

JUNE 2013  
DG FISHERIES AND MARITIME AFFAIRS

# Study to support Impact Assessment of Marine Knowledge 2020

FINAL REPORT





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# CONTENTS

Executive summary	6
1 Introduction	24
1.1 Study background	24
1.2 Purpose and delineation of the study	24
2 Marine data in the licensing process	27
2.1 Introduction	27
2.2 Facilitation of use of marine data	28
2.3 Re-use of marine data assembled for undertaking licensed activities	31
3 Cost of data for Marine Strategy Framework Directive	51
3.1 Introduction	51
3.2 Questionnaire based survey	52
3.3 Results	52
3.4 Overview/summary	63
4 Cost of data for offshore wind farms	65
4.1 Introduction	65
4.2 Method	66
4.3 Data requirements	68
4.4 Costs of data for one offshore wind farms	75
4.5 Cost of data for development of offshore windmills till 2020	79
5 Legal basis	81
5.1 Legal Assessment	81
5.2 Initiatives with multiple legal bases	83
5.3 Alternative options	84

5.4	Tentative conclusions and possible way forward	86
6	Innovation from marine data	88
6.1	Objectives	88
6.2	Methodology applied	89
6.3	Limitations	90
6.4	Summary findings	91
6.5	Case studies on innovation	98
7	Benefits resulting from a reduction in uncertainty	180
7.1	Objective	180
7.2	Methodology applied	180
7.3	Limitations	181
7.4	Summary findings	182
7.5	Case studies on the benefit of reducing uncertainty	185
8	Options for governance of European marine observation and data networks	203
8.1	Marine Knowledge – the governance context	203
8.2	Description of governance options	207
8.3	Assessment of secretariat options	214
9	References	220

## APPENDICES

Appendix A	Off-shore wind farm data	227
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## Executive summary

The improvement of marine knowledge is one of the main objectives of the European integrated maritime policy. In 2010, the European Commission in its Communication on Marine Knowledge 2020 presented a strategy on improving marine knowledge as a "key element to achieve smart growth in the European Union in line with the 'Europe 2020' strategy". The objectives of the Marine Knowledge 2020 strategy are to reduce operational costs related to data use, increase competition and innovation from marine knowledge and to reduce uncertainty on the state of the oceans and seas.

The present study is aimed at gaining a deeper understanding of the current practices as well as opportunities and benefits of future marine knowledge sharing. The study includes seven components covering a set of 18 individual questions to be answered. The components are:

- 1 Marine data in the licensing process
- 2 Costs of data for Marine Strategy Framework Directive
- 3 Cost of data for offshore wind farms
- 4 Legal basis of Regulation or Directive
- 5 Innovation from marine data
- 6 Reductions in uncertainty
- 7 Options for governance of EMODNet

The study is being undertaken by COWI A/S in cooperation with Ernst & Young. COWI was the lead responsible for components 1 to 4 and 7, while Ernst & Young took lead on components 5 and 6.

## Overview

The terms of reference defined 18 the specific evaluation questions which were answered based on data collection exercise involving surveys, questionnaires and interviews combined with literature review.

**Error! Reference source not found.** provides a summary answers to each of the study questions.

*Table 0-1 Summary of findings by each study question*

	<b>Study question</b>	<b>Findings</b>
(1)	Do potential operators of licensed activities mentioned in point 2.2 pay for meteorological, bathymetric or geological data when preparing their application for a licence?	It seems that in about half the Member States data have to be purchased. Their costs are however relatively minor compared to overall licence costs. The costs of data in relation to Environmental Impact Assessments (EIAs) are often not known by the licence or permit applicant as the EIAs are done by external consultants and the purchasing of data is not billed separately.
(2)	Would they request more data (i.e. higher resolution in time or space) if it were substantially cheaper or easier to access?	The replies indicate that the licensees only collect the data necessary for the preparing the application so there is no indication that further data would be requested if data were either cheaper or easier to access.
(3), (4) (5)	Is the licensee obliged to hand over to public authorities the data collected or acquired in order to plan, develop or engage in the licensed activities including marine and coastal aquaculture, renewable energy, minerals extraction, oil exploration and exploitation, port harbour and marina development and pipeline and cable laying	No general answer can be given on this question. The obligation to hand over to public authorities, marine data collected or acquired in relation to licensed activities varies greatly across sectors and Member States. Of the ten countries for which information was received, in 7 there is an obligation to hand over marine data in at least some of the marine sectors. In most cases this obligation covers all phases of marine projects, i.e. siting, planning, construction and operation.
(6)	How much effort will Member States spend up to 2020 on data acquisition, management and dissemination (including enabling access to the Commission and the European Environment Agency) in meeting the requirements of the Marine Strategy Framework Directive?	For the initial MSFD assessment in the 22 coastal Member States and Croatia a total costs of EUR 45-55 million was estimated.  The estimated effort up to 2020 can be estimated to be in the range of EUR 66-73 million, consisting of the costs of existing and new monitoring programmes (see questions (7) and (8))
(7)	How much of this cost is assembling existing data (i.e. data already collected, or being collected for other purposes)?	The estimate of yearly cost of assembling data from existing monitoring programmes based on an upscale of data from 9 Member States is EUR 45-52 million  This could be an underestimate as it most likely do not include all relevant monitoring programmes.
(8)	How much will be spent on collecting new data (i.e. data from new monitoring and survey programmes that would not have been collected without the Marine Strategy Framework Directive needs)?	Estimate of yearly costs for new monitoring programmes: order of magnitude estimate EUR 20 million  The estimate of the costs of new monitoring programmes is likely to be an underestimate as only very few Member States were able to provide an estimate. In many cases the decisions on new monitoring programmes have not yet been made and hence, it is difficult for the Member States to provide estimates.
(9)	What marine data will be required for planning, building and operating offshore wind farms in Europe up to 2020?	Based on consultation with the off shore wind sector supplemented by literature reviews and expert assessments, the different types of data are described in chapter 4.
(10)	How much will be spent collecting, purchasing, assembling and processing these data?	Using the same approach as for Question 9, the costs of data have been estimated. For an "average" offshore wind farm of 200 MW, the total data costs for planning, construction and operation could amount to EUR 19 million. With projections of new capacity in the order of 35-38 GW in the period up to 2020, total data costs for the sector could amount to EUR 3.4 - 3.7 billion. The major part of the costs, are costs for geotechnical site surveys
(11)	What legal basis could be used for a Directive or Regulation on marine knowledge that meets several objectives? Are there any examples?	Both the issues of legal basis and legal instruments have been assessed, and key aspects are presented.

	<b>Study question</b>	<b>Findings</b>
(12)	Assuming that historic and real-time data were available on parameters such as chemical pollution, non-native species, coastal erosion, storm intensity etc. what services based on these and other data: > Might reduce risks for aquaculture producers?	In total 15 case examples have been identified and assessed concerning description of problem/opportunity, the effect of additional data and the link to Knowledge 2020 and finally a description of the innovative service and an estimate of the potential economic benefits.  The 15 case studies covering the four sectors demonstrate that additional marine data can promote innovation and suggest that there are significant economic benefits.
(13)	> Might enable insurance companies in coastal regions to provide a better assessment of risk?	
(14)	> Could support a longer season for coastal tourism?	
(15)	> Could help the bio-economy discover new products (pharmaceuticals, enzymes, cosmetics etc.)	
(16)	The contractor should provide three more examples of the economic benefits of reduced uncertainty in the behaviour of the sea or the state of the seabed and marine life.	
(17)	How would such an arrangement work? Are there any examples (other than EU Agencies)?	The arrangement of the work was described and different organisation options assessed including descriptions of examples of management structures.
(18)	Could it be done through the Joint Programming Initiative on Healthy Seas and Oceans? Or through the Joint Research Centre? Or through an executive agency? Or through a public-private partnership? What would be the costs and benefits in each case?	The organisational options have been assessed and the advantages and disadvantages of alternative options are presented and described.

A further summary of each study area is presented in the following sub-sections of the executive summary.

### Marine data in the licencing process

The study has investigated whether licence or permit applicants pay for certain types of marine data when preparing the applications. The assessment has indicated a varied situation regarding payment for bathymetric, meteorological and hydrological data. License or permit applicants have to pay for some data but often they have to do their own data collection which is more costly.

*Table 0-2 Potential payment for bathymetric, metrological and hydrological by permit or licence applicants in selected Member States*

Bulgaria	Licence applicants have to pay for marine data
Denmark	Licence applicants have to pay for marine data
Cyprus	Marine data free of charge (information from the ports sector)
France	Licence applicants have to pay for marine data (information from the ports sector in La Rochelle)



Germany	Licence applicants have to pay for marine data products, but not for data sets (information only available for renewable energy and cable and pipeline laying)
Norway	Licence applicants have to pay for marine data
Romania	Marine data free of charge (unless the marine data come from research institutions/agencies)
UK	Some marine data free of charge

*Source: Results of industry association's survey*

A second issue in relation to permits or licences is whether there are obligations for the applicants to hand over the collected data to the relevant authority. A majority of Member States responding to a survey (ten out twelve) replied that they have obligations for licence or permit applicants to hand over data. The requirement usually does not concern commercially sensitive data. Furthermore, few Member States collect data in the INSPIRE format. Data is often made available for re-use upon request.

*Table 0-3 Obligations to hand over data to public authorities by permit or licence applications*

Bulgaria	Obligation to hand over data varies between sectors and phases of operations (siting, construction, operation)
Croatia	Obligation to hand over data
Cyprus	Obligation to hand over data in the aquaculture sector
Estonia	Extensive obligation to hand over data
England	No obligation to hand over data
Germany	Information only available for renewable energy and cable and pipeline laying: Obligation to hand over certain marine data
Iceland	Obligation to hand over data for all sectors
Ireland	Obligation to hand over data in aquaculture, renewable energy, minerals extraction, port, harbour and marina development and cable and pipeline laying
Latvia	Obligation to hand over data from monitoring activities for all sectors (Aquaculture n/a)
Northern Ireland	Information only available for renewable energy, mineral extraction, port, harbour and marina development and cable and pipeline laying: Obligation to hand over marine data
Norway	Obligation to hand over data (no information available for oil exploration and exploitation)
Romania	Obligation to hand over data (n/a for renewable energy and minerals extraction as there are no such offshore activities in Romania)
Scotland	No obligation to hand over data
Spain	No general obligation to hand over data

*Source: Results of Member State survey*

## Cost of data for the Marine Strategy Framework Directive

The Marine Strategy Framework Directive (MSFD) includes a number of requirements where there is need for collection of marine data. This study has investigated the costs of data collection activities based on a questionnaire survey among the Member States.

Ten Member States have provided information and they represent a good sample of all EU coastal states (location, population, GDP level, coastline, geography).

The reported costs have therefore been adjusted using GDP levels and labour costs and scaled up for 22 coastal states using average costs. Due to the diverse geography, economic and social properties of the respondent countries this method provided the best results. The estimates that have been calculated in response to the questions in the Terms of Reference for this project are the following:

- › Estimates of the efforts related to the initial assessment required by the MSFD in the 22 coastal Member States and Croatia: EUR 45-55 million.
- › Estimate of yearly cost of assembling data from existing monitoring programmes: EUR 45-52 million.
- › Estimate of yearly costs for new monitoring programmes: around EUR 20 million as an order of magnitude estimate.
- › The estimate of the effort related to the initial assessment is the least uncertain of the estimates. Regarding existing monitoring programmes that provide data to the MSFD, Member States might have included mainly the environmental programmes. Data are typically also provided from other monitoring activities for example monitoring of fisheries. Hence, the costs of existing programmes that provides data for the MSFD are likely to be underestimated.

The estimate of the costs of new monitoring programmes is also likely to be an underestimate as only very few Member States were able to provide input on new programmes. In many cases the decisions on new monitoring programmes have not yet been made and hence, it has proven difficult for Member States to provide estimates that could support the assessment.

## Cost of off shore wind farms

The study has included a comprehensive assessment of all types of data costs in relation to planning, construction and operation of off-shore wind farms

The assessment has been developed as the costs of one off-shore wind farm with a capacity of 200 MW and then up-scaled that estimate over the 35 to 38 GW of off shore wind capacity which is expected in EU by 2020.

The estimation indicates that data costs of an offshore wind farm of 200 MW are in the order of EUR 19 million and with projected new capacity to be installed in the order of 35-38 GW, the total data costs in the sector could be in the order of EUR