring programme	Assessment of population age and size distribution is deemed to be adequately covered for a selection of commercial species, selected on the basis of the provisions of the Commission Decision and reflecting those included in National Data Collection Programme (2011-2013) for Malta. The monitoring parameters reflect MEDITS data from fisheries independent surveys, metier-related variables and stock-related variables from fisheries dependent surveys
Descriptor 4 – Food webs	4.1. Productivity (production per unit biomass) of key species or trophic groups	Will be addressed in time for the updating of monitoring programmes due in 2020.	Prior to applying the criteria and indicators related to food webs, Malta will be assessing the applicability of the data generated through the monitoring programmes for 'seabed habitats', 'water column habitats' (in particular biomass and abundance data generated through the assessment of 'habitat condition') and 'fish' for selection of species or species groups that would be adequate for the purpose of applying the relevant indicators. This however will be closely linked with the GES Commission Decision revision process.
	4.2. Proportion of selected species at the top of food webs	Will be addressed in time for the updating of monitoring programmes due in 2020.	
	4.3. Abundance/distribution of key trophic groups/species	Will be addressed in time for the updating of monitoring programmes due in 2020.	
Descriptor 5 - Eutrophication	5.1. Nutrients levels	Adequately covered in 2014 monitoring programme	
	5.2. Direct effects of nutrient enrichment	Adequately covered in 2014 monitoring programme	
	5.3. Indirect effects of nutrient	Adequately covered in 2014 monitoring	

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
	enrichment	programme	
Descriptor 6 – seafloor integrity	6.1. Physical damage, having regard to substrate characteristics	Will be addressed in time for the updating of monitoring programmes due in 2020	Application of this criterion by the monitoring programme will be possible following an assessment of pressures (through the monitoring programme on seabed habitats) in terms of location, intensity and duration with a view to identify areas affected by human activities.
	6.2. Condition of benthic community	Adequately covered in 2014 monitoring programme	The monitoring programme on seabed habitats does not cover all the indicators for this criterion. At this stage indicators which are deemed most relevant are applied to specific benthic habitats.
Descriptor 7 – Hydrographical changes	7.1. Spatial characterisation of permanent alterations	Not relevant	The extent of the area affected by permanent alterations, the spatial extent of habitats affected by the permanent alterations and the changes in habitats due to altered hydrographical conditions will be subject to a separate monitoring process which will be determined/elaborated on a case-by-case basis in association with new development proposals. The monitoring programme for hydrographical changes aims at providing the background information against which changes can be assessed.
	7.2. Impact of permanent hydrographical changes	Not relevant	
Descriptor 8 - Contaminants	8.1. Concentration of contaminants	Adequately covered in 2014 monitoring programme	
	8.2. Effects of contaminants	Will be addressed in time for the updating of monitoring programmes due in 2020	The monitoring programme at this stage is only addressing the need to collect data in the event of a chemical/oil spill in line with MSFD requirements. Effects of contaminants in biota will be addressed once the applicability of relevant methodologies for Malta is established also through regional collaboration.
Descriptor 9 –	9.1. Levels, number and frequency of contaminants	Adequately covered in 2014 monitoring programme	

GES descriptor	GES Criteria	Summary Information[4]	Explanation of gaps; description of plans to complete coverage and justification for not including specific GES criteria[5]
Descriptor 10 - Litter	10.1. Characteristics of litter in the marine and coastal environment	Will be addressed in time for the updating of monitoring programmes due in 2020	While the monitoring programme for litter is addressing marine litter washed ashore, in the water column and on the seabed, microparticles (in particular microplastics) are not adequately addressed. Monitoring methodologies for assessment of microlitter will be defined on the basis of the current guidance available and regional collaboration.
	10.2. Impacts of litter on marine life	Will be addressed in time for the updating of monitoring programmes due in 2020	While the monitoring programme is including the need to monitor the number of dead loggerhead sea turtle *Caretta caretta* stranded or entangled in nets/fishing gear per year, ingested litter is not adequately covered at this stage. Malta will be considering the setting up of a mechanism for monitoring of ingested litter in stranded turtle specimens in line with the methodologies stipulated by the Guidance on Monitoring of Marine Litter in European Seas - A guidance document within the Common Implementation Strategy for the Marine Strategy Framework Directive. The use of other species for monitoring ingested litter could also be explored.
Descriptor 11 – Underwater Noise	11.1. Distribution in time and place of loud, low and mid frequency impulsive sounds	Adequately covered in 2014 monitoring programme	
	11.2. Continuous low frequency sound	Will be addressed in time for the updating of monitoring programmes due in 2020	Malta is not in a position to engage in monitoring of ambient underwater noise at this stage. Further development of relevant monitoring processes is necessary, including the identification of monitoring stations as well as identification/development of appropriate acoustic models also through regional collaboration.

1c.

Which targets and associated indicators for your marine waters (as included in your Member State report for Art. 10) are not yet adequately covered by your Monitoring Programmes?

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
Descriptors 1, 4 and 6 - Seabirds	Efforts are undertaken, through conservation measures or existing permitting and licensing procedures, to ensure that the distributional range of breeding sites of *Puffinus yelkouan*, *Calonectris diomedea* and *Hydrobates pelagicus* is stable, with no loss of breeding sites due to anthropogenic disturbance.	Adequately covered in 2014 monitoring programme	Relevant indicator: ▪ breeding distribution of selected seabirds
	Population abundance of breeding seabirds is stable over a period of twelve years, taking into consideration the natural variability of the species population and their ecology. [applies to *Puffinus yelkouan*, *Calonectris diomedea* & *Hydrobates pelagicus*]	Adequately covered in 2014 monitoring programme	Relevant indicator: ▪ breeding population abundance of selected seabirds.
	Longline Fisheries are adequately using mitigation measures aimed at reducing seabird bycatch [applies to *Calonectris diomedea*]	Adequately covered in 2014 monitoring programme	Relevant indicator: ▪ Mortality rate of *Calonectris diomedea* from by-catch
	Efforts are undertaken	Adequately covered in	Relevant indicator:

[6] a. it is adequately covered in 2014 monitoring programmes; b. it will be addressed in time for the next assessment due in 2018; in time for the updating of monitoring programmes due in 2020; later than 2020; it is not relevant

[7] Reporting question 1e. Explain the gaps and describe your plans to complete coverage. Provide justification for not including specific GES criteria, environmental targets and Annex III characteristics in your monitoring programmes which you have reported under Art. 8, 9 and 10 as being relevant to your Member State waters (e.g. based on risk assessment)

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
	to control the population of the yellow-legged gull on the islet of Filfla [applies to *Hydrobates pelagicus*]	2014 monitoring programme	▪ population numbers of *Larus michahellis* on the islet of Filfla
	Efforts are undertaken to reduce current levels of pressures originating from light pollution and predation by rats in areas to be selected.	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures
	Marine Special Protection Areas are designated within the framework of the Birds Directive to include marine areas used by seabirds throughout their life cycle [applies to *Puffinus yelkouan*, *Calonectris diomedea* & *Hydrobates pelagicus*]	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures.
Descriptors 1, 4 and 6 – mammals & reptiles	To ensure systematic collection of records of turtle by-catch by the Maltese registered fishing fleet and of data on mortality rate of landed turtles [applies to *Caretta caretta*]	Adequately covered in 2014 monitoring programme	Relevant indicator: ▪ number of turtle by-catch per fishing effort
	To strengthen knowledge on the conservation status of *Tursiops truncatus, Delphinus delphis* and *Stenella coeruleoalba* in Malta, and on interactions of these species with human activities, with a view to contribute to the regional conservation of	Adequately covered in 2014 monitoring programme	Relevant indicators: ▪ species distributional range ▪ population abundance ▪ size/age classes for selected species

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
	marine mammals in the long-term		
Descriptors 1, 4 and 6 – fish	Species composition and/or abundance of demersal fish and demersal elasmobranchs associated with shelf and upper bathyal sublittoral sediments is stable over a period of time.	Adequately covered in 2014 monitoring programme	Relevant indicators: ▪ List of typical species (demersal fish/elasmobranchs) ▪ Standardised Biomass (demersal fish/elasmobranchs)
	To ensure better use of fishery independent data in analysis of fish populations.	Adequately covered in 2014 monitoring programme	
Descriptors 1, 4 and 6 – water column habitats	To strengthen knowledge via updated data on key characteristics of the water column, including plankton communities that would enable Malta to further develop the definition of this habitat type in line with the requirements of the Marine Strategy Framework Directive.	Adequately covered in 2014 monitoring programme	Relevant indicators: ▪ phytoplankton composition, abundance and biomass ▪ zooplankton composition (major groups) and abundance

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
Descriptors 1, 4 and 6 – seabed habitats	Efforts are undertaken, through implementation of conservation measures or existing permitting and licensing procedures, to ensure maintenance of the distributional range and extent of selected habitat types in selected areas. [applying to Littoral Sediment: Biocoenosis of mediolittoral sands; *Posidonia oceanica* meadows and Shelf sublittoral sediment: Maerl facies]	Adequately covered in 2014 monitoring programme	Relevant monitoring indicators: ▪ Distributional range and/or extent of selected habitats.
	Species composition and/or abundance associated with selected marine habitats is stable over a period of time (to be identified) or is indicative of good status, based on definition of status through the implementation of the EU Water Framework Directive. [applying to Littoral Rock and Biogenic Reefs; Shallow Sublittoral Sediment; Shelf sublittoral Sediment and Upper Bathyal Sediment]	Adequately covered in 2014 monitoring programme	Relevant indicators: ▪ List of habitat-typical species ▪ Condition of the typical species and communities ▪ Presence of particularly sensitive and/or tolerant species
	Health status of seagrass meadows is maintained	Adequately covered in 2014 monitoring programme	Relevant monitoring indicator: ▪ Condition of the typical species and communities
	Benthic habitats affected by currently regulated anthropogenic activities	Adequately covered in 2014 monitoring programme	Relevant monitoring indicator: ▪ Relative abundance

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
	show signs of recovery. [applying to Littoral Rock and Biogenic Reefs; Shallow sublittoral rock and biogenic reefs]		
	Maintaining and enforcing regulations governing fishing activities within the 25 nautical mile Fisheries Management Zone [applying to Shelf sublittoral rock and biogenic reefs; Shelf sublittoral sediment; *Posidonia oceanica* meadows (as relevant)]	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures.
	Localised or sensitive marine habitats are afforded legal protection by 2025 [applying to Upper Bathyal Rock]	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures.
Descriptors 2 – non-indigenous species	Efforts are undertaken to detect the occurrence of new NIS in defined assessment areas and to address gaps in knowledge on non-indigenous species, particularly invasive NIS.	Adequately covered in 2014 monitoring programme	Relevant monitoring indicators: ▪ Number of non-indigenous species recorded ▪ Number of newly-arrived non-indigenous species ▪ Abundance of NIS in specific taxonomic groups
	Evaluate effectiveness of current measures in relation to non-indigenous species, in the light of increasing knowledge on such species through	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
	proposed interim MSFD target to address current knowledge gaps, and take such measures further if necessary.		drafting of the Programme of Measures.
Descriptor 3 – Commercial Fish	Management and monitoring of fishing activities result in a sustainable fishing effort over time, in line with the measures put forward in Malta's Fisheries Management Plans, with a view to ensure sustainability of the stocks targeted by Maltese fisheries.	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures.
	To ensure better use of fishery independent data in analysis of fish populations.	Adequately covered in 2014 monitoring programme	
Descriptor 5 - Eutrophication	Long-term data on nutrient levels in the marine environment, or on direct or indirect effects of nutrient enrichment (as relevant), in relation to the main sources of nutrient input, is indicative of the effectiveness of existing mechanisms addressing nutrient input in the marine environment.	Adequately covered in 2014 monitoring programme	Relevant indicators: ▪ Nutrient concentrations ▪ Phytoplankton abundance and biomass ▪ Percentage abundance of blooming species ▪ Diatom:flagellate ratio ▪ Dissolved oxygen ▪ Water transparency ▪ Total organic carbon in sediment

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
Descriptor 7 – Hydrographical changes	Changes in hydrographical conditions from large-scale development proposals are adequately assessed through existing permitting and licensing procedures in line with the parameters stipulated by the Marine Strategy Framework Directive	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures.
Descriptor 8 - Contaminants	Long-term monitoring of selected contaminants is indicative of acceptable levels of contaminants, with no deterioration trends for non-synthetic and synthetic contaminants in relevant matrices.	Adequately covered in 2014 monitoring programme	Relevant monitoring indicators: ▪ Concentration of selected contaminants in water, sediment and biota
	Achieve better understanding of sea-based sources of pollution, through a risk assessment of potential contributions of maritime sectors to contamination in the marine environment, also taking into consideration current measures pursuant to international maritime policies and agreements.	Not relevant	Achievement of this target is related to the development of the Programme of Measures. Monitoring the effectiveness of such measures is pending the drafting of the Programme of Measures.
	Setting up a system for collecting, recording and reporting information on significant pollution incidents in line with the requirements of the MSFD, with a view to	Adequately covered in 2014 monitoring programme	Monitoring programme specifies the data which needs to be collected in case of an oil/chemical spills.

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
	better understand significance and trends, and to inform any necessary response (strategic as well as incident-related)		
Descriptor 9 – Contaminants in seafood	No targets put forward by Malta	N/A	N/A
Descriptor 10 - Litter	Efforts are undertaken to improve current level of knowledge on marine litter in Malta.	Adequately covered in 2014 monitoring programme	Relevant monitoring indicators: ▪ Composition and quantity of litter washed ashore ▪ Composition and quantity of floating litter ▪ Composition and quantity of litter on the seabed ▪ Number of dead loggerhead sea turtle *Caretta caretta* stranded or entangled in nets/fishing gear per year.

GES descriptor	Environmental Targets	Summary Information[6]	Additional comments and/or explanation of gaps; description of plans to complete coverage and justification for not including targets[7]
Descriptor 11 – Underwater Noise	To work towards building capacity in the field of underwater noise through *inter alia* knowledge gain on key species groups which may be adversely affected by this pressure and streamlining of MSFD requirements in terms of underwater noise in licensing and permitting procedures	Adequately covered in 2014 monitoring programme.	Relevant indicator: ▪ Occurrence and distribution of impulsive underwater noise Monitoring of continuous underwater noise needs further development (as per above).

1d.

Which elements from MSFD Annex III relevant for your marine waters (as reported in your Member State report for Art. 8) are not yet adequately covered by your Monitoring Programmes?

Annex III characteristics	Summary Information[8]	Explanation of gaps; description of plans to complete coverage and justification for not including Annex III characteristic[9]
Physico-chemical features	Adequately covered in 2014 monitoring programme	Monitoring of mixing characteristics and residence times are not covered by the current monitoring programme. Malta will be exploring the use of hydrographical models for this purpose, also through further regional collaboration.
Habitat types – seabed (including special habitat types)	Adequately covered in 2014 monitoring programme	Habitat types listed in the MSFD Commission Staff Working Paper which are not covered by the monitoring programme include shelf and upper bathyal rock and biogenic reefs. This is mainly due to the current limitations in knowledge on the occurrence and distribution of such habitat types in Malta. These would also include specific habitat types listed in the Habitats Directive. The currently ongoing LIFE BaĦAR for N2K (LIFE12 NAT/MT/000845) will be providing an indication of the occurrence and distribution of such habitats in Malta. Any additional monitoring processes will be identified once further knowledge is available, enabling elaboration of monitoring regimes within localized areas.
Habitat types – water column	Will be addressed in	Data generated by the current

[8] a. it is adequately covered in 2014 monitoring programmes; b. it will be addressed in time for the next assessment due in 2018; in time for the updating of monitoring programmes due in 2020; later than 2020; it is not relevant

[9] Reporting question 1e. Explain the gaps and describe your plans to complete coverage. Provide justification for not including specific GES criteria, environmental targets and Annex III characteristics in your monitoring programmes which you have reported under Art. 8, 9 and 10 as being relevant to your Member State waters (e.g. based on risk assessment)

Annex III characteristics	Summary Information[8]	Explanation of gaps; description of plans to complete coverage and justification for not including Annex III characteristic[9]
	time for the updating of monitoring programmes due in 2020.	monitoring programme will be used to characterize water column habitat types for Malta. This will enable elaboration of monitoring regimes for the assessment of the categories of water column habitats as defined by the Commission Staff Working Paper which may occur in Malta.
Fish populations	Will be addressed in time for the updating of monitoring programmes due in 2020.	The current monitoring programme focuses on the assessment of demersal fish and demersal elasmobranchs, by building on existing monitoring regimes pursuant to the Common Fisheries Policy. Methodologies to assess other fish functional groups and cephalopods would need to be evaluated prior to elaborating monitoring regimes.
Marine mammals & Reptiles	Adequately covered in 2014 monitoring programme	
Seabirds	Adequately covered in 2014 monitoring programme	
Non-indigenous species	Will be addressed in time for the updating of monitoring programmes due in 2020.	While the monitoring programme will enable a description of the occurrence of non-indigenous species in Malta, it does not seek a detailed assessment of abundance and distribution of non-indigenous species. Such detailed assessment will only be considered once further knowledge on the occurrence, distribution and impact of selected IAS is adequate enough to enable elaboration of monitoring processes in this regard.
Chemicals	Adequately covered in 2014 monitoring programme	
Physical Loss	Will be addressed in time for the	The monitoring programme for seabed habitats indicates the need

Annex III characteristics	Summary Information[8]	Explanation of gaps; description of plans to complete coverage and justification for not including Annex III characteristic[9]
	updating of monitoring programmes due in 2020.	for mapping anthropogenic activities with potential impacts on seabed habitats through physical loss and physical damage. At a later stage, such data will need to be superimposed on habitats data to enable focus of monitoring in high-risk areas and assess extent of impacts.
Physical Damage	Will be addressed in time for the updating of monitoring programmes due in 2020.	
Underwater Noise	Will be addressed in time for the updating of monitoring programmes due in 2020.	The monitoring programme on underwater noise is deemed to adequately address impulsive underwater noise. Nevertheless, monitoring of continuous underwater noise needs to be further developed through selection of monitoring stations and evaluation of appropriate models.
Marine Litter	Will be addressed in time for the updating of monitoring programmes due in 2020.	The monitoring programme for marine litter is deemed to adequately cover marine litter associated with most habitat types with the exception of microlitter (mainly microplastics) and ingested litter. Methodologies for monitoring microlitter need to be evaluated on the basis of current guidance and regional collaboration.
Inteference with hydrological processes	Not relevant	The monitoring programme for 'hydrographical changes' is mainly targeted at providing the background information against which changes in hydrographical conditions associated with new development would be assessed on a case-by-case basis.
Contamination by hazardous substances	Adequately covered in 2014 monitoring programme	The monitoring programme for 'contaminants' builds on existing mechanisms to collate information on input loads into the marine environment. Input of contaminants from sea-based
Systematic and/or intentional release of substances	Adequately covered in 2014 monitoring programme	

Annex III characteristics	Summary Information[8]	Explanation of gaps; description of plans to complete coverage and justification for not including Annex III characteristic[9]
		sources and atmospheric deposition however needs to be further elaborated through evaluation of applicable methodologies and regional collaboration.
Nutrient and organic matter enrichment	Adequately covered in 2014 monitoring programme	
Introduction of microbial pathogens	Not relevant	Monitoring of microbial pathogens is not being specifically covered by the MSFD monitoring programme. However Malta will be ensuring links with the monitoring undertaken as part of the EU Bathing Water Quality Directive.
Introduction of non-indigenous species and translocations	Adequately covered in 2014 monitoring programme	
Selective extraction of species, including incidental non-target catches	Adequately covered in 2014 monitoring programme	

3. Reporting Question 2: Public Consultation

2a.
Public consultation dates

The monitoring programmes as outlined in individual monitoring factsheets were published on http://www.mepa.org.mt/water-msfd in May 2015. The public consultation process was undertaken from 8th May 2015 till 19th June 2015.

2b.
Describe the public consultation process

Public consultation on MSFD processes was initiated through an information session with sectors of the public through the Malta-EU Steering and Action Committee whereby a general overview of the Directive's implementation including the monitoring processes were presented.

As indicated above, the monitoring factsheets were made available to the public through the Malta Environment and Planning Authority's website in May 2015. The contents of the monitoring programme were presented to selected public sectors through the Malta-EU Steering and Action Committee on 20th May 2015.

4. Reporting Question 3: Other Information

3a.

Where can additional information be found on your regional cooperation on monitoring programmes (if information is additional to that already provided under article 6, 7, 8, 9 and 10)? Describe issues on cooperation that have not been reported before (under Art. 7 or Art. 8, 9 and 10), such as consistency in methodology.

Malta has participated in meetings held throughout 2013 – 2015 within the framework of the project 'Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) by EU MED Member States' (further named ARCADIS MSFD support project, http://www.msfd-medproject.eu/). Through this project regional discussions were held in relation to MSFD Descriptors 5 (eutrophication), 8 (contaminants), 9 (contaminants in seafood), 10 (marine litter) and 11 (underwater noise). Malta's monitoring programmes for these descriptors followed the 'agreed' parameters and methodologies at regional scale.

Malta has also closely followed the discussions undertaken for the Ecosystems Approach (EcAp) within the framework of the Barcelona Convention, in particular the compilation of the 'Draft Monitoring and Assessment Methodological Guidance'. The development of the monitoring programme considered the parameters and methodologies evaluated by the guidance document and adopted approaches that are likely to be considered by Mediterranean countries for the purpose of EcAp process. Through this approach, Malta has worked towards regional cooperation on other MSFD descriptors which were not directly addressed by the ARCADIS MSFD support project.

3b.

Where can additional information be found on your consideration of transboundary impacts and features in monitoring programmes (Article 11.2b)?

Current knowledge on transboundary impacts is limited. Nevertheless, Malta's monitoring programmes, particularly those in relation to 'contaminants', 'marine litter' and mobile species, will be collecting data/information that would enable Malta to work towards the distinction between local and transboundary sources of impacts on the marine environment, through improved knowledge on the occurrence of anthropogenically generated material or impacts in Malta's marine environment and their production and/or use in the local context.

3c.

Where can additional information be found on the ability of the monitoring programmes to identify major changes in the environment (Annex V.11) and on the ability of the monitoring programmes to identify new and emerging issues (Annex V.11)?

Each individual monitoring programme is geared towards assessing changes in the environment through regular monitoring of physico-chemical parameters and other supporting parameters as deemed relevant. Information on the supporting parameters is included in monitoring factsheets for each theme as uploaded on http://www.mepa.org.mt/water-msfd.

The monitoring programmes also call for assessment of relevant anthropogenic activities which would enable identification of anthropogenically-induced emerging issues.

3d.

Where can additional information be found on chemical contaminants in species for human consumption linked to commercial fishing areas (Annex V.5)?

Reference is hereby made to the monitoring programme for 'contaminants' in seafood (Descriptor 9). This monitoring programme builds on current food safety monitoring regimes which utilize retail samples of highly consumed pelagic species of fish for assessment of the presence and levels of contaminants. The monitoring programme also ensures links between monitoring of contaminants in biota for the purpose of MSFD Descriptor 8 and monitoring of contaminants in seafood for the purpose of MSFD Descriptor 9, by using species of demersal fish which are consumed by the Maltese population and are sampled within or in the vicinity of catch areas.

3e.

Where can additional information be found on how you intend to provide access and use rights in respect of data and information from the monitoring programmes (Article 19 (3)), including:

Provision of data access in line with Article 19 of the MSFD is still under discussion, however Malta is exploring the possibility to use a National geoportal through which monitoring processed data would be uploaded.

INSPIRE standards are included in each monitoring factsheet as published in http://www.mepa.org.mt/water-msfd.

5. Reporting Question 4: Competent Authorities

4a.
Name of a Competent Authority which is responsible for the monitoring programmes and who will act as a contact point for the Commission.

Office of the Prime Minister (OPM). The legal status of the OPM as the Competent Authority of the MSFD arises from L.N. 73 of 2011 which transposes the EU Marine Strategy Framework Directive into Maltese legislation. Contact email address: msfd@mepa.org.mt.

4b.
If the delivery of the monitoring programmes is delegated to other organisations, these can also be listed.

The Ministry for Sustainable Development the Environment and Climate Change (MSDEC) has been delegated the responsibility to assist the OPM in the implementation of the MSFD. The Malta Environment and Planning Authority (MEPA) has been entrusted with the technical implementation of the Directive as per Malta's report pursuant to Article 7 of the Directive.

4c. Optional:
Explain the relationship of the responsible organisations to the relevant CA (e.g. an agency of the CA).

In accordance with L.N. 73 of 2011, OPM is responsible for the overall implementation of the Directive, while specifically delegating the technical implementation of the Directive to MEPA as per Malta's report pursuant to Article 7 of the MSFD. MSDEC is entrusted with the responsibility to provide strategic policy direction in terms of the implementation of the MSFD to MEPA and to provide guidance to OPM regarding the links with initiatives under other EU Directives.

6. Reporting on Monitoring Programmes

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Biodiversity – Birds

MICMT-D0104.1</td></tr>
<tr><td rowspan="2">MSFD Descriptor/s:</td><td colspan="2">Descriptor 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</td></tr>
<tr><td colspan="2">Descriptor 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.</td></tr>
<tr><td rowspan="5">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td>The natural range and extent of marine habitats and species are stable, or otherwise in line with the physiographic and climatic conditions, taking into consideration the sustainable use of the marine environment.</td><td>Efforts are undertaken, through conservation measures or existing permitting and licensing procedures, to ensure that the distributional range of breeding sites of Puffinus yelkouan, Calonectris diomedea and Hydrobates pelagicus is stable, with no loss of breeding sites due to anthropogenic disturbance.</td></tr>
<tr><td rowspan="4">The population abundance of key marine species is stable and their population dynamics are indicative of long-term viability</td><td>Population abundance of breeding seabirds is stable over a period of twelve years, taking into consideration the natural variability of the species population and their ecology. [applies to Puffinus yelkouan, Calonectris diomedea & Hydrobates pelagicus]</td></tr>
<tr><td>Longline Fisheries are adequately using mitigation measures aimed at reducing seabird bycatch [applies to Calonectris diomedea]</td></tr>
<tr><td>Efforts are undertaken to control the population of the yellow-legged gull on the islet of Filfla [applies to Hydrobates pelagicus]</td></tr>
<tr><td>Efforts are undertaken to reduce current levels of pressures originating from light pollution and predation by rats in areas to be selected [applies to Puffinus yelkouan & Calonectris diomedea]</td></tr>
</table>

Monitoring Programme:	Biodiversity – Birds MICMT-D0104.1	
		Marine Special Protection Areas are designated within the framework of the Birds Directive to include marine areas used by seabirds throughout their life cycle [applies to *Puffinus yelkouan*, *Calonectris diomedea* & *Hydrobates pelagicus*]
Reporting Question 4f: Programme Description: Describe the overall approach of the monitoring programme including: ▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures? ▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.	The monitoring programme is geared towards the assessment of the status of breeding seabirds in Malta mainly in terms of the breeding distribution and abundance of breeding/wintering seabirds, but also in terms of demographic characteristics for species with relatively accessible nests. Monitoring at sea will only be undertaken in conjunction with monitoring of marine reptiles and marine mammals. The monitoring programme seeks assessment of interactions with fisheries and attempts to gain further information with respect to potential effects from other anthropogenic activities taking place in the vicinity of breeding grounds. The monitoring programme will facilitate the identification of links between the state of seabird populations and anthropogenic activities with a view to identify the most relevant pressures to be addressed.	
Reporting Question 5a: Which GES criteria are addressed? Reporting Question 5b: Which GES indicators are addressed?	▪ 1.1 Species Distribution - Distributional Range (1.1.1) ▪ 1.2 Population Size - Population Abundance (1.2.1) ▪ 1.3 Population Condition - Population demographic characteristics (fecundity rates) (1.3.1)	
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of the monitoring programme will enable the description of the population dynamics, range and status of seabirds, more specifically of: (i) *Offshore-feeding seabirds* breeding in Malta and (ii) Representative species of *inshore-feeding birds* breeding or wintering in Malta. Monitoring programme also covers monitoring of specific pressures on seabirds as follows: (i) *Biological Disturbance: Selective extraction of species, including incidental non-target catches*: by including 'mortality rate from by-catch' for *Calonectris diomedea* (Indicator: Number of birds per number of hooks per duration for drifting long-lines; data to be aggregated per year))	

Monitoring Programme:	Biodiversity – Birds MICMT-D0104.1
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for assessment of status of seabirds and progress towards achievement of GES as reported by Malta in the first reporting cycle, although population demographic characteristics will only be assessed for those species of which nests are considered to be relatively accessible. However, although the programme is adopting established monitoring methodologies, applicability of such methodologies to Maltese species still needs to be ascertained through implementation of the monitoring programme and regional collaboration. Assessment of status is based on trend analysis since the establishment of quantitative GES will only be possible through an analysis of long-term data collected systematically through the implementation of the monitoring programme. ▪ Adequate data: Yes ▪ Established methods for assessment: No ▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 5e: How does the programme address natural variability?	The dynamics of the long-lived seabird populations can only be interpreted on the basis of long-term trends and expert knowledge of their ecology. Natural variability will thus be assessed quantitatively on the basis of long time-series data and through expert opinion.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not	The monitoring programme will provide adequate data and information for assessment of status of seabirds and progress towards achievement of GES and targets by assessing 12-year trends in: ▪ breeding distribution (and range size) for offshore feeding and selected inshore-feeding breeding seabirds; ▪ breeding population abundance for selected species; ▪ breeding success for selected offshore feeding seabirds The monitoring programme also addresses potential sources of impacts/disturbance on seabirds from relevant anthropogenic activities (namely fisheries and bunkering activities in the vicinity of breeding areas) with a view to support the state monitoring and enable comparison of trends in status with trends in levels of potential pressures.

Monitoring Programme:	Biodiversity – Birds MICMT-D0104.1
achieving GES.	Assessment of potentially relevant anthropogenic activities would also enable elaboration of links between seabird populations and pressures thereon with a view to identify necessary action in case risks of not achieving GES are identified. Other known pressures on seabirds however would be more adequately addressed through the MSFD Programme of Measures.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?[10]	The monitoring programme will be considered fully adequate in providing data and information in time for updating of monitoring programmes due in 2020, by which time regionally established methodologies would be defined and applicability for Malta would be confirmed through implementation of the monitoring programme.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	The methodologies put forward by the monitoring programme will be evaluated through implementation, with alternative methodologies explored through close follow-up of the EcAp discussions at regional scale and/or other regional collaboration processes.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Efforts are undertaken, through conservation measures or existing permitting and licensing procedures, to ensure that the distributional range of breeding sites of *Puffinus yelkouan*, *Calonectris diomedea* and *Hydrobates pelagicus* is stable, with no loss of breeding sites due to anthropogenic disturbance. ▪ Population abundance of breeding seabirds is stable over a period of twelve years, taking into consideration the natural variability of the species population and their ecology. [applies to *Puffinus yelkouan*, *Calonectris diomedea* & *Hydrobates pelagicus*] ▪ Longline Fisheries are adequately using mitigation measures aimed at reducing seabird bycatch [applies to *Calonectris diomedea*] ▪ Efforts are undertaken to control the population of the yellow-legged gull on the islet of Filfla [applies to *Hydrobates pelagicus*]
Reporting Question 6b:	The monitoring programme will provide adequate data and

[10] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – Birds MICMT-D0104.1
Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	information for assessment of progress towards achievement of relevant environmental targets. The programme makes reference to established monitoring methodologies. Nevertheless, applicability of such methodologies to Maltese species still needs to be ascertained through implementation of the monitoring programme and regional collaboration. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: No ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	Implementation of the monitoring programme will: ▪ allow verification of the data on the breeding population of seabirds as presented in the MSFD Initial Assessment (terrestrial); ▪ provide further information in relation to the distribution and abundance of seabirds at sea and potentially identify foraging or otherwise important areas at sea and associated pressures (whilst noting that monitoring at sea will only be undertaken in conjunction with monitoring of marine reptiles and marine mammals); ▪ provide additional information with respect to other seabird species and species associated with coastal wetlands; ▪ provide trend data on potential pressures such as incidental by-catch; Within this context the monitoring programme will enable updating of environmental targets by re-assessing the distributional range (terrestrial and marine), population abundance and demographic characteristics (where relevant), with a view to re-assess status and update environmental targets in terms of the most relevant pressures in the long-term. In particular the monitoring programme will enable assessment/verification of the interactions between *H. pelagicus* and *L. michahellis* with a view to re-evaluate MSFD target elaborated in this regard.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate*	The monitoring programme will be considered fully adequate in providing data and information <u>in time for updating of</u>

Monitoring Programme:	Biodiversity – Birds MICMT-D0104.1
for data and information needs, when will the programme be considered fully adequate?[11]	monitoring programmes due in 2020, by which time regionally established methodologies would be defined and applicability for Malta would be confirmed through implementation of the monitoring programme and regional collaboration processes.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	The methodologies put forward by the monitoring programme will be evaluated through implementation and alternative methodologies explored through close follow-up of the EcAp discussions at regional scale and/or other regional processes.
Reporting question 7a: *Which activities will the programme address?*	The monitoring programme refers to the need to collect data in relation to fisheries and bunkering activities which could potentially interact with seabird populations.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.*	Fishery of relevance to seabirds constitutes surface and bottom long-lining. Fishing intensity for both surface and bottom long-lining will be recorded in accordance with Fisheries monitoring regimes in order to maintain information on the extent of potential pressures on seabirds from fisheries. Number of bunkering activities per month in selected bunkering areas located in proximity of breeding colonies of *Puffinus yelkouan* will be collated with a view to determine the extent (if any) of the pressure which could be caused by such operations through long-term trend data. Other known pressures would be more adequately and directly addressed through the Programme of Measures
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme integrates the monitoring requirements of the Birds Directive and MSFD for selected breeding species of birds associated with the marine environment; ▪ The monitoring programme also takes into consideration the requirements pursuant to the EcAp process within the framework of the Barcelona Convention, noting that the Barcelona Convention/MAP are working towards an Integrated Monitoring Programme at a regional scale. ▪ The implementation of the Common Fisheries Policy, would contribute to this monitoring programme by requiring collection of data on the level of fishing and the impact of fishing activities on the marine

[11] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – Birds MICMT-D0104.1
	biological resources and on the marine ecosystems
Commission's recommendations in the Article 12 report considered by the monitoring programme[12]	The monitoring programme will be addressing specific data gaps as identified by the MSFD Initial Assessment by: ▪ setting up a formal protocol for the systematic provision of standardized data; ▪ extending monitoring out at sea (to be carried out in conjunction with monitoring of marine reptiles and cetaceans) to provide comprehensive information on the distribution and requirements of the seabird populations as well as potential pressures at sea; ▪ addressing potential pressures from relevant anthropogenic activities; and ▪ including monitoring of additional bird species other than those covered by the MSFD Initial Assessment whilst ensuring harmonisation with the implementation of the Birds Directive. The monitoring programme will thus enable further elaboration of the links between seabird populations and pressures with a view to define/update measurable GES or targets (as applicable) in the longer-term.
(Further) plans to address Article 12 shortcomings	The monitoring programme will be addressing the major data gaps as identified by the MSFD Initial Assessment and linking monitoring with that currently under consideration at a regional scale through the EcAp process. Nevertheless, Malta will be engaging in further regional collaboration to ascertain the monitoring methodologies for seabirds.
Timeframes for revision of GES & targets	Long-term

[12] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Biodiversity – Mammals and Reptiles

MICMT-D0104.2</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 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</td></tr>
<tr><td></td><td colspan="2">Descriptor 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.</td></tr>
<tr><td>GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td></td><td rowspan="2">The population abundance of key marine species is stable and their population dynamics are indicative of longterm viability.</td><td>To ensure systematic collection of records of turtle by-catch by the Maltese registered fishing fleet and of data on mortality rate of landed turtles [applies to Caretta caretta]</td></tr>
<tr><td></td><td>To strengthen knowledge on the conservation status of Tursiops truncatus, Delphinus delphis and Stenella coeruleoalba in Malta, and on interactions of these species with human activities, with a view to contribute to the regional conservation of marine mammals in the long-term.</td></tr>
<tr><td>Reporting Question 4f:
Programme Description:
Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme focuses on assessment of the distributional range and population size of species of marine reptiles and marine mammals through surveys at sea. While observations of all species of marine reptiles and marine mammals will be recorded, the monitoring programme will focus on the assessment of status for the more regularly occurring species. Monitoring of impacts/pressures is restricted to monitoring of turtle by-catch and associated mortality rates. However, the monitoring programme also attempts to shed more light on the potential threats to marine reptiles and cetaceans by calling for collection of systematic data on strandings.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">▪ 1.1 Species Distribution
- Distributional Range (1.1.1)
▪ 1.2 Population Size
- Population Abundance (1.2.1)
▪ 1.3 Population Condition
- Population demographic characteristics (body size or age class structure) (1.3.1)

Indicator 1.3.1 will only be applied to the species which occur more frequently in Malta namely Caretta caretta, Stenella</td></tr>
</table>

Monitoring Programme:	Biodiversity – Mammals and Reptiles MICMT-D0104.2
	coeruleoalba, *Tursiops truncatus* and *Delphinus delphis*.
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of the monitoring programme will enable the description of the population dynamics, range and status of species of marine mammals and reptiles occurring in Malta. The functional groups covered by this monitoring programme include: (i) Turtles (ii) Baleen Whales (iii) Toothed Whales noting however that the 'turtle' functional group is represented by one species: *Caretta caretta* and the 'Baleen Whales' functional group is mainly represented by *Balaenoptera physalus*.. The monitoring programme makes reference to the following pressures: (i) *Biological Disturbance: Selective extraction of species, including incidental non-target catches*: by including an indicator on Fisheries turtle by-catch (ii) *Other*: the monitoring programme includes an indicator on stranded animals (coupled to causes of death and/or identification of interactions with anthropogenic activity) which will provide information on potential threats and pressures.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for assessment of status and distance from and progress towards GES for the more regularly occurring species. Data will be collected on the basis of established methodologies and will build on methodologies used by the currently ongoing LIFE11 NAT/MT/1070- LIFE+MIGRATE. However assessment of status will be based on analysis of trends since the establishment of quantitative GES will only be possible through analysis of long-term data collected systematically through the implementation of the monitoring programme. ▪ Adequate data: Yes ▪ Established methods for assessment: Yes

Monitoring Programme:	Biodiversity – Mammals and Reptiles MICMT-D0104.2
	▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: to be determined.
Reporting Question 5e: How does the programme address natural variability?	Natural variability will be assessed quantitatively and through expert opinion on the basis of long-term trend data as interpreted on the basis of expert knowledge on the ecology and life history of the individual species.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	The monitoring programme will provide adequate data and information for assessment of status and progress towards achievement of GES for the following species (and functional groups) of marine mammals and reptiles: Marine reptiles – turtles: ▪ *Caretta caretta* Marine Mammals – Toothed Whales ▪ *Stenella coeruleoalba* ▪ *Tursiops truncatus* ▪ *Delphinus delphis* Assessment of status will be based on an assessment of trends in: ▪ Species distributional range ▪ Population Abundance ▪ Population demographic characteristics through size and/or age classes Although data and information on other species will be collected through implementation of the monitoring programme, these species are not considered to be frequent enough to allow assessment of status and/or progress towards GES achievement. Such data would however contribute to an assessment at a regional scale. Assessment of specific pressures and activities through the implementation of the monitoring programme would enable elaboration of links between status of the marine reptiles and mammals populations and pressures thereon with a view to identify necessary action in case risks of not achieving GES are identified.
Reporting Question 5g GAP-FILLING GES	The monitoring programme is considered adequate in 2014

Monitoring Programme:	Biodiversity – Mammals and Reptiles MICMT-D0104.2
If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [13]	
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Not applicable.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ To ensure systematic collection of records of turtle by-catch by the Maltese registered fishing fleet and of data on mortality rate of landed turtles [applies to *Caretta caretta*] ▪ To strengthen knowledge on the conservation status of *Tursiops truncatus, Delphinus delphis* and *Stenella coeruleoalba* in Malta, and on interactions of these species with human activities, with a view to contribute to the regional conservation of marine mammals in the long-term.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	Malta has put forward one pressure-based target for marine reptiles and one interim knowledge-based target for marine mammals in the first reporting cycle. While noting that these targets would need to be updated in the longer-term, Malta indicates that the programme will provide suitable and sufficient information to enable assessment of progress towards these targets. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular	The monitoring programme will provide adequate data for assessing progress towards achieving environmental targets set pursuant to Article 10 of the MSFD by: ▪ Ensuring the systematic collection of data on turtle by-catch (indicator: number of turtle by-catch per fishing

[13] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – Mammals and Reptiles MICMT-D0104.2
updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	effort) ▪ Improving knowledge of the status of marine mammals through the overall implementation of the monitoring programme. Implementation of the monitoring programme will: ▪ Provide systematic data on the distribution and abundance of the marine reptiles and marine mammals occurring in Malta; ▪ Enable linking of data on distribution of marine reptiles and mammals with data on location of potential sources of pressures; ▪ provide trend data on specific pressures such as incidental turtle by-catch; ▪ provide data/information on other interactions with anthropogenic activities through collection of data on strandings with a view to identify potential threats/pressures. Within this context the monitoring programme will enable updating of environmental targets by reassessment of the distributional range, population abundance and demographic characteristics (where relevant) of marine reptiles and mammals, with a view to reassess status and update (in case of marine reptiles) and put forward (in case of marine mammals) environmental targets in terms of the most relevant pressures.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[14]	The monitoring programme is considered adequate in 2014.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	Not applicable.
Reporting question 7a: *Which activities will the programme address?*	The monitoring programme refers to the compilation of data on fishing activities, which can potentially interact with marine reptiles and mammals.
Reporting question 7b: *Describe the nature of*	The monitoring programme refers to collection of aggregated data on fishing location and intensity, in accordance with the

[14] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – Mammals and Reptiles MICMT-D0104.2
activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.	Data Collection Framework [Commission Decision 2010/93/EU]. Information on other activities which may interact with marine mammals and reptiles will be captured through other monitoring programmes including monitoring of underwater noise, contaminants and marine litter.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme integrates the monitoring requirements of the Habitats Directive and MSFD for selected species of marine mammals and marine reptiles; ▪ The monitoring programme also takes into consideration the requirements pursuant to the EcAp process within the framework of the Barcelona Convention, noting that the Barcelona Convention/MAP are working towards an Integrated Monitoring Programme at a regional scale. ▪ The implementation of the Common Fisheries Policy, would also contribute to this monitoring programme by requiring collection of data on the level of fishing and the impact of fishing activities on the marine biological resources and on the marine ecosystems
Commission's recommendations in the Article 12 report considered by the monitoring programme[15]	The monitoring programme will be addressing specific data gaps as identified by the MSFD Initial Assessment by: ▪ setting up a formal protocol for the systematic provision of data and information on distribution, abundance and demographic characteristics of marine reptiles and mammals; ▪ addressing specific known pressures and potential threats through analysis of stranded animals; ▪ working towards better understanding of links between the status of marine reptiles and mammals with specific anthropogenic activities with a view to identify the most relevant pressures and facilitate elaboration of quantitative targets. The monitoring programme will thus provide further knowledge on the distribution of marine reptiles and marine mammals, important areas for such species and links with

[15] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

Monitoring Programme:	Biodiversity – Mammals and Reptiles MICMT-D0104.2
	anthropogenic pressures with a view to update GES or targets (as applicable) in the longer-term.
(Further) plans to address Article 12 shortcomings	The main shortcomings would be addressed through the implementation of the monitoring programme which would enable updating of GES and targets in the long-term. Further regional collaboration will be sought with a view to ensure that Malta's monitoring programme is contributing to the regional assessment of these mobile species.
Timeframes for revision of GES & targets	Long-term

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Fish

MICMT-D0104.3</td></tr>
<tr><td rowspan="2">MSFD Descriptor/s:</td><td colspan="2">Descriptor 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</td></tr>
<tr><td colspan="2">Descriptor 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.</td></tr>
<tr><td rowspan="3">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td rowspan="2">The population abundance of key marine species is stable and their population dynamics are indicative of long-term viability.</td><td>Species composition and/or abundance of demersal fish and demersal elasmobranchs associated with shelf and upper bathyal sublittoral sediments is stable over a period of time.[applies to Demersal Fish and Demersal Elasmobranchs associated with shelf sublittoral sediment or upper bathyal sediments]</td></tr>
<tr><td>To ensure better use of fishery independent data in analysis of fish populations.</td></tr>
<tr><td>Reporting Question 4f:
Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme focuses on the assessment of ‘demersal fish’ and ‘demersal elasmobranch’ functional groups. For this purpose, the programme adapts the monitoring regime undertaken as part of the Common Fisheries Policy for the purpose of assessing selected species deemed representative of these two functional groups, in terms of population size and population characteristics. Such species are sampled as part of the Fisheries independent surveys through the Mediterranean International Trawl Surveys (MEDITS). Malta acknowledges that coastal and pelagic species of fish are not adequately covered by the monitoring programme, however methodologies need to be assessed prior to establishing monitoring regimes in this regard.</td></tr>
</table>

Monitoring Programme:	Fish MICMT-D0104.3
Reporting Question 5a: Which GES criteria are addressed? Reporting Question 5b: Which GES indicators are addressed?	▪ 1.1 Species Distribution - Distributional Range (1.1.1) ▪ 1.2 Population Size - Population Abundance and/or biomass as appropriate (1.2.1) ▪ 1.3 Population Condition - Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates) (1.3.1)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of this monitoring programme would provide information on the structure of fish populations, including the abundance, distribution and age/size structure of the populations, as per Table 1 of Annex III;
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for assessment of status and distance from and progress towards GES for the 'demersal fish' and 'demersal elasmobranch' functional groups, through analysis of long-term data on abundance and population demographic characteristics. The monitoring programme does not cover other fish functional groups which will be addressed in the longer term. ▪ Adequate data: No ▪ Established methods for assessment: No ▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: Yes
Reporting Question 5e: How does the programme address natural variability?	Natural variability is assessed quantitatively, by assessing long-term trend data.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support	The monitoring programme will utilise the data collected as part of the Fisheries independent surveys (MEDITS) to assess status of demersal fish and demersal elasmobranchs. Assessment of status of these two functional groups is based on assessment of trend data in relation to the following parameters: ▪ Species distribution ▪ List of typical species ▪ Population size (biomass)

Monitoring Programme:	Fish MICMT-D0104.3
assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	▪ Size class structure Assessment of status on the basis of the criterion 'Population Condition' will be mainly qualitative and based on expert judgement. Trends in these parameters can be linked with the location of fishing activity and/or fishing intensity with a view to distinguish between natural/climatic variability and potential effects of anthropogenic pressures, noting that fishing activity would constitute the main pressure on these two functional groups of fish.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [16]	In view of the focus of the monitoring programme on demersal fish and demersal elasmobranchs, and acknowledgement of the gaps in relation to other fish functional groups, the monitoring programme will be considered adequate in time for the updating of the monitoring programmes due in 2020.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Methodologies to assess other fish functional groups, in particular coastal fish and/or pelagic fish will be explored, also through regional collaboration. Monitoring regimes will be developed once methodologies are established.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Species composition and/or abundance of demersal fish and demersal elasmobranchs associated with shelf and upper bathyal sublittoral sediments is stable over [applies to 'Demersal Fish' and 'Demersal Elasmobranchs' associated with shelf sublittoral sediment or upper bathyal sediments] ▪ To ensure better use of fishery independent data in analysis of fish populations.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental	Malta's targets put forward in the first reporting cycle in relation to 'fish' include an interim knowledge-base target, which will be directly addressed through the implementation of the monitoring programme, and a state target related to the species composition and abundance of demersal fish and elasmobranchs. The latter target is also linked to the

[16] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Fish MICMT-D0104.3
targets (using indicators identified by the Member State under Article 10)	assessment of the condition of shelf and upper bathyal sublittoral sediment. The monitoring programme will provide suitable and sufficient data to enable assessment of progress towards achievement of this state target by enabling analysis of MEDITS data on population size and demographic characteristics of species deemed representative of the two functional groups. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: Yes.
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	The monitoring programme will provide adequate data for assessing progress towards achieving environmental targets set in relation to species composition and abundance of selected species deemed representative of the demersal fish and elasmobranchs functional groups. Time-series data on species composition and abundance linked to data/information on fishing activity (including location of fishing activities and fishing intensity) will provide adequate data/information that will enable updating of targets for the two functional groups if deemed necessary. Malta has not yet put forward targets in relation to fish functional groups other than the demersal fish and demersal elasmobranchs. The monitoring programme is also focused on these two groups while acknowledging the gaps related to others such as coastal fish. Methodologies to assess other fish functional groups, in particular coastal fish and/or pelagic fish will be explored, also through regional collaboration. Monitoring regimes will be developed once established methodologies are available.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?* [17]	Considered adequate in 2014
Reporting question 6f:	

[17] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Fish MICMT-D0104.3
If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?	
Reporting question 7a: *Which activities will the programme address?*	Refer to monitoring programme for commercial species
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.*	Refer to monitoring programme for commercial species
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	The monitoring programme is based on the Fisheries Independent Surveys undertaken as part of the Common Fisheries Policy.
Commission's recommendations in the Article 12 report considered by the monitoring programme[18]	The monitoring programme is not currently addressing data gaps on coastal and pelagic fish functional groups as identified by the MSFD Initial Assessment. This is due to the fact that methodologies to monitor functional groups other than the demersal fish and demersal elasmobranchs still need to be developed and applied. The monitoring programme acknowledges such gaps. On the other hand, the monitoring programme is ensuring streamlining of data collection processes pursuant to the Common Fisheries Policy and MSFD requirements with a view to also streamline data interpretation across the two policies. Interpretation of data at a local scale should however

[18] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

Monitoring Programme:	Fish MICMT-D0104.3
	acknowledge that assessment of mobile species, in particular commercial species, would need to be undertaken at a regional scale.
(Further) plans to address Article 12 shortcomings	Malta will be exploring methodologies for monitoring fish functional groups other than 'demersal fish' and 'demersal elasmobranchs' in parallel to the implementation of the monitoring programme, also through further regional collaboration. This would enable elaboration of GES and/or environmental targets (as necessary) on the different fish functional groups.
Timeframes for revision of GES & targets	Long-term

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Biodiversity – water column habitats

MICMT-D0104.4</td></tr>
<tr><td rowspan="2">MSFD Descriptor/s:</td><td colspan="2">Descriptor 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</td></tr>
<tr><td colspan="2">Descriptor 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.</td></tr>
<tr><td rowspan="2">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td>No GES defined for water column habitat types.</td><td>To strengthen knowledge via updated data on key characteristics of the water column, including plankton communities that would enable Malta to further develop the definition of this habitat type in line with the requirements of the Marine Strategy Framework Directive.</td></tr>
<tr><td>Reporting Question 4f:
Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme will be focusing on state monitoring noting that the main pressures on water column habitats will be monitored through other monitoring programmes. Within this context, monitoring will focus on the assessment of phytoplankton and zooplankton composition, abundance and biomass.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">▪ 1.6 Habitat Condition
- Condition of the typical species and communities (1.6.1)
- Relative abundance and/or biomass, as appropriate (1.6.2)
- Physical, hydrological and chemical conditions (1.6.3)</td></tr>
<tr><td>Reporting Question 5c:
Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?</td><td colspan="2">Implementation of the monitoring programme will enable the description of the phytoplankton and zooplankton communities associated with water column habitats in Malta. The water column habitat types that would be addressed by the monitoring programme as per habitat types identified by</td></tr>
</table>

Monitoring Programme:	Biodiversity – water column habitats MICMT-D0104.4
	Commission Staff Working Paper[19] cannot be defined at this stage, since a reference list of pelagic habitat types in the Mediterranean still needs to be compiled. The monitoring programme does not make specific reference to pressures to be monitored, since pressures affecting the phytoplankton and zooplankton communities are covered by other monitoring programmes including monitoring programmes on 'eutrophication', 'contaminants' and 'hydrographical changes'. Links with these monitoring programmes need to be ensured.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	GES for water column habitat types has not as yet been described for Malta, mainly as a result of data limitations on this feature. The monitoring programme however will provide adequate data and information for preliminary characterisation and periodic assessment of status of water column habitat types, which data and information will also enable elaboration of GES in the longer-term. The monitoring programme makes reference to the use of established methodologies for assessment of phytoplankton. Methodological standards which can be applied for assessment of zooplankton are listed, which methodologies however need to be verified through implementation of the monitoring programme and regional collaboration. ▪ Adequate data: Yes ▪ Established methods for assessment: Yes (for phytoplankton only) ▪ Adequate Understanding of GES: No ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 5e: How does the programme address natural variability?	Natural variability in phytoplankton and zooplankton composition, abundance and biomass will be assessed qualitatively and quantitatively on the basis of long-term trend data.
Reporting Question 5f Describe how the	Assessment of status for water column habitats will be based on an analysis of trends in the following indicators:

[19] Commission Staff Working Paper: Relationship between the initial assessment of marine waters and the criteria for good environmental status. SEC(2011)1255 final

Monitoring Programme:	Biodiversity – water column habitats MICMT-D0104.4
programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	▪ Phytoplankton composition, abundance and biomass (chlorophyll-a) ▪ Zooplankton composition, abundance and biomass Pending the completion of the WFD intercalibration exercise for phytoplankton, interpretation of trends in composition and abundance of phytoplankton will be guided by the WFD broad definitions. For phytoplankton biomass (chlorophyll-a), Malta is preliminarily adopting the Ecological Quality Ratios for High-Good and Good-Moderate ecological status in terms of chlorophyll-a concentrations for Type IIIE waters in Greece and Cyprus (as per Commission Decision 2013/480/EU). This is based on the assumption that Maltese waters constitute Type IIIE coastal waters as defined by Commission Decision 2013/480/EU and the eutrophication scale provided in Simboura *et al*. (2005)[20] is used for this purpose. The boundaries proposed need to be updated once the WFD intercalibration exercise is completed. The monitoring programme is closely linked with the monitoring programme for 'eutrophication' and 'hydrographical changes'. Within this context, data on physico-chemical parameters (nutrients, dissolved oxygen, water transparency/turbidity, temperature, salinity, pH and hydrographical data) will be available through sampling at shared monitoring stations. Long time-series data and links with identified pressures resulting in changes in physico-chemical and hydrographical conditions will allow the distinction between natural variability and effects of anthropogenic pressures.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [21]	Given that the monitoring programme is geared towards knowledge improvement on water column habitat types with a view to enable elaboration of GES, the monitoring regime specifically targeting assessment of progress towards achievement of GES for both Descriptors 1 and 4 can only be developed/confirmed on the basis of the data generated through the initial monitoring episodes. Within this context, the monitoring programme will be deemed or verified as adequate in time for the updating of monitoring programmes due in 2020.

[20] Simboura, N., Panayotidis, P. & Papathanassiuo, E. (2005) A synthesis of the biological quality elements for the implementation of the European Water Framework Directive in the Mediterranean ecoregion: the case of Saronikos Gulf. *Ecological Indicators* **5**: 253-266

[21] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – water column habitats MICMT-D0104.4
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	The data generated through the implementation of the monitoring programme will be assessed with a view to define GES in relation to water column habitat types and associated communities in terms of MSFD Descriptors 1 and 4, and enable elaboration of monitoring processes geared towards the assessment of progress towards achieving this GES.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ To strengthen knowledge via updated data on key characteristics of the water column, including plankton communities that would enable Malta to further develop the definition of this habitat type in line with the requirements of the Marine Strategy Framework Directive.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	Malta has put forward a single knowledge-based target for water column habitats in the first reporting cycle. Implementation of the monitoring programme will improve knowledge on water column habitats thus enabling the definition of this habitat type for Malta in line with the requirements of the Marine Strategy Framework Directive. Malta recognizes the need to elaborate environmental targets for water column habitats once further knowledge is available. With respect to established methodologies, these are mainly available for phytoplankton. Methodological standards which can be applied for assessment of zooplankton are listed. Such methodologies can only be verified through implementation of the monitoring programme and regional collaboration. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: No ▪ Adequate capacity to perform assessments: To be determined
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	Implementation of the monitoring programme will: ▪ improve knowledge on the type of phytoplankton and zooplankton communities that occur in inshore and offshore areas. This would enable identification of type-specific phytoplankton and zooplankton communities in Malta, hence characterization of water column habitat types occurring in Malta and their distribution; ▪ Enable linking of data on plankton composition and abundance with physico-chemical parameters and hydrographical data with a view to identify potential

Monitoring Programme:	Biodiversity – water column habitats MICMT-D0104.4
	pressures on water column habitat types in Malta; ▪ Identify deviations from natural phytoplankton and zooplankton communities associated with the Mediterranean region, also through identification of opportunistic and non-indigenous species. Within this context the monitoring programme will enable the definition of environmental targets for water column habitat types and subsequent regular updating of targets.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[22]	Since only knowledge-based interim targets have been put forward at this stage, the monitoring programme will be considered adequate <u>in time for the updating of monitoring programmes due in 2020</u>.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	The implementation of the monitoring programme, on the basis of which the WFD intercalibration exercise for phytoplankton would be completed, would enable the elaboration of quantitative targets for water column habitats.
Reporting question 7a: *Which activities will the programme address?* Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.*	The monitoring programme does not address activities since activities which may interact with water column habitats are deemed to be covered by other monitoring programmes, in particular the monitoring programme on 'eutrophication'.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your*	▪ This monitoring programme is closely linked and takes into consideration the WFD monitoring requirements for phytoplankton. ▪ The monitoring programme takes into consideration the requirements pursuant to the EcAp process within the framework of the Barcelona Convention, noting

[22] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – water column habitats MICMT-D0104.4
MSFD programme?	that the Barcelona Convention/MAP are working towards an Integrated Monitoring Programme at a regional scale.
Commission's recommendations in the Article 12 report considered by the monitoring programme[23]	The monitoring programme is addressing the data/information gaps identified by the MSFD Initial Assessment and will be generating data on phytoplankton and zooplankton which will allow elaboration of GES and environmental targets in the long-term. The programme addresses both phytoplankton and zooplankton communities in inshore and offshore waters. However characterisation of water column habitats would need to be viewed within the wider regional scale. The monitoring programme ensures links between MSFD and WFD monitoring requirements and its implementation will contribute to the WFD intercalibration process for chlorophyll-a. Within this context, the monitoring programme is working towards the use of common standards across EU legislation.
(Further) plans to address Article 12 shortcomings	The main shortcomings arising from data limitations would be addressed through the implementation of the monitoring programme which would provide the primary data for elaboration of GES and targets in the long-term.
Timeframes for revision of GES & targets	Long-term

[23] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Biodiversity – seabed habitats

MICMT-D010406.1</td></tr>
<tr><td rowspan="3">MSFD Descriptor/s:</td><td colspan="2">Descriptor 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</td></tr>
<tr><td colspan="2">Descriptor 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.</td></tr>
<tr><td colspan="2">Descriptor 6: Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.</td></tr>
<tr><td rowspan="5">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td>The natural range and extent of marine habitats and species are stable, or otherwise in line with the physiographic and climatic conditions, taking into consideration the sustainable use of the marine environment</td><td>Efforts are undertaken, through implementation of conservation measures or existing permitting and licensing procedures, to ensure maintenance of the distributional range and extent of selected habitat types in selected areas.
[applying to Littoral Sediment: Biocoenosis of mediolittoral sands; Posidonia oceanica meadows and Shelf sublittoral sediment: Maerl facies]</td></tr>
<tr><td rowspan="2">The structure and function of marine habitats ensure their long-term viability</td><td>Species composition and/or abundance associated with selected marine habitats is stable over a period of time (to be identified) or is indicative of good status, based on definition of status through the implementation of the EU Water Framework Directive.
[applying to Littoral Rock and Biogenic Reefs; Shallow Sublittoral Sediment; Shelf sublittoral Sediment and Upper Bathyal Sediment]</td></tr>
<tr><td>Health status of seagrass meadows is maintained</td></tr>
<tr><td>The long-term viability of key marine habitats is not compromised</td><td>Benthic habitats affected by currently regulated anthropogenic activities show signs of recovery.
[applying to Littoral Rock and Biogenic Reefs; Shallow sublittoral rock and biogenic reefs]</td></tr>
</table>

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1	
	by anthropogenic pressures and impacts.	Maintaining and enforcing regulations governing fishing activities within the 25 nautical mile Fisheries Management Zone [applying to Shelf sublittoral rock and biogenic reefs; Shelf sublittoral sediment; *Posidonia oceanica* meadows (as relevant)]
		Localised or sensitive marine habitats are afforded legal protection by 2025 [applying to Upper Bathyal Rock]
Reporting Question 4f: Programme Description: Describe the overall approach of the monitoring programme including: ▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures? ▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.	The monitoring programme focuses on the assessment of status of relatively known seabed habitat types on the basis of criteria and indicators stipulated for MSFD Descriptor 1 as deemed relevant to each particular habitat type. Habitats to be monitored were selected on the basis of availability of baseline data and listing in the Habitats Directive. Some pressures on seabed habitats will be assessed through other monitoring programmes, in particular those related to 'eutrophication', 'contaminants' and 'hydrographical changes'. Such pressures are not specifically included in this monitoring programme. Other relevant pressures however, particularly those associated with physical loss and physical damage, will be assessed in relation to specific activities in terms of location and, where possible, intensity. For this purpose the monitoring programme mainly builds on existing permitting and licensing procedures. This process will enable identification of emerging environmental risks for seabed habitats.	
Reporting Question 5a: Which GES criteria are addressed? Reporting Question 5b: Which GES indicators are addressed?	▪ 1.4 Habitat Distribution - Distributional Range (1.4.1) ▪ 1.5 Habitat Extent - Habitat Area (1.5.1) ▪ 1.6 Habitat Condition - Condition of the typical species and communities (1.6.1) - Relative abundance and/or biomass, as appropriate (1.6.2) ▪ 6.1 Physical damage, having regard to substrate characteristics - Type, abundance, biomass and areal extent of relevant biogenic substrate (6.1.1) ▪ 6.2 Condition of benthic community - Presence of particularly sensitive and/or tolerant species (6.2.1) - Multi-metric indexes assessing benthic community condition and functionality, such as species diversity	

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1
	and richness, proportion of opportunistic to sensitive species (6.2.2)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of the monitoring programme will enable the description of the predominant seabed habitat types and associated biological communities. The following seabed habitat types as defined by Commission Staff Working Paper[24] or as listed in the Habitats Directive are fully or partly covered by the monitoring programme: ▪ Littoral sediment ▪ Littoral and shallow sublittoral rock (including organogenic trottoirs with *Lithophyllum* species and vermetids) ▪ *Posidonia* beds ▪ Shallow sublittoral sediment ▪ Shelf sublittoral sediment (represented by maerl) ▪ Shelf sublittoral sediment ▪ Upper Bathyal sediment The monitoring programme includes the need to map anthropogenic activities with potential impacts on seabed habitats. Collection of data for anthropogenic activities will be mainly related to location, dates of operation where relevant and intensity where possible. Assessment of impacts associated with these activities is considered a separate process which is not covered by the monitoring programme. Pressures in this regard are mainly related to physical loss and physical damage on seabed habitats which may be a result of: ▪ dredging and disposal at sea ▪ construction at sea ▪ aquaculture installations ▪ scuttling of vessels ▪ laying of cables and pipelines ▪ Fisheries ▪ Anchoring

[24] Commission Staff Working Paper: Relationship between the initial assessment of marine waters and the criteria for good environmental status. SEC(2011)1255 final

<table>
<tr><th>Monitoring Programme:</th><th>Biodiversity – seabed habitats

MICMT-D010406.1</th></tr>
<tr><td>Reporting Question 5d:
ADEQUACY FOR ASSESSMENT OF GES
Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?</td><td>The monitoring programme will provide adequate data and information for assessment of status of selected habitat types on the basis of established methodologies. Limitations at this stage are related to the fact that not all habitat types are covered by the monitoring programme mainly as a result of current data limitations on such habitat types which preclude the elaboration of monitoring regimes.

▪ Adequate data: No (not all habitat types are covered)

▪ Established methods for assessment: Yes

▪ Adequate Understanding of GES: Yes

▪ Adequate capacity to perform assessments: To be determined.</td></tr>
<tr><td>Reporting Question 5e:
How does the programme address natural variability?</td><td>Natural variability is assessed quantitatively or qualitatively (depending on the criteria/indicators) on the basis long-term data.</td></tr>
<tr><td>Reporting Question 5f
Describe how the programme:
▪ addresses assessment needs for the relevant Descriptor and targets;
▪ meets the needs of providing data/ information to support assessment of the Descriptor;
▪ contributes to determining distance from GES and trends in status;
▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures;
▪ responds to risks of not achieving GES.</td><td>The monitoring programme will provide adequate data and information for assessment of status and progress towards achievement of GES by assessing trends in distributional range and habitat extent and assessing condition for selected habitats as indicated below:

<table>
<tr><th>Habitat Type</th><th>Indicator/Parameter</th></tr>
<tr><td colspan="2">Distributional Range and Habitat Extent</td></tr>
<tr><td>selected sandy and shingle beaches representing littoral sediment</td><td>length of coastline occupied by littoral sediment</td></tr>
<tr><td>hard beds associated with communities of photophilic algae as part of littoral and shallow sublittoral rock</td><td>distributional range and length of coastline occupied by habitat type</td></tr>
<tr><td>Organogenic trottoirs with Lithophyllum species, including facies with vermetids as part of the littoral rock and biogenic reefs</td><td>distributional range and length of coastline occupied by habitat type</td></tr>
<tr><td>Posidonia beds</td><td>distributional range and area covered by habitat type</td></tr>
</table>
</td></tr>
</table>

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1

Delineated maerl bed off the Northeastern coast of Malta as part of the shelf sublittoral sediment	aerial extent of biogenic substrate

Habitat Type	Indicator/Parameter
Habitat Condition	
hard beds associated with communities of photophilic algae as part of littoral and shallow sublittoral rock;	Condition of the typical species and communities: List of habitat-typical species
	Condition of the typical species and communities: Density of *Cystoseira* species per length of coastline
	Relative abundance/ Presence of particularly sensitive and/or tolerant species: CARLIT index
Organogenic trottoirs with *Lithophyllum* species, including facies with vermetids as part of the littoral rock and biogenic reefs	Condition of the typical species and communities: % cover of live *Lithophyllum* spp.
Posidonia beds	Condition of the typical species and communities: PREI index
Shallow sublittoral sediment	Multi-metric indexes assessing benthic community condition: BENTIX index
Shelf sublittoral and upper bathyal sediment	Condition of the typical species and communities: List of habitat-typical species

Assessment of status is based on the following:

- trends in distributional range and habitat extent
- trends in lists of habitat-typical species, density or % cover through time.
- Intercalibrated WFD boundaries for assessment of status on the basis of biotic indices CARLIT and PREI are used for the purpose of assessing status in terms of habitat condition for macroalgae and *Posidonia* beds respectively.

Pressures related to physical loss and physical damage will be assessed in terms of the location of anthropogenic activities which may give rise to such pressures. This would enable elaboration of links between status of seabed habitats and

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1
	pressures thereon with a view to identify necessary action in case risks of not achieving GES are identified.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [25]	Further knowledge on the distribution of habitats and relevant pressures is deemed necessary prior to establishing monitoring processes covering MSFD seabed habitat types on the basis of a risk-based approach. Within this context, the monitoring programme will be considered fully adequate in time for the updating of monitoring programmes due in 2020.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Some of the data gaps which are precluding the establishment of monitoring regimes for poorly known habitat types are currently being addressed through LIFE BaHAR for N2K (LIFE12 NAT/MT/000845). Other research or pilot surveys may need to be undertaken to work towards the availability of adequate knowledge on other seabed habitats characterizing the Maltese marine environment, with a view to enable the development of a comprehensive monitoring programme covering habitat types as necessary on the basis of a risk-based approach.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Efforts are undertaken, through implementation of conservation measures or existing permitting and licensing procedures, to ensure maintenance of the distributional range and extent of selected habitat types in selected areas. [applying to Littoral Sediment: Biocoenosis of mediolittoral sands; *Posidonia oceanica* meadows and Shelf sublittoral sediment: Maerl facies] ▪ Species composition and/or abundance associated with selected marine habitats is stable over a period of time (to be identified) or is indicative of good status, based on definition of status through the implementation of the EU Water Framework Directive [applying to Littoral Rock and Biogenic Reefs; Shallow Sublittoral Sediment; Shelf sublittoral Sediment and Upper Bathyal Sediment] ▪ Health status of seagrass meadows is maintained ▪ Benthic habitats affected by currently regulated anthropogenic activities show signs of recovery. [applying to Littoral Rock and Biogenic Reefs; Shallow sublittoral rock and biogenic reefs]
Reporting Question 6b: Will the programme provide suitable and sufficient data	Implementation of the monitoring programme will be providing suitable and sufficient data and information to enable assessment of progress towards achievement of

[25] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1
and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	relevant targets. Targets related to protection of seabed habitats and regulations governing fishing activities will be considered (if deemed relevant) through the drafting of the Programme of Measures. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	The monitoring programme will provide adequate data for assessing progress towards achieving environmental targets set pursuant to Article 10 of the MSFD by: ▪ assessing distributional range, habitat extent and composition and/or abundance of species associated with specific habitat types with a view to assess progress towards achieving or maintaining the state-targets put forward in the first reporting cycle; ▪ applying biotic indices or assessing species composition in areas known to have been affected by pressures in the past with a view to assess the potential recovery of such habitat types; ▪ keeping track of anthropogenic activities which could impact on seabed habitats to enable links between environmental status as defined through the analysis of the monitoring data and distribution of anthropogenic activities. Within this context the monitoring programme will enable the updating of environmental targets for seabed habitat types if deemed necessary and relevant, and subsequent regular updating of targets**.**
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[26]	The monitoring programme is considered adequate in 2014.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to*	While, the monitoring programme is considered adequate in 2014 for assessment of targets put forward in the first reporting cycle, inclusion of other habitat types and

[26] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1
make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?	elaboration of targets for such habitats (if deemed necessary) will only be possible at a later stage. Some of the data gaps which are precluding the establishment of monitoring regimes for poorly known habitat types are currently being addressed through LIFE BaHAR for N2K (LIFE12 NAT/MT/000845). Other research or pilot surveys may need to be undertaken to work towards the availability of adequate knowledge on other seabed habitats characterizing the Maltese marine environment, with a view to enable the development of a comprehensive monitoring programme covering habitat types as necessary on the basis of a risk-based approach. The monitoring programme will also be contributing to the WFD intercalibration process for benthic invertebrates. Once the intercalibration process is complete, WFD boundaries would be taken up by the monitoring programme to enable a quantitative assessment of shallow sublittoral sediment in terms of habitat condition.
Reporting question 7a: *Which activities will the programme address?*	Activities associated with potential effects on seabed habitats will be mapped. Pressures under consideration include those which may result in physical loss and/or physical damage, since other pressures are deemed to be adequately addressed by other monitoring programmes. Activities under consideration include: ▪ disposal at sea ▪ construction at sea ▪ dredging ▪ aquaculture ▪ scuttling of vessels ▪ cables and pipelines ▪ trawling ▪ anchoring within selected marine area
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and*	The spatial distribution of the activities listed in reply to question 7b will be mapped on the basis of existing mechanisms/processes regulating such activities, including permitting/licensing processes. This information will only be addressing the spatial distribution of relevant anthropogenic activities.

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1
hence help identify possible new measures, if needed.	
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme integrates the monitoring requirements of the Habitats Directive and MSFD for relatively known habitats listed in the Habitats Directive; ▪ The monitoring programme integrates MSFD monitoring of seabed habitats and WFD monitoring of biological quality elements and adopts the intercalibrated boundaries of ecological status for macroalgae and *Posidonia* beds; ▪ The monitoring programme takes into consideration the requirements pursuant to the EcAp process within the framework of the Barcelona Convention, noting that the Barcelona Convention/MAP are working towards an Integrated Monitoring Programme at a regional scale. ▪ The implementation of the Common Fisheries Policy, contributes to this monitoring programme through the Fisheries Independent Surveys which collect samples of demersal species from the shelf and upper bathyal sublittoral sediment.
Commission's recommendations in the Article 12 report considered by the monitoring programme[27]	The monitoring programme will improve/verify the baseline data on distribution and extent of selected habitats as reported by the MSFD Initial Assessment and will facilitate correlation of data related to habitat condition with data on pressures with a view to shed light on responses to, or effects of such pressures. Implementation of the monitoring programme will also ensure data collation on the location of anthropogenic activities with potential effects on seabed habitats with a view to identify pressures beyond monitoring stations/areas. This would enable identification of the most relevant pressures and updating of the monitoring programme on the basis of a risk-based approached and updating of environmental targets as necessary. In line with the recommendations put forward in the Article 12 report, the monitoring programme adopts the boundaries of ecological status as intercalibrated for the purpose of the WFD for macroalgae and *Posidonia* beds. This would enable a quantitative assessment of the condition of these two habitat types.
(Further) plans to address	Malta will be evaluating the contribution of the monitoring

[27] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

Monitoring Programme:	Biodiversity – seabed habitats MICMT-D010406.1
Article 12 shortcomings	programme towards assessment in terms of MSFD Descriptor 4, bearing in mind the revision process of the MSFD Commission Decision.
Timeframes for revision of GES & targets	Long-term

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Non-indigenous Species

MICMT-D02</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 2: Non-Indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem</td></tr>
<tr><td rowspan="3">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td rowspan="2">The introduction and establishment of new invasive non-indigenous species as a result of human activities is, in so far as practicable prevented.</td><td>Efforts are undertaken to detect the occurrence of new NIS in defined assessment areas and to address gaps in knowledge on non-indigenous species, particularly invasive NIS.</td></tr>
<tr><td>Evaluate effectiveness of current measures in relation to non-indigenous species, in the light of increasing knowledge on such species through proposed interim MSFD target to address current knowledge gaps, and take such measures further if necessary.</td></tr>
<tr><td>Reporting Question 4f: Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme focuses on recording the occurrence of non-indigenous species in hotspots and sensitive areas in Malta. The programme also builds on other monitoring regimes with a view to assess abundance of NIS in specific taxonomic groups. These parameters can be used to monitor trends in temporal occurrence of NIS as well as ratio between invasive alien species (IAS) and native species. Detailed assessment of abundance of IAS will only be considered once further knowledge on the occurrence, distribution and impact of selected IAS is adequate enough to enable elaboration of monitoring processes in this regard.

Monitoring of non-indigenous species is concentrated in sensitive areas, namely Marine Protected Areas which are deemed sensitive to the introduction of NIS, and hotspots, namely harbours which are considered the main points of entry in view of shipping activities; whilstnoting however that the majority of NIS recorded in Malta are Lessepsian migrants from the Suez Canal.</td></tr>
</table>

Monitoring Programme:	Non-indigenous Species MICMT-D02
Reporting Question 5a: Which GES criteria are addressed? Reporting Question 5b: Which GES indicators are addressed?	▪ 2.1. Abundance and state characterisation of non-indigenous species, in particular invasive species - Trends in abundance, temporal occurrence and spatial distribution in the wild of non-indigenous species, particularly invasive non-indigenous species, notably in risk areas, in relation to the main vectors and pathways of spreading of such species (2.1.1) ▪ 2.2. Environmental impact of invasive non-indigenous species - Ratio between invasive non-indigenous species and native species in some well studied taxonomic groups (e.g. fish, macroalgae, molluscs) that may provide a measure of change in species composition (e.g. further to the displacement of native species) (2.2.1)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of the monitoring programme will enable the compilation of an inventory of the temporal occurrence of non-indigenous species in Malta. For specific taxonomic groups sampled for the purpose of other monitoring programmes, namely benthic marcoinvertebrates, phytoplankton and zooplankton, and demersal macrofauna including fish and crustacea, the monitoring programme will also enable the compilation of an inventory of the occurrence, abundance and spatial distribution of non-indigenous species. Through this process, the monitoring programme would be addressing biological disturbance – introduction of non-indigenous species and translocations - as listed in Annex III of the Directive.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information to enable periodic assessment of environmental status and assess distance from and progress towards GES. The monitoring programme: ▪ outlines monitoring regimes specifically targeting the identification of the occurrence of non-indigenous species in Malta, for which purpose it is reflecting published methodologies mentioned by the Draft Monitoring and Assessment Methodological Guidance [UNEP(DEPI)/MED WG.401/3] that is currently under discussion through the EcAp process; and ▪ builds on relevant monitoring regimes with a view to identify presence, abundance and spatial distribution of non-indigenous species for specific taxonomic groups. In this case, methodologies follow those established for the purpose of such monitoring regimes, when

Monitoring Programme:	Non-indigenous Species MICMT-D02
	available. The monitoring programme however does not cover detailed assessments of abundance and impacts of non-indigenous species on native habitats and taxa. Impacts will be recorded through observations but no attempt is being made to quantify such impacts. Assessment of impacts can only be undertaken once further knowledge on the occurrence, distribution and potential impacts of selected Invasive Alien Species is available through implementation of the monitoring programme. ▪ Adequate data: No ▪ Established methods for assessment: Yes ▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 5e: How does the programme address natural variability?	Not applicable
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not	The monitoring programme will enable assessment of status and progress towards achieving GES by monitoring the following indicators: ▪ Number of non-indigenous species recorded; ▪ Number of newly arrived non-indigenous species ▪ Abundance of NIS in specific taxonomic groups This data can also be used to determine the ratio between invasive non-indigenous species and native species in some well studied taxonomic groups. Assessment of status with respect to non-indigenous species is based on the following parameters as per guidance provided by UNEP/MAP (2014)[28]: ▪ Number of new non-indigenous species recorded in comparison with those recorded in the previous year, with stable or negative trends being indicative of a stable or improving status; ▪ Trends in the total number of non-indigenous species

[28] UNEP/MAP 2014. Draft Monitoring and Assessment Methodological Guidance, 4th meeting of the EcAp Coordination Group UNEP(DEPI)/MED WG.401/3

Monitoring Programme:	Non-indigenous Species MICMT-D02
achieving GES.	over time, with stable or negative trends being indicative of a stable or improving status. The presence of non-indigenous species is considered to be a result of anthropogenic activity. The monitoring programme will respond to risks of not achieving GES by monitoring newly introduced species in hotspots which are represented by locations at high risk of NIS introduction. This would enable early detection of NIS introduction, including those which may turn out to be invasive and hence the possibility to take any necessary action (if possible) in the early stages of introduction.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [29]	Assessment of abundance and impacts of NIS on native habitats/species will be addressed in more detail once further knowledge on the occurrence and distribution of IAS is adequate through implementation of the monitoring programme. Within this context, the monitoring programme will be considered fully adequate in time for the updating of monitoring programmes due in 2020.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	The implementation of the monitoring programme, would enable the selection of Invasive Alien Species on which monitoring in terms of abundance and environmental impacts in line with MSFD indicators will be sought, hence enabling elaboration and assessment of GES accordingly.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Efforts are undertaken to detect the occurrence of new NIS in defined assessment areas and to address gaps in knowledge on non-indigenous species, particularly invasive NIS.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	Malta has put forward a knowledge-based target which calls for the detection of the occurrence of new NIS and to address gaps in knowledge. While acknowledging the need for more specific environmental targets to be put forward, at this stage the monitoring programme is deemed to provide suitable and sufficient data and information to elaborate environmental targets by: ▪ carrying out surveys on the occurrence and distribution of NIS in sensitive locations and hotspots, the latter allowing detection of the occurrence of new NIS; ▪ and by ensuring identification of NIS through

[29] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Non-indigenous Species MICMT-D02
	monitoring of specific benthic and water column communities. The second target related to the evaluation on the effectiveness of current measures in relation to NIS will be addressed by the Programme of Measures if deemed relevant. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	Implementation of the monitoring programme will improve current knowledge on NIS in Malta which knowledge, coupled to identification of vectors/pathways where possible, would enable elaboration of targets in the longer-term. Implementation of the monitoring programme would also enable the selection of species, particularly Invasive Alien Species, on which monitoring of abundance and impacts would focus in the longer-term, thus also ensuring regular updating of targets.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?* [30]	The monitoring programme will be considered fully adequate in time for the updating of monitoring programmes due in 2020.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	The implementation of the monitoring programme itself would enable re-assessment of current status with respect to occurrence and distribution of NIS in Malta and allow elaboration of environmental targets on the basis of improved knowledge, also in terms of vectors and pathways.
Reporting question 7a: *Which activities will the programme address?*	The monitoring programme includes the collation of data related to shipping activity, which is considered to be an important pathway of NIS introduction following the Suez Canal as a primary and major source of NIS in Malta.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring*	Data to be collected is mainly associated with the intensity of maritime traffic and associated activities which could lead to

[30] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Non-indigenous Species MICMT-D02
(e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.	NIS introduction namely the number of vessels calling at Maltese ports/waters and an indication of the last port of call.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme is aligned with the surveillance requirements of the "Regulation of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species (IAS Regulation)" ▪ The monitoring programme takes into consideration the requirements pursuant to the EcAp process within the framework of the Barcelona Convention, noting that the Barcelona Convention/MAP are working towards an Integrated Monitoring Programme at a regional scale. ▪ The implementation of the Common Fisheries Policy, contributes to this monitoring programme through collection of samples
Commission's recommendations in the Article 12 report considered by the monitoring programme[31]	The monitoring programme will improve knowledge on NIS through: ▪ surveys in Marine Protected Areas with a view to assess the extent of occurrence and distribution of NIS and provide a preliminary indication of their impacts through observations within sensitive locations; ▪ Assessment of occurrence and abundance of NIS within selected taxonomic groups associated with both seabed and water column habitat types. Such information coupled to further knowledge on vectors and pathways would enable elaboration of GES and targets for MSFD Descriptor 2 in the longer term. Furthermore, the monitoring programme will enable early detection of newly introduced species by calling for surveys within hotspots. Since shipping activity is considered to be an important pathway of NIS, such hotspots in Malta would be represented by harbour/marina areas. This would enable the regular updating

[31] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

Monitoring Programme:	Non-indigenous Species MICMT-D02
	and elaboration of environmental targets focused on selected species, vectors or pathways.
(Further) plans to address Article 12 shortcomings	N/A
Timeframes for revision of GES & targets	Long-term

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Commercial Species

MICMT-D03</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 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.</td></tr>
<tr><td rowspan="3">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td rowspan="2">Sustainable exploitation of fish stocks as indicated by the population age and size distribution of selected commercial species is achieved through effective management and monitoring of fishing effort.</td><td>To ensure better use of fishery independent data in analysis of fish populations.</td></tr>
<tr><td>Management and monitoring of fishing activities result in a sustainable fishing effort over time, in line with the measures put forward in Malta’s Fisheries Management Plans, with a view to ensure sustainability of the stocks targeted by Maltese fisheries.</td></tr>
<tr><td>Reporting Question 4f: Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme is based on the monitoring requirements pursuant to Commission Decision 2010/93/EU. Selection of metiers and stocks for monitoring purposes is also based on the provisions of the Commission Decision and reflect those included in National Data Collection Programme (2011-2013) for Malta.

The monitoring parameters reflect MEDITS data from fisheries independent surveys, metier-related variables and stock-related variables from fisheries dependent surveys. Monitoring thus focuses on population characteristics of selected stocks, including demographic structure of the catches. The monitoring programme includes assessment of impacts from extraction of species through the use of landings and discards data and calls for the collation of data on distribution and intensity of the fishing activities.

Through the data collected by Malta on its own the calculation of ‘Fishing Mortality’ and ‘Spawning Stock Biomass’ for commercial species for the purpose of MSFD Descriptor 3, will not be meaningful. It is however understood that Fisheries Dependent data collected as per Malta’s National Data Collection Programme (2013) will contribute to determination of these two indicators at a regional scale. The stocks targeted</td></tr>
</table>

Monitoring Programme:	Commercial Species MICMT-D03
	by Maltese fishers are composed of stocks which are shared with other countries. For almost all of these stocks, due to the small size of the Maltese fleet, the contribution to mortality by Maltese fishers is negligible. Were Malta to calculate these indicators independently, the information gained would not be very meaningful. Thus, for Malta, it would be best to contribute to the calculation of such indicators on a regional level.
Reporting Question 5a: Which GES criteria are addressed? Reporting Question 5b: Which GES indicators are addressed?	▪ 3.2. Reproductive capacity of the stock - Biomass indices (3.2.2). ▪ 3.3. Population age and size distribution *Primary indicators*: - Proportion of fish larger than the mean size of first sexual maturation (3.3.1) - Mean maximum length across all species found in research vessel surveys (3.3.2) - 95 % percentile of the fish length distribution observed in research vessel surveys (3.3.3)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of this monitoring factsheet will be addressing Biological disturbance: selective extraction of species, including incidental non-target catches (e.g. by commercial and recreational fishing), as per Table 2 of Annex III.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for assessment of status and distance from and progress towards GES for commercial species as selected on the basis of the provisions of Commission Decision 2010/93/EU. Assessment however is focused on the population size distribution of such species, with limited reference to the reproductive capacity of the stock. This is due to the fact that Malta deems that assessment of shared stocks in terms of fishing mortality and reproductive capacity would be more adequately addressed at a regional scale. ▪ Adequate data: Yes ▪ Established methods for assessment: No ▪ Adequate Understanding of GES: Yes

Monitoring Programme:	Commercial Species MICMT-D03
	▪ Adequate capacity to perform assessments: Yes
Reporting Question 5e: How does the programme address natural variability?	Natural variability of commercial stocks will be addressed quantitatively on the basis of long-term trend data on the abundance and population size distribution as measured through fisheries independent surveys (MEDITS).
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	At a local scale, assessment of status for the selected commercial species will be mainly based on expert opinion, on the basis of the following indicators: ▪ Mean Maximum length across all species found in research vessels (for commercial species sampled through MEDITS) ▪ 95% percentile of the fish length distribution observed in research vessel surveys (for commercial species sampled through MEDITS) ▪ Proportion of fish larger than the mean size of first sexual maturation (for commercial species sampled through MEDITS) ▪ Length distribution of species in catches Biomass indices will be tentatively used as proxies of reproductive capacities. However the feasibility of applying such indicators to local stocks still needs to be evaluated. Furthermore, the monitoring programme is subject to changes in terms of the indicators used on the basis of the revision of the MSFD Commission Decision 2010/477/EU. The data analysed as part of the monitoring programme will provide an indication of the status of the local populations of selected commercial species on the basis of their population characteristics, while emphasising the need of regional assessments for a meaningful evaluation of status of shared stocks. This data can be used to further inform the updating of management measures already in place in Malta's Fisheries Management Plans, should this be deemed necessary also through regional stock assessments. The monitoring programme makes reference to landings data as collected as part of Malta's National Data Collection Programme (2011-2013) and data on the distribution and intensity of fishing activity. This would enable links between the status of Maltese stock of the selected species and potential impacts from fishing activities in Malta. Natural variability will be addressed through the application of

Monitoring Programme:	Commercial Species MICMT-D03
	the above-mentioned indicators to data collected from fisheries independent surveys and distinguishing between potentially impacted and non-impacted stations in order to capture any anthropogenically-induced variability. Catch data is generally biased towards larger individuals and would not represent natural variability.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [32]	The applicability of some indicators included in the monitoring programme still needs to be verified through implementation of the programme and further regional collaboration. The monitoring programme will thus be considered to be fully adequate in time for updating the monitoring programme due in 2020.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Malta will be ensuring contribution to the regional assessment of stocks. Malta will also be engaging in further regional collaboration with a view to verify the applicability of monitoring indicators adopted by the monitoring programme.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Management and monitoring of fishing activities result in a sustainable fishing effort over time, in line with the measures put forward in Malta's Fisheries Management Plans, with a view to ensure sustainability of the stocks targeted by Maltese fisheries. ▪ To ensure better use of fishery independent data in analysis of fish populations.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	Malta's targets put forward in the first reporting cycle in relation to 'commercial species' include an interim knowledge-base target, which will be directly addressed through the implementation of the monitoring programme, and an operational target referring to the management measures put forward in Malta's Fisheries Management Plans. The monitoring programme will be evaluating trends in the population characteristics of local stocks of selected commercial species. This data will shed light on the sustainability of the population of species targeted by Maltese fishery and hence contribute towards the achievement of the operational target. ▪ Suitable and sufficient data: Yes

[32] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Commercial Species MICMT-D03
	▪ Established methods for assessment: No ▪ Adequate capacity to perform assessments: Yes.
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	The implementation of the monitoring programme will enable an assessment of trends in the population characteristics of selected commercial species at a local scale. This data coupled to data on Maltese fishing activity will enable the regular updating of targets aimed towards the sustainable exploitation of the selected stocks at a National scale. This process should however be carried out within the framework of regional assessment and cooperation since stocks of the selected commercial species assessed at a local scale are shared and exploited at a regional level.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[33]	The applicability of some indicators included in the monitoring programme still needs to be verified through implementation of the programme and further regional collaboration. The monitoring programme will thus be considered to be fully adequate in time for updating the monitoring programme due in 2020.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	Malta will engage in further regional collaboration to ensure coherence of the Fisheries' data analysis at a regional level. Malta will continue to contribute to regional assessments by providing the data collected at a local scale to regional organisations.
Reporting question 7a: *Which activities will the programme address?*	The monitoring programme ensures links with Malta's National Data Collection Programme which calls for data collection on Maltese fishery including data on the Maltese fishing fleet, VMS data and determination of fishing intensity.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing*	The data collected includes the following: ▪ Number of registered fishing vessels ▪ Location of fishing activities ▪ Fishing intensity While the fishing vessel register covers all type of fishing vessels, VMS data is only collected for vessels >12m and hence would not cover all fishery activity. Fishing intensity on the other hand is determined for the major types of fishery,

[33] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Commercial Species MICMT-D03
environmental change (degradation) and hence help identify possible new measures, if needed.	although spatial evaluation of fishing effort for the small-scale fleet is not possible due to lack of VMS data.. Data collection on fishing activities as per Malta's National Data Collection Programme is deemed adequate in contributing to assessment of environmental change due to fisheries activity.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	The monitoring programme is based on the Fisheries Independent Surveys and Fisheries Dependent surveys undertaken as part of the Common Fisheries Policy.
Commission's recommendations in the Article 12 report considered by the monitoring programme[34]	The monitoring programme reflects the need for assessment of commercial fish stocks exploited by Maltese fishery to incorporate fisheries data from a number of Mediterranean countries[35]. For this reason, assessment of stocks on the basis 'Fishing Mortality' and 'Spawning Stock Biomass' (or related secondary indicators) should only be resorted to at a regional or subregional scale in order to ensure meaningful results. Within this context, the monitoring programme focuses on analysis of data generated by both fisheries dependent and fisheries independent surveys in terms of population size distribution. Implementation of the monitoring programme will thus be improving knowledge on the status of local populations of selected commercial stocks on the basis of population characteristics indicators and would enable revision/updating of GES and targets in terms of these indicators the longer-term. This process also needs to take into consideration the revision of the MSFD Commission Decision 2010/477/EU.
(Further) plans to address Article 12 shortcomings	Malta will be engaging in further regional collaboration to ensure coherence of the Fisheries' data analysis and contribute to the determination of status of commercial stocks at a regional level.
Timeframes for revision of GES & targets	Long-term

[34] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

[35] Scientific, Technical and Economic Committee for Fisheries (STECF). 43rd Plenary Meeting Report (PLEN-13-02). 2013 Publications Office of the European Union, Luxembourg.

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Eutrophication

MICMT-D05</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 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</td></tr>
<tr><td rowspan="3">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td>Nutrient levels (or ratios as applicable) and chlorophyll-a levels in the marine environment do not depart significantly from natural levels of the Mediterranean Sea.</td><td rowspan="2">Long-term data on nutrient levels in the marine environment, or on direct or indirect effects of nutrient enrichment (as relevant), in relation to the main sources of nutrient input, is indicative of the effectiveness of existing mechanisms addressing nutrient input in the marine environment.</td></tr>
<tr><td>Biological communities (assessed at relevant scales) are indicative of either undisturbed conditions or of slight or localised changes associated with nutrient enrichment.</td></tr>
<tr><td>Reporting Question 4f:
Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme focuses on state and impact monitoring through monitoring of nutrient concentrations in the water column and monitoring of impacts through measurements of (i) the direct effects of eutrophication including chlorophyll-a concentrations, water transparency and species shifts in phytoplankton and of (ii) indirect effects of eutrophication through measurement of dissolved oxygen. The monitoring programme also links with monitoring of seabed habitats with a view to identify abundance of opportunistic macroalgae and abundance of adversely impacted seagrasses. The monitoring programme ensures links with existing reporting/permitting systems with a view to assess the extent of nutrient input in the marine environment from permitted activities.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">▪ Criterion 5.1: Nutrient Levels
- Nutrients concentration in the water column (5.1.1)
- Nutrient ratios (silica, nitrogen and phosphorous), where appropriate (5.1.2)

▪ Criterion 5.2: Direct effects of nutrient enrichment
- Chlorophyll concentration in the water column (5.2.1)</td></tr>
</table>

Monitoring Programme:	Eutrophication MICMT-D05
	- Water transparency related to increase in suspended algae, where relevant (5.2.2) - Abundance of opportunistic macroalgae (5.2.3) - Species shift in floristic composition such as diatom to flagellate ratio, benthic to pelagic shifts, as well as bloom events of nuisance/toxic algal blooms (e.g. cyanobacteria) caused by human activities (5.2.4) ▪ Criterion 5.2: Indirect effects of nutrient enrichment - Abundance of perennial seaweeds and seagrasses (e.g. fucoids, eelgrass and Neptune grass) adversely impacted by decrease in water transparency (5.3.1) - Dissolved oxygen, i.e. changes due to increased organic matter decomposition and size of the area concerned (5.3.2)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	The monitoring programme enables a description of the physical and chemical features of the marine environment, specifically: ▪ Temperature regime; ▪ spatial and temporal distribution of salinity; ▪ spatial and temporal distribution of nutrients (DIN, TN, DIP, TP, TOC) and oxygen; and ▪ pH The monitoring programme will also assess nutrient and organic matter enrichment as listed in Table 2 of Annex III through an assessment of nutrient/organic matter input from various activities including land-based sources and other sources such as aquaculture.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for periodic assessment of status and progress towards GES in terms of nutrient levels in the marine environment and direct and indirect effects of nutrients on specific physical and biological elements of the marine environment. The monitoring programme adopts established methodologies for sampling and analysis. However quantitative thresholds for the assessment of status have not been adopted as yet. Main limitation at this stage is due to the fact that links between nutrient levels and effects on the marine environment still need to be established In the longer-term,

Monitoring Programme:	Eutrophication MICMT-D05
	the monitoring programme would need to be updated to adopt a risk-based approach. ▪ Adequate data: Yes ▪ Established methods for assessment: Yes ▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 5e: How does the programme address natural variability?	Natural variability will be assessed quantitatively on the basis of long-term trend data on nutrient levels in the marine environment and other physical parameters including temperature, salinity and dissolved oxygen.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	The spatial and temporal extent of the data which is currently available is insufficient to define links between the status of the marine environment in terms of nutrient and organic matter enrichment and relevant pressures. Within this context, the monitoring programme cannot adopt quantitative thresholds for assessment of progress towards GES. The data generated through the monitoring programme will be assessed with a view to define links between nutrient levels and effects on biological elements and allow elaboration of quantitative thresholds in the longer term. Assessment of status is based on assessment of trends in measured parameters. For chlorophyll-a, Malta is preliminarily adopting the Ecological Quality Ratios for High-Good and Good-Moderate ecological status in terms of chlorophyll-a concentrations for Type IIIE waters in Greece and Cyprus (as per Commission Decision 2013/480/EU). This is based on the assumption that Maltese waters constitute Type IIIE coastal waters as defined by Commission Decision 2013/480/EU and the eutrophication scale provided in Simboura *et al*. (2005)[36] is used for this purpose. The boundaries proposed need to be updated once the typology of Maltese coastal waters is defined and the WFD intercalibration exercise is completed. Monitoring encompasses surveillance, operational and national monitoring stations with the latter two representing

[36] Simboura, N., Panayotidis, P. & Papathanassiuo, E. (2005) A synthesis of the biological quality elements for the implementation of the European Water Framework Directive in the Mediterranean ecoregion: the case of Saronikos Gulf. *Ecological Indicators* **5**: 253-266

Monitoring Programme:	Eutrophication MICMT-D05
	sites subject to specific pressures. Outcome of monitoring at such stations, coupled to continuous monitoring of physical parameters such as temperature and salinity would enable distinction between natural variation and effects from anthropogenic activities.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [37]	Monitoring programme is considered adequate in 2014.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Not applicable
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Long-term data on nutrient levels in the marine environment, or on direct or indirect effects of nutrient enrichment (as relevant), in relation to the main sources of nutrient input, is indicative of the effectiveness of existing mechanisms addressing nutrient input in the marine environment.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	The monitoring programme will provide suitable and sufficient data to enable assessment of progress towards achievement of the environmental target put forward by Malta in the first reporting cycle, particularly since the selection of monitoring stations ensure links with known activities which may affect marine waters. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 6c and 6d:	The monitoring programme will be providing adequate information to enable the identification of links between

[37] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Eutrophication MICMT-D05
▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	nutrient levels and effects on the marine environment by: ▪ monitoring nutrient levels and other parameters to assess the direct and indirect effects of nutrient and organic matter enrichment on the marine environment (establishing links between levels of nutrients and extent of impacts, if any); ▪ monitoring within areas potentially subject to nutrient and organic matter enrichment as well as unimpacted areas with a view to identify links with relevant activities; ▪ collating information in relation to the levels of nutrient/organic matter input from land-based sources; Such information is deemed necessary to allow elaboration/updating of targets in relation to specific activities in the long term.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[38]	Monitoring programme is considered adequate in 2014.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	Not applicable.
Reporting question 7a: *Which activities will the programme address?*	The monitoring programme makes reference to the collection of data on input of nutrient/organic matter from specific activities regulated by existing processes/mechanisms.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and*	The data on relevant activities will cover both spatial distribution and intensity through collation of data on the location of discharge points and/or relevant land and sea-based operations, as well as input loads on the basis of existing processes or mechanisms. Specifically for nutrient enrichment or organic matter enrichment from agricultural activity, the monitoring programme makes reference to the compilation of data as part of the requirements of the Nitrates Action Programme (2011).

[38] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Eutrophication MICMT-D05
hence help identify possible new measures, if needed.	
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme aligns monitoring requirements in terms of nutrients pursuant to WFD and MSFD. ▪ The monitoring programme includes monitoring processes called for by MEDPOL (within the framework of the Barcelona Convention) and the Nitrates Directive. ▪ Reporting processes pursuant to the UWWT, E-PRTR, IED and MEDPOL would also contribute to the monitoring programme in relation to input of nutrients/organic matter in the marine environment
Commission's recommendations in the Article 12 report considered by the monitoring programme[39]	The monitoring programme will provide the necessary long-term time-series data to define links across nutrient levels in the marine environment, effects on the marine environment and anthropogenic activities associated with nutrient input, thus enabling the revision of GES definition and targets in the longer-term. The programme also ensures monitoring of parameters agreed through regional collaboration. Within this context, the implementation of the monitoring programme is deemed to adequately address the Article 12 shortcomings at this stage.
(Further) plans to address Article 12 shortcomings	N/A
Timeframes for revision of GES & targets	Long-term

[39] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Hydrographical Changes

MICMT-D07</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 7: Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.</td></tr>
<tr><td rowspan="2">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td>Significant adverse effects of permanent alterations of hydrographical conditions on key marine habitats and species are, in so far as practicable prevented or minimised to the extent possible.</td><td>Changes in hydrographical conditions from large-scale development proposals are adequately assessed through existing permitting and licensing procedures in line with the parameters stipulated by the Marine Strategy Framework Directive</td></tr>
<tr><td>Reporting Question 4f:
Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme focuses on regular in situ collection of hydrographical data for the purpose of providing (i) input data for modeling and (ii) background information against which changes in hydrographical conditions can be assessed. Although the monitoring programme calls for mapping of anthropogenic activities which can lead to permanent alterations of hydrographical conditions by collating information that is available through existing processes/mechanisms, assessment of changes in hydrographical conditions and ecological parameters in accordance with MSFD indicators will constitute a separate process and will be dealt with on a case-by-case basis.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">While the monitoring programme will be ensuring the availability of background data on hydrographical conditions against which changes can be assessed, it is not directly addressing the criteria and indicators stipulated for Descriptor 7. Monitoring in terms of such criteria/indicators will be elaborated on a case-by-case basis in association with new development/interventions at sea.

Within this context, the monitoring programme is deemed to directly/indirectly address the following GES criteria and indicators:
▪ 1.6 Habitat Condition
- Physical, hydrological and chemical conditions (1.6.3)</td></tr>
</table>

Monitoring Programme:	Hydrographical Changes MICMT-D07
	▪ 7.1 Spatial characterisation of permanent alterations - Extent of area affected by permanent alterations (7.1.1) ▪ 7.2. Impact of permanent hydrographical changes - Spatial extent of habitats affected by the permanent alteration (7.2.1) - Changes in habitats, in particular the functions provided (e.g. spawning, breeding and feeding areas and migration routes of fish, birds and mammals), due to altered hydrographical conditions (7.2.2).
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of the monitoring programme will enable a description of physical and chemical features pertaining to Malta's marine environment, in particular in relation to bathymetry, temperature regime and current velocity. The monitoring programme will also record information on anthropogenic activity which has the potential to interfere with hydrological processes including changes in thermal or salinity regimes (as per Table 2 in Annex III of the Directive).
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme focuses on monitoring of hydrographical conditions through *in situ* measurements, however it is not including modelling of hydrographical data and changes thereto. Selection of appropriate models needs to be undertaken in parallel to implementation of the monitoring programme. Should models be selected, the programme would then need to be updated accordingly. Furthermore, the monitoring programme is not addressing impacts on biological components as per MSFD indicators, since this would need to be carried out on a case-by-case basis. Within this context, the monitoring programme is not deemed to be fully adequate for the periodic assessment of environmental status and distance from and progress towards GES at this stage. ▪ Adequate data: No ▪ Established methods for assessment: No ▪ Adequate Understanding of GES: No ▪ Adequate capacity to perform assessments: To be determined
Reporting Question 5e: How does the programme address natural variability?	The monitoring programme will be addressing natural variability quantitatively through long-term data on physical parameters and currents.

Monitoring Programme:	Hydrographical Changes MICMT-D07
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	The monitoring programme is addressing the needs of MSFD Descriptor 7 by providing the 'background information' on hydrographical conditions and natural variability thereof with a view to characterise Malta's hydrographical regime and enable running of hydrographical models against which changes in hydrographical conditions as a result of new development/interventions and associated impacts can be assessed. At this stage, the monitoring programme is not deemed adequate enough to contribute to determine distance from GES and trends in status, however it is addressing the current data gaps on hydrographical conditions with a view to enable future assessments/monitoring in line with MSFD requirements.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [40]	The monitoring programme will be considered fully adequate in time for the updating of the monitoring programmes due in 2020
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	In parallel to the implementation of the monitoring programme, existing models will be evaluated in terms of their applicability to cater for MSFD descriptor 7. Type and sources of input data will be identified in order to enable running of the selected model and monitoring regime updated accordingly.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Changes in hydrographical conditions from large-scale development proposals are adequately assessed through existing permitting and licensing procedures in line with the parameters stipulated by the Marine Strategy Framework Directive
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable	The target put forward by Malta in the first reporting cycle is mainly related to the need for existing processes to ensure assessment in line with the requirements of MSFD Descriptor 7. Implementation of the monitoring programme will provide

[40] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Hydrographical Changes MICMT-D07
assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	the background information against which assessment of changes in hydrographical conditions would be undertaken. Therefore the monitoring programme will be facilitating achievement of this environmental target rather than assessing progress towards its achievement. ▪ Suitable and sufficient data: No ▪ Established methods for assessment: No ▪ Adequate capacity to perform assessments: To be determined
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	The monitoring programme will be addressing the current data gaps in relation to hydrographical conditions with a view to characterize the hydrographical regime of Malta. Within this context, the monitoring programme will enable the elaboration of specific environmental targets in relation to hydrographical changes if deemed necessary and subsequent updating of such targets.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[41]	The monitoring programme will be fully adequate <u>in time for the updating of monitoring programmes due in 2020</u>.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	In parallel to the implementation of the monitoring programme, existing models will be evaluated in terms of their applicability to cater for MSFD Descriptor 7. Type and sources of input data will be identified in order to enable modelling of changes to hydrographical conditions associated with new development/interventions at sea and ensure consistent and adequate assessment of such changes.
Reporting question 7a: *Which activities will the programme address?*	Anthropogenic activities which can lead to permanent alterations of hydrographical conditions including development at sea, coastal defence and engineering works and discharge of cooling waters and brine.
Reporting question 7b: *Describe the nature of activity and/or pressure*	Anthropogenic activities which can lead to permanent alterations of hydrographical conditions will be mapped by collating information that is available through existing

[41] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Hydrographical Changes MICMT-D07
monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.	processes/mechanisms. Determination of the extent of changes in hydrographical conditions from such activities will be carried out on a case-by-case basis through existing permitting and assessment processes
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme aligns monitoring requirements in terms of hydrographical conditions pursuant to WFD and MSFD. ▪ The monitoring programme takes into consideration the requirements pursuant to the EcAp process within the framework of the Barcelona Convention, noting that the Barcelona Convention/MAP are working towards an Integrated Monitoring Programme at a regional scale.
Commission's recommendations in the Article 12 report considered by the monitoring programme[42]	Malta acknowledges the fact that the GES definition for Descriptor 7 as put forward in the first reporting cycle is relatively broad. Implementation of the monitoring programme will work towards addressing the current limitations in knowledge on the hydrographical regime characterizing Malta's marine environment and would thus enable re-evaluation of GES in the longer-term, also building on the Good Environmental Status defined in UNEP/MAP's Ecosystem Approach. Malta deems that efforts should be concentrated on preventing further deterioration in hydrographical conditions from new development, in line with both OSPAR and UNEP/MAP guidance available to date. Further operational targets in this regard may be considered through the development of the Programme of Measures.
(Further) plans to address Article 12 shortcomings	Apart from the implementation of the monitoring programme which at this stage is mainly targeted at addressing knowledge gaps and enable assessment of hydrographical changes associated with new development, the Programme of Measures will be exploring further operational environmental targets that would ensure assessment of hydrographical changes in line with MSFD requirements through existing

[42] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

Monitoring Programme:	Hydrographical Changes MICMT-D07
	processes.
Timeframes for revision of GES & targets	Long-term

Monitoring Programme:	Contaminants MICMT-D08	
MSFD Descriptor/s:	***Descriptor 8: Concentrations of contaminants are at levels not giving rise to pollution effects.***	
GES & Targets:	Good Environmental Status (2012)	Environmental Targets (2012)
	Concentration of selected contaminants in relevant matrices is in line with set environmental quality standards, or otherwise in line with undisturbed conditions	Long-term monitoring of selected contaminants is indicative of acceptable levels of contaminants, with no deterioration trends for non-synthetic and synthetic contaminants in relevant matrices.
		Achieve better understanding of sea-based sources of pollution, through a risk assessment of potential contributions of maritime sectors to contamination in the marine environment, also taking into consideration current measures pursuant to international maritime policies and agreements.
	Significant acute pollution events resulting from shipping and related operations, and land-based activities, are, in so far as possible, prevented, with any pollution incidents effectively controlled and assessed with a view to avoid significant pollution effects (to be applied at the level of territorial waters)	Setting up a system for collecting, recording and reporting information on significant pollution incidents in line with the requirements of the MSFD, with a view to better understand significance and trends, and to inform any necessary response (strategic as well as incident-related)
	Significant acute pollution events resulting from hydrocarbon exploration and exploitation are, in so far as possible, prevented, with any pollution incidents effectively controlled and assessed with a view to avoid significant pollution effects (to be applied at the level of the area designated for hydrocarbon exploration and exploitation).	

Monitoring Programme:	Contaminants MICMT-D08
Reporting Question 4f: Programme Description: Describe the overall approach of the monitoring programme including: ▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures? ▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.	The monitoring programme integrates the requirements of the EU Water Framework Directive and the EU Marine Strategy Framework Directive in monitoring relevant contaminants in the water column, sediment and biota. Monitoring of contaminants in the water column and sediments is concentrated in inshore waters, however the programme will also assess the presence or otherwise of contaminants in offshore areas. Monitoring of contaminants in biota is linked with contaminants in seafood (MSFD Descriptor 9) through the selection of species consumed by the Maltese population and sampled within catch areas. The monitoring programme is also stipulating the type of data/information that needs to be collected in the event of oil/chemical spills in the marine environment with a view to ensure systematic collection of data in line with MSFD requirements. The monitoring programme ensures links with existing reporting and/or permitting processes in relation to input loads of contaminants, however this is mostly covering input loads from land-based activities. The list of contaminants is considered provisional and subject to confirmation/updating following the initial monitoring years. Other contaminants which may pose risks to the marine environment and to its resources will be included as soon as new information or verifications are available, also on the basis of knowledge on the use of such substances in Malta through links with existing permitting processes. This would enable adaptation of the monitoring programme to new and emerging problems.
Reporting Question 5a: Which GES criteria are addressed? Reporting Question 5b: Which GES indicators are addressed?	Criterion 8.1: Concentration of contaminants - Concentration of the contaminants which: (i) exceed the relevant Environmental Quality Standards set out pursuant to Article 2(35) and Annex V to Directive 2000/60/EC in coastal or territorial waters adjacent to the marine region or sub-region, be it in water, sediment and biota; and/or (ii) are listed as priority substances in Annex X to Directive 2000/60/EC and further regulated in Directive 2008/105/EC, which are discharged into the concerned marine region, sub-

Monitoring Programme:	Contaminants MICMT-D08
	region or subdivision; and/or (iii) are contaminants and their total releases (including losses, discharges or emissions) may entail significant risks to the marine environment form past and present pollution in the marine region, sub-region or subdivision concerned, including as a consequence of acute pollution events following incidents involving for instance hazardous and noxious substances; measured in the relevant matrix (such as biota, sediment and water) in a way that ensures comparability with the assessment under Directive 2000/60/EC (8.1.1). Criterion 8.2: Effects of contaminants. - Occurrence, origin (where possible), extent of significant acute pollution evens (e.g. slicks from oil and oil products) and their impact on biota physically affected by this pollution (8.2.2)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	The implementation of the monitoring programme will enable the description of the situation with regard to chemicals, including chemicals giving rise to concern, sediment contamination and contamination of biota (especially biota meant for human consumption). Furthermore the monitoring programme calls for the collation of information in relation to the introduction of contaminants in line with the list included in Table 2 of Annex III.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for periodic assessment of status and distance from and progress towards Good Environmental Status by providing data on the levels of selected contaminants in the various environmental media through established methodologies. The monitoring programme however is not elaborating monitoring processes for assessing 'effects of contaminants' as per MSFD Indicator 8.2.1. The need to evaluate monitoring methodologies for this purpose is acknowledged. ▪ Adequate data: No ▪ Established methods for assessment: No

Monitoring Programme:	Contaminants MICMT-D08
	▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 5e: How does the programme address natural variability?	Natural variability is only relevant in monitoring of (i) non-synthetic contaminants which may occur naturally and (ii) distinguishing responses to natural variability from responses to contaminants in selected species. Given that natural occurrence and background concentration of non-synthetic substances is undetermined and since monitoring methodologies of effects of contaminants still need to be evaluated, natural variability will not be assessed at this stage.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	The monitoring programme will enable assessment of status and progress towards achieving GES through regular monitoring of the concentration of selected contaminants in water, sediment and biota. Concentrations will be assessed against Environmental Quality Standards as established by the Priority Substances Directive (2008/105/EC) as amended, where available, and provisional concentration thresholds as stipulated by local experts, recognising the need for the latter to be confirmed and updated on the basis of data generated by the monitoring programme. Concentration of radionuclides will be assessed against reference values established on a local scale through the 'Radiation Protection Board Operating Procedures'. The annual rates of exceedances of thresholds (if any) will be used to assess progress towards GES. Where EQSs and/or provisional thresholds are not available, assessment of status will be based on trends in concentrations of contaminants on the basis of long-term trend data. All thresholds for contaminants in water as proposed are applicable to waters within 1 Nautical mile of the shoreline. Thresholds for water beyond this limit can only be set after sufficient data would be available.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and	Noting that the monitoring programme is not addressing in full the 'effects of contaminants' and monitoring methodologies in this regard still need to be evaluated, the monitoring programme will be considered adequate <u>in time for updating</u>

[43] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Contaminants MICMT-D08
information needs, when will the programme be considered fully adequate? [43]	of monitoring programmes due in 2020.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Applicability of methodologies for assessing 'effects of contaminants' will be evaluated, also through further regional collaboration.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Long-term monitoring of selected contaminants is indicative of acceptable levels of contaminants, with no deterioration trends for non-synthetic and synthetic contaminants in relevant matrices ▪ Setting up a system for collecting, recording and reporting information on significant pollution incidents in line with the requirements of the MSFD, with a view to better understand significance and trends, and to inform any necessary response (strategic as well as incident-related)
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	The monitoring programme will provide suitable and sufficient data to enable assessment of the state-based target related to the levels of contaminants in the marine environment as put forward by Malta in the first reporting cycle, through regular monitoring of the concentration of selected contaminants in the various environmental media. The programme is also directly addressing the target related to the setting up of a system for collecting, recording and reporting information on significant pollution incidents, since it stipulates the type of data which need to be collected while acknowledging the need to establish mechanisms related to the investigative monitoring in the event of a chemical/oil spill. ▪ Suitable and sufficient data: Yes ▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 6c and 6d: ▪ Will the data and	The monitoring programme will be ensuring collation of data on input loads of contaminants in the marine environment from land-based and other sources. Correlation of data on

Monitoring Programme:	Contaminants MICMT-D08
information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	input loads with data on the concentration of contaminants in the marine environment would enable the elaboration of further environmental targets in the longer-term, if deemed necessary, and regular updating of targets. In the longer-term, knowledge improvement in relation to the 'effect of contaminants' would also support the elaboration and/or updating of environmental targets.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[44]	The monitoring programme is considered adequate in 2014
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	Not applicable.
Reporting question 7a: *Which activities will the programme address?*	The monitoring programme makes reference to the collection of data on discharge of contaminants from land-based activities regulated by existing processes/mechanisms.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.*	The data on relevant activities will cover both spatial distribution and intensity through collation of data on the location of discharge points and/or relevant operations, as well as input loads on the basis of existing processes or mechanisms. The monitoring programme also makes reference to the collection of data on the quantities of Plant Protection Products imported in Malta as per existing mechanisms.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme aligns monitoring requirements in terms of contaminants pursuant to WFD and MSFD. It also adopts the EQSs established by the Priority Substances Directive (2013/39/EC). ▪ The monitoring programme takes into consideration MEDPOL requirements on monitoring of contaminants. ▪ Reporting processes pursuant to the E-PRTR, IED, WFD

[44] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Contaminants MICMT-D08
	and MEDPOL will contribute to the monitoring programme in relation to input loads of contaminants in the marine environment ▪ The implementation of the Common Fisheries Policy, contributes to this monitoring programme through provision of samples
Commission's recommendations in the Article 12 report considered by the monitoring programme[45]	In line with Article 12 recommendation to use standards stemming from EU legislation, the monitoring programme is adopting the Environmental Quality Standards as established by the Priority Substances Directive (2013/39/EC), where relevant/available. When these are not available, preliminary thresholds identified by local experts have been tentatively adopted, noting however that such thresholds would need to be confirmed/updated on the basis of long-term data. Within this context, the long-term implementation of the monitoring programme will address the knowledge gaps identified by the MSFD Initial Assessment and enable revision of GES and targets in the longer term. The programme also ensures monitoring of parameters agreed through regional collaboration. The monitoring programme is considered to be a living document, recognising the need to regularly revise the list of contaminants to be monitored. Revision of the monitoring programme would be required to address emerging issues and identify the need for updating environmental targets accordingly, while ensuring harmonisation with WFD processes.
(Further) plans to address Article 12 shortcomings	Pilot research/monitoring to assess the applicability of monitoring methodologies for assessment of the 'effects of contaminants' will be explored. Established methodologies should also be determined through regional collaboration, particularly in terms of the current discussions being held within the framework of the Ecosystems Approach, Barcelona Convention.
Timeframes for revision of GES & targets	Long-term

[45] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Contaminants in seafood

MICMT-D09</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 9: Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.</td></tr>
<tr><td>GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td></td><td>Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.</td><td>No environmental targets defined.</td></tr>
<tr><td>Reporting Question 4f:
Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme builds on existing monitoring of contaminants in seafood in line with food safety regulations and monitoring of contaminants in biota for the purpose of MSFD Descriptor 8. The monitoring programme will be facilitating links between assessment of contaminants in terms of food safety thresholds and environmental thresholds. Monitoring of pressures and activities is covered by the monitoring programme for contaminants through which data on input loads will be collated.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">▪ Criterion 9.1: Levels, number and frequency of contaminants
- Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels (9.1.1);
- Frequency of regulatory levels being exceeded (9.2.2)</td></tr>
<tr><td>Reporting Question 5c:
Which elements of Annex III (ecosystem components, pressures, impacts) are</td><td colspan="2">Implementation of the monitoring programme will enable description of the situation with regard to contamination of biota meant for human consumption.</td></tr>
</table>

Monitoring Programme:	Contaminants in seafood MICMT-D09
addressed?	
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for assessment of status and distance from and progress towards GES by ▪ assessing levels of selected contaminants in retail samples of fish meant for human consumption; ▪ and ensuring links with monitoring of contaminants in biota as described by the monitoring programme on 'contaminants'. Within this context, the monitoring programme on 'contaminants' will be assessing levels of selected contaminants in selected species of fish (*Mullus barbatus/Merluccius merluccius*) and crustacea (*Parapenaeus longirostris/ Aristaeomorpha foliacea*) collected from or in the vicinity of catch areas, hence representative of specimens consumed by the Maltese population. ▪ Adequate data: Yes ▪ Established methods for assessment: Yes ▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: To be determined
Reporting Question 5e: How does the programme address natural variability?	Natural variability is not deemed relevant in terms of the levels of contaminants in biota. Nevertheless, bioparameters of the sampled fish/crustacea, representing the reproductive and growth phases of the selected species, will be measured and taken into consideration when interpreting the data on levels of contaminants.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status;	The monitoring programme will provide adequate data/information to enable assessment of: ▪ levels of Pb, Cd, Hg in retail samples of large pelagics caught in Malta and consumed by the Maltese population (*Thunnus thynnus*, *Xiphias gladius* and *Coryphaena hippurus* depending on availability) which levels will be assessed against regulatory limits set by EC Regulations 1881 of 2006. ▪ levels of selected contaminants (Pb, Cd, Hg, PAHs and non-dioxin like PCBs) in specimens of fish (*Mullus barbatus/Merluccius merluccius*) and crustacea (*Parapenaeus longirostris/Aristaeomorpha foliacea*) sampled within or in the vicinity of catch areas, which

Monitoring Programme:	Contaminants in seafood MICMT-D09
▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	levels will be assessed against regulatory limits set by EC Regulations 1881 of 2006 and 1259 of 2011.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [46]	The monitoring programme is considered adequate in 2014.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	Not applicable.
Reporting Question 6a: Which target(s) are addressed by your programme?	No targets have been put forward by Malta in the first reporting cycle.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	No targets have been put forward by Malta in the first reporting cycle. ▪ Suitable and sufficient data: N/A ▪ Established methods for assessment: N/A ▪ Adequate capacity to perform assessments: N/A
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the	While no targets have been put forward by Malta in the first reporting cycle, long-term trend data collected with respect to levels of contaminants in seafood would enable the setting of targets in relation to frequency of exceedances, also on the basis of regional collaboration. Therefore implementation of the monitoring programme would enable the elaboration and subsequent updating of environmental targets for

[46] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Contaminants in seafood MICMT-D09
programme will contribute to the assessment of progress with targets.	contaminants in seafood.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[47]	Monitoring programme is considered adequate in 2014.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	Not applicable.
Reporting question 7a: *Which activities will the programme address?*	Reference is made to the activities which will be monitored for the purpose of the monitoring programme on contaminants.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.*	Reference is made to the activities which will be monitored for the purpose of the monitoring programme on contaminants.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The Contaminants Plan for the Environmental Health Directorate will contribute to the implementation of this monitoring programme. ▪ The implementation of the Common Fisheries Policy, contributes to this monitoring programme through provision of samples
Commission's recommendations in the Article 12 report considered	The monitoring programme will ensure systematic collection of data on contaminants in consumed species thus enabling the elaboration of sound environmental targets in relation to

[47] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Contaminants in seafood MICMT-D09
by the monitoring programme[48]	contaminants in seafood. Within this context, the monitoring programme will be addressing the shortcomings and data gaps identified by the MSFD Initial Assessment. The programme also ensures monitoring of parameters agreed through regional collaboration.
(Further) plans to address Article 12 shortcomings	No further plans deemed necessary at this stage.
Timeframes for revision of GES & targets	Long-term

[48] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Litter

MICMT-D10</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">Descriptor 10: Properties and quantities of marine litter do not cause harm to the coastal and marine environment</td></tr>
<tr><td>GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td></td><td>The amount of marine litter entering the marine environment shows a declining trend over time</td><td>Efforts are undertaken to improve current level of knowledge on marine litter in Malta.</td></tr>
<tr><td>Reporting Question 4f:
Programme Description: Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme focuses on the assessment of the composition and quantities of litter washed ashore, in the water column and on the seabed together with an indication of source/pathways when possible. The monitoring programme refers to the need to consider information on maritime garbage as received at Port Reception Facilities collected in line with the Port Reception Facilities Regulations with a view to provide information on potential litter generated by the shipping activities and facilitate determination of sources of the various categories of litter assessed.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">▪ 10.1: Characteristics of litter in the marine and coastal environment
- Trends in the amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source (10.1.1)
- Trends in the amount of litter in the water column (including floating at the surface) and deposited on the sea- floor, including analysis of its composition, spatial distribution and, where possible, source (10.1.2)

▪ 10.2: Impacts of litter on marine life</td></tr>
<tr><td>Reporting Question 5c:
Which elements of Annex III (ecosystem components, pressures, impacts) are</td><td colspan="2">Implementation of the monitoring programme will enable a description of marine litter in the marine environment in line with Table 2 of Annex III of the Directive.</td></tr>
</table>

Monitoring Programme:	Litter MICMT-D10
addressed?	
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for the periodic assessment of status and distance from and progress towards GES through application of the methodologies stipulated by the Guidance on Monitoring of Marine Litter in European Seas[49]. At this stage however, the monitoring programme does not cover microparticles (in particular microplastics) and ingested litter as required by MSFD indicators 10.1.3 and 10.2.1 respectively. Methodologies and/or mechanisms to address these two indicators need to be developed. ▪ Adequate data: No ▪ Established methods for assessment: Yes ▪ Adequate Understanding of GES: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 5e: How does the programme address natural variability?	The monitored composition and quantities of marine litter may be linked to natural variability in environmental factors which can influence the distribution of marine litter in the marine environment such as prevailing wind direction and hydrographical and meteorological conditions, through expert opinion.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability &	The monitoring programme will enable assessment of status and progress towards achieving GES by monitoring the following indicators: ▪ litter items (>2.5cm) washed ashore per 100m (or per m^2) ▪ litter items (>2.5cm) in the water column (floating) per m^2 ▪ litter items on the seabed per m^2 (shallow seabed) or per km^2 (deep seabed) ▪ number of dead loggerhead sea turtle *Caretta caretta* stranded or entangled in nets/fishing gear per year Assessment of status will be based on analysis of trends in the recorded parameters. The extent of the data which is currently available is insufficient to allow for reduction thresholds to be

[49] Joint Research Centre. 2013. Guidance on Monitoring of Marine Litter in European Seas - A guidance document within the Common Implementation Strategy for the Marine Strategy Framework Directive; MSFD Technical Subgroup on Marine Litter. ISBN 978-92-79-32709-4 (pdf); ISSN 1831-9424 (online)

Monitoring Programme:	Litter MICMT-D10
distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	set at this stage. However, negative trends in the quantities of litter recorded in the various environmental media would be indicative of progress towards achievement of Good Environmental Status in terms of marine litter and improving status.
Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [50]	Due to the fact that it does not yet adequately cover assessment of microparticles (microplastics) and ingested litter, the monitoring programme will be considered fully adequate in time for the updating of monitoring programmes due in 2020.
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	▪ Monitoring methodologies for assessment of microlitter need to be defined on the basis of the current guidance available and regional collaboration. ▪ Mechanisms to be set up to enable consistent monitoring of ingested litter in stranded turtle specimens in line with the methodologies stipulated by the Guidance on Monitoring of Marine Litter in European Seas - A guidance document within the Common Implementation Strategy for the Marine Strategy Framework Directive. The use of other species for monitoring ingested litter could also be explored.
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ Efforts are undertaken to improve current level of knowledge on marine litter in Malta.
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	Malta has put forward a single-knowledge based target in the first reporting cycle. This is mainly due to the limitations in the current knowledge on the composition and quantity of marine litter occurring in Malta's marine environment, which prevented the elaboration of quantitative or trend-based targets. The monitoring programme will be providing adequate baseline data on the composition and quantity of litter, and their sources/pathways where possible, on the basis of which environmental targets can be elaborated. In the process, the monitoring programme will be directly addressing the current interim target put forward by Malta by improving the current level of knowledge on marine litter in Malta. ▪ Suitable and sufficient data: Yes

[50] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Litter MICMT-D10
	▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined.
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	The monitoring programme will provide adequate information on the composition and quantity of marine litter washed ashore, on the surface and on the seabed and will identify sources/pathways where possible. This would enable the establishment of trends in marine litter and potential sources, which information would enable elaboration of environmental targets and subsequent regular updating of such targets. Monitoring of the number of loggerhead turtles stranded or entangled in nets/fishing gear will also enable assessment of the extent of impact of marine litter on marine biota, thus improving knowledge and enabling elaboration of environmental targets in this regard (if deemed necessary).
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[51]	Due to the fact that the monitoring programme does not yet adequately cover assessment of microparticles (microplastics) and ingested litter, the monitoring programme will be considered adequate <u>in time for the updating of monitoring programmes due in 2020</u>.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	▪ Monitoring methodologies for assessment of microlitter need to be defined on the basis of the current guidance available and regional collaboration. ▪ Mechanisms to be set up to enable consistent monitoring of ingested litter in stranded turtle specimens in line with the methodologies stipulated by the Guidance on Monitoring of Marine Litter in European Seas - A guidance document within the Common Implementation Strategy for the Marine Strategy Framework Directive. The use of other species for monitoring ingested litter could also be explored.
Reporting question 7a: *Which activities will the programme address?*	▪ Beach Cleaning Activities ▪ Shipping industry as a potential sea-based source of marine litter
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the*	▪ Beach cleaning or clean-up events will influence the data collected on 'litter washed ashore'. It is therefore important that such cleaning activities will be documented and that interpretation of collected data will take into consideration such beach cleaning.

[51] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Litter MICMT-D10
activity) and how the programme is considered adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.	▪ The monitoring programme refers to the need to consider information on maritime garbage as received at Port Reception Facilities collected in line with the Port Reception Facilities Regulations with a view to provide information on potential litter generated by the shipping activities and facilitate determination of sources of the various categories of litter assessed.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	▪ The monitoring programme makes reference to the 'Regional Plan on Marine Litter Management in the Mediterranean' and associated monitoring requirements. ▪ The implementation of the Common Fisheries Policy, contributes to this monitoring programme through collection of litter items from deep seabed by the Mediterranean International Bottom Trawl Surveys (MEDITS);
Commission's recommendations in the Article 12 report considered by the monitoring programme[52]	The long-term implementation of the monitoring programme will be providing trend data with respect to the composition and quantity of litter in the various marine habitats (shore, water column and seabed) and where possible, link the occurrence of litter with sources/pathways. Within this context, the monitoring programme will be providing the baseline data for assessing status and addressing the data limitations identified by the MSFD Initial Assessment in line with the Article 12 recommendations. In the long-term the monitoring programme will enable the revision of GES or targets. Assessment of the number of loggerhead turtles stranded or entangled in marine litter will also provide an indication of the extent of the impact of marine litter on mobile biota. However further information is deemed necessary to enable adequate assessment of such impacts, possibly through assessment of ingested litter.. The programme ensures monitoring of parameters agreed through regional collaboration.
(Further) plans to address Article 12 shortcomings	Methodologies for assessment of microlitter, on the basis of the current guidance available and regional collaboration, will be evaluated. Malta will be considering the setting up of a mechanism for

[52] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)

Monitoring Programme:	Litter MICMT-D10
	monitoring of ingested litter in stranded turtle specimens in line with the methodologies stipulated by the Guidance on Monitoring of Marine Litter in European Seas - A guidance document within the Common Implementation Strategy for the Marine Strategy Framework Directive. The use of other species for monitoring ingested litter could also be explored
Timeframes for revision of GES & targets	Long-term.

<table>
<tr><td>Monitoring Programme:</td><td colspan="2">Underwater Noise

MICMT-D11</td></tr>
<tr><td>MSFD Descriptor/s:</td><td colspan="2">
Descriptor 11: Introduction of energy, including underwater noise is at levels that do not adversely affect the marine environment</td></tr>
<tr><td rowspan="2">GES & Targets:</td><td>Good Environmental Status (2012)</td><td>Environmental Targets (2012)</td></tr>
<tr><td>Adverse effects of underwater noise on key species groups are minimised to the extent possible.</td><td>To work towards building capacity in the field of underwater noise through inter alia knowledge gain on key species groups which may be adversely affected by this pressure and streamlining of MSFD requirements in terms of underwater noise in licensing and permitting procedures</td></tr>
<tr><td>Reporting Question 4f:
Programme Description:
Describe the overall approach of the monitoring programme including:
▪ the rationale for your balance between monitoring of state/impact, pressures, activities and measures?
▪ How it adapts to new and emerging environmental problems (pressures and impacts) in relation to the relevant Descriptors.</td><td colspan="2">The monitoring programme addresses impulsive underwater noise in accordance with the Monitoring Guidance for Underwater Noise in European Seas - Monitoring Guidance Specifications. 2nd Report of the Technical Subgroup on Underwater Noise (TSG Noise). Impulsive underwater noise will be monitored through the compilation of a register of the occurrence of impulsive sounds generated by specific activities in the marine environment.

Monitoring of ambient underwater noise is not being sought at this stage since further development of relevant monitoring processes is necessary, including the identification of monitoring stations as well as identification/development of appropriate acoustic models.

Link with anthropogenic activities generating underwater noise is maintained through the compilation of the impulsive noise register.</td></tr>
<tr><td>Reporting Question 5a:
Which GES criteria are addressed?

Reporting Question 5b:
Which GES indicators are addressed?</td><td colspan="2">▪ 11.1. Distribution in time and place of loud, low and mid frequency impulsive sounds
- Proportion of days and their distribution within a calendar year over areas of a determined surface, as well as their spatial distribution, in which anthropogenic sound sources exceed levels that are likely to entail significant impact on marine animals measured as Sound Exposure Level (in dB re 1 µPa 2 .s) or as peak sound pressure level (in dB re 1 µPa peak) at one metre, measured over the frequency band</td></tr>
</table>

Monitoring Programme:	Underwater Noise MICMT-D11
	10 Hz to 10 kHz (11.1.1)
Reporting Question 5c: Which elements of Annex III (ecosystem components, pressures, impacts) are addressed?	Implementation of the monitoring programme will enable a description of underwater noise in the marine environment in line with Table 2 of Annex III of the Directive.
Reporting Question 5d: ADEQUACY FOR ASSESSMENT OF GES Will the programme provide adequate data & information to enable periodic assessment of environmental status, & distance from & progress towards GES, including whether environmental status is improving, stable or deteriorating?	The monitoring programme will provide adequate data and information for assessment of status in terms of impulsive underwater noise in line with established methods of assessment. Further development is however deemed necessary in relation to ambient noise monitoring ▪ Adequate data: No ▪ Established methods for assessment: Yes ▪ Adequate Understanding of GES: No ▪ Adequate capacity to perform assessments: Yes
Reporting Question 5e: How does the programme address natural variability?	Not applicable.
Reporting Question 5f Describe how the programme: ▪ addresses assessment needs for the relevant Descriptor and targets; ▪ meets the needs of providing data/ information to support assessment of the Descriptor; ▪ contributes to determining distance from GES and trends in status; ▪ addresses natural and climatic variability & distinguish this from the effects of anthropogenic pressures; ▪ responds to risks of not achieving GES.	The monitoring programme is addressing the needs of the Descriptor by calling for the compilation of a noise register on the occurrence of impulsive sounds generated by specific activities at sea (mainly use of airguns, pile-driving and use of sonars) through existing licensing/permitting systems; Monitoring of ambient underwater noise is not being sought at this stage since further development of relevant monitoring processes is necessary, including the identification of monitoring stations as well as identification/development of appropriate acoustic models.

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Reporting Question 5g GAP-FILLING GES If not yet considered adequate for data and information needs, when will the programme be considered fully adequate? [53]	The monitoring programme will be deemed fully adequate in time for the updating of monitoring programmes due in 2020
Reporting Question 5h If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity?)	▪ Malta will be working on the development of an ambient underwater noise monitoring regime in the coming years, also through further regional collaboration.:
Reporting Question 6a: Which target(s) are addressed by your programme?	▪ To work towards building capacity in the field of underwater noise through *inter alia* knowledge gain on key species groups which may be adversely affected by this pressure and streamlining of MSFD requirements in terms of underwater noise in licensing and permitting procedures
Reporting Question 6b: Will the programme provide suitable and sufficient data and information to enable assessment of progress towards achievement of the relevant environmental targets (using indicators identified by the Member State under Article 10)	Malta has put forward a single target aimed at capacity building in the field of underwater noise. Although the monitoring programme is not deemed to be fully adequate at this stage, its implementation will be improving knowledge on the occurrence and distribution of impulsive underwater noise in Malta's marine environment. Within this context, the monitoring programme will be improving knowledge in relation to underwater noise. Further knowledge on the distribution of species which can be affected by increased levels of underwater noise would be generated through implementation of relevant monitoring programmes (e.g. the monitoring programme on reptiles and marine mammals).. Further development and implementation of the monitoring programme will enable the elaboration of targets on underwater noise in the long-term.. ▪ Suitable and sufficient data: No

[53] (a) Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

Monitoring Programme:	Underwater Noise MICMT-D11
	▪ Established methods for assessment: Yes ▪ Adequate capacity to perform assessments: To be determined
Reporting Question 6c and 6d: ▪ Will the data and information collected enable the regular updating of targets? ▪ Explain how the programme will contribute to the assessment of progress with targets.	Further development and implementation of the monitoring programme will enable the elaboration of targets on underwater noise in the long-term.
Reporting question 6e: GAP-FILLING-TARGETS *If not yet considered adequate for data and information needs, when will the programme be considered fully adequate?*[54]	The monitoring programme will be considered fully adequate in time for the updating of monitoring programmes due in 2020.
Reporting question 6f: *If the programme is not considered fully adequate, what plans are in place to make it adequate (e.g. to fill gaps in data, methods, understanding or capacity)?*	Malta will be working on the development of an ambient underwater noise monitoring regime in the coming years, also through further regional collaboration.
Reporting question 7a: *Which activities will the programme address?*	The activities included in the monitoring programme are associated with the compilation of the noise registry in line with the Monitoring Guidance for Underwater Noise in European Seas (TSG Noise). These include activities at sea involving use of impact pile-driving, oil exploration activity involving the use of airguns and research activities involving the use of sonars. Explosives and acoustic deterrents are not used in Malta and are hence not being included.
Reporting question 7b: *Describe the nature of activity and/or pressure monitoring (e.g. addressing spatial distribution, intensity and/or frequency of the activity) and how the programme is considered*	Data collected on the listed activities will include the location of the activity, the date of operation and the source level or proxy source level of the generated impulsive noise in accordance with the TSG Noise Guidance document. At this stage, the monitoring programme is considered adequate in collating the information on the spatial distribution of impulsive underwater noise, noting however that monitoring

[54] Considered adequate in 2014; (b) In time for the next assessment due in 2018; (c) In time for the updating of monitoring programmes due in 2020; (d) Later than 2020

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adequate to assess which activities and/or pressures are causing environmental change (degradation) and hence help identify possible new measures, if needed.	of ambient underwater noise is not being addressed.
Reporting question 8a: *Which existing monitoring programmes already established under Community legislation or international agreements contribute to and are compatible with your MSFD programme?*	N/A
Commission's recommendations in the Article 12 report considered by the monitoring programme[55]	The monitoring programme attempts to address Article 12 shortcomings by adopting the methodologies stipulated by TSG Noise to improve knowledge on occurrence and distribution of impulsive underwater noise. However, although the monitoring programme is setting the framework to collect adequate data, it needs further development in order to enable assessment of continuous underwater noise and elaboration of environmental targets in this regard.
(Further) plans to address Article 12 shortcomings	Plans to render the monitoring programme functional and enable elaboration of more specific GES and targets are outlined above.
Timeframes for revision of GES & targets	Long-term.

[55] In line with the conclusions of the regional meeting with the Member States being Parties to the Barcelona Convention in the Mediterranean following the Assessment of the Commission on the MSFD implementation (Article 12 report)