Good Environmental Status and Environmental Targets:

Descriptor 2

1.1 Introduction

This report outlines the Good Environmental Status (hereinafter referred to as 'GES') and environmental targets established to achieve GES in terms of MSFD Descriptor 2 reproduced hereunder:

Descriptor 2: Non-Indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem

1.2 Selection of relevant criteria and indicators

Determination of GES was made in consideration of the criteria and indicators stipulated by Commission Decision 2010/477/EU for Descriptor 2, listed hereunder:

- Criterion 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)

- Criterion 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)
    - Impacts of non-indigenous invasive species at the level of species, habitats and ecosystem, where feasible (2.2.2)

The MSFD Initial Assessment on non-indigenous species (hereinafter referred to as 'NIS') clearly indicates that with the exception of recently published literature on two non-indigenous species, the current data scenario with respect to NIS impacts is very limited, thus limiting the determination of Good Environmental Status and environmental targets in relation to criterion 2.2 (*Environmental Impact of Invasive non-indigenous species*). Determination of GES on NIS impacts based on the current data scenario would be premature. Such GES should be determined as soon as knowledge of NIS impacts is adequate enough to allow articulation of a realistic desirable state with respect to levels of NIS impacts.

Although data on abundance and distribution of NIS is also very limited, indications of the number of NIS in Malta and trends through time are available. Within the context of the current data scenario, the proposed GES addresses MSFD criterion 2.1 (*Abundance and state characterisation of non-indigenous species, in particular invasive species*) only.

1.3   Good Environmental Status

The proposed GES for MSFD Descriptor 2 is based on the outcome of the MSFD Initial Assessment which indicates an increasing trend in the number of non-indigenous species occurring in Malta throughout the years. This GES takes into consideration the need to halt, as much as possible, this increasing trend in the number of NIS introduced through human activities.

The proposed GES focuses on new introductions of invasive non-indigenous species through human activities, since invasive NIS are associated with significant effects on local ecosystems. It is acknowledged that achievement of this GES would mainly depend on the control or regulation of vectors or pathways, which control/regulation would only be possible once adequate knowledge on modes of entry is available.

Proposed GES for Descriptor 2 in relation to criterion 2.1 is as follows:

The introduction and establishment of new invasive non-indigenous species as a result of human activities, is in so far as practicable prevented.

1.4   Environmental Targets and Associated Indicators

This section outlines the environmental targets and associated indicators set in relation to Descriptor 2 (Table 1). With the current state of knowledge on NIS, it was only possible to put forward interim targets which are required to achieve GES in the longer term.

In this regard, the proposed interim targets are related to early detection of new NIS coupled with strengthening knowledge generation on existing NIS in Malta to build a sound information basis upon which to prioritise and develop effective and yet practical prevention and management/control options for priority pathways. Citizen science by engaging the cooperation of sea users (recreational boaters, fishers and divers) in reporting/recording new occurrences of NIS as well as recording the spread of existing NIS in Malta will contribute to the achievement of this target. This

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approach is already being practised with the cooperation of divers to generate date on selected NIS[1] from marine protected areas.

The proposed interim targets are also geared towards the assessment of the effectiveness of existing measures, with a view to ensure adequate and adaptive management of vectors and/or pathways in the longer term. Maritime traffic in general is considered to be a major source of NIS, particularly through hull cleaning and ballast waters.

With respect to ballast waters, reference should also be made to one of the measures stipulated by Malta's Water Catchment Management Plan (WCMP) as part of the requirements of the EU Water Framework Directive. This WCMP measure is being reproduced hereunder:

Assess the need for ballast water management, monitoring and control:
The management of ships ballast water to minimise the transfer of harmful organisms and pathogens and to minimise the build-up of sediments in ballast tanks which may also harbour organisms is necessary. There is a need to quantify the extent of the problem of ballast waters in Malta as well as to identify potential and practical management practices that could be adopted.

Further synergies between the implementation of the Water Framework Directive and the MSFD will be ensured for this particular matter.

Introduction of NIS through aquaculture should be regulated as per Council Regulation EC 708/2007 concerning use of alien and locally absent species in aquaculture.

Table 1: Proposed Interim Targets to achieve GES in relation to MSFD Descriptor 2.

Good Environmental Status	Environmental Target	Feature	Indicators
The introduction and establishment of new invasive non-indigenous species as a result of human activities is, in so far as practicable prevented.	**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.**	Target applies to non-indigenous species in general, particularly those species that exhibit characteristic of invasiveness elsewhere in the Mediterranean or which have already been identified to be invasive in	Number of NIS recorded from Malta

and

Data on NIS recorded from areas to be selected |

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[1] *Lophocladia lallemandii, Halophila stipulacea, Caulerpa racemosa* var. *cylindracea, Asparagopsis* spp., *Percnon gibbesi, Bursatella leachi, Sphoeroides pachygaster, Fistularia commersonii, Siganus luridus,* and *Stephanolepis diaspros*

		Malta.	
	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.	Target applies to existing measures related to the control of NIS introduction .	Evaluation report and/or management measures in place