

# Report on WP 2 Workshop

## “Management Measures of Adaptive Management Strategies”

### Milestone 8

Dissemination level

**Internal to the project**

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# Abbreviations

DEVOTES	Development of innovative tools for understanding marine biodiversity and assessing good environmental status (EU FP7 project, grant agreement n°308392)
EU	European Union
GEnS	Good Environmental Status
GoF	Gulf of Finland
IMO	International Maritime Organization
MSFD	Marine Strategy Framework Directive
NIS	Non-indigenous species
PoMs	Programme of Measures
WP	Work Package



## 1. Introduction

This document reports on the Work Package (WP) 2 workshop on “Management measures of adaptive management strategies” held on 3<sup>rd</sup> December 2014 during the DEVOTES Annual Meeting in Ancona, Italy, fulfilling Milestone 8 of the DEVOTES project. It lays out in brief the structure of the workshop and summarises its main findings. This workshop contributes to WP 2 Objective 2.2: “Identification and assessment of the socio-economic consequences of management practices aimed at achieving Good Environmental Status (GEnS)”. It was conducted under task 2.2.1 “Cost-based assessment of management measures” and led by Cefas.

The Marine Strategy Framework Directive (MSFD) specifies that Programmes of Measures (PoMs) have to be developed by Member States to reach GEnS in European regional seas by 2020.<sup>1</sup> To prepare an analysis of the costs and benefits of management measures in Task 2.2.1 and of the benefits of management measures in Task 2.2.2, this workshop consulted experts within DEVOTES on the efficacy of existing regulations and ideas for potential additional measures to address pressures that are not already covered by existing monitoring programmes in the marine environment. To achieve this object, WP 2 identified three case study areas for which adaptive management strategies will be analysed. These are the Gulf of Finland in the Baltic Sea, the East of England Marine Plan Area in the North Sea and the Bay of Biscay as part of the Atlantic Ocean.

## 2. Aims of the workshop

The main aim of the workshop was to identify potential management measures to achieve GEnS that will be applied to the three case studies mentioned above. This is important to enable WP 2 to undertake a cost-benefit analysis of these management practices.

The cost-benefit analysis will be carried out by in WP 2. However DEVOTES colleagues from WP 1, WP 3 and WP 6 were invited to the workshop as their work on activities, pressures, impacts and the meta-data catalogue will be important references in the selection of management measures to be examined. This work also overlaps with objectives of WP6 and has relevance to all aspects of MSFD assessment and implementation.

## 3. Implementation of the workshop

The workshop was organised through skype meetings and consultations with partners in other DEVOTES WPs, especially WP6. It was conducted during the second DEVOTES Annual Meeting on 3<sup>rd</sup> December 2014 in Ancona, Italy, and comprised three sessions attended by different groups of people. Sessions 1 and 3 were internal to WP 2. Session 1 aimed at further planning of Session 2, the main component of the workshop, and assessed the existing information already gathered by WP 2 partners. In session 2, participants from across the DEVOTES consortium were given a presentation introducing the objective of the exercise and the three case study sites, including the rationales for their selection.

In Session 2 participants were then split up into two breakout groups to discuss management measures<sup>2</sup> in the case study sites in more detail. Group I discussed the Gulf of Finland and Group II talked about the

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<sup>1</sup> Article 13 of the Council Directive (EC) 2008/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).

<sup>2</sup> The list of management measures that was used during the Session 2 discussions is a compilation of lists of management measures from other projects: Defra-funded project ME5405 (Strategic support for the MSFD

North Atlantic case study areas, the East of England Marine Plan Area and the Bay of Biscay. Participants were prompted to identify gaps in the network of existing regulations and to propose potential additional management measures to cover these gaps and effectively address related pressures. Table 1 provides an overview of all sessions. Session 3 was used as a wrap-up session to take stock of the information collected during session 2 and to discuss future related work in WP 2.

**Table 1.** Overview of workshop sessions

Date and time	Session number	Session	Management measures workshop arrangement / tasks
Wednesday, 3 <sup>rd</sup> December 14:00-15:00	1	Ad-hoc meeting for WP 2	Discussion of results of work done prior to the workshop by WP2 colleagues in each case study area to identify significant activities, pressures and impacts, as well as an initial list of existing and proposed management measures.
Wednesday, 3 <sup>rd</sup> December 15:00-17:00	2	Plenary cross-cutting session	Breakout groups (according to case study area) to select appropriate management measures based on the results of the previous session and available lists of management measures developed in other EU projects.
Wednesday, 3 <sup>rd</sup> December 17:00-18:30	3	Ad-hoc meeting for WP 2	Quick overview of the key points from the breakout groups and brief discussion of common features and differences in reaching conclusions. Wrap-up meeting and next steps.

## 4. Main findings

During Session 1, the results of the activities-pressures-impacts assessment carried out prior to the workshop for each case study site were discussed. In the Gulf of Finland, shipping, river basin catchment activities such as agriculture, water and sewage treatment and commercial fishing were identified to have significant impacts on environmental status. The pressures associated with these activities mainly relate to chemical and organic (i.e. eutrophication) pollution, the introduction of non-indigenous species (NIS), the overexploitation of commercial fish stocks and damage to the seabed. For the East of England Marine Plan Area, the activities covering the most of the area and taking into consideration future expansion were shipping and ports and offshore wind energy generation. Commercial fishing and oil and gas extraction were also identified as prominent activities in this case study area. These activities were all categorised as high-risk activities. Yet, while they are already very well regulated, there are still gaps in the management of these activities, especially those related to the introduction of NIS and underwater noise. For the Bay of Biscay the assessment found commercial fishing and shipping to be most impacting. Associated pressures relate to chemical pollution (i.e. oil discharges from ships), overexploitation of commercial fish stocks, by/catch and damage to the seabed.

(Marine Strategy Framework Directive);

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16817>); ODEMM EU FP7 project (<https://www.liv.ac.uk/odemmm/>); and the TIDE EU Interreg North Sea Region Programme project (<http://www.tide-toolbox.eu/measures/>). These management measures were also mapped to the different marine and coastal activities that will be affected.

The discussion in Session 1 eventually yielded the selection of the most prevalent activities in each study area. It was agreed to focus on the following activities and the associated pressures and impacts for the following areas:

- Gulf of Finland
  - Maritime transport
  - River basin catchment activities
- East of England Marine Plan Area
  - Maritime transport
  - Offshore wind
  - Fishing
- Bay of Biscay
  - Maritime transport
  - Commercial fishing

In Session 2, main findings from discussions held in two separate breakout groups are as follows.

## 4.1. Group I: Gulf of Finland

Regarding maritime transport, the different pressures and impacts from this activity were discussed in order to identify if existing policies and legislation cover these issues. Generally, experts expect the level of maritime transport in the Gulf of Finland (GoF), in particular for oil and gas, to increase in the coming years. Discussants in the group thought that ship emissions and oil discharges are already covered by existing legislation (i.e. International Maritime Organization (IMO) regulations and EU Sulphur Directive<sup>3</sup>). The same was found regarding the introduction of NIS and parasites, which is also covered by IMO regulations. However, it will be difficult to implement management measures on species that are already introduced due to uncertainties on the impacts they cause, their location and extent. For underwater noise, it was mentioned that some experts think that because of the bathymetry of the GoF, underwater noise levels may not be very high. Additionally, impacts are unknown. Further, marine litter from maritime transport was discussed. There are regulations (e.g. port waste reception facilities<sup>4</sup>) covering this aspect, but there may be instances where it is cheaper for some vessels to get rid of waste overboard than pay the fees to use the port waste reception facilities. 'Fishing for litter' was mentioned as a potential management measure but this will not stop litter from entering the sea in the first place.

Activities in river basin catchments (causing eutrophication) were the next issue that the group discussed. Agriculture was identified to be the biggest source of eutrophication, and there are still settlements without sewage treatment, but Finland has recently pushed for and financed more treatment plants both on its own territory and in Russia. The experts in the group felt that even though regulations to address eutrophication already exist and many measures to control nutrient cycles from land to sea are in place, problems still occur. There are many regulations on agriculture, but this also includes subsidies which end up worsening the problem (i.e. perverse incentives). It is possible to add more management measures, but the issue lies more in achieving compliance with existing measures especially on the farm-level.

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<sup>3</sup> Council Directive (EC) 2012/33/EU of 21 November 2012 amending Council Directive 1999/32/EC as regards the sulphur content of marine fuels.

<sup>4</sup> Council Directive (EC) 2000/59/EC of the European Parliament and of the Council on port reception facilities for ship-generated waste and cargo residues.

As additional activity, aquaculture was mentioned. While there are regulations in place, the drive to expand aquaculture is resulting in calls to loosen existing regulations. Aquaculture was identified to potentially add problems to eutrophication, introduction of parasites and genetically modified species.

On the whole, there was consensus in the group that existing management measures are sufficient and that new measures are not required. The main issue, however, is on the effective implementation and resulting compliance of the existing regulations.

## 4.2. Group II: North Atlantic Case studies of the East of England

### Marine Plan Area and the Bay of Biscay

Group II consisted of experts for both the East of England Marine Plan Area and the Bay of Biscay case study areas, so these were discussed together. The chairs of this break-out group went through a list of illustrative potential management measures elaborated from the results of previously run projects on management measures for each specific activity and asked the experts (for both areas) if they knew whether each potential management measure is already in place in the UK or Spain and, if not yet, whether they thought that it is worth considering the potential measure for the case study areas.

This group focused on illustrative potential management measures that may complement existing regulations. After discussion over the illustrative potential management measures reported in the elaborated list, workshop participants felt that some of the measures may be worth considering within the two case study areas. These are listed in Table 2 grouped by the activity they relate to and the pressure they are addressing.

**Table 2.** Activities, pressures and related illustrative potential management measures as outcome of the management measures breakout group for the UK and Spain

Activity	Illustrative potential management measure	Pressure addressed
Shipping and maritime traffic (including ports and harbours)	Management of ballast water of large vessels	Biological disturbance linked to introduction of NIS
	Use of non-toxic anti-fouling for ships	Biological disturbance linked to introduction of NIS; introduction of contaminants and organic enrichment
	Use of more silent ship technologies (e.g. low-noise propellers)	Underwater noise
	Ban discharges of hazardous chemicals (including disinfection of by-products of ballast water treatment) and substances from source into the marine environment	Introduction of contaminants and organic enrichment

Renewable energy generation (offshore wind farms)	Temporal restrictions on pile driving; The use of pingers to deter marine mammals from noisy offshore construction; The use of bubble curtains during the construction phase of some marine activities; Implementation of silent gear boxes in turbines; The use of pile sleeves to reduce noise during piling activities; Encourage alternatives to monopiles	Underwater noise
	Spatial planning of all sectors	Change in habitat; change in hydrology; enhancement of invasives and outbreaks; bird kills
	Armouring of seabed cables and monopiles	Biological disturbance to target/commercial species; Change in hydrology (seabed scouring)
	Density controls – the establishment of controls to limit the permitted density of offshore renewable developments	Change in habitat; change in hydrology; enhancement of invasives and outbreaks; bird kills;
	A requirement for the removal of installations and structures from the maritime area at the end of their lives where appropriate	Change in hydrology; enhancement of invasives and outbreaks;
Commercial fishing (extraction of living resources)	Reduction of bycatch: Gear restrictions/modifications to prevent by-catch of mammals; Ban/modification of fishing gear to reduce seabird by-catch; No take zones	biological disturbance to non-target species
	Retrieval of lost or abandoned fishing gear	Other physical disturbance: marine/coastal litter; biological disturbance to non-targeted species (by-catch)
	Total allowable catch that corresponds to maximum sustainable yield and Maximum Sustainable Yield fishing mortality in mixed fisheries based on the most vulnerable stock	Biological disturbance to target/commercial species

In response to impacts from shipping and maritime transport, ballast water management and the use of non-toxic anti-fouling measures were considered to address the introduction of NIS and resulting biological disturbance. Regulating anti-fouling techniques and a ban on discharges of hazardous substances were discussed as having the potential to reduce the introduction of contaminants in the marine environment. Underwater noise was identified to be largely unregulated, and the use of more silent ship technologies was raised as a potential management measure in this respect.

A large number of measures were discussed for renewable energy generation, and here the development of offshore wind farms in particular. During construction, the use of pingers to deter marine mammals and bubble curtains to reduce or hinder noise transmission were mentioned as

examples to mitigate the impacts of underwater noise. More stringent density controls for offshore energy developments and overall spatial planning of all marine sectors were considered addressing changes in habitat, hydrology, bird kills and the risk of invasive species and species outbreaks.

With respect to commercial fishing, participants discussed gear restrictions to prevent by-catch of marine mammals and seabirds. Further, creating incentives to retrieve lost or abandoned fishing gear (e.g. nets) was mentioned to address the issue of marine and coastal litter.

## 5. Summary of the outcomes and next steps

The main aim of the management measures workshop was to identify potential management measures to achieve GES that will be applied to the Gulf of Finland, East of England Marine Plan Area and Bay of Biscay case study areas. The discussion in Session 1 led to the selection of the most prevalent activities in each study area. For the Gulf of Finland, these activities are maritime transport and river catchment activities (e.g. agriculture, sewage water treatment). For the East of England Marine Plan Area, the activities identified are maritime transport, offshore wind energy generation and commercial fishing, while maritime transport and commercial fishing were identified for the Bay of Biscay. Maritime transport was a common activity between the three case study areas.

Break-out groups during Session 2 of the workshop discussed potential management measures that could be implemented in these case study areas given gaps in existing regulations. For the Gulf of Finland break-out group, there was consensus that existing management measures are sufficient and that new measures are not necessarily required. The main issue, however, is on the effective implementation and resulting compliance of the existing regulations. As for the North Atlantic break-out group, which covers the East of England Marine Plan Area and the Bay of Biscay case study areas, potential new management measures were identified.

Building on the discussions and results of this workshop, future work needs to be undertaken in order to make some of the generic management measures more specific (and thus more appropriate for a cost-benefit analysis) and to identify the resulting ecosystem service benefits. Similarly, for the East of England Marine Plan Area and the Bay of Biscay it has been agreed that once the problems of the case study areas were clear, only some illustrative potential management measures among those discussed will be chosen – based on specific criteria - for further cost and benefit analysis within the case studies. These cost and benefit analyses will be conducted for the above case study areas and with respect to the identified illustrative potential management measures.