

Marine Strategy Framework Directive (2008/56/EC)

Programme of Measures

Descriptor 2: Non-Indigenous Species

1. ENVIRONMENTAL STATUS & RELEVANT PRESSURES

'Non-Indigenous species' (NIS) are defined by the MSFD Task Group report for Descriptor 2 as "*species, subspecies or lower taxa introduced outside of their natural range (past or present) and outside of their natural dispersal potential*". Their presence is due to intentional or unintentional introduction resulting from human activities. The mode of introduction of such species is important in defining whether they qualify as NIS or otherwise. Natural shifts in distribution ranges (e.g. due to climate change or dispersal by ocean currents) do not qualify species as NIS.

The MSFD Initial Assessment for non-indigenous species¹⁰⁷ pursuant to Article 8 of the MSFD, provides a review of 56 NIS recorded from Maltese waters. Four of these species may not classify strictly as non-indigenous either due to their cryptogenic¹⁰⁸ status in the Mediterranean Sea or due to the fact that they are considered to occur in the Mediterranean as a consequence of natural range expansion through the Straits of Gibraltar. Species originating from the Indo-Pacific or Red Sea and Indian Ocean, which have entered the Mediterranean through the Suez Canal and subsequently reached Malta through various vectors/pathways as well as westward range expansion, are still considered as NIS by the Initial Assessment because they extend their geographical range following man-made changes in the environment, in this case construction of the Suez Canal. These species are termed 'Lessepsian migrants' and they are generally thermophilic species of which colonization and spread is facilitated through the warming of the Mediterranean Sea.

With respect to status in terms of NIS, the MSFD Initial Assessment indicates that 52% of the reviewed NIS is considered 'established'¹⁰⁹ or possibly so, 34% as 'casual'¹¹⁰ and 14% as 'questionable'¹¹¹. Eight of the established NIS are considered to be invasive. NIS in Malta are in the majority of cases Lessepsian migrants as a result of the range expansion of such species due to the general warming trend observed in the Mediterranean basin, accidental introduction via maritime traffic or via deliberate introduction. Main pathways of introduction of NIS are shipping and floating structures, culture activities and aquarium trade. Shipping (either as hull fouling, ballast water or sea chest transportation) is one of

¹⁰⁷ <http://era.org.mt/en/Documents/MSFD-InitialAssessment-NonIndigenousSpecies.pdf>

¹⁰⁸ cryptogenic species are species of which origin is not known.

¹⁰⁹ introduced population of species established in the wild with free-living, self-maintaining and self-perpetuating populations unsupported by and independent of humans

¹¹⁰ those species having been recorded only once or twice or record is based on isolated specimens

¹¹¹ introduced species with insufficient information, as well as cryptogenic species, or supposedly NIS which are very similar to native species and which are difficult to identify

the main sources of introduction, followed by aquaculture, and this is also reflected by the distribution of NIS in Maltese waters with a concentration of records within harbour areas. Harbours are main points of entry in view of shipping activities and associated activities such as hull cleaning, as well as bays where recreational boating and fishing is common.

Evans *et al.* (2015)¹¹² provide the most recent review of NIS in Maltese waters as an update to the review in Sciberras & Schembri (2007)¹¹³. The total number of species reported by the authors has increased from 48 in Sciberras & Schembri (2007) to 73. The updated review focuses on the origin of the NIS in terms of the vectors responsible for species reaching Maltese waters, thus distinguishing between alien and range-expanding species. Within this context, the review refers to the origin of Lessepsian migrants as 'secondary dispersal'. As a result of this approach, 66 species are considered to be aliens with the remaining 7 species classified as range-expanding species entering the Mediterranean from the Strait of Gibraltar. The authors contend that from a management perspective range-expanding species should still be considered since they still have the capacity to disrupt native ecosystems.

Within this context, management of NIS in Maltese waters should focus on prevention, to the extent possible, of NIS introduction through the main anthropogenic pathways namely shipping/boating activities. Management processes should however acknowledge the potential need to address impacts from introduced species of various origin, including range-expanding species as described in Evans *et al.* (2015).

2. GOOD ENVIRONMENTAL STATUS & ENVIRONMENTAL TARGETS

Good Environmental Status (GES) for MSFD Descriptor 2¹¹⁴ and the related environmental targets as reported by Malta in the first reporting cycle¹¹⁵ are included in Table 1. The GES refers to a state whereby the introduction and establishment of new invasive NIS is prevented to the extent possible. It is understood that achievement of this GES would mainly depend on the control or regulation of vectors or pathways. Since the mode of introduction/entry of the majority of NIS in Maltese waters is not known with certainty, further elaboration of GES and environmental targets in this regard was not possible in the first reporting cycle. Equally limited information on abundance, spatial distribution and establishment success, hindered the elaboration of targets in relation to the impacts of established NIS.

Within this scenario, only interim targets were put forward by Malta in relation to:

¹¹² Evans, J., Barbara, J. and Schembri, P. J. (2015). Updated review of marine alien species and other 'newcomers' recorded from the Maltese Islands (Central Mediterranean). *Mediterranean Marine Science*. DOI: 10.12681/mms.1064

¹¹³ Sciberras M. & Schembri P. J. 2007. A critical review of records of alien marine species from the Maltese Islands and surrounding waters (Central Mediterranean); *Mediterranean Marine Science*; **8**: 41-66

¹¹⁴ non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.

¹¹⁵ <http://cdr.eionet.europa.eu/mt/eu/msfd8910/msfd4text/envuk54oq/>

- (i) the need for early detection of new NIS and to address gaps in knowledge for the development and prioritisation of effective and practical prevention and management/control options for priority pathways. This target is generally addressed through the MSFD monitoring programme, which seeks monitoring of NIS in likely entry points to enable early detection as well as knowledge improvement in relation to the distribution, abundance and impacts of NIS in sensitive areas.
- (ii) the need for 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.

Pending such knowledge improvement and further elaboration of GES and targets for NIS, this Programme of Measures will focus on management of the priority vectors and pathways as identified by the MSFD Initial Assessment with a view to prevent to the extent possible new introduction of invasive NIS.

Table 1: Good Environmental Status and Environmental Targets proposed by Malta for NIS in the first reporting cycle

Good Environmental Status (D2)	Environmental Targets
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.
	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.

3. EXISTING MEASURES

Prevention, regulation and control of invasive NIS are governed by various EU and regional policies. Implementation of these policies in Malta is subject to both existing and planned measures of which full implementation is still in the pipeline at the time of drafting the MSFD Programme of Measures (PoMs). Planned measures are described hereunder along with the existing measures, which are presented as those pursuant to WFD processes, Nature policy, shipping sector and other initiatives. The classification of the measures into Categories 1a and 1b, together with relevant Key Type Measures are included in Table 2.

a. Water Framework Directive measures

The first Water Catchment Management Plan pursuant to the WFD identified the need to study the extent of the problems associated with discharge of ballast waters by the shipping industry in Malta. Such need is addressed in Malta's Second Water Catchment Management Plan (WCMP)¹¹⁶, which includes a measure (KNO 2) for a technical feasibility assessment regarding the management of ballast waters.

Noting that that the Ballast Water Management Convention (BWMC) is expected to come into force in the near future, this measure will seek to carry out a study to establish the best manner of how implementation of this convention should be approached by Malta. The objectives of this study would be to assess the current local scenario in relation to the obligations laid down in the Convention and associated Guidelines, with a view to assess the preparedness of Malta to comply with its obligations. Various options which Malta needs to consider to ensure compliance would be evaluated.

This measure is being implemented jointly by the Authority for Transport in Malta and the Environmental and Resources Authority through the Ministry for Sustainable Development, the Environment and Climate Change.

b. Nature Policy

As a party to the Convention on Biological Diversity, Malta has adopted its National Biodiversity Strategy and Action Plan (NBSAP)¹¹⁷ entitled "Working Hand-in-Hand with Nature". In line with the provisions of the Convention, this NBSAP addresses Invasive Alien Species (IAS) through National target 9: *'By 2020, measures are in place to prevent, in so far as practical, the introduction and establishment of new invasive non-native species, while those that are established are identified and prioritised for eradication or control, where feasible.'* This target is in line with MSFD goals for Descriptor 2.

Measures put forward by the NBSAP under Theme 4 (Biological Introductions) are listed hereunder, together with an indication of progress in the implementation of such measures:

- **Measure BI1: *A national information and early warning system (e.g. species black list + existing border controls and permitting procedures) is in place to prevent the introduction and spread of invasive non-native species via priority pathways. Accidental introductions are addressed by way of contingency planning thereby avoiding/minimising any socio-economic and environmental impacts.***

Progress: Malta currently adopts border inspection posts as required by relevant EU policy, as well as applies permitting procedures for importation from third countries and transport, as required (refer to sections below).

¹¹⁶ <http://era.org.mt/en/Pages/Water-Catchment-Management-Plan.aspx>

¹¹⁷ <http://era.org.mt/en/Pages/NBSAP.aspx>

- Measure BI2: ***A systematic and coherent national strategy on invasive non-native species is in place by 2015 and is based on the CBD's three-stage hierarchical approach, which includes prevention, early detection of the species, and rapid action by eradication, containment and control (where feasible). This strategy is supported by other policy guidance on the removal of invasive species.***

Progress: Drafting of National Strategy on invasive NIS is in progress.

- Measure BI3: ***Endemic species and areas of conservation value at risk by invasive species are identified, and prioritised for targeted, well-planned, ecologically and financially feasible remedial action, with the goal of reinstating self-sustaining native communities and healthy ecosystems.***

Progress: Eradication or control activities are currently identified on an *ad hoc* basis, and are focused on priority cases and in certain protected areas.

- Measure BI4: ***Key stakeholder groups, such as traders (pet shops, breeders and nurseries), as well as land and sea users cooperate to prevent the unwanted release/escape and spread of non-native and invasive species into the environment. To assist this, national codes of best practices are established in consultation with key stakeholders and adopted for those sectors that can aid the introduction and spread of invasive species. The drawing up of such codes builds on European Codes of Conduct as adopted under the Bern Convention.***

Progress: Drafting of National codes of conduct/best practice is being done in parallel with the development of the national strategy.

The National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species in the Maltese Islands¹¹⁸ in line with NBSAP measure BI2 is considered to be a key step towards prevention and control of invasive NIS. The drafting of this strategy is currently in progress with the primary purpose of serving as a policy framework to ensure the proper implementation of Council Regulation No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species. Measures under consideration throughout the development of the strategy include legislative measures, prevention via permitting frameworks, contingency planning, early detection and surveillance and remedial action to address NIS impacts. This strategy will also include Codes of Conduct to ensure that action to combat IAS in Malta is done on the principles of best practice.

Legal provisions to address NIS are also included in the Flora, Fauna and Natural Habitats Protection Regulation (S.L. 549.44) which transpose the EU Habitats Directive 92/43/EEC into National legislation. Such provisions address a number of issues related to the control of alien species including the possibility to regulate the importation and/or keeping of any species of flora and fauna, to develop eradication or control plans for NIS and for the Competent Authority to publish a list of those species that are invasive or seem to be invasive. Such list has not yet been published.

¹¹⁸ Title is subject to changes following publication.

The national implementing legislation to address the provisions of EU Regulation No. 1143/2014 which are of Member States competence is currently being drawn up.

c. Shipping sector

The Ballast Water Management (BWM) Convention under the International Maritime Organisation (IMO) acknowledges that ballast water is a major pathway for the introduction of NIS into the marine environment and stipulates provisions for the management of ballast water and sediments by ships. Pending the entry into force of the BWM Convention, Malta together with Mediterranean Coastal States, adopted interim voluntary arrangements to address the risk of NIS introduction through ships' ballast water and sediment. The "Harmonized voluntary arrangements for ballast water management in the Mediterranean region" (IMO BWM.2/Circ 35) require ships sailing in the Mediterranean to exchange their ballast water in accordance with the requirements set out in the D-1 Standard of the BWM Convention.

Such interim and voluntary measures are also called for by the 'Regional strategy addressing ship's ballast water management and invasive species' as adopted by the Barcelona Convention. This strategy calls for Contracting Parties to the Barcelona Convention to adopt interim and voluntary harmonised arrangements for ballast water exchange in the Mediterranean region on the basis of the relevant components and requirements of the BWM Convention, until such Convention has entered into force.

d. Other initiatives

Trade in species

Council Regulation 338/97/EC on the protection of the species of wild flora and fauna by regulating trade therein implements the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in the EU. Malta implements these requirements through the Trade in Species of Fauna and Flora Regulations (S.L. 549.38) on the basis of which the import, export and re-export of 'specimens'¹¹⁹ is regulated by a certification procedure and a system of national permitting. The import, export, re-export and possession of any species of fauna or flora which would endanger the biological identity of any ecosystem or any species of flora or fauna in Malta is prohibited.

The Environment Resources Authority (ERA) is the CITES Management Authority for Malta.

¹¹⁹ "specimen" includes any species, whether alive or dead, any part or derivative thereof, as well as any goods which appear from an accompanying document, the packaging, mark or label or from other circumstances to be or to contain parts or derivatives of animals or plants of those species the import, export, re-export whereof or the possession thereof is prohibited, restricted or controlled.

Aquaculture

Council Regulation (EC) No 708/2007 concerning use of alien and locally absent species in aquaculture addresses the environmental risks related to the movement of alien species (introductions) or locally absent species (translocations) for their use in aquaculture in the EU. While Malta makes use of local stock only for aquaculture purposes, Aquaculture Regulations (S.L.36.34), prohibits any person, whether licensed or not, from moving or causing any live fish or live fish products to be moved from a licensed place to any other place unless permission to do so is obtained in writing from the Director. These regulations also regulate imports of live fish or live fish products destined for farming.

The aquaculture regulations are undergoing a revision process at the time of drafting the Programme of Measures.

Hull cleaning

Hull cleaning, a process which is associated with the introduction of NIS, is subject to the environmental permitting procedure. An operator undertaking underwater cleaning and maintenance must be registered with the Environment and Resources Authority (ERA) which has to be notified of each individual cleaning. ERA reserves the right to ask for samples of fouling material that has been removed from the vessel and requiring analyses and species identification of such material.

The cleaning activity itself should be undertaken in line with the Guidance Note on Underwater Cleaning of Maritime Vessels¹²⁰ which include best management practices to be employed during the cleaning activity, such as properly secured retaining nets to collect the marine fouling being removed.

¹²⁰ <https://era.org.mt/en/Documents/GN%2017%20Hull%20cleaning.pdf>

Table 2: Summary of existing measures including MSFD categories and Key Type Measures (KTM)

Existing Measure	Policy	Category 1 a or Category 1b	WFD/MSFD KTM number
Water Framework Directive Measures			
Pressures: Introduction of non-indigenous species and translocations			
Target: N/A			
<i>Supplementary Measure:</i> KNO 2: Technical feasibility assessment regarding the management of ballast waters.	Water Framework Directive 2000/60/EC	1b	WFD 18 ¹²¹ MSFD 34 ¹²²
Nature Policy			
Pressures: Introduction of non-indigenous species and translocations			
Target: N/A			
Implementation of the measures in the National Biodiversity Strategy and Action Plan including National Strategy on Invasive NIS	EU Biodiversity Strategy 2020 Convention on Biological Diversity Regulation 1143 of 2014 UNEP/MAP Action Plan on Introductions of Species and Invasive Species	1b	WFD 18 MSFD 34
Shipping Sector			
Pressures: Introduction of non-indigenous species and translocations			
Target: N/A			
Interim and Voluntary Arrangements of Ballast Water Management (pending ratification of the Ballast Water Management Convention)	Ballast Water Management Convention Regional strategy addressing ship's ballast water management and invasive species (Barcelona Convention)	1a	WFD 18 MSFD 34
Other measures			

¹²¹ Measures to prevent and control the adverse impacts of invasive alien species and introduced diseases.

¹²² Measures to reduce the introduction and spread of non-indigenous species in the marine environment and for their control.

Pressures: Introduction of non-indigenous species and translocations			
Target: N/A			
Regulation of trade	Regulation (EC) 338/97	1a	WFD 18 MSFD 34
Aquaculture regulations	Regulation (EC) 708/2007	1a	WFD 18 MSFD 34
Permitting of hull cleaning activities	N/A	1a	WFD 18 MSFD 34

4. GAP ANALYSIS

The existing and planned measures address all aspects associated with management of NIS, including prevention of introduction by management of main vectors and eradication and control of established NIS. Once implemented, such measures, coupled to rigorous detection and surveillance, would work towards achievement of MSFD GES and reduce the possibility of NIS introduction in Maltese waters. Key planned measures in this regard are considered to be the ratification and implementation of the Ballast Water Management Convention which would address one of the main vectors of NIS, and the completion and implementation of the National Strategy on invasive NIS, which would provide the required strategic framework for prevention, early detection of the species, and rapid action by eradication, containment and control. The implementation of the MSFD monitoring programme will be partly addressing the early detection of introduced species, however further updates may be required to ensure full coverage of modes of entry.

While it is acknowledged that further knowledge is necessary to define relevant environmental targets and to assess progress towards achievement of GES, the current lacunae in management of NIS would be addressed through the planned measures. Achievement of GES for Descriptor 2 should thus be sought through both existing and planned processes, whilst ensuring harmonisation of such measures for the marine environment. MSFD implementation processes should seek an integrated and holistic approach towards management of NIS based on integration of current processes and to inform such processes through implementation of monitoring regimes.

This gap analysis is not addressing the introduction of non-indigenous species as a result of secondary dispersal subsequent to entry into the Mediterranean through the Suez Canal. This issue is discussed in Section 6 of this report.

5. NEW MEASURES

On the basis of the existing and planned measures described in previous sections of this report, no new measures are being put forward for the purpose of MSFD Descriptor 2.

Achievement of GES in terms of NIS will be sought through existing and planned measures. In particular, MSFD processes will follow-up on the measures currently being developed as part of the National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species in the Maltese Islands¹²³ and in this sense, the Programme of Measures is adopting such strategy for its application in the marine environment. Should planned measures fail to go through, relevant action would need to be adopted as part of the MSFD implementation processes.

6. ADEQUACY & EXCEPTIONS

The introduction of NIS as a result of anthropogenic activity in Maltese waters and impacts associated with established NIS are considered to be addressed, to the extent possible, through the existing and planned measures as adopted by the MSFD implementation process and associated monitoring regimes. Such measures would address main pathways or vectors of NIS in the marine environment, in particular ballast waters, but also other potential sources such as trade and importation.

Nevertheless, the data provided in the MSFD Initial Assessment and the recent updates published by Evans *et al.* (2015)¹²⁴ indicate that while shipping is considered to be a major vector of NIS, a substantial number of NIS recorded in Maltese waters are of Indo-Pacific or Red Sea origin and have reached Malta through secondary dispersal following entry of such species into the Mediterranean through the Suez Canal. Such dispersal would not be mediated by vectors or anthropogenic processes, hence its control and prevention would not be possible through management regimes.

The introduction of NIS through the Suez Canal and subsequent dispersal within the Mediterranean is thus expected to have a bearing on the achievement of GES or otherwise in Maltese waters. Within this context, Malta is applying an exception with respect to the introduction of such species in line with MSFD Article 14(a). Details of this exception are included hereunder:

¹²³ Title is subject to changes following publication

¹²⁴ Evans, J., Barbara, J. and Schembri, P. J. (2015). Updated review of marine alien species and other 'newcomers' recorded from the Maltese Islands (Central Mediterranean). *Mediterranean Marine Science*. DOI: 10.12681/mms.1064

EXCEPTION NAME:	<i>Introduction of invasive alien species by secondary dispersal following entry through the Suez Canal</i>
EXCEPTION CODE:	MICMT-E01
Type of exception (Article 14)	<u>Article 14(a) exception</u> EU Member States are not responsible for the management of the marine areas at the entry point of NIS from the Suez Canal into the Mediterranean region and are thus not in a position to take measures to prevent the spread of such species into the Mediterranean. While Malta can take measures to prevent the introduction of such species in Maltese waters through anthropogenic activity, secondary dispersal of such species within the Mediterranean region cannot be controlled. This scenario, coupled to difficulties in determining the mode of introduction into Maltese waters with certainty, may compromise the achievement of GES in terms of introduction of NIS.
Relevant KTM	MSFD 34: Measures to reduce the introduction and spread of non-indigenous species in the marine environment and for their control
Relevant targets	Since only interim targets related to knowledge improvement have been put forward by Malta in the first reporting cycle, no environmental targets are relevant to the applied exception. On the other hand, the exception would affect the number of newly introduced species in Maltese waters.
Relevant GES descriptors	MSFD Descriptor 2: Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
Relevant Annex III elements	<ul style="list-style-type: none"> ▪ introduction of non-indigenous species and translocations ▪ an inventory of the temporal occurrence, abundance and spatial distribution of non-indigenous, exotic species or, where relevant, genetically distinct forms of native species, which are present in the marine region or subregion.
Spatial scope of the exception	Territorial waters
Consequences for other MS: Text explaining the consequences for other Member States in the relevant marine (sub)region	The application of this exception by Malta will not have negative implications on other Member States, since Malta will be implementing measures to address NIS.
Ad-hoc measures taken: list of <i>ad-hoc</i>	N/A

EXCEPTION NAME:	<i>Introduction of invasive alien species by secondary dispersal following entry through the Suez Canal</i>
EXCEPTION CODE:	MICMT-E01
measures that are <i>ad-hoc</i> from the full list of measures in PoM	
Mitigation	The exception applies to the introduction of new NIS through secondary dispersal. All efforts will be made in relation to early detection of the introduction of such species to enable action to be taken to control the further spread of such species within Maltese waters to the extent possible. Control and eradication processes are being considered as part of the planned National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species in the Maltese Islands ¹²⁵

7. LINKS TO OTHER POLICIES

The Programme of Measures (PoMs) is adopting existing/planned processes or measures pursuant to, or in line with, the following policies:

- Ballast Water Management Convention and related policies in the Mediterranean region;
- Council Regulation No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species and
- Convention on Biological Diversity (CBD)

The National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species in the Maltese Islands¹²⁶, which is still under development, will cater for the requirements of Council Regulation 1143/2014 and address the principles of the CBD.

Since the PoMs is not proposing new measures but is relying on an integrated approach towards the implementation of existing/planned processes and mechanisms, no impacts on other policy regimes are envisaged. This however would require a coordinated approach towards implementation (refer to Section 9 of this report)

8. REGIONAL COOPERATION

Malta acknowledges that non-indigenous species constitute a transboundary issue of concern. Effective management requires concerted regional or international efforts based on common goals, hence the need for regional cooperation.

Regional cooperation requirements are being addressed through the development of the National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species in the

¹²⁵ Title subject to changes following publication.

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Maltese Islands¹²⁷ which is considering the implementation of international law on IAS and the exchange of information via established portals as important processes to ensure cooperation. Further regional cooperation may be required in upcoming MSFD processes.

Since this PoMs adopts existing/planned measures and processes pursuant to international and regional policy, it is in line with common objectives which need to be achieved by other EU Member States.

9. ADMINISTRATIVE PROCESSES

The existing and planned measures will be implemented in accordance with the competencies of the different Government entities for implementation of the relevant policies. However, the need for collaboration across such entities is recognised in order to ensure a coordinated and streamlined response to NIS. Such cooperation will be addressed through the development of the planned National Strategy for Preventing and Mitigating the Impact of Invasive Alien Species in the Maltese Islands¹²⁸.

¹²⁷ Title is subject to changes following publication

¹²⁸ Title is subject to changes following publication