COLUMBUS
KNOWLEDGE TRANSFER FOR BLUE GROWTH

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CONTENT

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Executive Summary

This report is based on a collection of recent intergovernmental and international strategies (since 2007) in the marine and maritime sector. Each of the overarching (intergovernmental, international and EU-level) strategies analysed follows a different format and focusses on different issues, e.g. tackling specific challenges, bottlenecks, knowledge gaps and needs. Nevertheless, the following key messages across the strategies were identified:

1) The maritime or **Blue Economy** is believed to have great economic potential. However, sustainable management of the environment is a pre-requisite to sustainable growth of this blue economy.

2) The **ecosystems of our seas and oceans are vulnerable and must be preserved**. Research and deeper knowledge on biodiversity, climate change and the complexity of marine systems is essential for policy regulations and coastal management.

3) There is an urgent need for **sharing existing knowledge and infrastructure in ocean sciences**: sharing marine data; the harmonization of formats, standards and operating procedures; and utilising common support infrastructures and systems, like the European Marine Observation and Data Network (EMODnet) or the Global Earth Observation System of Systems (GEOSS).

4) **Transdisciplinarity and participation of key stakeholders** of all marine and maritime sectors are key elements for success.

Please see the conclusions section for a more in-depth breakdown of considerations per stakeholder group (Policy, Industry, Science, Society) to respond to their anointed knowledge needs as determined by this analysis of the main intergovernmental and European strategies covering the marine and maritime sectors across Europe.

Introduction & Approach

The overall goal of the COLUMBUS project is to ensure measurable value creation, from the European Commission's significant research investments, contributing to sustainable Blue Growth in Europe. Within the Cooperation programme of the 7th EU-Framework programme for R&D (FP7) alone, 109 projects with a budget of about 550 M€ were funded in marine and maritime sciences by the European Commission[1]. As there is no specific marine science research programme on European level, the respective funding is spread over several sub-programmes based on few strategic guidelines. The main policies and strategies involved are the **Marine Strategy Framework Directive (MSFD), the Common Fisheries Policy (CFP), the Blue Growth Strategy and Sea Basin level**

[1] ECORDA database

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strategies for the (1) Atlantic Ocean area, (2) Baltic Sea Region, (3) Adriatic and Ionian Region, (4) Black Sea, (5) Mediterranean Sea and (6) Arctic Region.

The COLUMBUS project will also provide feedback on whether knowledge could be found from international and EU funding streams to meet the gaps and needs outlined in the relevant policies, programmes and associated strategies. As it turns out to be nearly impossible to identify all relevant funding programmes in the marine field, especially on national levels, the analysis of main intergovernmental and European strategies has been taken instead to identify the key challenges, gaps & needs. Thus in total more than 100 documents were identified by the Competence Nodes (CNs), while 35 could be labelled as overarching strategies covering more or less all marine and maritime issues globally but also specific Sea Basin strategies. In consequence this report analyses the collection of recent intergovernmental and international strategies in the marine and maritime sector published (provided in Annex 1).

Each of these strategies has been provided as a quick and concise reference factsheet, listing and the main challenges, gaps and needs extracted from these documents (Annex 2).

This analysis will be used to inform COLUMBUS activities. It is important to identify the challenges, gaps and needs per major target group: **(1) Policy, (2) Science, (3) Industry and (4) Society** to conduct the knowledge transfer. This report provides a first overview on relevant strategic issues affecting each specific group.

Work Package 3 (WP3) of COLUMBUS is focused on prioritising the key knowledge needs to foster Blue Growth as well as assisting with the implementation of the Marine Strategy Framework Directive (MSFD), intergovernmental strategies, the Common Fisheries Policy (CFP) and relevant sea basin strategies. Specifically, WP3 has the following objectives: (1) review past efforts by relevant initiatives investigating Blue Growth agenda and MSFD implementation, (2) perform an analysis of the latest Blue Growth and MSFD implementation challenges, (3) identify the knowledge demand – a priority list of knowledge needs and challenges per focus area and (4) develop a systematic map identifying key target areas for WP4 (knowledge supply).

The respective “knowledge demand” of the marine and maritime sector plays a major role for subsequent tasks within COLUMBUS, and the results will provide the basis for the project’s core “knowledge transfer cycle” (WPs 4, 5 and 6). While in these subsequent work packages the focus is on collecting relevant projects and their knowledge outputs for analysis and transfer, WP3 focuses on exploring the viewpoint of the key target groups, or end-users - Policy, Industry, Science and Society - as represented in reports issued by intergovernmental, international and regional bodies like the EU Commission, regional governing bodies as well as other stakeholders groups (e.g. industry, producer groups). The member states level could not be looked at, but their strategic foci are usually mirrored in overarching strategies. Besides strategic documents published by the EC and regional (Sea-Basin) bodies, documents from intergovernmental bodies like the Intergovernmental Oceanographic

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Commission of UNESCO[2] (IOC) were included as well. Although the strategic documents cover all aspects of marine and maritime challenges in the upcoming years, major overlaps and common messages were identified and are detailed in the main body of the report (Annex 2).

The work in WP3 was mainly achieved by desktop research (see Figure 1 for timeline of activities). The first ideas and documents were collected in March/April 2015 and presented at the COLUMBUS Kick-off meeting in Dublin, 21st - 22nd April. Due to the huge amount of documents it was decided to take only most relevant strategies into account which were published after 2007. All documents which were published by working groups to implement the MSFD are related to the main strategic document.

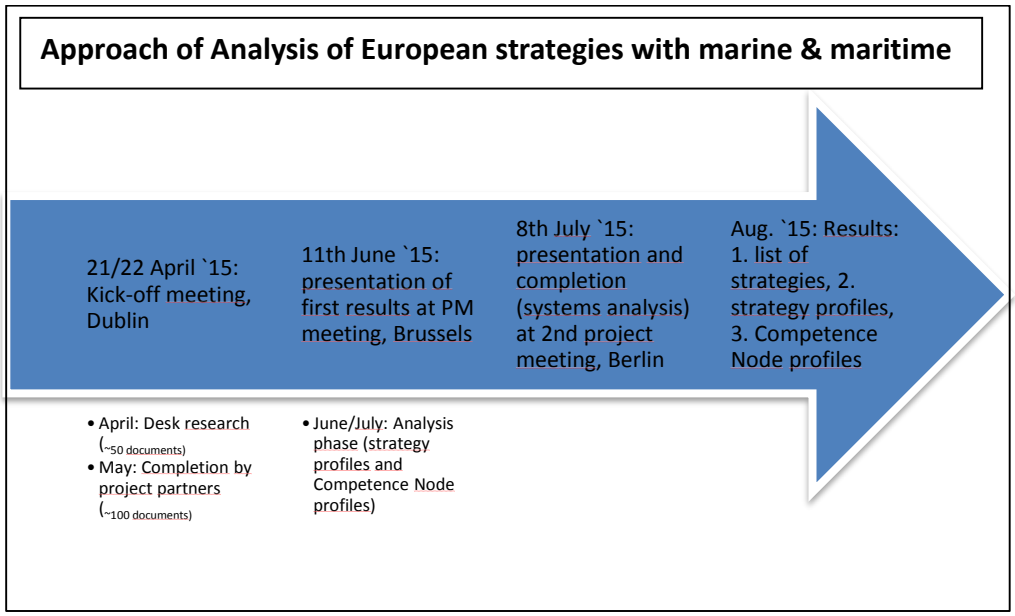

Figure 1: Work process of Task 3.1

The 1st COLUMBUS Project Management meeting took place on 11th June 2015 in Brussels, during which the first results of WP3 were presented. Dealing with approximately 100 relevant documents, it was decided to split the analysis work. All Competence Nodes (CN) leaders were present at this meeting. Due to the CN Leaders' inherent expertise in the sectors covered by their CN, it was agreed that they should perform a review and analysis on the relevant reports for their sector; whilst JUELICH performed a desktop review of the overarching strategic documents covering the marine and maritime sectors, in general. This analysis was essential for providing comprehensive background information on the sectors and subsectors addressed. While the majority of strategic documents

[2] United Nations Educational, Scientific and Cultural Organisation

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covering the European marine and maritime landscape had common approaches and findings, a high level of fragmentation in their content was identified.

It was also decided that in order to develop resources of the most value, these analyses should also include a general vision for the sectors, the current state-of-the-art, as well as the value chains which could be found within the relevant sectors. The results were partially integrated in Deliverable 3.2 “Knowledge Demand: Assignation of Knowledge needs to Competence Nodes”.

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Key challenges & knowledge needs per focus area

One of the key objectives of WP3 was to collate the findings of relevant European initiatives with regard to four focus areas: (1) MSFD Implementation, (2) Common Fisheries Policy (CFP), (3) Blue Growth Agenda and (4) Regional Sea Basin Strategies. The following chapter presents preliminary results on key challenges, gaps and needs per focus area which is then followed by the results of the Competence node profiles.

Marine Strategy Framework Directive

The Marine Strategy Framework Directive (MSFD) represents the environmental pillar of the European Integrated Maritime Policy. It was adopted in 2008 and, since then, a large amount of activities were put in place to implement the main goals of this strategy. It is the aim of the MSFD to promote the integration of environmental considerations into all relevant marine policy areas, with the intended result of achieving good environmental status (GES) in Europe by 2020[3]. The MSFD stated in 2008, "on one hand there is a high pressure on marine natural resources and the demand for marine ecological services and on the other hand there is a strong impact on the marine environment". To monitor if GES has been achieved by 2020, 11 descriptors were defined: (1) Biodiversity, (2) Non-indigenous species, (3) Populations of commercial fish and shellfish species, (4) Food web structure, (5) Eutrophication, (6) Sea floor integrity, (7) Alteration to hydrography, (8) Contaminants, (9) Sea-food contaminants, (10) Marine litter and (11) Energy and underwater noise. Figure 2 highlights the key milestones of the timeline to reach GES by 2020.

Figure 2: MSFD Cycle (Source: http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm)

[3] MSFD (2008), p. 25: good environmental status' means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations, (…)

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Following on from the publication of the MSFD in 2008, several strategies have been produced covering implementation of the Directive itself, to monitoring procedures and considerations to be taken into account. By the end of 2015, Member States had released their programmes of measures (as a result of the first assessment of the GES). In 2016, these measures have to be implemented in order to perform a second assessment (re-starting the six-year cycle) and confirm progress, gaps and improvement areas, towards the achievement of GES in 2020. Table 1 acts as a bibliography underlining some of the key efforts contributing to the adaptation and implementation of the MSFD:

Table 1: Documents relevant to the implementation of MSFD

Title of Document	Date	Source (link)
Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)	2008	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056
Commission Decision on criteria and methodological standards on good environmental status of marine waters (2010/477/EU)	2010	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010D0477(01)
COM report "The first phase of implementation of the Marine Strategy Framework Directive" (2008/56/EC)	2014	http://ec.europa.eu/transparency/regdoc/rep/1/2014/EN/1-2014-97-EN-F1-1.Pdf
COMMISSION STAFF WORKING DOCUMENT Annex Accompanying the document Commission Report to the Council and the European Parliament The first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC)	2014	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014SC0049
The Common Implementation Strategy for the Marine Strategy Framework Directive "Learning the lessons and launching a re-enforced phase of implementation"	2013	http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/pdf/MSFD%20CIS%20future%20work%20programme%202014.pdf
STAGES Workshop report Further Research Needs on Pressures and their Impact on the Marine Ecosystem under MSFD	2013	http://www.stagesproject.eu/images/STAGES/deliverables/STAGES%20Pressures%20%20Impacts_Workshop%20Report_v5_04%2002%2014.pdf
STAGES Workshop report on research needs with regard to the socio-economic analysis under MSFD	2013	http://www.stagesproject.eu/images/STAGES/deliverables/STAGES_Socio-Economic%20Workshop%20Report_v3_05%2002%2014.pdf

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JRC Report on Monitoring for the Marine Strategy Framework Directive: Requirements and Options	2012	http://mcc.jrc.ec.europa.eu/documents/201409261130.pdf
JRC Report on Technical guidance on monitoring for the Marine Strategy Framework Directive	2014	https://ec.europa.eu/jrc/sites/default/files/lb-na-26499-en-n.pdf.pdf
STAGES Workshop report Needs for further research to support improved and more efficient monitoring programmes under MSFD	2013	http://www.stagesproject.eu/images/STAGES/deliverables/STAGES_Monitoring%20WorkshopReport_v3_04%2002%2013.pdf
Programmes of measures under MSFD: towards recommendations for establishment / implementation and related reporting	2014	http://www.fishsec.org/wp-content/uploads/2014/05/MSCG-Draft-Recommendation-PoM.pdf

The MSFD plays a key role for the sustainable development of the marine and maritime sectors in Europe. Most of the overarching strategies which were screened within WP3 include at least one link to the MSFD (Annex 1). The MSFD was even found to serve as a reference document for the maritime industry and for a sustainable use of marine resources in general.

Due to the fact that the EU member states are now obliged to reach GES, the MSFD plays a major role on regional level and is always mentioned in the sea basin strategies. In February 2014, the EU-Commission published a summary on the first phase of the implementation of the MSFD[4]. On the basis of the assessment reports of the member states the EU-Commission stated that a lot of efforts were made to describe the status of the European marine waters. It was criticized that the reports were partly fragmentary and that there were large differences between the member states. Through this mid-term-report, the EU-Commission gave useful recommendations to reach the goals of the MSFD by 2020.

The MSFD and its implementation play a major role in the COLUMBUS project. Specifically, the Competence Node “Marine Governance and Management” is responsible for supervising the activities in this area.

Common Fisheries Policy (CFP)

The revised Common Fisheries Policy (CFP) was published in 2013 by the EU-Commission and “the scope of the CFP includes the conservation of marine biological resources and the management of fisheries targeting them. In addition, it includes, in relation to market and financial measures, fresh water biological resources and aquaculture activities, as well as the processing and marketing of fishery and aquaculture products. The CFP covers the territory of Member States or in Union waters,

[4] **2014:** Report from the Commission of 20 February 2014 on The first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC) The European Commission's assessment and guidance (and Annex)

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including by fishing vessels flying the flag of, and registered in, third countries, by Union fishing vessels, or by nationals of Member States, without prejudice to the primary responsibility of the flag State, bearing in mind the provisions of Article 117 of the United Nations Convention on the Law of the Sea of 10 December 1982 (UNCLOS)"[5].

It is a key challenge to preserve the marine biodiversity and at the same time to consider commercial fisheries and consumers' behaviour. Therefore, strategic guidelines within the fisheries sector have been linked to other important strategic guidelines in Europe, like the MSFD, the Europe 2020 strategy or the Blue Growth strategy as well as to the aquaculture sector. It touches especially on aspects of the bioeconomy and agricultural sector. Table 2 acts as a bibliography underlining some of the key efforts contributing to the implementation of the CFP:

Table 2: Documents relevant to the implementation of CFP

Title of Document	Date of pub.	Source (link)
REGULATION (EU) No 1380/2013…on the Common Fisheries Policy	11.12.2013	Official Journal of the European Union: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF
REGULATION (EU) No 508/2014…on the European Maritime and Fisheries Fund	15.05.2014	http://faolex.fao.org/docs/pdf/eur133685.pdf
Sustainable Agriculture, Forestry and Fisheries in the Bio economy – A challenge for Europe	15.05.2015	http://ec.europa.eu/research/scar/pdf/feg4-draft-15_may_2015.pdf
REGULATION (EU) No 1379/2013…on the common organisation of the markets in fishery and aquaculture products	11.12.2013	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013R1379
The 2014 Annual economic report on the EU fishing fleet	30.10.2014	https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/2014-annual-economic-report-eu-fishing-fleet-stecf-14-16-scientific-technical-and-economic
EU Fish market report, 2014	31.03.2014	http://ec.europa.eu/information_society/newsroom/cf/mare/itemlongdetail.cfm?item_id=15471&subweb=343&lang=en
Communication from the Commission: Innovation in the Blue Economy: realising the potential of our seas and	13.05.2014	http://ec.europa.eu/maritimeaffairs/policy/blue_growth/

[5] REGULATION (EU) No 1380/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC, Art. 2

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oceans for jobs and growth. COM(2014) 254/2		
The State of World Fisheries and Aquaculture 2014. Rome. 223 pp.	2014	http://www.fao.org/3/contents/c235a282-977e-43d9-b1e7-cffee5ccf92f/i3720e00.htm

In the COLUMBUS project, the Fisheries and Aquaculture CNs are principally engaged with the CFP topics and with those of the corresponding industrial activities, including the whole value chains.

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Blue Growth Agenda

The Blue Growth Agenda was adopted in 2012 by the EU Commission and represents the heart of the overarching Integrated Maritime Policy in Europe. The strategy will contribute to foster the blue economy in Europe by facing the following challenges[6]:

- Providing affordable technological solutions for offshore, robotics or maritime surveillance are urgently needed.
- Increasing demand of energy and food, due to challenges such as higher standards of living, demographic shifts or scarcity of natural resources. Society and politics have to consider options and respond to exploiting our seas in a more sustainable way.
- Increasing pressure on the marine environment: environmental targets (e.g. reaching the GES by 2020) have to be implemented seriously.

The Blue Growth Agenda is focused on the economic development of the marine and maritime activities and have defined five sectors with high potential for growth and for the creation of new job opportunities: blue energy, aquaculture, maritime, coastal and cruise tourism, marine mineral resources and blue biotechnology. Nevertheless, the scope of the strategy is broader, having relevance for all marine activities and being well matched with other ongoing European policy initiatives like MSFD, the Common Information Sharing Environment (CISE), and Maritime Spatial Planning Directive, and with further strategic decision-making groups in the maritime sector. Since 2012, consultations with the Member States, the industry or relevant stakeholders have been performed. In COLUMBUS, all five economic activity areas are represented by respective CNs:

- **Blue Energy**: Marine Physical Resources Competence node
- **Aquaculture**: Aquaculture Competence node
- **Maritime, Coastal and Cruise Tourism**: Maritime Tourism Competence node
- **Marine Mineral Resources**: Marine Physical Resources Competence node
- **Blue Biotechnology**: Marine Biological Resources Competence node

The remaining CNs in COLUMBUS, with a more cross-cutting orientation (Monitoring and Observation, Marine Environment and Futures, Maritime Transport and Logistics, and Marine Governance and Management) are aimed to complete the picture, mirroring the scope of Blue Growth Strategy.

[6] See also the newly published report from EU-COM, DG MARE (2015): Summary of the results of the public consultation on international Ocean Governance, Download: http://ec.europa.eu/dgs/maritimeaffairs_fisheries/consultations/ocean-governance/index_en.htm, 25.02.2016

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Sea Basin Strategies

The major strategic documents cover different levels of development for the following sea basins bordering the EU: (1) Atlantic Ocean area, (2) Baltic Sea Region, (3) Adriatic and Ionian Region, (4) Black Sea, (5) Mediterranean Sea and (6) Arctic Region.

The strategies related to sea basins have a far more regional and even local focus; however, the recommendations outlined below can be also understood on a broader level:

- Administrative and institutional issues: capacity-building at national, regional and local level to meet upcoming cross-border challenges with respect to cross-policy coordination
- Enhanced collaboration between communities, regions, Member States and the European Commission
- Investment in qualifying people and their skills
- Cluster development: business incubators to foster innovations in the marine and maritime sectors
- Protecting the environment: concrete actions in the coastal areas; fighting marine litter; development of sustainable tourism schemes
- Accessibility: infrastructure (transport, e-infrastructure, research infrastructure)
- In general: transdisciplinary, interdisciplinary and sustainable regional development

As well as the sectoral approach seen in maritime industries (aquaculture, fisheries, maritime tourism, shipbuilding etc.), the territorial approach is also of great importance for leading the knowledge transfer process to a practical implementation in a more specific context. The sea basin strategies play a key role for the economic development of a respective region and on member state levels. As mentioned above, all European sea basins do have specific strategies, however, with major differences between their implementation statuses. Special concern for coastal regions and their economic development unifies them all. The sea basins are connecting regions and countries, which implies that challenges are centred around transnational and trans-boundary cooperation covering broader challenges such as: governmental and structural issues (e.g. administrative concerns, Integrated Coastal Zone Management (ICZM), Information and Communication Technologies (ICT) and transport accessibility), environmental problems (eutrophication, waste management, impacts on marine organisms), marine ecosystem services (provisional, regulatory, cultural, recreational) and specific economic challenges (fishing quota, offshore platforms, maritime and coastal tourism, shipbuilding) or capacity building and marine literacy challenges (further education, well educated workforce, perspectives for the youth).

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Within the last few years, all European regions have prepared strategies within the Smart Specialization Strategy (S3)[7]. These strategies serve as a precondition to adopt the structural funds for the respective regions for the period 2014-2020. At its best, there is some link with the Sea basin strategies. The different structural funds (European Social Fund (ESF), European regional Development Fund (ERDF) or European Maritime and Fisheries Fund (EMFF)) are a major hub to foster the economic developments in the regions.

For the period 2014-2020, strong efforts will be made to combine financial support, e.g. from Horizon 2020 and Structural funds. COLUMBUS is primarily focusing on Knowledge Outputs from the Research and innovation programme FP7 and the ongoing programme Horizon 2020. But especially through the transnational/regional programmes like Interreg IV B or C, many RDI-projects were supported too, so that the regional aspects of sea basins will play a major role too.

Due to the fact that the COLUMBUS partners are spread over Europe, all Sea Basins can be covered from the regional point of view.

[7] More information on S3: https://ec.europa.eu/jrc/en/research-topic/smart-specialisation

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Key challenges & knowledge needs per target group

WPs 4 to 6 form the core of the COLUMBUS project structure, and cover the Knowledge Transfer cycle: Knowledge Supply, Knowledge Analysis, and Knowledge Transfer. The challenges, gaps and needs outlined in WP3 will be used to prioritise which EU funded projects, in WP4, will have Knowledge Outputs collected. These Knowledge Outputs will be placed on the Marine Knowledge Gate (http://www.kg.eurocean.org/) which was developed by EurOcean through several previous Knowledge Transfer projects funded by the EC.

The following will summarize the challenges, knowledge gaps and needs for the main target groups in policy, science, industry and society. One should have in mind that the four groups are interlinked and that some of the challenges are corresponding to two or even more groups.

Policy

Politics dealing with marine and maritime issues is complex, even partially fragmented, on all levels, UN, Europe and even on national levels. The responsibilities of the European Commission are spread over several Directorate Generals (DG), e.g. MARE, Environment, Research & Innovation. European regulations like MSFD, Integrated Maritime Policy (IMP) or CFP serve as framework for the handling the seas and oceans. The MSFD has to be implemented by the EU Member States. Additionally, to the legal European framework, a couple of strategies were published by intergovernmental, industrial or scientific stakeholder groups; so it is also the role of politics to ensure the involvement of all relevant players into the planning processes. In COLUMBUS, primarily the Competence Node "Marine Governance & Management" is dealing with political issues.

On UN level the **Intergovernmental Oceanographic Commission (IOC), Food and Agriculture Organization of the United Nations (FAO)** and **International Maritime Organization (IMO) are** dealing with marine and maritime matters as responsible agencies while the United Nations Environment Programme (**UNEP)** as an inter-agency programme and the United Nations Convention on the Law of the Sea (**UNCLOS)** as a related convention, are covering specific marine issues.

After a long negotiation period, of more than 50 years, the United Nations Convention on the Law of the Sea (UNCLOS) entered in force in 1994. The convention stipulates that "maritime issues need to be examined in their entirety and managed comprehensively". UNCLOS provide the first international legal framework through which all countries bound to managing and protecting the oceans. The setting up of this common international framework for maritime development, use, and protection of the sea meant the beginning of a number of international initiatives to guarantee a sustainable use and preservation of the marine environment for the benefit of present and future generations.

The Intergovernmental Oceanographic Commission (IOC) of UNESCO with its 147 member is the only organization for marine science within the UN system. The IOC promotes intergovernmental cooperation and coordinates programmes in marine research, services, observation systems, hazard

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mitigation, and capacity development in order to understand and effectively manage the resources of the ocean and coastal areas.

The IOC Medium-Term Strategy, highlights the following challenging issues:

1. Foster ocean research to strengthen knowledge of ocean and coastal processes and human impacts upon them (ocean research)
2. Maintain, strengthen and integrate global ocean observing, data and information systems (observing system / data management)
3. Develop early warning systems and preparedness to mitigate the risks of tsunamis and ocean-related hazards (early warning and services)
4. Support assessment and information to improve the science-policy interface (assessment and information for policy)
5. Enhance ocean governance through a shared knowledge base and improved regional cooperation (sustainable management and governance)
6. Develop the institutional capacity in all of the functions above, as a cross-cutting function (capacity Development)

The European Union adopted for the first time an integrated approach to ocean management and maritime governance within the IMP, including, as its environmental pillar, Directive 2008/56/EC of the European Parliament and of the Council (the MSFD). The objective of the IMP is to support the sustainable development of seas and oceans and to develop coordinated, coherent and transparent decision-making in relation to the Union's policies regarding the different activities affecting the oceans, seas, islands, coastal and outermost regions and maritime sectors, including through sea-basin strategies or macro-regional strategies, whilst achieving good environmental status as set out in Directive 2008/56/EC. The European Commission also laid down its vision on international ocean governance in the 2009 Communication on 'Developing the international dimension of the Integrated Maritime Policy (IMP) of the EU' (COM(2009)536). The release of the Blue Growth Agenda reaffirms the policy commitment with integrated approaches to the management and development of marine and maritime affairs. During the last decade, at sea basin level, the corresponding strategies, action plans and agendas[8] (for the Mediterranean, the Baltic Sea, the Atlantic including

[8] Atlantic Action Plan: http://ec.europa.eu/maritimeaffairs/policy/sea_basins/atlantic_ocean/index_en.htm
Adriatic and Ionian Seas strategy:
http://ec.europa.eu/maritimeaffairs/policy/sea_basins/adriatic_ionian/index_en.htm
Arctic Ocean strategy: http://ec.europa.eu/maritimeaffairs/policy/sea_basins/arctic_ocean/index_en.htm
Baltic Sea strategy: http://ec.europa.eu/maritimeaffairs/policy/sea_basins/baltic_sea/index_en.htm
Black Sea strategy: http://ec.europa.eu/maritimeaffairs/policy/sea_basins/black_sea/index_en.htm
Mediterranean Sea Strategy:
http://ec.europa.eu/maritimeaffairs/policy/sea_basins/mediterranean_sea/index_en.htm
North Sea strategy: http://ec.europa.eu/maritimeaffairs/policy/sea_basins/north_sea/index_en.htm
Seas around Europe's Outermost Regions strategy:
http://ec.europa.eu/maritimeaffairs/policy/sea_basins/outermost_regions/index_en.htm

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Galway Strategy, the North Sea, the Adriatic and Ionian Seas, the Black Sea and the strategy for the Outermost Regions), constitute a complementary bunch of policies to facilitate and increase effectiveness of the implementation of overarching regulations within a regional context. Those, in combination with the EU Biodiversity Strategy to 2020 and the 7th Environment Action Programme, the Marine Strategy Framework (MSFD - 2008/56/EC) and the Maritime Spatial Planning Directives (2014/89/EU) have created a new and comprehensive legal framework within the EU aiming for good ocean governance and compliance with international commitments.

Together with stakeholders from the member states, the EU published strategic documents dealing with marine and maritime issues. Annex 1 identifies 47 such documents including the Europe 2020 strategy, Blue Growth Strategy, the IMP, the Sea Basin strategies and thematic related papers like MSFD, CFP or scientific or industrial related ones. There are binding regulatory frameworks like IMP, MSFD or CFP but also strategic guidelines which will serve stakeholders and actors in the member states to develop further up-to-date themes like climate change impact, renewable energies or ocean governance. The key challenges and needs, as defined by these documents in the upcoming year, are:

- Coordination of different sectors and actors in the maritime sectors
- Ensure the basis for marine knowledge (provide marine infrastructure)
- Ensure the dialogue between actors in the member states and the EU and international stakeholder groups
- Ensure an efficient implementation of EU regulations (MSFD, CFP, IMP)
- Contribute to the overall aim of Europe 2020 strategy: smart, sustainable and inclusive growth.

Additional to the EU, different stakeholders groups have published strategic documents (or stimulated projects and initiatives with related objectives) with a more concrete focus (Annex 1).

Another platform initiated by European member states and associated states is the Joint Programming Initiative (JPI) Oceans. It is open to all coastal states that invest in marine and maritime research and provide a long-term integrated approach to marine and maritime research and technology development. The 10 strategic areas of the 2015 adopted Strategic Research and Innovation Agenda (SRIA) are referring to the main challenges and needs:[9]

1. Exploring Deep Sea Resources,
2. Technology and Sensor Developments,
3. Science Support to Coastal and Maritime Planning and Management,
4. Linking Oceans, Human Health and Wellbeing,
5. Interdisciplinary Research for Good Environmental Status,

Galway Statement on Atlantic Cooperation: http://ec.europa.eu/research/iscp/pdf/galway_statement_atlantic_ocean_cooperation.pdf

[9] http://www.jpi-oceans.eu/strategic-agenda

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6. Observing, Modelling and Predicting Oceans State and Processes,
7. Climate Change Impact on Physical and Biological Ocean Processes,
8. Effects of Ocean Acidification on Marine Ecosystems,
9. Food Security and Safety Driving Innovation in a Changing World,
10. Use of Marine Biological Resources through Development and Application of Biotechnology

In COLUMBUS, the Marine Governance & Management CN is orientated to the policy target group and will cover MSFD, the Marine Spatial Planning Directive (MSPD) and UNCLOS, a legally binding instrument on biodiversity conservation and sustainable use of deep-sea resources in areas beyond national jurisdiction.

Science

Large areas of the oceans, covering 71% of the world's surface, are unexplored. There is a general need to understand more about biological, chemical and physical preconditions and oceanographic processes. Expanding the knowledge on seas and oceans in general, understanding their role on global biodiversity or on climate change impacts and, thus, on regulating the environment are some of the tasks of marine research. Scientific knowledge provides the basis for innovation, technological development or for actions followed by well-informed political decisions. Especially with regard to the impact of climate change, fundamental research as well as applied research plays a major role in our society. Marine science is international by nature and global challenges should be met in collaborative, international projects.

Marine and maritime research in Europe is divided on several responsibilities, depending on the focus: DG Research & Innovation and, partially, DG Environment and DG MARE are dealing with research topics. Scientific marine and maritime challenges in Europe in the near future could include: marine litter (especially plastics), the impact of climate change in the North-Atlantic and Arctic, how to deal with increased food security and safety demands and the need for a sustainable exploitation of marine resources, understanding land-sea interactions and making a sustainable use of the marine and maritime environment and resources or exploring options for common/shared research infrastructure like observatories in the Atlantic Ocean. All these topics require interdisciplinary or even transdisciplinary research. So it will be a major challenge for the EC and the member states to coordinate and to harmonise efforts, particularly the respective research funding.

The European Marine Board (EMB) is a European science-policy interface providing "a pan-European platform for its member organizations to develop common priorities, to advance marine research and to bridge the gap between science and policy, in order to meet future marine science challenges and opportunities[10]". Among other activities like the organisation of the EurOCEAN conferences (http://www.euroceanconferences.eu/), the EMB is deeply involved in several foresight processes and publishes regularly EMB position papers. They describe various upcoming challenges and needs

[10] EMB Leaflet

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of the European marine science sector. One example is the EMB position paper on "Navigating the Future"[11]. The content of this report, which is a compendium of marine science policy briefings, reflects the main challenges and needs well, as outlined below:

1. Navigating the Future: Progress and challenges in marine science and science policy
2. Understanding marine ecosystems and their societal benefits
3. Changing oceans in a changing Earth system
4. Safe and sustainable use of marine and coastal space: Balancing use and conservation
5. Sustainable harvest of food from the sea
6. Linking oceans and human health
7. Energy and raw materials from the seas and oceans
8. Sustainable use of deep sea resources
9. Challenges in polar ocean science
10. Blue technologies: Innovation hotspots for the European marine sector
11. An integrated and sustained European Ocean Observing System (EOOS)
12. Training and careers for the next generation of marine experts
13. Towards effective European marine science-policy interfaces
14. Europe's maritime ambitions require an ocean literate population

Industry

It is usually a great challenge for the industrial sector to ensure a balance between cost effectiveness and protection of the environment. Nowadays, new technologies have to be innovative, resource efficient, time-saving, environmentally-friendly and competitive on a global scale.

The development of the European maritime economy is featured in the Blue Growth Strategy, published by the EC in 2012. This long-term strategy considers the potential of seas and oceans as basic drivers for jobs and growth in Europe. A special focus lies on aquaculture, coastal tourism, marine biotechnology, ocean energy and seabed mining. Europe needs to be prepared "for technological progress, demographic shifts, increasing scarcity of natural resources and growth in hitherto underdeveloped economies, including our neighbouring countries. A number of traditional activities will remain significant employers, while emerging sectors will provide new jobs. The blue economy needs to be sustainable and to respect potential environmental concerns given the fragile nature of the marine environment. Efforts are needed to reduce negative environmental impacts of maritime activities such as the emissions of pollutants and the discharge of noxious substances" [12].

The Blue Growth Strategy also identifies further general challenges and needs for the maritime sectors in Europe including;

- Maintain competitiveness on the global market
- Enhance innovation in marine and maritime research

[11] EMB Position Paper 20: Navigating the future IV, p.5
[12] Blue Growth Strategy (2012)

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- Growth in the blue economy will require an appropriately skilled workforce

For specific industrial/maritime sectors, technology platforms, such as those provided below, play a major role. Among other activities, they develop strategic research and innovation agendas, provide networking opportunities, and/or foster the contribution of the industry at Horizon 2020.

WATERBORNE (www.waterborne-tp.org) is a European Technology Platform[13], or forum, where all stakeholders from the waterborne sector (sea & inland) define and share a common Vision and a Strategic Research Agenda, driving the necessary innovation efforts forward.

The WATERBORNE Strategic Research Agenda (SRA) and the results of the MESA project (Maritime Europe Strategy Action) are contributing to define future research needs and challenges for the maritime industries (e.g. transport, logistics, yards, equipment manufacturers, marine leisure industry).

In the revised WATERBORNE SRA (2011), following key priorities for RD&I are described:

- Safe, Sustainable and Efficient Waterborne Operations (e.g. Safety & Security actions, low emission vessels)
- Competitive European Maritime Industry (e.g. Innovative Vessels and Floating Structures, Innovative Marine Equipment and Systems, Next Generation Production Processes)

Manage & Facilitate Growth And Changing Trade Patterns (e.g. New Port and Infrastructure Facilities, Intelligent Transportation Technologies and Integrated ICT solutions, Understand Environmental Impact of Infrastructure Building and Dredging, Traffic Management Strategies)

Ocean Energy Europe (www.oceanenergy-europe.eu) hosts the European technology and Innovation Platform for Ocean Energy (TP Ocean) which brings together more than 200 experts and stakeholders within the ocean energy sector in order to define a clear pathway for technology research. The secretariat of TP Ocean is hosted by Ocean Energy Europe.

The sector is new and innovative, a Strategic Research Agenda (SRA) is planned to be published end of 2016. The ocean energy sector has worked on a roadmap, and a Communication was published by the EC in 2014[14]. Main challenges are mentioned here:

[13] www.waterborne-tp.org

[14] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Blue Energy Action needed to deliver on the potential of ocean energy in European seas and oceans by 2020 and beyond (2014), http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014DC0008

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Despite its undoubted potential, this promising new sector is facing several challenges which need to be faced to support this emerging sector to reap significant economic and environmental benefits and become cost-competitive with other forms of electricity generation[15]:

- Technology costs are high and access to finance is difficult
- There are substantial infrastructure barriers, such as grid connection issues or access to adequate port facilities and specialised vessels
- There are administrative barriers such as complex licensing and consenting procedures, which can delay projects and raise costs
- There are environmental issues to be faced, including the need for more research and better information on environmental impacts.

European Aquaculture Technology and Innovation Platform (EATiP) (www.eatip.eu) was established in order to reinforce the research and innovation processes that are required within a modern and developing Europe, the European aquaculture sector[16]. European aquaculture (including the European Union and the European Economic Area) encompasses the cultivation of a wide range of fish and mollusc species and is a true pan-European production activity, which has grown rapidly from a cottage industry in the 1960s into an industrial sector that is composed of multi-national companies, SMEs and family firms. European aquaculture represents an extraordinarily diverse sector that links to an important and diversified range of upstream and downstream activities. Together, the different players concerned cover the entire supply and management systems that provide the European consumer with nutritious high quality fish and shellfish products - a genuine value-chain.

The main challenges of European aquaculture are described in eight thematic areas which might form the basis for the SRA (to be developed):

- Product quality, Consumer Safety & Health
- Technology & Systems
- Managing the Biological Lifecycle
- Sustainable Feed Production
- Integration with the Environment
- Knowledge Management
- Aquatic Animal Health & Welfare
- Socio-economics, Management & Governance

[15] Press release: Commission sets out an action plan to support the development of blue energy (20.01.2014): http://europa.eu/rapid/press-release_IP-14-36_en.htm?subweb=342&lang=en
[16] EATiP website: http://www.eatip.eu/Default.asp?SHORTCUT=85

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Society

Human beings benefit from the conservation and sustainable use of seas and oceans through a wide variety of services that the marine ecosystems can provide: some are provisional services (e.g. food, medicine relevant compounds, minerals); others regulate the environment and climate; and others are recreational and cultural. It is important that the society at large acknowledges the relevance of marine environment on many different aspects of their lives. It is a great challenge to include the wider society into the knowledge transfer process. Controversial topics like marine plastic littering, offshore wind parks, quality of seafood products, consumer health or the diverse usage of coastal areas require early engagement with society, NGOs and media, especially to avoid possible negative impacts of new technologies (e.g. wind parks) or management habits (plastic waste) affecting the coastal population directly. Raising awareness and participation in citizen science are important tools to explore the best solutions among all stakeholder groups.

COLUMBUS' concept of knowledge transfer includes social innovation. Social innovations are new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations and also the EC is considering social innovation as a driver for growth and jobs[17].

It depends on the specific marine or maritime issue, but general challenges with respect to the society are as follows:

- Inclusion of respective stakeholder groups and citizens in participatory processes
- Build capacity for co-creation of solutions and provide training activities
- Bringing research results to a regional or even local scale (were appropriate)
- Awareness rising: reaching the wider public for big societal challenges (e.g. healthy food, plastic litter, sea level rise)

The society as a target group is relevant for all COLUMBUS Competence Nodes but especially for "Maritime Tourism" and "Marine Environment & Futures". It will be indispensable to build upon results of previous projects like Sea for Society[18] or running projects like Sea Change[19]. To address societal challenges will also mean to include citizens on local and regional level. Successful knowledge transfer in this respect would be very applicable.

Conclusions/ Reflections

In general the results of the review of both overarching and regional strategic documents are mirrored in competitive RDI funding programmes. In 2010/2011 the Joint Programming Initiative

[17] Further Information: http://ec.europa.eu/growth/industry/innovation/policy/social/index_en.htm
[18] Sea for Society website: http://seaforsociety.eu/np4/home.html
[19] Sea Change website: http://www.seachangeproject.eu/

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Healthy and productive Seas and Oceans (JPI Oceans) conducted a mapping exercise to assess the competitive marine and maritime RDI funding in Europe. In total 16 Member States responded to the questionnaire while the funding figures (16 MS and EC) added up to €2 billion/year with the FP7 funding programme representing roughly 10% of this figure. Based on these findings and figures known from intergovernmental programmes (e.g. Belmont, IMO, IOC, FAO), budgets can be seen to increase roughly tenfold from level to level: a) intergovernmental (~1%), b) EC-level (~10%) and national or multi-national funding programmes (~90%). In contrast, the overarching strategies from the UN and EC level, for example, are the most influential as regional bodies and governments are building their RDI strategies upon these roadmaps by detailing the regionally important challenges and issues.

The huge number and wide range of strategic papers made it difficult to sum up the challenges, gaps and needs in a single way. Therefore it was decided to concentrate on the analysis of overarching strategies primarily while also considering Sea Basin strategies. Strategies which could be directly linked to the respective Competence Node of COLUMBUS were analysed by the partners.

Considerations for priority action points per target group, determined by the combined ideals of the overarching strategies covered within this report, can be summarised as follows:

Target group	Actions for Consideration
Policy	• **Support Marine and Maritime evidence base** ➢ Strengthen knowledge of ocean and coastal processes and human impacts upon them; ➢ Deliver fit for purpose marine infrastructure; ➢ Encourage Interdisciplinary Research for Good Environmental Status; ➢ Promote development of state-of-the-art research on priority areas • **Improve science-policy communication** ➢ Enhance ocean governance through a shared knowledge base and improved regional cooperation (sustainable management and governance) ➢ Coordination of different sectors and actors in the maritime sectors ➢ Ensure the dialogue between actors in the member states and the EU and international stakeholder groups • **Ensure efficient and effective Ocean Governance** ➢ Efficient implementation of EU regulations (MSFD, CFP, IMP) ➢ Contribute to the overall aim of Europe 2020 strategy: smart, sustainable and inclusive growth. ➢ Provide Science Support to Coastal and Maritime Planning and Management - Linking Oceans, Human Health and Wellbeing, ➢ Drive Innovation in Food Security and Safety

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	• **Capitalise on European leadership: building on the strengths to reinforce Europe's position as a global leader in marine science and technology**
Science	• **Respond to emerging scientific topics such as** ➢ Observing, Modelling and Predicting Oceans State and Processes; ➢ Climate Change Impact on Physical and Biological Ocean Processes, Exploring Deep Sea Resources; ➢ Use of Marine Biological Resources through Development and Application of Biotechnology; ➢ Effects of Ocean Acidification on Marine Ecosystems. • **Maintain, strengthen and integrate global ocean observing, data and information systems (observing system / data management)** ➢ Develop early warning systems and preparedness to mitigate the risks of tsunamis and ocean-related hazards (early warning and services) ➢ Consider the role of Technology and Sensor Developments; ➢ Better and more coordinated access to marine data and harmonisation of European databases • **Foster ocean research to strengthen knowledge of ocean and coastal processes and human impacts upon them**
Industry	• **Work towards overcoming industrial barriers such as** ➢ Lack of access to finance ➢ Shortage of suitably skilled workers ➢ Development of cross-sectoral tools ➢ Greening our ocean economies • **Enhance the awareness for environmental societal challenges and provide technological solution** • **Foster the cooperation and communication with policy and scientific actors through e.g.** ➢ Using platforms like WATERBORNE, Ocean Energy Europe or EATiP ➢ Increased participation in European collaboration projects
Society	• **Respond to societal challenges such as** ➢ The increasing impacts of global environmental change on the marine environment and the significant socio-economic consequences of those impacts ➢ Promoting and implementation of the protection of the marine environment ➢ Valuing the ocean: ecosystem services of seas and oceans for the whole society

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- Linking oceans, human health and wellbeing

- **Raise awareness of emerging topics with possible strong environmental impact such as**
  - Marine litter
  - Environmental effects of deep sea mining
  - Consumer behaviour regarding the consumption of fish and seafood

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Annex 1: List of relevant strategies and strategic projects provided through the Competence Nodes, Status: 12.08.2015

OVERARCHING/INTERNATIONAL STRATEGIES

No	Name	Date of pub.	Source
1	EUROPE 2020 - A strategy for smart, sustainable and inclusive growth	03.03.2010	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF
2	Marine Knowledge 2020 (Green paper): From seabed mapping to ocean forecasting	2012	http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/marine-knowledge-2020-green-paper_en.pdf
3	Progress of the EU's Integrated Maritime Policy	2012	http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/imp-progress-report_en.pdf
4	Blue Growth Strategy	2012	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0494&from=EN
5	Innovation in the Blue Economy: realizing the potential of our seas and oceans for jobs and growth	2014	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0254R%2801%29&from=DE
6	Declaration of the European Ministers responsible for the Integrated Maritime Policy and the European Commission, on a Marine and Maritime Agenda for growth and jobs, the "Limassol Declaration"	07.10.2012	http://ec.europa.eu/maritimeaffairs/policy/documents/limassol_en.pdf
7	Rome Declaration (EurOCEAN 2014 conference)	08.10.2014	http://eurocean2014.eu/wp-content/uploads/2013/10/RomeDeclaration_EurOCEAN2014.pdf

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8	Ocean Research in Horizon 2020: The Blue Growth Potential	2015	http://www.europarl.europa.eu/RegData/etudes/STUD/2015/518775/IPOL_STU%282015%29518775_EN.pdf
9	Programme to support the further development of an Integrated Maritime Policy.	2011	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2011:321:FULL&from=EN
10	Intergovernmental Oceanographic Commission: Medium-term Strategy	2014	http://www.ioc-unesco.org/index.php?option=com_content&view=article&id=29&Itemid=81
11	Belmont - White paper	March 2011	https://igfagcr.org/sites/default/files/documents/belmont-challenge-white-paper.pdf
12	JPI-Oceans: SRIA 2015-2020	2015	http://www.jpi-oceans.eu/library?refid=246303
13	Navigating the future IV (EMB)	June 2013	http://www.marineboard.eu/science-strategy-publications
14	Linking Oceans & Human Health: A Strategic Research priority for Europe (EMB)	December 2013	http://www.marineboard.eu/science-strategy-publications
15	Green Economy in a Blue World (UNEP)	2012	http://www.unep.org/pdf/green_economy_blue.pdf
16	The European marine and maritime research community (Ostend declaration)	October 2010	http://www.eurocean2010.eu/attachments/Ostend%20Declaration.pdf

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17	A European strategy for Marine and Maritime Research	September 2008	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:ri0008

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REGIONAL/ SEA BASIN STRATEGIES

No	Name	Date of pub.	Source
1	Developing a maritime Strategy for the Atlantic Ocean Area	21.11.2011	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0782&from=EN
2	The North-East Atlantic Environment Strategy (OSPAR)	2010	http://www.ospar.org/html_documents/ospar/html/10-03e_nea_environment_strategy.pdf
3	A sustainable Blue Growth for the Baltic Sea Region	16.05.2014	http://ec.europa.eu/newsroom/mare/itemdetail.cfm?subweb=342&lang=en&item_id=16493
4	European Union Strategy for the Baltic Sea Region (EUSBSR)	10.06.2009	http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/baltic/com_baltic_en.pdf
5	EU strategy for the BSR – Action Plan	June 2015	http://www.balticsea-region-strategy.eu/communication/news/590704-updated-eusbsr-action-plan
6	European Union Strategy for the Adriatic and Ionian Region (EUSAIR)	17.06.2014	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0357&from=EN
7	BONUS - strategic research agenda 2011-2017, update 2014	2014	http://www.bonusportal.org/files/2981/Publication_No._14_update.pdf

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8	Joint Staff working document Black Sea Synergy review of regional cooperation initiative	20.01.2015	http://eeas.europa.eu/blacksea/doc/swd_2015_6_f1_joint_staff_working_paper_en.pdf
9	Towards an Integrated maritime Policy for better governance in the Mediterranean	11.09.2009	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009DC0466&from=EN
10	Black Sea Synergy - a new regional cooperation initiative	11.04.2007	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52007DC0160&from=EN
11	European Union Strategy for Danube Region	08.10.2010	http://eur-lex.europa.eu/legal-cont+ #ent/EN/TXT/PDF/?uri=CELEX:52010DC0715&from=EN
12	Atlantic Action Plan	2014 - 2020	http://ec.europa.eu/maritimeaffairs/policy/sea_basins/atlantic_ocean/index_en.htm
13	Study on Deepening Understanding of Potential Blue Growth in the EU Member States on Europe's Atlantic Arc	2014	https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Blue%20Growth%20Atlantic_Seabasin%20report%20FINAL%2007Mar14.pdf
14	Study on Blue Growth and Maritime Policy within the EU North Sea Region and the English Channel	2014	https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Final%20Report%20North%20Sea_corr_03032014.pdf

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15	Developing a European Union Policy towards the Arctic Region: progress since 2008 and next steps	2012	http://ec.europa.eu/maritimeaffairs/policy/sea_basins/arctic_ocean/documents/join_2012_19_en.pdf
16	Action Plan for a Maritime Strategy in the Atlantic area Delivering smart, sustainable and inclusive growth	2013	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1395674057421&uri=CELEX:52013DC0279
17	IMBER Strategic Research Agenda		http://www.loicz.org/cms02/about_us/index.html.en.html
18	A Maritime Strategy for the Adrian and the Ionian Seas	30.11.2012	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0713&from=EN

FISHERIES

No	**Name**	**Date of pub.**	**Source**
1	Common Fisheries Policy (CFP)	28.12.2013	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF
2	Omnibus Regulation	20th May 2015	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R0812&from=EN
3	Sustainable Agriculture, Forestry and **Fisheries** in the Bioeconomy - A Challenge for Europe (DRAFT)	2015	http://ec.europa.eu/research/scar/pdf/feg4-draft-15_may_2015.pdf#view=fit&pagemode=none
4	European Maritime and Fisheries Fund	2014	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1433834483358&uri=CELEX:32014R0508

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5	STECF - JRC		https://stecf.jrc.ec.europa.eu/
6	ERA-Net COFASP		http://www.cofasp.eu/
7	GAP2	running	http://gap2.eu/gap2-in-depth/

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AQUACULTURE

No	Name	Date of pub.	Source
1	Strategic Guidelines for the sustainable development of EU aquaculture	29.04.2013	http://ec.europa.eu/fisheries/cfp/aquaculture/official_documents/com_2013_229_en.pdf
2	European Aquaculture Technology and Innovation Platform (EATiP)	2012	http://www.eatip.eu/Default.asp?SHORTCUT=92
3	Aquainnova	2010-2012	http://www.eatip.eu/default.asp?SHORTCUT=616
4	AQUAMED	2010-2013	http://www.aquamedproject.net/

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MONITORING & OBSERVATION

No	Name	Date of pub.	Source
1	Marine Knowledge 2020 (Green Paper)	2012	http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/marine-knowledge-2020-green-paper_en.pdf
2	Marine Knowledge 2020: Roadmap	2014	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0149&from=EN
3	Maritime surveillance - CISE	2014	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:0451:FIN
4	Also include Data-and information management projects/initiatives like EMODNET, (EUR)OBIS, MyOcean, etc.		
5	FIX03	2014 – 2016	http://www.fixo3.eu/
6	JERICO NEXT	2015 - 2019	http://www.jerico-fp7.eu/news-rss/282-jerico-next-receives-funding
7	NEXOS	2013 - 2017	http://www.nexosproject.eu /
8	ENVRI-PLUS	2015 - 2017	http://zhiming.zh-ao.net/index.php/my-projects/46-h2020-infra-dev-envri-plus

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MARINE BIOLOGICAL RESOURCES

No	Name	Date of pub.	Source
1	Convention on Biological Diversity CBD (Nagoya protocol)		https://www.cbd.int/marine/ https://www.cbd.int/abs/
2	Marine Biotechnology RTDI in Europe - Inventory of strategic documents and Activities	March 2013	http://www.marinebiotech.eu/sites/marinebiotech.eu/files/public/library/CSA%20project%20reports/Marine%20Biotechnology%20RTDI%20in%20Europe%20Inventory%20of%20strategic%20documents%20and%20activities.pdf
3	Marine Biotechnology: Enabling Solutions for Ocean Productivity and Sustainability (OECD)	September 2013	http://www.oecd.org/fr/sti/biotech/marine-biotechnology-ocean-productivity-sustainability.htm
4	Marine Biotechnology: a Vision and Strategy for Europe (EMB)	September 2010	http://www.marineboard.eu/science-strategy-publications
5	ERA- MarineBiotech	running	http://www.marinebiotech.eu/
6	EUROMARINE	running	http://www.euromarinenetwork.eu/
7	ShareBiotech	2010-2013	http://www.sharebiotech.net/
8	EMBRC	running	http://www.embrc.eu/

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9	BENTHIS MESMA		http://www.benthis.eu http://www.mesma.org

MARITIME TRANSPORT & LOGISTICS

No	Name	Date of pub.	Source
1	Strategic goals and recommendations for the EU's maritime transport policy until 2018	21.01.2009	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009DC0008&from=EN
2	Leadership 2020. The sea, new opportunities for the future	2013-2020	http://ec.europa.eu/enterprise/sectors/maritime/files/shipbuilding/leadership2020-final-report_en.pdf
3	Waterborne - Vision 2025	20.12.2012	http://www.waterborne-tp.org/index.php/documents
4	WATERBORNE - SRA	May 2011	http://www.waterborne-tp.org/index.php/documents
5	Vessels for the future	2014	http://www.vsm.de/sites/default/files/dokumente/882a774dbbdb325d37daf6279710a5dc/the_european_vessels_for_the_future_initiative_executive_summary.pdf
6	ERA-Net MARTEC II	2011-2014	https://www.martec-era.net/
7	MESA – Maritime Europe Strategy Action	2013-2015	http://www.waterborne-tp.org/index.php/mesa

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			Documents: D-5.1, D-5.3, D-5.4, D-5.5

MARINE PHYSICAL RESOURCES

No	Name	Date of pub.	Source
1	Blue Energy - Action needed to deliver on the potential of ocean energy in European seas and oceans by 2020 and beyond	20.01.2014	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0008&from=EN
2	TP Ocean Energy Europe		http://www.oceanenergy-europe.eu/index.php/policies/technology-platform (SRA in 2016)
3	IEA - Ocean Energy Systems		http://www.ocean-energy-systems.org/ (no strategy)
4	EC – Ocean Energy Forum		https://webgate.ec.europa.eu/maritimeforum/en/frontpage/1036 (no strategy)
5	MERMAID	2012-2015	http://www.mermaidproject.eu/sharepoint/view/Documents/Deliverables/
6	OCEAN ENERGY ERA-Net		http://www.oceaneranet.eu/pages/home-5.html
7	REMCAP	2012 - 2015	http://www.remcap.eu/
8	H2Ocean	2012-2014	http://www.h2ocean-project.eu/
9	TROPOS	2012-2014	http://www.troposplatform.eu/

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10	SI – Ocean (Strategic Initiative for Ocean Energy)	2012-2014	http://www.si-ocean.eu/en/

MARITIME TOURISM

No	Name	Date of pub.	Source
1	A European Strategy for more Growth and Jobs in Coastal and Maritime Tourism	2014	http://ec.europa.eu/maritimeaffairs/policy/coastal_tourism/documents/com_2014_86_en.pdf
2	Maritime and coastal tourism	2014	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1433834615196&uri=CELEX:52014DC0086

MARINE GOVERNANCE & MANAGEMENT

No	Name	Date of pub.	Source
1	Marine Strategy Framework Directive (MSFD)	17.06.2008	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0056&from=EN
2	Commission decision on criteria and methodological standards on good environmental status of marine waters	01.09.2010	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010D0477%2801%29&from=EN
3	The first phase of implementation of the MSFD	20.02.2014	http://ec.europa.eu/transparency/regdoc/rep/1/2014/EN/1-2014-97-EN-F1-1.Pdf

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4	Galway Statement	23./24.5.2013	http://ec.europa.eu/research/iscp/pdf/galway_statement_atlantic_ocean_cooperation.pdf
5	Directive of the EP and the EC - establishing a framework for maritime spatial planning	23.07.2014	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0089&from=EN
6	ICES - Action Area MSFD		http://www.ices.dk/explore-us/Action%20Areas/Pages/Marine-Strategy-Framework-Directive-%28MSFD%29.aspx
7	MARCOM+	2010-2012	http://marcom.eucc-d.de/documents.html
8	STAGES	2012-2014	http://stagesproject.eu/stages-msfd-decision-support-resources
9	KnowSeas	2009-2013	http://www.msfd.eu/
10	THESEUS	2009-2013	http://www.theseusproject.eu/resources/documents/Deliverables/Official-Deliverables-%28OD%29/
11	PEGASO	2010-2014	http://www.pegasoproject.eu/iczm-platform-5
12	ODEMM	2010-2013	www.liv.ac.uk/odemm/
13	DEVOTES	2012-2016	www.devotes-project.eu/

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14	PERSEUS	2012-2015	http://www.perseus-net.eu/site/content.php
15	MEECE	2008-2012	www.meece.eu
16	Monitoring for the MSFD: Requirements and Options	2012	http://mcc.jrc.ec.europa.eu/documents/201409261130.pdf
17	Scientific Support to the European Commission on the MSFD - Management Group Report	March 2010	http://mcc.jrc.ec.europa.eu/documents/201409161354.pdf
18	Potential Definition of GES	31.01.2015	http://mcc.jrc.ec.europa.eu/documents/201502120842.pdf
19	DEVOTES recommendations for the Implementation of the MSFD	14.10.2014	http://mcc.jrc.ec.europa.eu/documents/201410170938.pdf
20	ICES scientific and advisory services of relevance to the EU Marine Strategy Framework Directive		http://www.ices.dk/news-and-events/Documents/Themes/20120521_ICES_Strategy_MSFD.pdf
21	Common Implementation Strategy (CIS) and Associated Groups (EU COM & MS): MSCG; ESA- WG,		http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/index_en.htm

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	DIKE WG, GES-WG. Other technical groups		Relevant docs on MSFD Implementation at: https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp

MARINE ENVIRONMENT & FUTURES

No	Name	Date of pub.	Source
1	Marine Biodiversity: A Science Roadmap for Europe (EMB)	Sep 12	http://www.marineboard.eu/science-strategy-publications
2	IPBES Intergovernmental Platform for Biodiversity and Ecosystem Services		http://www.ipbes.net/
3	IODP International Ocean Discovery Program		http://www.iodp.org/
4	Oceans Past Initiative (HMAP)		
5	MARBEFF	Ended 2009	http://www.marbef.org/
6	CSA Oceans	2012-2015	http://www.jpi-oceans.eu/library?THES[]=169498&year=&Field=#main
7	SEAS-ERA	2010-2014	http://www.seas-era.eu/np4/19.html

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8	Clamer	2010-2011	http://www.clamer.eu/images/stories/deliverables/clamer%20marine%20board%20special%20reported.pdf
9	EMSAC	2009 - 2012	http://cordis.europa.eu/project/rcn/109305_en.html
10	ATLANTOS	2015 – 2019	https://www.atlantos-h2020.eu/

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Annex 2: Profiles of overarching EU-strategies and Sea Basin strategies with marine and maritime content

1. OVERARCHING EU STRATEGIES

EUROPE 2020 – A strategy for smart, sustainable and inclusive growth

Date of publication	03.03.2010
Source	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF
Publisher	European Commission
Summary	Europe can succeed if it acts collectively, as a Union. We need a strategy to help us come out stronger from the crisis and **turn the EU into a smart, sustainable and inclusive economy** delivering high levels of employment, productivity and social cohesion. Europe 2020 sets out a **vision of Europe's social market economy** for the 21st century. Europe 2020 puts forward three mutually reinforcing **priorities**: • **Smart growth**: developing an economy based on knowledge and innovation. • **Sustainable growth**: promoting a more resource efficient, greener and more competitive economy. • **Inclusive growth**: fostering a high-employment economy delivering social and territorial cohesion. The EU needs to define where it wants to be by 2020. To this end, the Commission proposes the following **EU headline targets**: (1) 75 % of the population aged 20-64 should be employed, (2) 3% of the EU's GDP should be invested in R&D, (3) The "20/20/20" climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right), (4) The share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree, (5) 20 million less people should be at risk of poverty.
Keywords	Europe 2020, smart growth, sustainable growth, inclusive growth, the Commission, Member States, European Council, competition, sustainable

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	recovery, knowledge & innovation, single market, Cohesion policy, economic crisis.
Challenges/ bottlenecks/ gaps & needs	**Moving out of the crisis** is the immediate challenge, but the biggest challenge is to escape the reflex to try to **return to the pre-crisis situation**. Further challenges: • Europe's average growth rate has been structurally lower than that of our main economic partners • Europe's employment rates – at 69% on average for those aged 20-64 – are still significantly lower than in other parts of the world • Demographic ageing is accelerating. Global challenges intensify: • Competition from developed and emerging economies is intensifying • Global finance still needs fixing • Climate and resource challenges require drastic action.
Further information/ outlook	The Commission is putting forward **seven flagship initiatives** to catalyse progress under each priority theme: (1) Innovation Union, (2) Youth on the move, (3) A digital agenda for Europe, (4) Resource efficient Europe, (5) An industrial policy for the globalization era, (6) An agenda for skills and jobs, (7) European platform against poverty.

Marine Knowledge 2020 (Green Paper):
From seabed mapping to ocean forecasting

Date of publication	2012
Source	http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/marine-knowledge-2020-green-paper_en.pdf
Publisher	European Commission
Summary	Vision: To ensure that the expansion of the **blue economy** happens, that it is sustainable and that **Europe's seas will achieve good**

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	environmental status we need to know what the state of the sea is now, how it was in the past and how it might change in the future. Central to this strategy was the concept of a **European Marine Observation and Data Network (EMODnet)**, a network of marine organisations that would provide a single entry point for accessing and retrieving marine data derived from observations, surveys or samples from the hundreds of databases maintained on behalf of agencies, public authorities, research institutions and universities throughout the EU. But the **'Marine Knowledge 2020' initiative** is broader than EMODnet. It provides a unifying framework for all ongoing activities on marine observation within the EU. These include the marine service of the **European Earth monitoring programme (GMES),** the Data Collection Framework in fisheries and new **Pan-European research infrastructures** identified by the **European Strategy Forum for Research Infrastructures (ESFRI)**.
Keywords	marine knowledge, marine observations, infrastructure, marine data, EMODnet, GMES, ESFRI, access to data, monitoring, service & supply, Integrated Maritime Policy.
Challenges/ bottlenecks/ gaps & needs	Challenges: (1) major initiatives like EMODnet and GMES have implemented projects by end of 2014, (2) the prolonged financial crisis has focused attention on public spending, (3) easier access to fisheries data has not happened, (4) natural hazards in the recent past highlighted the benefits of bringing near-real time information on the state of the marine environment into the public domain, (5) uncertainty as to the present and future impact of climate change on Europe's seas and coasts is stalling local and regional authorities' efforts to adapt.
Further information/ outlook	End users: (1) public authorities (coastal, fisheries, public health, civil protection, environmental, coastguards), (2) Science (depends on observations: to reduce uncertainty about the past and present behaviour processes such as ocean circulation, ice melting, sea-level rise, carbon uptake, ecosystem shifts or ocean acidification), (3) Civil Society.

Progress of the EU's Integrated Maritime Policy

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Date of publication	2012
Source	http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/imp-progress-report_en.pdf
Publisher	European Commission
Summary	Since its creation in 2007, the Integrated Maritime Policy (IMP) has sought to enhance the **sustainable development of the European maritime economy and to better protect the marine environment** by facilitating the cooperation of all maritime players across sectors and borders. This second Report describes the progress of the EU's IMP and maritime sectoral policies between 2010 and 2012. It highlights their **contribution to the objectives of the Europe 2020** strategy by taking stock of concrete achievements that help create growth, enhance resource efficiency and save public money.
Keywords	MSFD, Blue Growth, MSP, CFP, EU 2020…
Challenges/ bottlenecks/ gaps & needs	• **General**: A study launched by the Commission in 2010 has identified as common bottlenecks the lack of appropriate skills, access to risk capital, fragmented marine data, environmental challenges and difficult planning processes. • **Maritime Transport** Strategy until 2018: the ability to provide cost-efficient maritime transport services; the long-term competitiveness of the EU shipping sector; and the creation of seamless transport chains for passengers and cargo across transport modes. • **Energy**: Offshore wind energy contributes to reach a 20% share of energy from renewable sources by 2020 • **Shipbuilding**: addressing challenges such as climate change, air pollution, energy efficiency and development of offshore activities • **Fisheries:** Fish stocks are overfished, the economic situation of parts of the fleet is fragile, despite high levels of subsidies, jobs are unattractive, and the situation of many coastal communities depending on fisheries is precarious • **MSP/ ICZM**: Sectors compete for space and resources across sea basins. Conflicts between sea uses and demands for sea space will continue to increase, in particular due to emerging offshore activities. As Europe is going through a severe economic crisis, we need tools that enable growth by facilitating the coexistence of multiple activities, while reducing environmental impacts • **EMODnet:** Better knowledge is crucial for sustainable growth and to achieve healthy and productive oceans. The present

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	fragmented nature of marine data is a drain on the resources of users of these data who need fast access to multiple data sets. • **Regional**: Transnational cooperation at sea basin level is an efficient approach to the development of the maritime economy and to the protection of the marine environment. Sea basin strategies cater for the economic characteristics of Europe's basins, while allowing better use of public money. By aligning existing European and national funds on agreed growth priorities, they act as economic drivers in maritime regions. • **Marine ecosystems**: The 2008 Marine Strategy Framework Directive is the environment pillar of the IMP. Its overarching aim is to achieve good environmental status (GES) for EU marine waters by 2020. • **Climate change**: Climate change can have dramatic consequences for coastal regions, including threats to coastal defences, erosion, flooding and rising sea levels, and can have higher impacts in combination with other pressures on the marine environment.
Further information/ outlook	The Commission is setting the best possible conditions for sustainable economic development to come from the sea. Building on those achievements, **Blue Growth is the objective for the coming years**. During Cyprus's Council Presidency, an informal Ministerial Conference on IMP will be a major stepping stone towards this goal. Blue Growth will drive a second phase of the Integrated Maritime Policy to achieve a healthy maritime economy that delivers innovation, growth and sustainability for European citizens.

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Blue Growth – Opportunities for marine and maritime sustainable growth

Date of publication	2012
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0494&from=EN
Publisher	European Commission
Summary	This Communication drives forward the **Commission's Integrated Maritime Policy** and launches a process which will place the **blue economy** firmly on the agenda of Member States, regions, enterprise and civil society. It describes how Member States and EU policies are already supporting the blue economy. It then identifies specific areas where targeted action could provide an additional stimulus. A set of initiatives will subsequently be launched to explore and develop the growth potential in these areas.
Keywords	Blue economy; blue growth; Integrated Maritime Policy; innovation, jobs & growth; environmental targets; sustainability; EU 2020 Strategy; Blue growth focus areas: blue energy; aquaculture; maritime, coastal and cruise tourism; marine mineral resources; blue biotechnology
Challenges/ bottlenecks/ gaps & needs	The picture may look different by 2020. We need to prepare for technological progress, demographic shifts, increasing scarcity of natural resources and growth in hitherto underdeveloped economies, including our neighbouring countries. A number of traditional activities will remain significant employers, while emerging sectors will provide new jobs. The blue economy needs to be sustainable and to respect potential environmental concerns given the fragile nature of the marine environment. Efforts are needed to reduce negative environmental impacts of maritime activities such as the **emissions of pollutants** and the **discharge of oxious substances**. **Lack of access to finance** and a **shortage of suitably skilled workers** have been identified as blocking growth in nearly all economic sectors

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Further information/ outlook	This Communication has identified five areas where additional effort at EU level could stimulate long-term growth and jobs in **the blue economy, in line with the objectives of the Europe 2020 strategy.** With increasing awareness of the blue economy, and further analysis, other promising areas for EU policymaking may emerge.

Innovation in the Blue Economy: realizing the potential of our seas and oceans for jobs and growth

Date of publication	2014
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0254R%2801%29&from=DE
Publisher	European Commission
Summary	This document stresses out how Blue Growth could contribute to the Europe 2020 strategy and to the Innovation Union. Concrete steps are proposed how to manage our oceans and their resources. Innovation can help to foster the blue economy while ensuring the protection of the marine environment.
Keywords	Innovation, blue growth, blue economy, marine knowledge
Challenges/ bottlenecks/ gaps & needs	**Weaknesses identified by the Innovation Union Flagship** need to be tackled: under-investment in knowledge, poor access to finance, the high cost of intellectual property rights, slow progress towards interoperable standards, ineffective use of public procurement and duplications in research. There is not yet enough collaboration between the public and private sectors on innovation and that the inability to transfer research results into goods and services as well as a growing skills gap are affecting knowledge intensive sectors. (p.2) following **issues that are specific to the blue economy**: – gaps in knowledge and data about the state of our oceans, seabed resources, marine life and risks to habitats and ecosystems; – diffuse research efforts in marine and maritime science that hinders interdisciplinary learning and slows the progress of technological breakthroughs in key technologies and innovative business sectors; – lack of scientists, engineers and skilled workers able to apply new technologies in the marine environment. (p.3) - A number of challenges for blue growth, such as ocean acidification are global in nature and best tackled at an international level. (p.7)

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	- Growth in the blue economy will require an appropriately skilled workforce. There is currently a skills gap that must be tackled. (p.7)
Further information/ outlook	The following **actions** are proposed in this Communication: - Establishing a sustainable process ensuring that marine data is easily accessible, interoperable and free of restrictions of use - Delivery of a multi-resolution map of the entire seabed of European waters - Creation of an information platform on marine research across the whole Horizon 2020 programme as well as information on nationally funded marine research projects. - Creation of a Blue Economy Business and Science Forum - Encourage the development of a marine Sector Skills Alliance

Declaration of the European Ministers responsible for the Integrated Maritime Policy and the European Commission, on a Marine and Maritime Agenda for growth and jobs the "Limassol Declaration"

Date of publication	2012
Source	http://ec.europa.eu/maritimeaffairs/policy/documents/limassol_en.pdf
Publisher	Council of the European Union
Summary	This document was created in the frame of the Cyprus Presidency of the Council of the European Union in 2012. It addresses a dynamic marine and maritime agenda for growth and jobs and it highlights strategic guidelines with respect to the creation of conditions necessary for the full development of the blue economy
Keywords	Blue economy, marine knowledge, innovation & investment, growth & jobs, framework conditions for blue growth
Challenges/ bottlenecks/ gaps & needs	Shared **Goals for a European Marine and Maritime Agenda**: (p.3/4): Enhance the competitiveness of the EU shipping sector; maximise opportunities for innovation in the European shipbuilding and marine equipment industry; increasing marine renewable energy production and exploration; ensure the uninterrupted availability on the European market of energy; improve the sustainability and competitiveness of aquaculture and to stimulate sustainable fisheries; foster the cultivation of aquatic products; support the development of a highly diversified and sustainable coastal and maritime tourism in Europe; foster the development of new technologies for the safe and sustainable harvesting of marine mineral deposits

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Further information/ outlook	To reduce administrative and regulatory burdens and to **remove bottlenecks for innovation and investment,** it is necessary to: Enhance innovation and marine and maritime research; work towards the effective development and accessibility of marine knowledge; support the integration of maritime surveillance; stress the importance of improved maritime governance; improve planning transparency (…) by deploying maritime spatial planning and integrated coastal zone management; achieve or maintain GES of marine waters by 2020, by continuing the effective implementation of the obligations of the MSFD; implement suitable management, prevention and adaption practices, (…) to the impacts of climate change; enhance marine and maritime careers; ensure that local communities, the workforce in peripheral regions of Europe and civil society, are participating in and benefit from the development of innovative activities; enhance sectoral and cross-sectoral cooperation, exchange best practices and promote dialogue at international, national and regional level.

Rome Declaration – Setting a vision for seas and ocean science

Date of publication	2014
Source	http://eurocean2014.eu/wp-content/uploads/2013/10/RomeDeclaration_EurOCEAN2014.pdf
Publisher	EurOCEAN Conference 2014, Rome
Summary	The ocean is a source of food, water, energy and raw materials; a medium for tourism, transport and commerce; and can provide solutions to many European and global policy challenges. But the ocean is neither inexhaustible nor immune to damage. In the context of rapid global change and human population growth, it is imperative to achieve human wellbeing by **combining economic benefit with environmental protection**. This presents a highly complex challenge. Collaborative and cross-disciplinary European research is the key to providing the knowledge and tools that we need to achieve ecosystem-based management and protection of valuable marine resources and services.
Keywords	Marine and maritime science, GES, ocean knowledge, blue growth ocean sustainability

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Challenges/ bottlenecks/ gaps & needs	The four Rome Declaration goals: **1. Valuing the ocean:** Promoting a wider awareness and understanding of the importance of the seas and ocean in the everyday lives of European citizens. **2. Capitalizing on European leadership:** Building on our strengths to reinforce Europe's position as a global leader in marine science and technology. **3. Advancing ocean knowledge:** Building a greater knowledge base through ocean observation and fundamental and applied research. **4. Breaking barriers:** Addressing the complex challenges of blue growth and ocean sustainability by combining expertise and drawing from a range of scientific disciplines and stakeholders.
Further information/ outlook	Marine and maritime science can contribute towards advancing international sustainable development goals, supporting new jobs and growth, promoting resource efficiency including the circular economy, and achieving Good Environmental Status in European waters. A more detailed analysis of strategic research priorities in seas and oceans science is set out in the Navigating the Future IV paper, a key reference for the next research programmes at EU, macro-regional and Member State level.

Ocean Research in Horizon 2020: The Blue Growth Potential

Date of publication	February 2015
Source	http://www.europarl.europa.eu/RegData/etudes/STUD/2015/518775/IPOL_STU%282015%29518775_EN.pdf
Publisher	European parliament, Directorate General for Internal Policies, Policy Department A: Industry, Research and Energy
Summary	The current study aims to provide a description of the blue growth and the potential of the EU to exploit it in a sustainable and competitive manner. The analysis also describes what the impact of the Blue Growth strategy is on growth and jobs creation. The document is structured in order to **provide an overview and general understanding of the blue economy and blue growth**, followed by an analysis of the key sectors of the blue economy and their respective potential.

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Keywords	Value chains, blue growth areas, policy aspects, research funding, potential of blue growth, blue economy
Challenges/ bottlenecks/ gaps & needs	Gaps mentioned in the strategic document by EC "Innovation in the Blue Economy" (COM(2014) 254 final/2), p. 10 Needs: - Requirement of the assessment of the potential of blue growth, in particular that of marine biodiversity and of marine renewable energy (tidal current energy & wave energy) - Importance of blue growth strategy by the EU and Member states (availability of updated data, sea and ocean observation and monitoring, involvement at country and regional levels)
Further information/ outlook	In the Europe 2020 Flagship initiatives, a **growing policy attention is being paid to value chains**; they allow for an assessment of functions across sectors and worldwide, and point out where synergies and supply chain risks can occur.

Regulation (EU) No 1255/2011 of the European Parliament and of the Council of 30 November 2011 establishing a Programme to support the further development of an Integrated Maritime Policy

Date of publication	5 December 2011
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2011:321:FULL&from=EN
Publisher	European Commission
Summary	The strategic objectives of the IMP include integrated maritime governance at all levels; the **further development and implementation of integrated sea-basin strategies** tailored to the specific needs of Europe's different sea basins; the further development of cross- cutting tools for integrated policy-making aiming **to improve synergies and coordination between existing policies and instruments**, including through maritime- related data and knowledge sharing; the closer involvement of stakeholders in integrated **maritime governance** schemes; the protection and sustainable use of marine and coastal resources; and the definition of the boundaries of the sustainability of

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	human activities and the protection of the **marine and coastal environment and biodiversity** in the framework of the Marine Strategy Framework Directive, which constitutes the environmental pillar of the IMP, as well as the Water Framework Directive
Keywords	Integrated Maritime Policy (IMP), Maritime Spatial Planning (MSP), marine knowledge, data sharing, MSFD
Challenges/ bottlenecks/ gaps & needs	General objectives: - to foster the development and implementation of integrated governance of maritime and coastal affairs; - to contribute to the development of cross-sectoral tools, (MSP, CISE and marine knowledge); - to promote the protection of the marine environment; - to support the development and implementation of sea- basin strategies; - to improve and enhance external cooperation and coordination in relation to the objectives of the IMP; - to support sustainable economic growth, employment, innovation and new technologies in maritime sectors and in coastal, insular and outermost regions in the Union.

IOC Medium-Term Strategy

Date of publication	2014
Source	http://www.ioc-unesco.org/index.php?option=com_content&view=article&id=29&Itemid=81
Publisher	UNESCO - IOC
Summary	IOC Vision: Strong scientific understanding and systematic observations of the changing world ocean climate and ecosystems shall underpin **sustainable development and global governance for a healthy ocean,** and global, regional and national management of risks and opportunities from the ocean. High-level objectives (HLOs), with particular attention to ensuring that all Member States have the capacity to meet them: 1. **Healthy ocean ecosystems** and sustained ecosystem services 2. Effective early warning systems and preparedness for tsunamis and other

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	ocean-related hazards 3. Increased **resiliency to climate change** and variability and enhanced safety, efficiency and effectiveness of all ocean-based activities through scientifically-founded services, adaptation and mitigation strategies 4. **Enhanced knowledge** of emerging ocean science issues.
Keywords	Healthy ocean ecosystems, climate change, marine knowledge, ocean science, ocean governance
Challenges/ bottlenecks/ gaps & needs	The strategy is organized in a conceptual framework of functions required to advance towards the IOC Vision: A: Foster ocean research to strengthen knowledge of ocean and coastal processes and human impacts upon them [Ocean research] B: Maintain, strengthen and integrate global ocean observing, data and information systems [Observing system / data management] C: Develop early warning systems and preparedness to mitigate the risks of tsunamis and ocean-related hazards [Early warning and services] D: Support assessment and information to improve the science-policy interface [Assessment and Information for policy] E: Enhance ocean governance through a shared knowledge base and improved regional cooperation [Sustainable management and governance] F: Develop the institutional capacity in all of the functions above, as a cross-cutting function [Capacity Development

The Belmont Challenge: A Global, Environmental Research Mission for Sustainability (White Paper)

Date of publication	March 2011
Source	https://igfagcr.org/sites/default/files/documents/belmont-challenge-white-paper.pdf
Publisher	Belmont Forum
Summary	This paper sets out the Belmont Forum's vision, at this time, for the priority knowledge, capabilities, underpinning research and organisational mechanism needed to deliver effective **solutions to the challenges of global environmental change**. Our vision provides **a basis for research funders** to broker new partnerships with international stakeholders from the science community, operational service providers and users, to align and mobilise our

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	collective resources and expertise toward a global environmental research mission for sustainability.
Keywords	Environmental change, transdisciplinary research, research funding, decision-making system, strategic roadmap, big environmental challenges
Challenges/ bottlenecks/ gaps & needs	'Belmont Challenge': To **deliver knowledge needed** for action to mitigate and adapt to detrimental environmental change and extreme hazardous events. This requires: - Information on the state of the environment, through advanced observing systems; - Assessments of risks, impacts and vulnerabilities, through regional and decadal analysis and prediction; - Enhanced environmental information service providers to users; - Inter- and transdisciplinary research which takes account of coupled natural, social and economic systems; - Effective integration and coordination mechanisms, to address interdependencies and marshal the necessary resources. With priority foci being: Coastal Vulnerability; Freshwater Security; Ecosystem Services; Carbon Budgets; Most vulnerable societies.
Further information/ outlook	Over the next 1-2 years, this task force would develop a comprehensive, **strategic Roadmap** for supporting and delivering the 'grand challenge' research needed over the **next 10-20 years**. The strategic task force would draw the stakeholder communities together to: establish the research priorities; secure political and financial support, including restructuring the international funding landscape to better support an integrated research system; promote the integration of existing research programme structures into more streamlined systems; commission the most appropriate research structures to deliver the research; and build the necessary linkages with decision-making systems to facilitate uptake of the research outputs by users.

JPI Oceans – Strategic Research and Innovation Agenda 2015-2020

Date of publication	JPI-Oceans SRIA (2015)
Source	http://www.jpi-oceans.eu/library?refid=246303
Publisher	Joint Programming Initiative Healthy and Productive Seas and Oceans, Brussels

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Summary	JPI-Oceans Vision: The vision of the Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) is to **enable Blue Growth and jobs**, whilst fostering the **health and productivity of seas and oceans** and addressing the pressures of climate change and human impacts on the oceans.
Keywords	Reduce fragmentation, bridging marine and maritime issues, climate change, blue growth and jobs, marine environment, ocean observation, research and monitoring
Challenges/ bottlenecks/ gaps & needs	- An important role of JPI Oceans will be to **advocate the importance of the seas and oceans** to the economy and society. It will support the development of **effective policies** with robust and **independent scientific evidence**. - JPI Oceans will focus its activities in the intersections between three areas: the **marine environment, climate change, and maritime economy and human activities**. It will also address transversal issues of **ocean observation, data and infrastructure, cross cutting technologies and human capacities**. - The Grand Challenges of the oceans cannot be solved by a single country. Due to the interconnected nature of the marine environment, climate change and the maritime economy, **an integrated approach to research and monitoring** is required.
Further information/ outlook	The 10 strategic areas (agreed upon in the SRIA) are: **1.** Exploring Deep Sea Resources, **2.** Technology and Sensor Developments, **3.** Science Support to Coastal and Maritime Planning and Management, **4.** Linking Oceans, Human Health and Wellbeing, **5.** Interdisciplinary Research for Good Environmental Status, **6.** Observing, Modelling and Predicting Oceans State and Processes, **7.** Climate Change Impact on Physical and Biological Ocean Processes, **8.** Effects of Ocean Acidification on Marine Ecosystems, **9.** Food Security and Safety Driving Innovation in a Changing World, **10.** Use of Marine Biological Resources through Development and Application of Biotechnology 3 Cross-cutting Initiatives: (1) Science-Policy, (2) Human Capacity Building, (3) Shared use of Infrastructures.

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Navigating the Future IV – EMB Position Paper 20

Date of publication	June 2013
Source	http://www.marineboard.eu/science-strategy-publications
Publisher	European Marine Board (EMB)
Summary	*Navigating the Future IV* provides a **blueprint for the next phase of seas and oceans research in Europe**. To ensure coherence with policy developments, several chapters focus directly on societal challenges. The paper **demonstrates the key role of marine science and technology** in supporting blue growth in sectors such as marine biotechnology, marine energy, aquaculture, fisheries and deep sea mining. But applied, problem-oriented research must be complimented by an improved knowledge of the natural system upon which these economic sectors depend. Understanding the principles governing marine ecosystem functioning and resilience and **how marine environments are changing in response to natural and human pressures**, will be paramount for achieving sustainability in growing maritime sectors. Hence, we must continue to **support fundamental research and to reward scientific excellence**; these are the ingredients for generating the transformative knowledge and technologies which can shape our future.
Keywords	Marine environment, ocean research, marine science policy, marine ecosystems, sustainable use of marine resources
Challenges/ bottlenecks/ gaps & needs	This document can be viewed as a **compendium of marine science policy briefings**, with each chapter designed so that it can stand alone: 1. Navigating the Future: Progress and challenges in marine science and science policy 2. Understanding marine ecosystems and their societal benefits 3. Changing oceans in a changing Earth system 4. Safe and sustainable use of marine and coastal space: Balancing use and conservation 5. Sustainable harvest of food from the sea 6. Linking oceans and human health 7. Energy and raw materials from the seas and oceans 8. Sustainable use of deep sea resources 9. Challenges in polar ocean science 10. Blue technologies: Innovation hotspots for the European marine sector 11. An integrated and sustained European Ocean Observing System (eoos) 12. Training and careers for the next generation of marine experts

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	13. Towards effective European marine science-policy interfaces 14. Europe's maritime ambitions require an ocean literate population
Further information	Description of up-to-date relevant research gaps in marine science and respective outcomes.

Linking Oceans & human health: A Strategic Research priority for Europe – EMB Position paper 19

Date of publication	December 2013
Source	http://www.marineboard.eu/science-strategy-publications
Publisher	European Marine Board (EMB)
Summary	If there is one key message of this position paper, it is that **human health and well-being is intrinsically connected to, and impacted by, the seas and oceans** which surround our continental landmass. To manage this relationship, we need an effective policy framework, **linking maritime and public health policies**. While Europe has made significant strides in developing an **Integrated Maritime Policy**, we do not yet take sufficient account of human health aspects in maritime policy-making. Hence the concerted European research effort advocated by this paper does not just represent an interesting scientific challenge, but is essential to ensure that **improving public health and achieving Good Environmental Status (GES) in European seas are linked and mutually supporting policy objectives**.
Keywords	IMP, human health, marine environment, policy objectives
Challenges/ bottlenecks/ gaps & needs	Recommended strategic research targets of a proposed **European Oceans and Human Health Research Programme (OHH)**: 1. Innovative monitoring and surveillance techniques which allow much greater provision of relevant and accurate datasets 2. Improved understanding of the physical, chemical and biological processes involved in the transport and transmission of toxic chemicals and pathogenic organisms through the marine environment to humans. 3. Improved understanding of the direct and indirect causal relationships between degradation of the marine environment and the incidence of human disease. 4. Improved environmental models to determine the patterns and extent of natural dispersion of sewage, agricultural effluents and industrial waste. 5. Expert systems to link existing models with our experience and knowledge

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	of the connectivity between the marine environment and human health. 6. Appropriate indicators in support of sustainable development where environmental, social and economic measures are linked. 7. Methods and mechanisms which demonstrate the value (economic, cultural, aesthetic, etc.) to human well-being of marine environments from coastal seas to global oceans.
Further information/ outlook	Recommendations for the establishment of a European Research Strategy for Oceans and Human Health (OHH)

UNEP: Green economy in a Blue World

Date of publication	2012
Source	http://www.unep.org/pdf/green_economy_blue.pdf
Publisher	UNEP, FAO, IMO, UNDP, IUCN, World Fish Center, GRID-Arendal
Summary	The Green Economy in a Blue World report analyses how key sectors that are interlinked with the marine and coastal environment – **the blue world –can make the transition towards a Green Economy**. The report covers the impacts and opportunities linked with shipping and fisheries to tourism, marine-based renewable energies and agriculture. The findings underline that a shift to sustainability in terms of improved human well-being and social equity can lead to healthier and more economically productive oceans that can simultaneously benefit coastal communities and ocean-linked industries.
Keywords	(Transition to) green economy, blue world, resource efficiency, marine environment, sustainable use, ecosystem, biodiversity, human well-being, ocean economies, healthy oceans
Challenges/ bottlenecks/ gaps & needs	- Healthy oceans are invaluable to human development. Human activities in the marine environment, and on the landmasses that drain to it, have damaged ocean ecosystems, the services they provide and the economic values they generate. - While major achievements have been made in both the private economic and public governance spheres, marine and coastal ecosystems and biodiversity remain under imminent pressure due to a general gap in integrated ocean governance. - Shifting economy's purpose away from the pure GDP-measured

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	production of market values leads to new questions on broader societal goals, such as equity, security and the maintenance of natural capital. This holds particularly true for emerging sectors such as deep-sea mineral production, for which the direction of development is largely open. - **Greening our ocean economies** is a challenge that needs commitment from each of us – as the individual consumer, investor, entrepreneur or politician.

EurOCEAN 2010: Ostend Declaration

Date of publication	13th October 2010
Source	http://www.eurocean2010.eu/attachments/Ostend%20Declaration.pdf
Publisher	European Marine Board
Summary	The Seas and Oceans are one of the **Grand Challenges** for the 21st Century.
Keywords	Grand challenges, implementation of European policies (CFP, IMP, MSFD), GES, impacts on marine environment
Challenges/ bottlenecks/ gaps & needs	- the critical role of the oceans in the earth and climate systems; - the importance of coasts, seas and oceans and their ecosystems to our health and well-being; - the increasing **impacts of global environmental change on the marine environment** and the significant socio-economic consequences of those impacts; - the **ongoing need for basic research** to address major gaps in our fundamental knowledge of coasts, seas and oceans; - the enormous **opportunities for innovation**, sustained wealth and job creation in new and existing maritime sectors such as aquaculture, renewable energy, marine biotechnology and maritime transport; and - the need to translate these messages to all sectors of society. **- job creation** through smart, sustainable and inclusive growth (Europe 2020); - **implementation** of the Integrated Maritime Policy for the European Union (2007), the European Research Area (EC Green Paper on ERA, 2007) and other policies such as the Common Fisheries Policy; - Good Environmental Status in our marine waters by 2020 (Marine

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	Strategy Framework Directive); *and* - related grand challenges including food, energy and health, as identified in the Lund Declaration (2009).
Further information/ outlook	To address effectively the Seas and Oceans Grand Challenge it is essential to prioritise initiatives and programmes to enhance: (1) Innovation, (2) Training and Career Development and (3) International Cooperation. The European marine and maritime science community is committed to playing its role, in partnership with industry and the public sector, to bridge the gap between science and innovation to support sustainable development.

A European Strategy for Marine and Maritime Research: A coherent European Research Area framework in support of sustainable use of oceans and seas

Date of publication	3rd September 2008
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:ri0008
Publisher	European Commission
Summary	The aim of the strategy is to propose the means to create a better integration between marine and maritime research. Whilst acknowledging the importance to pursue efforts within the different marine and maritime research disciplines, the focus of the communication will be on improving interactions between marine and maritime research rather than specifically addressing well established research sectors.
Keywords	Integrated maritime policy, interactions between marine and maritime research, capacity building, governance, system complexity, cross-thematic research
Challenges/ bottlenecks/ gaps & needs	The Commission's strategy has been developed along two principal strands. The first consists of improving the capacity of European research to tackle the complexity of marine ecosystems, while the other aims to develop new forms of governance. A number of actions are proposed which apply to: • **capacity-building** in terms of infrastructure (for example, monitoring and data collection facilities, ocean observatories,

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	sub-sea technologies and specialised research vessels), innovation and education; • The **development of integration** between knowledge and observation data as well as the promotion of interdisciplinary research activities on cross-cutting themes (for example the impact of human activity on coastal and marine ecosystems or the protection and exploitation of marine biodiversity), including technology transfer ; • The **promotion of synergies** through a combination of different forms of funding both private and at regional, national and Community levels. It also plans to develop international cooperation because the problems related to the oceans have a global dimension.
Further information/ outlook	The European Strategy for maritime research has to be approved by the European Council and the Parliament. The first report on implementation will be presented by the Commission no later than 2012.

2. REGIONAL/ SEA BASIN STRATEGIES

Developing a maritime Strategy for the Atlantic Ocean Area

Date of publication	21.11.2011
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0782&from=EN
Publisher	European Commission
Summary	This Communication responds to a request from the Council of the European Union (EU) and the European Parliament. It proposes a coherent and balanced approach that is consistent with the EU 2020 agenda and its flagship initiatives that promotes territorial cohesion and that takes into account the international dimension. Whilst this proposed **approach will largely focus on helping communities living and working on the Atlantic coast** deal with new economic realities, it also recognizes that the EU shares responsibility for stewardship of the world's oceans. Broadly speaking the **strategy will cover the coasts, territorial and jurisdictional waters of the five EU Member States with an**

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	Atlantic coastline – France, Ireland, Portugal, Spain and the United Kingdom as well as international waters reaching westward to the Americas, eastward to Africa and the Indian Ocean, southward to the Southern Ocean and northward to the Arctic Ocean. In addition to actions concerning the five EU Member States, both at a national and local level, engagement is also sought with other EU states that use this space and with international partners whose waters touch it. The implications of Iceland joining the EU need to be considered. Promoting international cooperation on issues such as **observation, data sharing, marine assessments, research, reducing emissions and pollution from ships, safe and secure navigation, port security, the fight against piracy, and countering illegal, unregulated and unreported fishing**.)
Keywords	EU 2020 Agenda; New economic realities; balanced approach; territorial cohesion; responsibility; think tanks; sustainable; ecosystem; carbon footprint; natural resources
Challenges/ bottlenecks/ gaps & needs	The challenges facing the Atlantic Ocean area can be grouped into five themes. All will contribute to the **overriding objective of creating sustainable jobs and growth**: (1) Implementing the ecosystem approach; (2) Reducing Europe´s carbon footprint; (3) Sustainable exploitation of the Atlantic seafloor´s natural resources; (4) Responding to threats and emergencies; (5) Socially inclusive growth

The North-East Atlantic Environment Strategy

Date of publication	2010
Source	http://www.ospar.org/html_documents/ospar/html/10-03e_nea_environment_strategy.pdf
Publisher	OSPAR Commission
Summary	The OSPAR Commission's vision is a **clean, healthy and biologically diverse North-East Atlantic ocean**, used sustainably. To this end, the OSPAR Commission's activities under this Strategy will be guided by the application of the Ecosystem Approach which is the comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health

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	of the marine ecosystems, thereby achieving sustainable use of ecosystem goods and services and maintenance of ecosystem integrity. The OSPAR Commission will implement the Ecosystem Approach taking account of its role within the wider political and legal frameworks.
Keywords	Clean; healthy; biologically; sustainable; ecosystem; influences; safeguard; marine areas; eutrophication; pollution; emissions; hazardous substances; ionizing radiation; radioactive substances; climate change
Challenges/ bottlenecks/ gaps & needs	Overall Goal Using the Ecosystem Approach to manage human activities affecting the maritime area, the **overall goal of the OSPAR Commission is to conserve marine ecosystems and safeguard human health** and, when practicable, restore marine areas which have been adversely affected in the North-East Atlantic by preventing and eliminating pollution and by protecting the maritime area against the adverse effects of human activities. Strategic Objectives: **(1)** To halt and prevent by 2020 further loss of biodiversity in the OSPAR maritime area; to combat eutrophication in the OSPAR maritime area; **(2)** to prevent pollution of the OSPAR maritime area by continuously reducing discharges, emissions and losses of hazardous substances; **(3)** to prevent and eliminate pollution and take the necessary measures to protect the OSPAR maritime area against the adverse effects of offshore oil and gas activities by setting environmental goals and improving management mechanisms; **(4)** to prevent pollution of the OSPAR maritime area from ionizing radiation through progressive and substantial reductions of discharges, emissions and losses of radioactive substances; **(5)** to ensure integrated management of human activities in order to reduce impacts on the marine environment; **(6)** to facilitate and coordinate the work of relevant Contracting Parties in achieving good environmental status under the EU Marine Strategy Framework Directive by 2020.

Sustainable Blue Growth Agenda for the Baltic Sea Region

Date of publication	26.05.2014
Source	http://ec.europa.eu/newsroom/mare/itemdetail.cfm?subweb=342&lang=en&item_id=16493
Publisher	European Commission

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Summary	The Baltic Sea agenda which was adopted by the European Commission on 16 May 2014, stands for a sustainable blue growth. The agenda provides a **blueprint for harnessing the region's strengths to boost innovation and growth in the maritime area**. Furthermore the plan of the agenda is an integral part of sustainability. So it can act as a driver for innovation and more jobs, for example in the area of clean shipping. Also it means that growth and a healthy marine environment should go hand in hand.
Keywords	Blue Growth; innovation; maritime area; growth and jobs; clean shipping; maritime technologies; biotechnologies; renewable energy; port reception facilities; maritime and coastal tourism; cluster development; sustainability
Challenges / bottlenecks/ gaps & needs	Particularly the Baltic Sea region gives some answers about environmental challenges. So they want combine the competitive and **innovative research and business sectors with a strong tradition of cooperation**. So the following points are the main challenges to reach the target. They want a consistent approach to **innovations and increased sustainability**. Also innovation streams should cut across the areas, such as maritime technologies, biotechnologies, renewable energy, port reception facilities, maritime and costal tourism including cruise industry and aquaculture. Furthermore two main points are very important. The first is to have the focus on the right **skills and qualifications, cluster development** and the second part is a better targeted funding to support maritime projects. So this has to be implemented through multi- sectoral stakeholder dialogue, building on existing work, in full coordination with the EU Strategy for the Baltic SEA region and making full use of available funding.
Further information/ outlook	In the course of the years 2014-2015, stakeholders in cooperation with the Commission will organize a series of workshops dedicated to the **Blue Growth** and funding opportunities in the Baltic Sea region.

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European Union Strategy for the Baltic Sea Region

Date of publication	10.06.2009
Source	http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/baltic/com_baltic_en.pdf
Publisher	European Commission
Summary	So the strategy should provide an **integrated framework** that allows the European Union and Member States to identify needs and match them to the available resources through coordination of appropriate policies. This will **enable the Baltic Sea Region to enjoy a sustainable environment and optimal economic and social development**. The Commission is therefore proposing an indicative action plan, fully discussed with the Member States and regional stakeholders, to encourage the implementation of visible projects. The **action plan** is organized around the four pillars. It is, however, an integrated strategy; the proposed actions often contributing to more than one identified objective. The individual actions and **flagship projects** have been selected for their fast implementation and impact.
Keywords	Sustainable environment; optimal economic & social development; resources; region prosperity; accessibility; attractiveness; safety & security; innovation; networks; energy; sustainability; citizens; infrastructure; climate change
Challenges/ bottlenecks/ gaps & needs	Four **key challenges** have been identified as requiring our urgent attention. They are: **(1)** To enable a sustainable environment, **(2)** To enhance the region's prosperity, **(3)** To increase accessibility and attractiveness and **(4)** To ensure safety and security in the region. The main economic challenges are to overcome the wide disparities (and hence realize the high potential) in research and productive innovation and to remove impediments to the single market. Priority issues for accessibility are the improvement of networks, ending the energy isolation of parts of the region, and ensuring sustainability of transport modes. Finally, priorities in the field of safety are to reduce risks posed to the region's citizens, infrastructure and environment by hazards from a variety of sources, in particular accidental marine pollution and organized crime. Adaptation to climate change is also a growing challenge.

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European Union Strategy for the Baltic Sea Region (EUSBSR) – Action Plan

Date of publication	June 2015
Source	http://www.balticsea-region-strategy.eu/communication/news/590704-updated-eusbsr-action-plan
Publisher	European Commission
Summary	Based on the experience gained, the Commission put forward a Communication on 23 March 2012 specifying the **three overall objectives** for the Strategy: **'Save the Sea', 'Connect the Region' and 'Increase Prosperity'**. The Communication also included concrete proposals to establish a set of measurable indicators and targets for each objective, with the aim of facilitating monitoring, evaluation, communication, and, most importantly, achieving results. Following a comprehensive consultation with the member states, a revised Action Plan of the EUSBSR was agreed with Member States in February 2015. It is more streamlined and focused, and also includes a chapter on the role of regional organizations/networks.
Keywords	Indicators; targets; evaluation; communication; monitoring; achieving results; maritime policy; blue growth strategy; sustainable growth; sustainable development; climate change; flagships
Challenges/ bottlenecks/ gaps & needs	This **Action Plan comprises *13 policy areas and 4 horizontal actions***, which represent the main areas where the EUSBSR can contribute to improvements, either by tackling the main challenges or by seizing key opportunities of the region. Typically, one Member State coordinates each policy area or horizontal action, and they work on its implementation in close contact with the Commission and all stakeholders, i.e. other Member States, regional and local authorities, inter-governmental and non-governmental bodies. They need to ensure that the **Action Plan is consistent with all EU policies**, and in particular Europe 2020 Strategy as well as the Integrated Maritime Policy, with its Blue Growth strategy and its Sustainable Blue Growth Agenda for the Baltic Sea Region, and the Marine Strategy Framework Directive (MSFD) objective to reach good environmental status by 2020 and sustainable growth in the region. Furthermore, they need to ensure the integration of the horizontal principle of sustainable development in the Action Plan and that environmental considerations are adequately taken into account in the flagship proposals. Every objective of the Strategy covers a wide range of policies and has impact on the other objectives: they are interlinked and interdependent. Presentation of each policy area and horizontal action starts with a background information on the topic, followed by specific indicators and targets. By way of example, climate change and

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	the sustainable development principle will be adequately included as a cross-cutting horizontal consideration in the implementation of the Action Plan's objectives, sub-objectives, policy areas, horizontal actions and flagships.

European Union Strategy for the Adriatic and Ionian Region

Date of publication	17.06.2014
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0357&from=EN
Publisher	European Commission
Summary	By providing an overall framework for policy coordination and territorial cooperation, **the Strategy will make the Region a better place to live, work and enjoy**. It can act as a **showcase for growth, jobs and ideas** and as a gateway to other parts of the world. Joint efforts can prepare the Region well for the challenges and opportunities of the 21st century.
Keywords	Difficult political, economic circumstances; brighter prospects; overall framework; policy coordination; territorial cooperation; live, work, enjoy; socio-economic disparities; transport; energy; environment; climate change; administrative, institutional issues
Challenges/ bottlenecks/ gaps & needs	**Socio-economic disparities**: strong regional disparities regarding the unemployment rate; businesses do not sufficiently exploit the transnational dimension of marketing, innovation or research, particularly in the Blue economy; underdevelopment of clusters **Transport**: significant infrastructure deficits, resulting in poor accessibility. Maritime traffic congestion is increasing, while surveillance and coordination capacity needs upgrading. **Energy**: Interconnection of electricity grids remains inadequate; investments in gas networks, including LNG facilities, are essential for securing efficient and diversified supply; **Environment**: Increased human use of the marine and coastal space threatens ecosystems. Shallowness and its semi-enclosed nature make the Adriatic Sea vulnerable to pollution. Over-fishing, discarded fishing gear and ecologically-unsound aquaculture threaten marine biodiversity, as well as human health. Untreated waste water and solid waste from mainly land-based sources, fertiliser run-off from agricultural activities causing eutrophication, invasive species from ballast waters, and pollution from oil and gas exploration further worsen the situation.

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	Natural and man-made hazards and risks entailed by climate change: major seismic activity, exposed position and vulnerable to the adverse impacts of climate change. Lack of common risk assessment, disaster risk management and integrated mitigation and adaptation strategies is a major challenge. **Administrative and institutional issues**: Capacities at national, regional or local level must be reinforced to ensure that structures are fit for working with cross-border counterparts, as well as for cross-policy coordination. Countries risk working at different speeds, thereby hampering implementation of a macro-regional approach. Problems in relation to corruption, undermining public confidence and development. Migration pressure and cross-border organized crime call for coordinated border security policies.

BONUS- Strategic research agenda 2011-2017

Date of publication	2014
Source	http://www.bonusportal.org/files/2981/Publication_No._14_update.pdf
Publisher	Bonus Publication No.14
Summary	BONUS generates knowledge and know-how for the benefit of sustainable Baltic Sea region The transnational, cross-sectoral and transdisciplinary work of BONUS is carried out, in particular, in support of the HELCOM Baltic Sea Action Plan and integrated policy approaches of the European Union, such as the Integrated Maritime Policy (with Marine Strategy Framework Directive as its environmental pillar), the Water Framework Directive, and the newly issued proposal for the EU Framework Directive on Maritime Spatial Planning and Integrated Coastal Management aiming at employing an ecosystem-based approach. The overall framework of the BONUS strategic research agenda 2011–2017, including the current update 2014, consists of the **five main strategic objectives** and 19 specifically defined themes: **(1)** understand the complexity of the Baltic Sea ecosystem structure and functioning, **(2)** meet the multifaceted challenges in linking the Baltic Sea with its coast and catchment area, **(3)** enhance sustainable use of coastal and marine goods and services of the Baltic Sea, **(4)** improve the capabilities of the society to respond to the current and future challenges directed to the Baltic Sea region, **(5)** develop

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	improved and innovative observation and data management systems, tools and methodologies for marine information needs in the Baltic Sea region
Keywords	Knowledge; Sustainability; macro regional approach; Helcom Baltic Sea Action plan; EU; Maritime Spatial Planning; Integrates Coastal Management; ecosystem; innovative observation
Challenges/ bottlenecks/ gaps & needs	Adapting to the climate change and its effects. Restoring good environmental status of the Baltic Sea and its coasts. Achieving sustainable and safe use of the exploited coastal and marine ecosystem goods and services. Creating cost- efficient environmental information system. Evaluating and developing relevant policies and collective governance. Adapting to a more sustainable way of living.

Joint staff working document- Black Sea Synergy: review of a regional cooperation initiative

Date of publication	20.01.2015
Source	http://eeas.europa.eu/blacksea/doc/swd_2015_6_f1_joint_staff_working_paper_en.pdf
Publisher	European Commission
Summary	The **Black Sea Synergy** initiative was proposed by the European Commission in a Communication to the Parliament and the Council in April 2007. The Black Sea Synergy was formally launched at a joint meeting of European Union and Black Sea Foreign Ministers in Kiev in February 2008. The present report covers the **period 2009 until 2014**. It offers a review of the Black Sea Synergy regional cooperation initiative and highlights a number of "lessons learnt" which will inform the future development of the Synergy. The Black Sea Synergy Initiative aims to focus political attention at the regional level and invigorate ongoing cooperation processes. In so doing it takes account of the range of EU policies and program applicable to the EU's differentiated relations with the countries of the region. Its **primary objective is to further cooperation within the Black Sea region and between the region as a whole and the EU**. The Synergy is intended as a **flexible framework** that will ensure greater coherence and policy guidance. It envisages a bottom-up project development approach aimed at building on concrete deliverables in the **environment, maritime affairs, fisheries,**

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	maritime transport, energy, education, civil society, cross border cooperation and research fields.
Keywords	EC; cooperation; cooperation processes; environment, transport, energy; framework; policy guidance; bottom -up project
Challenges/ bottlenecks / gaps & needs	The results of the Black Sea Synergy to date reveal the practical utility and the potential of this EU regional policy approach. The Black Sea Synergy will remain a bottom-up initiative geared towards strengthening regional cooperation via concrete projects making the best possible use of the wide range of tools at the EU's disposal. An important goal is to bring added value to the citizens of the region while ensuring environmental sustainability.

Towards an Integrated maritime Policy for better governance in the Mediterranean

Date of publication	11.09.2009
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009DC0466&from=EN
Publisher	European Commission
Summary	The challenges affecting the Mediterranean Sea call for shared and, above all, integrated responses, rooted in **improved maritime governance**. This is particularly relevant when considering the ever-**increasing demands for natural resources and pressures on the marine environment**, as well as the continued **need for growth and jobs** in maritime sectors and regions. An integrated approach to maritime affairs should clearly not undermine the tools and objectives that have been set for moving forward in specific areas of maritime relevance. On the contrary, it seeks to provide the necessary cross-cutting governance perspective and tools so as to be able to minimize impacts and optimize efficiency and outputs.
Keywords	Natural resources; growth & jobs; crosscutting governance; optimize efficiency; tourism; traffic; economic development; overfishing; biodiversity; coastal degradation; climate change; coastal erosion

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Challenges/ bottlenecks/ gaps & needs	High pressure from economic activities. More Tourism. Maritime Traffic will expand further as a result of increased transportation needs… This ever-growing human and economic development has resulted in increased environmental degradation. The vulnerable marine environment in the Mediterranean faces a worrying combination of pollution from land sources and ships, litter, impacts on biodiversity, overfishing and coastal degradation. The Union for the Mediterranean has highlighted among its priorities the de-pollution of the Mediterranean. The coastline is under increasing threat, including its unique cultural and natural heritage of over 400 UNESCO sites. The Mediterranean region is identified by the Intergovernmental Panel on Climate Change as a "hot spot" and is most at risk from flooding, coastal erosion and further land degradation, which exacerbates the need for tools that can facilitate adaptation to climate change. Seaborne irregular immigration is a major concern in the region, calling for co-operation with Mediterranean partners to counter the phenomenon and prevent losses of human lives.

Black Sea Synergy- a new regional cooperation initiative

Date of publication	11.04.2007
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52007DC0160&from=EN
Publisher	European Commission
Summary	On 1 January 2007, two Black Sea littoral states, Bulgaria and Romania, joined the European Union. More than ever before, the prosperity, stability and security of our neighbour's around the Black Sea are of immediate concern to the EU. The **Black Sea region is a distinct geographical area rich in natural resources** and strategically located at the junction of Europe, Central Asia and the Middle East. With a large population, the region faces a range of opportunities and challenges for its citizens. The region is an **expanding market with great development potential** and an important hub for energy and transport flows. It is, however, also a region with unresolved frozen conflicts, with many environmental problems and insufficient border controls thus encouraging illegal migration and organized crime. In spite of significant positive developments in the last years, differences still remain in the pace of economic reforms and the quality of governance among the different countries of

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	the region. A dynamic regional response to the issues can greatly benefit the citizens of the countries concerned as well as contribute to the overall prosperity, stability and security in Europe. The Black Sea regional constellation has substantially changed in the past years and will continue to evolve. In these conditions, the EU's new regional cooperation initiative would usefully complement its existing wide-ranging bilateral and sectoral activities. The European Union's presence in the Black Sea region opens a window on fresh perspectives and opportunities. This requires a more coherent, longer-term effort which would help to fully seize these opportunities, to bring increased stability and prosperity to the region. Greater EU engagement in Black Sea regional cooperation will contribute to this objective.
Keywords	Prosperity; stability; security; resources; development; energy; transport; fresh perspectives; opportunities; environment; movement; growth
Challenges/ bottlenecks/ gaps & needs	There are significant opportunities and challenges in the Black Sea area that require coordinated action at the regional level. These include key sectors such as energy, transport, environment, movement and security. Enhanced regional cooperation is not intended to deal directly with long-standing conflicts in the region, but it could generate more mutual confidence and, over time, could help remove some of the obstacles that stand in the way. Given the confluence of cultures in the Black Sea area, growing regional cooperation could also have beneficial effects beyond the region itself.

European Union Strategy for Danube Region

Date of publication	08.12.2010
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC0715&from=EN
Publisher	European Commission
Summary	The **Danube Region** has changed dramatically. Most recently, there have been the 2004 and 2007 waves of EU enlargement. The world's most international river basin is now largely a European Union (EU) space. There are new opportunities to address its challenges and potential, especially to reinforce its efforts to overcome the economic crisis in a sustainable manner. Socio-economic development, competitiveness, environmental management and resource efficient growth can be improved, security and transport corridors modernized. **The Danube can open the EU to its near neighbours, the Black Sea**

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	region, the South Caucasus and Central Asia. An EU Strategy for the Danube Region can contribute to EU objectives, reinforcing major EU policy initiatives, especially the Europe 2020 strategy. The Strategy provides a sustainable framework for policy integration and coherent development of the Danube Region. It sets out priority actions to make it an EU region for the 21st century. It must be accompanied by sufficient information and publicity to ensure its objectives are widely known.
Keywords	Sustainable framework; policy integration; mobility; energy; environment; risks; socio-economic; security
Challenges/ bottlenecks/ gaps & needs	Historically, the Danube Region has been particularly affected by turbulent events, with many conflicts, movements of population and undemocratic regimes. However, the fall of the Iron Curtain and EU enlargement provide an opportunity for a better future. This means addressing major challenges, in particular: Mobility, Energy, Environment, Risks, Socio- economic, Security, serious and organized crime
Further information/ outlook	Comment: not very relevant for marine or maritime issues, only with regard to the neighbouring Black Sea Region.

Atlantic Action Plan

Date of publication	2014-2020
Source	http://ec.europa.eu/maritimeaffairs/policy/sea_basins/atlantic_ocean/index_en.htm
Publisher	European Commission
Summary	The Atlantic Action Plan aims to **revitalize the marine and maritime economy in the Atlantic Ocean area.** It shows how the EU's Atlantic Member States, their regions and the Commission can help create sustainable growth in coastal regions and drive forward the "blue economy" while preserving the environmental and ecological stability of the Atlantic Ocean. **Promoting cooperation**

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	The Action Plan encourages Member States to work together in areas where they were previously working individually. They will now be able to share information, costs, results and best practices, as well as generate ideas for further areas of cooperation of maritime activities. This includes both traditional activities, such as fisheries, aquaculture, tourism and shipping, as well as emerging ones such as offshore renewables and marine biotech.
Keywords	Maritime economy; sustainable growth; maritime activities; fisheries; aquaculture; tourism; shipping; marine biotech; carbon footprint; natural resources; innovation; environment; connectivity
Challenges/ bottlenecks / gaps & needs	The Action Plan considers responses to the challenges of delivering growth, reducing the carbon footprint, using the sea's natural resources sustainably, responding effectively to threats and emergencies and implementing an "ecosystem" management approach in Atlantic waters. The priorities are to: • Promote **entrepreneurship and innovation**; • Protect, secure and enhance the marine and **coastal environment**; • Improve **accessibility and connectivity**; • Create a socially inclusive and sustainable model of **regional development**
Further information / outlook	The agreed actions will focus on growing the tourism market, meeting the increasing demand for offshore installations, improving education and training in traditional and emerging maritime industries, as well as extending cooperation in the field of oceanic research in order to better assess climate change impacts.

Study on Deepening Understanding of Potential Blue Growth in the EU Member States on Europe´s Atlantic Arc

Date of publication	2014
Source	https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Blue%20Growth%20Atlantic_Seabasin%20report%20FINAL%2007Mar14.pdf
Publisher	DG Maritime Affairs and Fisheries

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Summary	This study on the Blue Growth potential in the Atlantic Arc is one of four sea-basin studies commissioned by DG MARE. The aim of the study is to examine in closer detail the **individual development patterns of the maritime industries** within the European Union and their prospects for future development. Within the framework of this present study we have evaluated the state of play and growth potential of five countries: France, Ireland, Portugal, Spain and the United Kingdom, bordering the Atlantic Arc.
Keywords	Blue growth; blue economy; future development; maritime strategies; economic activities
Challenges/ bottlenecks/ gaps & needs	The importance of the Blue Economy is recognized in the Atlantic Arc. At the EU level policy initiatives have been developed following the adoption of the Integrated Maritime Policy, which reinforced the view that growth and development of European maritime industries would benefit from coordinated and streamlined sea-basin level initiatives. A concrete example of this is the Atlantic Arc Action Plan, which aims to "revitalize the marine and maritime economy in the Atlantic Ocean Area". In order to ensure integration of EU-level objectives Partnership Agreements submitted by Member States on the use of the Structural, Cohesion or Regional Development Funds will need to highlight linkages between national level objectives and those of the Atlantic Action Plan. Also at the national level and at a regional level various maritime strategies and policies have been developed that promote the development of the Blue Economy. To further propel the Blue Economy in the Atlantic Arc the specific mix of maritime economic activities in the region, further building on the specific strengths and comparative advantages of the Atlantic. Also the stage of development of individual maritime economic activities should be distinguished, as this would merit different type of support and facilitation.

Study on Blue Growth and Maritime Policy within the EU North Sea Region and the English Channel

Date of publication	2014
Source	https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Final%20Report%20North%20Sea_corr_03032014.pdf
Publisher	DG Maritime Affairs and Fisheries

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Summary	This study on the Blue Growth potential in the North Sea and the English Channel is one of four sea-basin studies commissioned by DG MARE with the aim to examine in closer detail the individual development patterns of the maritime industries within the European Union. Within the framework of this present study we have **evaluated the state of play and growth potential of four countries**: Belgium, Germany, the Netherlands and Norway. Furthermore when zooming in on the development of particular sectors, data on the North Sea-related activities in Sweden, Denmark, the UK and France were also taken into account.
Keywords	Blue Growth; innovative; sustainable; traditional industries; shipping; green technologies; knowledge; global market; clusters; maritime industries
Challenges/ bottlenecks/ gaps & needs	The development and adaptation of **innovative, sustainable cross-sectoral approaches, procedures and infrastructures are found to be one of the main drivers** of development in the region. Sustainability remains an essential element for emerging as well as for more traditional industries such as shipping and port activities which are increasingly focused on the development and adaptation of **green technologies**. Consequently there is notable employment potential in the development, adaptation and maintenance of cross-cutting sustainable infrastructures as well as procedures. The region of the North Sea has for many decades – if not centuries - hosted **maritime industries and developed clusters as well as hubs of knowledge and expertise**. While there are on-going **collaborations** between varieties of stakeholder groups, it is essential that the research and education potential and infrastructure that exist in the region is supported in the future through **public and private financing.** This wealth of knowledge and expertise provides opportunity for start-ups as well as for -established industries such as **shipping or oil and gas** which also require constant innovation in order to maintain **competitiveness on the global market**. Therefore long-term policy initiatives supporting research, innovation and the regional and local collaboration between start-ups, SMEs and multinational companies are an important contributing factor of future development.

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Developing a European Union Policy towards the Arctic Region: progress since 2008 and next steps

Date of publication	2012
Source	http://ec.europa.eu/maritimeaffairs/policy/sea_basins/arctic_ocean/documents/join_2012_19_en.pdf
Publisher	European Commission
Summary	As climate change and economic development accelerate in the Arctic region, the European Union should step up its engagement with its Arctic partners to jointly meet the **challenge of safeguarding the environment while ensuring the sustainable development** of the Arctic region. **Nowhere is climate change more visible than in the Arctic**, which is a vital and vulnerable component of the Earth's environment and climate system. The melting of the Arctic sea ice is progressing rapidly, resulting in self-accelerating **global warming, and affecting ecosystems** as well as **the traditional livelihoods of indigenous peoples**. Since 2008, when the Commission adopted its first Communication on the Arctic, the EU has established itself as a key supporter of the Arctic region. It has raised awareness of the impact it is having on the **Arctic environment** and of the potential for sustainable development in the Arctic region for the benefit of both the local Arctic population and the EU. Indeed, the rapidity of change in the Arctic provides a strong rationale for the EU's commitment to **environmental protection** and the fight against **climate change**. It also calls for increased EU investment in climate change research in the Arctic, as a basis for further global and regional action.
Keywords	Climate change; economic development; sustainable development; ecosystems; environmental protection; resources; cooperation; indigenous people
Challenges/ bottlenecks/ gaps & needs	In 2008, the Commission set out three main policy objectives: (1) protecting and preserving the Arctic in unison with its population; (2) promoting the sustainable use of resources; (3) international cooperation. EU action since 2008 has led to tangible results in the fields of environmental protection, research, and economic development, and the particular emphasis on the protection of the Arctic environment remains the cornerstone of the EU's policy towards the Arctic. However, given the evident speed of change in the Arctic, the time is now ripe to refine the EU's policy stance towards the region, take a broader approach, and link it with the Europe 2020 Agenda for smart, sustainable and inclusive growth while continuing to support every effort to ensure the effective stewardship of the fragile Arctic environment. In addition, the EU's contribution on Arctic issues

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	should be supportive of the efforts of Arctic states and take account of the needs of indigenous and local communities.

Action Plan for a Maritime Strategy in the Atlantic area Delivering smart, sustainable and inclusive growth

Date of publication	2013
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1395674057421&uri=CELEX:52013DC0279
Publisher	European Commission
Summary	This Action Plan therefore sets out priorities for research and investment to drive the 'blue economy' forwards in the Atlantic area. The five Atlantic Member States and their regions can draw on the Action Plan to help create sustainable and inclusive growth in coastal areas. The **Action Plan builds on the Commission's Atlantic Strategy**, and is the result of consultations conducted through the Atlantic Forum. The Action Plan is intended to have a **strong signalling effect for regions and the private sector.** They should begin consideration of where they could work together, including on a cross-border basis, to implement the agreed priorities. The process of developing the Action Plan, conducted in partnership with the five Atlantic Member States, has encouraged stakeholders, including regions, port cities and the private sector, to consider how they could take action to grow the blue economy and contribute to **sustainable development in the Atlantic area**. This should help to **attract investment** and private sector activity into the blue economy and, in doing so, help to **revitalize coastal regions** in the Atlantic area.
Keywords	Blue economy; research; sustainable; growth; cross- border basis; civil society; industry; local authorities; carbon footprint; natural resources
Challenges/ bottlenecks/ gaps & needs	The Forum has enabled Member States, the European Parliament, regional and local authorities, civil society and industry to contribute to the development of the Action Plan and consider response to the challenges of delivering growth, reducing the Atlantic area's carbon footprint, ensuring sustainable use of the sea's natural resources, setting up effective responses to threats and emergencies and implementing an ecosystem based management approach in Atlantic waters

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IMBER Strategic Research Agenda

Date of publication	
Source	http://www.loicz.org/cms02/about_us/index.html.en.html
Publisher	LOICZ
Summary	LOICZ is an international research project involving scientists from across the globes who have been investigating changes in the biology, chemistry and physics of the coastal zone since 1993. Since 2003, LOICZ has expanded its areas of research to include social, political and economic sciences in order to **address the human dimensions of the coastal zone.** The research results are used to explore the role humans' play in the coastal zone, their vulnerability to changing environments, and the options to protect coasts for future generations. The main goal of LOICZ is "to provide the **knowledge, understanding and prediction needed** to allow coastal communities to assess, anticipate and respond to the interaction of global change and local pressures which determine coastal change."
Keywords	Sustainability; global change; coastal system; changes; social, political, economic sciences
Challenges/ bottlenecks/ gaps & needs	LOICZ is working to support sustainability and adaptation to global change in the coastal zone. LOICZ´s objectives: include developing and testing **integrated multidisciplinary (natural+ economic+ social) methods** to analyse the environmental and social interactions and feedbacks governing coastal system status and changes.

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A Maritime Strategy for the Adrian and the Ionian Seas

Date of publication	30.11.2012
Source	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0713&from=EN
Publisher	European Commission
Summary	This Communication assesses the needs and **potential of sea-related activities in the Adriatic and Ionian area**, and sets out a framework to move towards a coherent maritime strategy and corresponding **Action Plan by 2013**. Should the EU Member States decide to ask the Commission to prepare an **EU Strategy for the Adriatic and Ionian region**, this maritime strategy might constitute the first component of such an EU macro-regional strategy covering additional fields?
Keywords	Climate change impacts, coastal areas, cross-border cooperation, northern Mediterranean, IMP, sustainability, administrative simplification, maritime clusters, GES, sustainable fishing, governance, compliance, marine litter, eutrophication, maritime space
Challenges/ bottlenecks/ gaps & needs	**Pillar 1: Maximising the potential of the blue economy:** (1) Enhancing administrative cooperation, (2) Stimulating the creation of maritime clusters, (3) Increasing the mobility and qualification of the workforce, (4) Developing MSP and ICZM at both at national and cross-border level. **Pillar 2: Healthier marine environment:** (1) Ensuring good environmental and ecological status, (2) preserving biodiversity, ecosystems and their services, (3) Reducing marine litter, (4) Continuing improving sub-regional cooperation and monitoring the existing mechanisms **Pillar 3: A safer and more secure maritime space:** (1) Improving the culture of compliance in flag and port state control, (2) Enhancing cooperation between national or regional maritime authorities with the EU, (3) Supporting the development of decision support systems, (4) Ensuring adequate sources of information for crews and navigators **Pillar 4: Sustainable and responsible fishing activities:** (1) Achieving the sustainable management of fisheries, (2) Contributing to the profitability and sustainability of fisheries, (3) Improving the culture of compliance, (4) Developing scientific cooperation on fisheries

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Further information/ outlook	Development of an Action Plan by 2013.

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