



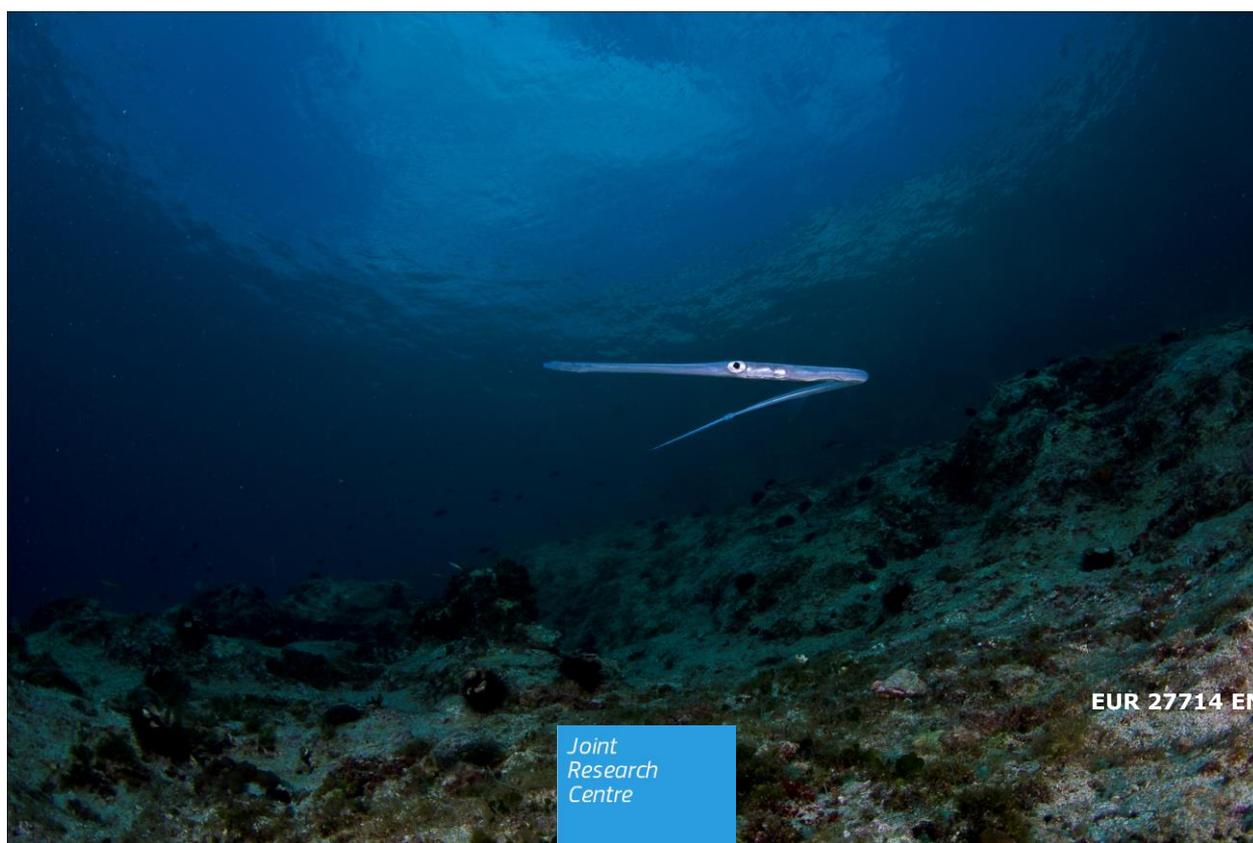
# JRC TECHNICAL REPORTS

## **Report of the JRC's Descriptor 2 workshop in support to the review of the Commission Decision 2010/477/EU concerning MSFD criteria for assessing Good Environmental Status for NIS**

*10<sup>th</sup>-11<sup>th</sup> September 2015,  
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Report of the JRC's Descriptor 2 workshop in support to the review of the Commission Decision 2010/477/EU concerning MSFD criteria for assessing Good Environmental Status for NIS

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## Acknowledgements

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## Abstract

The Marine Strategy Framework Directive (MSFD) workshop on non-indigenous species (NIS, MSFD D2), held in Ispra JRC (10<sup>th</sup>-11<sup>th</sup> of September 2015) aimed to provide clear proposals and conclusions on some of the outstanding issues identified in the D2 review process and included in the related manual (D2 review manual, May 2015: [https://circabc.europa.eu/sd/a/cd4bbd6a-454a-40db-b805-52fb195d4e56/COMDEC\\_Review\\_D2\\_V6.pdf](https://circabc.europa.eu/sd/a/cd4bbd6a-454a-40db-b805-52fb195d4e56/COMDEC_Review_D2_V6.pdf)) in support to the review of Commission Decision 2010/477/EU. This report is complementing the Commission Decision 2010/477/EU review manual (JRC96884) and presents the final result of the scientific and technical review concluding phase 1 of the review of the Commission Decision 2010/477/EU in relation to Descriptor 2. The review has been carried out by the EC JRC together with experts nominated by EU Member States, and has considered contributions from the GES Working Group in accordance with the roadmap set out in the MSFD implementation strategy (agreed on at the 11th CIS MSCG meeting).

The main issues addressed and tackled in this workshop's report are:

- Proposed changes in D2 assessment criteria;
- Indicators and methodological standards;
- GES threshold values and reference points;
- Way forward.

The views expressed in the document do not necessarily represent the views of the European Commission.

## 1. Introduction

The main aim of the workshop was to discuss and resolve the remaining issues following phase 1 of the review of the Commission Decision 2010/477/EU regarding the Descriptor 2 'Non- indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem' (D2 review manual, May 2015: [https://circabc.europa.eu/sd/a/cd4bbd6a-454a-40db-b805-52fb195d4e56/COMDEC\\_Review\\_D2\\_V6.pdf](https://circabc.europa.eu/sd/a/cd4bbd6a-454a-40db-b805-52fb195d4e56/COMDEC_Review_D2_V6.pdf)).

The Descriptor 2 (MSFD, 2008/56/EU) is a pressure descriptor that focuses on assessing the scale of the pressure and the scale of the impacts of marine non- indigenous species. New introductions of NIS and increases in the abundance and spatial distribution of established NIS should be prevented.

This report intends to complement the review manual for D2, further support the review process, feed the drafting of the revised Commission Decision on criteria and methodological standards on good environmental status (GES) of marine waters, and define the way forward on further technical and scientific needs.

The outline of the report follows the workshop's agenda (Annex I). The workshop's list of participants is in Annex II.

## 2. Changes to the assessment Criteria

The descriptor is according to the Commission Decision 2010/477/EU to be assessed by two criteria (i.e. 2.1 and 2.2; Table 1). The expert group agreed to retain criterion 2.1, but to exclude the terms "state" and "abundance"; the first term is too general, related to the term "Characterization" and leading to confusion as D2 is not a state but a pressure descriptor, while the second term is handled at the indicator level. The term "invasive species" was also suggested to be excluded, so that the criterion can have a broader scope. The phrase "in terms of the pressure to the ecosystem" was added to make clear that criterion 2.1 is related to the measurement of the pressure of the non-indigenous species (NIS).

In the current Decision, the criterion 2.1 is assessed by one indicator, which was suggested to be split into two indicators: 2.1.1 (trends in human-mediated new introductions) and 2.1.2 (trends in number, abundance, spatial and temporal distribution). However, the current indicator (2.1.1) received positive feedback and not all participants agreed with the split, sharing concerns about the incompatibility with the operational methods in OSPAR and HELCOM Regional Sea Conventions, but recognizing that the on-going methodological standards (indicators) developments are practically in line with the new proposed indicator 2.1.1. Regarding the Barcelona Convention, on-going work on indicator development and monitoring guidelines are well in line with this split. It was agreed that trends in new introductions should be the priority for MSFD, since this will reveal valuable information to support D2 management and reduce the risk of new introductions (prevention: management of alien species pathways). For the 2.1.2, the term "biomass" was added next to the term "abundance", and it was recognized that the indicator 2.1.2 provides an additional level of detail to properly characterize the extent and intensity of this particular biological pressure.

A discussion took place whether only human mediated introductions should be taken into account for indicator 2.1.1 or unaided (natural dispersal) introductions from neighbouring infested areas (to which the alien species had arrived previously through

anthropogenic pathways and vectors) should be also considered. The group agreed to take into consideration for the 2.1.1 indicator only the human-mediated introductions of NIS, and not those attributed to natural dispersal coming from neighboring infested areas. The term "human mediated" was added in 2.1.1. Doing so, there will be the possibility to measure the effectiveness of management measures, which prevent NIS human-mediated introductions in a given assessment unit. If a human-mediated introduction is likely the case for a NIS, but cannot be proven, then application of the precautionary approach should be followed and thus the NIS should be included in 2.1.1 indicator. Still, it was pointed out that in some regions it will be very difficult to disentangle if a given NIS, within the framework of its secondary spreading through EU waters, has arrived to a particular marine demarcation by natural means or through an anthropogenic vector.

Taking into account the human mediated introductions for the 2.1.1 indicator, it could lead to a possible exclusion of NIS dispersing naturally from an infested area to another, such as in the case of many Lessepsian species. Against this concern, it was proposed to include in 2.1.2 the term "trends in number", which is clearly related with the measurement of the pressure of NIS, taking thus into account all NIS, regardless their introduction pathway (human mediated or unaided).

Concerning criterion 2.2, there was a debate as to whether it should be retained or excluded. It was agreed that it is difficult to assess the impact of invasive NIS due to the lack of adequate methodologies and to the current gap in scientific knowledge on impacts of invasive species. Also, given the difficulty to control and eradicate NIS once established, concern was raised regarding the consequence of the inclusion of impact of NIS within D2 assessments. Still, the expert group agreed to retain 2.2, so to set the framework for the future implementation and make a concrete link with other Descriptors (i.e. part of D1, D3, D4 and D6); however, the importance of including the term "where feasible" in the indicator was emphasised and echoed by all. In addition, the term "invasive" was suggested to be excluded from the criterion 2.2.

The 2.2.1 indicator (ratio between non-indigenous vs native species) was proposed to be excluded from criterion 2.2, since it does not offer valuable information regarding impacts by invasive NIS. The 2.2.2 indicator was retained and rephrased appropriately (namely now as 2.2.1). A discussion of whether the latter indicator should be more specific took place. The addition of defined target species and taxonomic groups (based on specific criteria which would need to be outlined) was discussed, but eventually it was decided to delete the term "target" (and as a result it was not necessary to outline specific criteria). In addition, the phrase "structural and functional elements of the ecosystem" was chosen instead of "at the level of species, habitats and ecosystem". All revisions and annotations of the D2 criteria and indicators have led to the outcome definitions listed in Table 1.

**Table 1. D2 criteria and indicators in the Commission Decision on criteria and methodological standards on Good Environmental Status (GES), proposed changes and their status.**

<b>Commission Decision 2010/477/EU, Part B, Descriptor 2</b>	<b>Changes to Descriptor 2 assessment</b>	<b>Status of proposed changes</b>
<b>2.1.</b> Abundance and state characterisation of non-indigenous species, in particular invasive species	<b>2.1.</b> Characterization of non-indigenous species in terms of pressure to the ecosystem.	Agreed
— 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 ( <b>2.1.1</b> )	<b>2.1.1.</b> Trends in human-mediated new introductions in the wild of non-indigenous species, notably in risk areas, in relation to the main vectors and pathways.	Agreement with indicator value but not fully agreement with indicator split
	<b>2.1.2.</b> Trends in number, abundance / biomass, temporal occurrence, and spatial distribution of non-indigenous species.	Agreement with indicator value but not fully agreement with indicator split
<b>2.2.</b> Environmental impact of invasive non-indigenous species	<b>2.2.</b> Impact of non-indigenous species	Some controversy but inclined to agree
— 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) ( <b>2.2.1</b> )	<b>2.2.1.</b> Environmental impact of non-indigenous species on structural and functional elements of the ecosystem where feasible	Agreement to delete 2.2.1. Some controversy regarding the inclusion of 2.2.2, but eventually agreed keeping 2.2.2 (namely 2.2.1 in the new version), if only it includes the wording “where feasible”
— Impacts of non-indigenous invasive species at the level of species, habitats and ecosystem, where feasible ( <b>2.2.2</b> ).		

A discussion took place regarding the proposal of a new criterion “propagule pressure”, which is related to pathways. All participants agreed that this criterion would be very useful to tackle the problem of invasive NIS. However, propagule pressure does not fit in the criteria and indicators of D2 in terms of MSFD legislation, because it does not refer directly to the measure of pressure of NIS (criterion 2.1) and their impact (criterion 2.2), but is more related to the management of NIS (prevention/source of pressure - management of pathways), and thus an indicator related to NIS targets. Finally, it was agreed that propagule pressure should be taken into account in art. 10 of MSFD (setting environmental targets).

### **3. Exchange of information on indicators and methodological standards**

The aim of this issue was to share and discuss information on the indicators and methodological standards for D2.

There is an agreement on the need of developing specific indicators to assess D2. However, it was pointed out that indicators for the MSFD status descriptors (D1, D3 (part), D4 and D6 (part)) may or could include the impact of NIS (of invasive species).

Concern was raised regarding how to directly link e.g. D1 elements features to D2 impacts. NIS are not included in the remit of D1 and it is unlikely that NIS impacts are currently included in assessments under D1. Even if impacts are measured by the status descriptors, attributing these impacts to the presence of NIS may not be possible due to the lack of information regarding impacts of NIS. Moreover, it will not be possible to disentangle these impacts from those of other pressures, if respective contribution of each occurring pressure is not well characterized. Finally, the group agreed that in the frame of MSFD the components of status assessments (e.g. D1 benthic and pelagic habitats) should encompass NIS impacts, where these are exposed to the D2 pressure (cf. D1 review workshop report). Everybody agreed on the need of specific monitoring for D2 and we should not solely depend on D1 monitoring and assessments. Trends in new NIS introductions have been mostly assessed on monitoring projects not designed for D2. According to the recognised priority to assess trends of new introductions, there is a need for better and specifically designed monitoring, harmonised regionally and across regions.

Both OSPAR and HELCOM are close to finalising the development of a common regional indicator (trends in arrival of new NIS), criterion 2.1 (2.1.1). The indicators of both Regional Sea Conventions (RSCs) are similar and constitute the result of collaboration between the two Conventions. The Barcelona Convention is also working towards developing an indicator for criterion 2.1.

The Biopollution Level Index (BPL) was reported to be used by some HELCOM member countries and could in principle be applied to other marine areas, but it requires considerable data on impacts, which is generally missing. Even in areas where it has been applied, it is substantially based on expert judgement of NIS impacts and is therefore associated with considerable uncertainty. Further work is required to improve the knowledge on NIS impacts, develop suitable indicators of impact and acquire the underlining data.

The need to ensure harmonisation and the quality of NIS monitoring for purposes of D2 assessments is considered as a critical issue. This has been tackled within individual member states, RSCs organisations and dedicated regional projects and it would benefit from initiative at European level to provide general recommendations based on the on-going work.

#### **4. Exchange of information on GES threshold values and reference points**

According to the lack of specific and standardized monitoring for D2, the discussion focused in the determination of GES thresholds. Regarding the 2.1.1 indicator a discussion took place concerning the spatial and temporal scale of the indicator. There was an agreement to follow the 6 year cycle (this is already embedded in the existing indicators or those that are currently in development) as a minimum requirement for reporting and follow the MSFD spatial scale of (sub)regions. In addition, baseline information will be vital for the assessment of trends in new introductions, and the agreement on the principle for setting the baseline is essential for the coherent assessment of the particular indicator within and across marine regions.

The thresholds of "one new introduction" in the German part of the Baltic Sea and "one to two new introductions" in the German part of the North Sea (where the introduction

rate is higher) were proposed; however, concern was raised that these values would be rather unrealistic taking into account the increasing trend of new introductions worldwide. The long standing GES threshold of zero introductions in the HELCOM area is even more ambitious; it has been proposed to be complemented by an interim "goal" of a declining trend in new introductions.

Without a standardized monitoring frame and a quantitative baseline, setting thresholds is not scientifically and statistically relevant ("the more the observation effort will increase, the more new NIS will be observed"). In conclusion, no quantitative threshold or baseline for 2.1.1 is feasible. However, everybody agreed that GES should be related to a reduction in the rate of new introductions, according to methodological and monitoring standards still to be implemented (e.g. numbers and EU network of assessment area; frequency, seasonality and synchronization of observation, etc.).

Regarding 2.1.2 similar arguments related to 2.1.1 led to inability to adopt specific thresholds for trends in NIS numbers, abundance and geographical distribution; since it was considered that these thresholds are in principle "case specific", varying among species and different ecosystems.

Regarding 2.2.1 indicator, the plenary agreed that measuring the impact of invasive NIS is difficult and that there are not enough scientific data or monitoring programmes to support 2.2.1. The Biological Pollution Index (BPL) used by some Member States, but evaluated as not relevant by some others, is not generally accepted for 2.2.1; however, an involved expert informed the participants that a new version of this index will be deployed soon, which could be more concise and easier to apply.

## **5. Conclusions**

The implementation of MSFD Descriptor 2 requires further work and needs further support. The on-going work in the Member States, RSCs and projects will provide experience and knowledge, which should feed in the implementation process. Therefore, it is advised to involve the D2 expert group for the purpose of contributing to the harmonization and coherent implementation of MSFD Descriptor 2, mostly in relation to:

- Monitoring
- Scales and aggregation
- Thresholds and reference points.

## Annex I: Agenda of the workshop

### WORKSHOP AGENDA

#### **Day 1 – Thursday 10<sup>th</sup> September**

09:00 **REGISTRATION**

09:30 Welcome by DG JRC, ENV

1. Introduction: Scope and objectives of the workshop

10:30 **COFFEE BREAK**

11:00 2. Changes in Criteria

13:00 **LUNCH BREAK**

14:00 2. Changes in Criteria (cont.)

15:30 **COFFEE BREAK**

16:00 3. Exchange of information on indicators/ methodological standards

18:00 **CLOSURE OF DAY 1**

#### **Day 2 – Friday 11<sup>th</sup> September**

09:00 4. Exchange of information on GES threshold values and reference points

10:30 **COFFEE BREAK**

11:00 4. Exchange of information on GES threshold values and reference points (cont.)

12:00 5. AOB

12:30 Conclusions

13:00 **END OF THE WORKSHOP**

## Annex II: List of participants

List of participants:

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