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TECHNICAL PAPER FROM THE CPMR GENERAL SECRETARIAT

## BLUE GROWTH AND SMART SPECIALISATION STRATEGIES

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This paper provides information about the maritime dimension of smart specialisation strategies (S3) and the programming of European Structural and Investments Funds (ESI) for 2014-2020. It follows on from the work carried out over the last few months with the objective of setting up a [platform](#) involving maritime Regions and socio-economic stakeholders on this subject. This platform is one of the work areas of the CPMR [maritime agenda](#).

The information was gathered through ad-hoc discussions with Regions<sup>1</sup>, as well as discussions which took place in the framework of the [Blue.invest](#) Conference organised in September 2015 by DG Mare in cooperation with the CPMR and in other events such as the [workshop](#) on S3 and blue growth organised in October 2015 by the Joint Research Centre and DG Regio.

The main conclusions presented in this paper are as follows:

- Maritime issues are an important dimension in S3 and in the programming of ERDF;
- S3 reflect the reality of the maritime economy on the ground;
- S3 provide support to transnational economic dynamics, at both European and sea basin level.

These conclusions are summarised in this paper, which includes a table with more specific information for several Regions. Other papers will be developed in the future in order to provide support to CPMR activities, and will address specific maritime economic topics, regional case studies, or issues such as financial instruments.

Following the Blue.invest Conference, the CPMR will further develop its activities with the aim of providing support to the networking of Regions and socio-economic stakeholders in key maritime areas linked to S3, at both European and sea basin levels, through its Geographical Commissions.

### I. MARITIME ISSUES, AN IMPORTANT DIMENSION OF S3 AND ESI FUNDS

#### I.1. A large number of European Regions have selected maritime issues as one of their S3 priorities

Maritime issues are addressed as a priority in regional S3 through:

- Priorities that are explicitly maritime. The S3 of some Regions (e.g. Schleswig-Holstein, Brittany, Azores) have a broad maritime aspect. Other Regions focus on a more limited number of maritime topics, such as marine energies.
- Non-maritime priorities, such as energy or bio-resources, which finance maritime projects amongst others. In many Regions, maritime issues are included in this kind of non-maritime priorities, which makes it difficult to provide a reliable mapping of "maritime S3 in Europe".

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<sup>1</sup> At this stage, 60 Regions have participated in the discussions.

Crete is an example of a Region which has included maritime issues within broader topics in its S3:

### Maritime Priorities in Crete's RIS

Agrofood	Culture-Tourism	Environmental	Knowledge
Exploiting the biodiversity of Crete –marine incl. Reg Oper Progr (ERDF)	Special forms of tourism (cruise, religious, diving and marine, rural tourism) Reg Oper Progr (ERDF). Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF H2020	Technologies for the sea potential for energy Reg Oper Progr (ERDF). Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF ,H2020	Strengthening research infrastructure within the national roadmap for research infrastructures and ESFRI infrastructures (HCMR) Reg Oper Progr (ERDF). Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF, H2020
Pharmaceutical products based on Cretan biodiversity (incl. marine) Reg Oper Progr (ERDF)		Productive activities at sea (aquaculture). Reg Oper Progr (ERDF). Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF ,H2020	
Food products from marine organisms Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF	Demonstration projects to promote alternative forms of tourism (including diving tourism) Reg Oper Progr (ESF)	Management of spatial arrangements and systematic observation (monitoring) (incl.maritime-coastal space) Reg Oper Progr (ERDF). Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF ,H2020	Targeted education and training programs for entrepreneurs as “ summer schools) Reg Oper Progr (ERDF).
Professional knowledge and skills Reg Oper Progr (ESF-EAFRD)		Accredited laboratories and control systems (incl marine ecosystems). Reg Oper Progr (ERDF). Oper./ Progr.e Compe., Entrepr. & Innov.-EPANEK-NSRF , H2020	Develop professional knowledge and skills. Reg Oper Progr (ESF)




To a lesser extent, maritime issues can also be a priority for some non-coastal regions, for instance some of the German Lander which support the development of maritime technologies.

#### 1.2. Maritime issues are also an important priority in the programming of ESI funds

It is difficult, at the beginning of the programming period, to know the exact amounts which will be devoted to maritime issues. However, there is enough information in the regional strategies as well as in operational programmes to consider that maritime issues will be an important priority in the actual programming of ESI funds.

According to the European Commission, between 7 and 10 billion Euros could be spent on maritime issues through ERDF and EMFF during the 2014-2020 programming period<sup>2</sup>.

This estimation seems to be reinforced by information received from several European Regions on the programming of ERDF. As an example, and **depending on the final use of funds**, the **indicative** figures below illustrate the investment potential of some Regions. Figures were received from other Regions, but cannot be quoted at this stage.

Region	ERDF (2014-2020)	Estimated amount dedicated to Blue Growth
Galicia	€883M	13% (€114M) for maritime
Basque Country	€176M	10% (€17M) for renewable energy (including marine)
Schleswig-Holstein	€271M	27% (€72.5M) for renewable marine energy 8% (€23.2M) for the maritime economy
Skåne	€491M	25% (€122M) for maritime
Malta	€369M	4.3%-4.4% (€15.8M) for maritime
Azores	€825M	16%-18% (€148M) for maritime

The impact of these funds does not only depend on the amounts that are invested. It also depends on the leverage effect on other public and private funding, as well as on the fact that the specialisation patterns supported by S3 is in general going in the same direction as specialisation patterns supported by other public (mainly national) and private funding.

<sup>2</sup> Commissioner VELLA's [speech](#) at the Blue.invest Conference

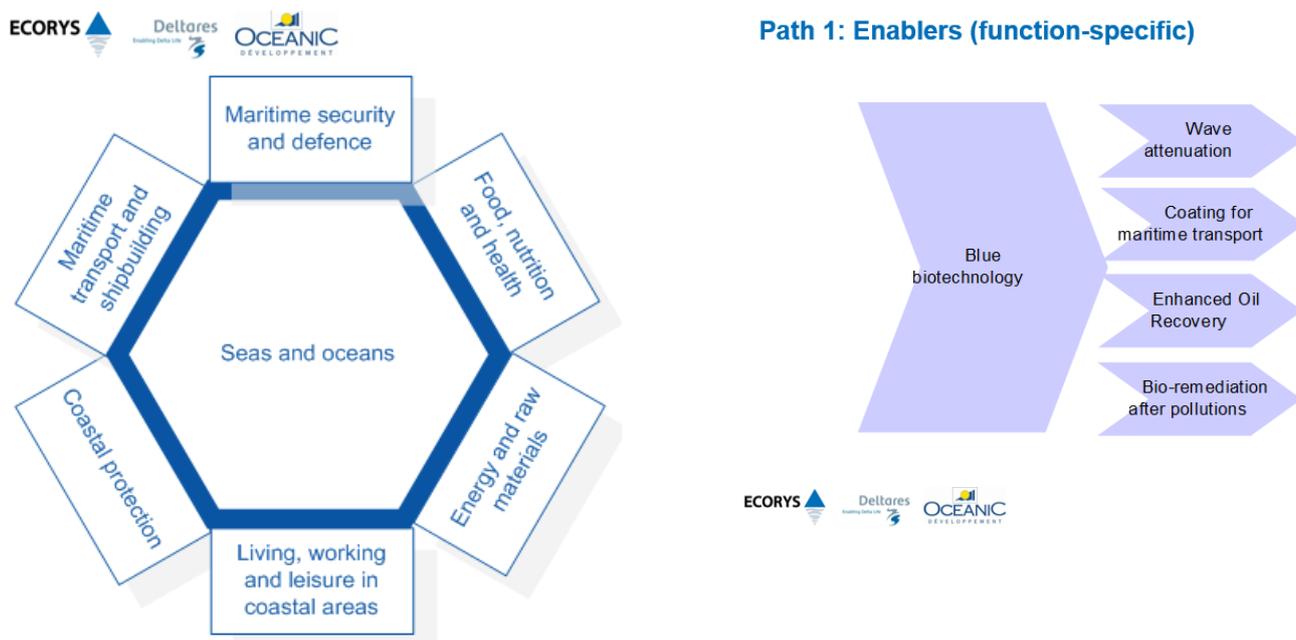
It will be interesting to analyse the link between European maritime priorities included in S3 and projects which will be selected in the framework of the Juncker plan. According to the European Commission, up to 20% of projects funded by the Juncker plan will have a direct or indirect link with the blue growth economy.

## II. S3, REFLECTING HOW THE MARITIME ECONOMY WORKS

As indicated in the table in annex, the maritime sectors identified in S3 are diverse.

To a large extent, the maritime economy does not consist of a range of isolated maritime sectors (marine energies, blue biotechnologies, shipbuilding, etc), but rather in interactions between sectors.

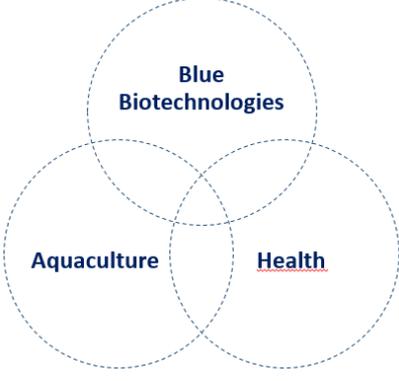
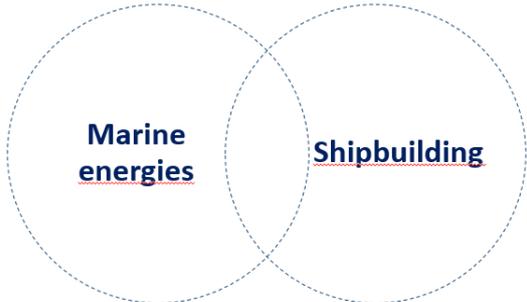
The [blue growth study](#) proposed a typology of maritime functions, as well as different types of interactions between economic sectors. The diagrams below show maritime functions identified in the study, as well as one of the types of interaction between maritime sectors described in the study.



To some extent, S3 reflect the way this kind of maritime functions or interactions actually exist on the ground. When interactions between economic sectors are identified in S3, the support provided through ESI funds can aim at strengthening these interactions rather than supporting individual sectors.

This can be described through several examples. The two examples below<sup>3</sup> were chosen because they are present in an important number of S3. Information about these examples and the Regions that are quoted do not provide a complete overview of the S3 of these Regions. In addition, other Regions than those quoted could have been added.

<sup>3</sup> Other examples, such as the link between Information and Communication Technologies and an important number of sectors of the maritime economy, could have been quoted on the basis of the analysed S3.

<p><b>Example 1 - Interactions between blue biotechnologies, aquaculture and health</b></p> <p>Interactions between these sectors result from the fact that:</p> <ul style="list-style-type: none"> <li>• Blue biotechnologies can enable the development of pharmaceutical products and cosmetics;</li> <li>• The development of aquaculture (seaweed, shellfishes, plankton, fish) provides raw material for the development of the blue biotechnology sector.</li> </ul>	 <p>A Venn diagram with three overlapping circles. The top circle is labeled 'Blue Biotechnologies'. The bottom-left circle is labeled 'Aquaculture'. The bottom-right circle is labeled 'Health'. The circles overlap in the center and in pairs.</p>
<p>Other examples of Regions could be quoted here (e.g. Campania, Vastra-Gotaland, Pays de la Loire).</p> <p>In the <b>Azores</b>, one of the objectives of the innovation strategy is to promote research in the areas of aquaculture and blue biotechnologies. The University of the Azores develops biotechnologies for the production of bio-products that can be used in the health sector.</p> <p>In <b>Crete</b>, the link between biotechnologies and aquaculture is supported through a priority of the innovation strategy focusing on “the development of solutions integrating specific technologies and productive activities that have a link with the sea and aquaculture”. The Hellenic Centre for Marine Research (HCMR) is working on the use of techniques to further develop genetic progress in aquaculture.</p> <p>In <b>Brittany</b>, marine biotechnologies are an important challenge for the development of other sectors such as the food sector, health, cosmetics and biofuels. An example, this is a challenge for Capbiotek, a network gathering several Regional Innovation and Technology Transfer Centres (CRITT) working in these areas. The company Algae and Sea, a member of Capbiotek, grows and collects micro-algae to extract elements from it that can be used for the development of cosmetics, food products and health.</p> <p>In <b>Galicia</b>, one of the objectives of the Region is to develop alternative uses of marine products that can have a strong added value, notably in the area of cosmetics or pharmaceuticals). As an example, the BIOGA consortium (Cluster of businesses of the life science field) brings together organisations such as the EBIOTEC company, which is working on new nutritional benefits from marine organisms that can be useful in the health and food sectors.</p>	
<p><b>Example 2 - Interactions between marine energies and shipbuilding</b></p> <p>Interactions between these sectors result from the fact that:</p> <ul style="list-style-type: none"> <li>• Research centres and businesses from the marine energies and shipbuilding sectors (as well as sometimes from other sectors such as aeronautics or the rail industry) have numerous technological challenges in common, such as the development of advanced materials (e.g. composite materials that can be used for both the building of ships and of wind turbines) and of advanced manufacturing techniques (e.g. robots that can contribute to the building of wind turbines and ships);</li> <li>• Shipyards and ports become places for the building and maintenance of marine energy structures (e.g. wind turbines).</li> </ul> <p>These synergies are at heart of the CPMR’s action relating to maritime industries, including the Working Group which is led by the Region of Pays de la Loire.</p>	 <p>A Venn diagram with two overlapping circles. The left circle is labeled 'Marine energies'. The right circle is labeled 'Shipbuilding'.</p>

Other examples of Regions could be quoted here e.g. Basque Country, Cantabria, Galicia, Brittany, Basse-Normandy, Fife, Bremen, Mecklenburg-Vorpommern, Liguria, Marche, Tuscany, Friuli-Venezia-Giulia, Pomerania, Western-Pomerania.

In **Pays de la Loire**, the development of advanced materials and of Advanced Manufacturing Technologies (automation, robotics, productive systems and associated services, measuring systems and sensors) is at the core of the regional strategy, and of the action of stakeholders such as Neopolia, a cluster gathering 180 SMEs active in the sectors of marine energies, shipbuilding, oil and gas, aeronautics and the rail industry).

In **Southwest Finland**, the shipbuilding industry benefited from the support of European funds such as ERDF, in order to help businesses to expand internationally and diversify their activities, especially through the development of more activities in the marine energy field.

In **Asturias**, shipbuilding activities focus on the areas of transport, energy and fisheries. Advanced materials are now widely used in the marine energies and shipbuilding sectors. The company Arcelor Mittal provides raw materials to the shipbuilding sector and develops new technologies in the context of a future factory.

### III. S3, INSTRUMENTS FOR SUPPORTING TRANSNATIONAL ECONOMIC PATTERNS

In parallel to their support for interactions between economic sectors in the territories, S3 support the involvement of stakeholders in cooperation and value chains at both European and international levels. As a matter of fact, priorities that are selected make it possible to support organisations or projects involved in European or international collaboration.

S3 can provide support for the funding of regional projects that contribute to the activities of organisations which:

- Are part of European marine research infrastructure networks. The example of EMBRC described below is interesting in the area of blue biotechnologies. Other examples of infrastructures could have been quoted, such as Lifewatch in the area of marine environment. Crete is also contributing via ERDF to the funding of activities of the HCMR centre – based in this region – which is itself involved in EMBRC and Lifewatch.
- Contribute to important European initiatives such as Ocean-Era-Net in the area of marine energies, or Coastal Mapping in the area of coastal data, funded by the EMFF and in which CPMR is a partner. The initiatives often involve stakeholders which receive support from ESI funds to carry out their activities at regional level.
- Contribute to supporting actions at regional level that are useful to the implementation of European or sea basin actions plans. For instance:
  - At European level, the implementation of the roadmap for ocean energies will benefit from ERDF support at regional level;
  - At sea basin level, the implementation of sea basin action plans such as Master Plans for maritime technologies which will be developed on the model of that developed in the Baltic Sea area will also benefit from ESI funding.

Other initiatives are undertaken by the Regions, on the basis of their S3, together with stakeholders of their territories, in line with European or international value chains. This can be done in the framework of European projects specifically designed for this, (several Regions expressed their interest in working on this through Interreg projects for instance, at European or sea basin levels, or in the framework of ad-hoc initiatives (e.g. brokerage events to be organised in partnership with businesses or research organisations)).

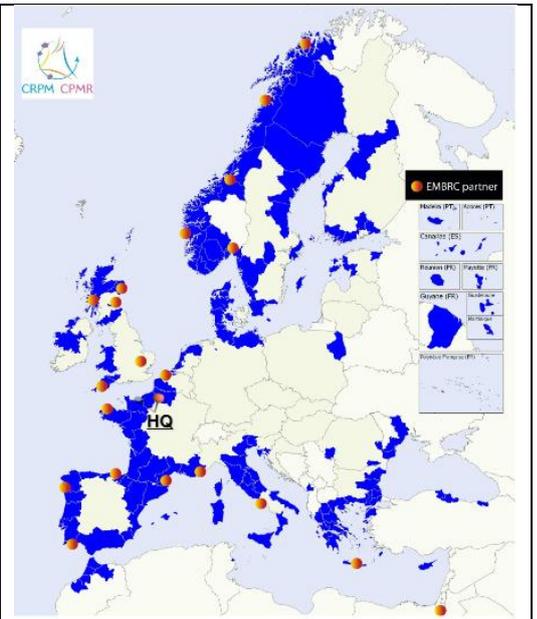
## Synergies between ESI funds and Horizon 2020, the example of EMBRC - blue biotechnologies

EMBRC (European Marine Biological Resource Centre) is a network of biological research stations specialised in blue biotechnologies, which constitute an infrastructure recognised at European level.

Biological research stations which are members of EMBRC are indicated on the map.

EMBRC is supported through Horizon 2020 projects. In most cases, biological research stations that are members of the EMBRC also receive support through ERDF. This support from ERDF therefore directly contributes to a pan-European initiative.

The CPMR is a partner of the EMBRC PP2 project, funded by Horizon 2020, and in the framework of which its role is to work on the link between EMBRC scientific priorities, S3 and ESI funds in the Regions.



Region	Member State	Sea Basin	ERDF Budget (M€)	Share of ERDF dedicated to Maritime activities	Priorities	Maritime areas	Examples of EU maritime projects developed in the Region
Galicia	Spain	Atlantic	883	13% = 113M€	Food, nutrition and health Shipbuilding, energy and raw materials	Aquaculture Fisheries Marine biotechnology Shipbuilding Marine renewable energies	The STAMAR project
Basque Country	Spain	Atlantic	176	10% = 17M€	Food, nutrition and health Shipbuilding, energy and raw materials	Fisheries Shipbuilding Marine renewable energies	
Schleswig-Holstein	Germany	North Sea Baltic	271	35% = 27% (72,5M€) for renewable marine energy; 8% (23,2M€) for the maritime economy	Food, nutrition and health Living, working and leisure in coastal areas Shipbuilding, energy and raw materials Coastal protection	Fisheries Maritime and coastal tourism Marine renewable energies Shipbuilding Coastal management	The PROWAD project (Interreg IV B, 1.3M€) aimed to develop a tourism strategy and an action plan, to establish a transnational network of local and regional stakeholders; The Maritime Cluster Management Northern Germany project (2014-2020, 0.85M€) links companies and science.
Wales	United-Kingdom	Atlantic	1000	8% = 80M€	Food, nutrition and health Shipbuilding, energy and raw materials	Fisheries Aquaculture Marine renewable energies	The Delta Stream project (Interreg IV, £11.5M) aims to demonstrate the capability of DeltaStream as a tidal stream generator.
Skåne	Sweden	Baltic	491	25% = 122M€	Food, nutrition and health Shipbuilding, energy and raw materials Coastal protection Maritime transport	Fisheries Aquaculture Marine renewable energies Coastal management Ports Maritime transport	
Azores	Portugal	Atlantic	825	16-18% = +/- 136M€	Food, nutrition and health Shipbuilding, energy and raw materials	Fisheries Aquaculture Marine biotechnology Marine mineral resources	The Aqua project (2014-2020, 11.8M€, submitted) aims to develop scientific knowledge related to the aquaculture sector and to promote its economic exploitation; The Valorfish project (2014-2020, submitted) aims to promote the economic exploitation of the sea, alternative fishing techniques and also to promote traceability.
Malta	Malta	Mediterranean	369	4,3-4,4% = +/- 16M€	Food, nutrition and health Shipbuilding, energy and raw materials Living, working and leisure in coastal areas	Fisheries Aquaculture Marine renewable energies Maritime and coastal tourism	

Andalusia	Spain	Mediterranean Atlantic	2000		Food, nutrition and health Shipbuilding, energy and raw materials Living, working and leisure in coastal areas	Aquaculture Marine renewable energies Maritime and coastal tourism	
Asturias	Spain	Atlantic	253		Food, nutrition and health Shipbuilding, energy and raw materials Maritime transport	Fisheries Shipbuilding Marine renewable energies Maritime transport Ports	The InterZALIA (Zona de Actividades Logísticas e Industriales de Asturias) project
Basse-Normandie	France	Atlantic	187	14% = 26,1M€	Food, nutrition and health Maritime transport Shipbuilding, energy and raw materials	Aquaculture Ports Marine renewable energies	The Atlantic Power Cluster Project (Interreg IV B, 3M€ budget) aimed to elaborate a strategy for the maritime renewable energies in the Atlantic by setting-up clusters in the maritime energies
Bretagne	France	Atlantic	307		Maritime transport Food, nutrition and health Shipbuilding, energy and raw materials	Maritime transport and safety Aquaculture Fisheries Marine biotechnology Shipbuilding Marine renewable energies	The renewable marine energy terminal of the port of Brest (Interreg contribution to 220M€ budget) is not an infrastructure project but is dedicated to the developmet of the renewable marine energies sector, The Blue Valley - EMBARC project (2014-2020, 2.2M€) will help to reinforce the investment in marine biotechnologies in the region.
Catalonia	Spain	Mediterranean	808		Shipbuilding, energy and raw materials	Marine renewable energies	
Crete	Greece	Mediterranean	289		Food, nutrition and health Shipbuilding, energy and raw materials	Marine biotechnology Aquaculture Marine renewable energies	
Baleares	Spain	Mediterranean	125		Food, nutrition and health Shipbuilding, energy and raw materials Living, working and leisure in coastal areas Maritime transport	Marine biotechnology Marine renewable energies Maritime and coastal tourism Maritime transport	
Marche	Italy	Mediterranean	168		Food, nutrition and health Shipbuilding, energy and raw materials	Fisheries Marine renewable energies	
Mitdjylland	Denmark	North Sea Baltic	(National Program		Shipbuilding, energy and raw materials	Marine renewable energies	The Living North Sea project (Interreg IV B, 6.4M€ budget) aimed to tackle the different problems surrounding the management of migratory fish stocks in the North Sea

Noord-Holland	The Netherlands	North Sea	189 (including Zuid-Holland, Flevoland and Utrecht)		Food, nutrition and health Shipbuilding, energy and raw materials Maritime transport	Marine biotechnology Marine renewable energies Maritime infrastructures Ports	The Living North Sea project (Interreg IV B, 6.4M€ budget) aimed to tackle the different problems surrounding the management of migratory fish stocks in the North Sea
PACA	France	Mediterranean	284		Food, nutrition and health Shipbuilding, energy and raw materials Maritime transport	Marine biotechnology Marine renewable energies Shipbuilding Maritime transport and safety Ports	
Pays-de-la-Loire	France	Atlantic	302		Food, nutrition and health Shipbuilding, energy and raw materials Living, working and leisure in coastal areas	Aquaculture Fisheries Marine biotechnology Shipbuilding Marine renewable energies Maritime and coastal tourism	The Technocampus Ocean project (Interreg contribution to 47M€ budget) is a technological research platform dedicated to metallic materials and offshore structures, for shipbuilding and renewable marine energies, The Défi -µAlg project (2007-2013, 3.6M€) aimed to increase the development of micro-algae sector in the region.
Picardie	France	Atlantic	219		Food, nutrition and health Shipbuilding, energy and raw materials Living, working and leisure in coastal areas Coastal protection	Marine biotechnology Marine renewable energies Maritime and coastal tourism Coastal management	The Industrilab project (2007-2013, 32M€ budget, 4.8M€ from the ERDF)
Scotland	United-Kingdom	North Sea Atlantic	476		Food, nutrition and health Shipbuilding, energy and raw materials Maritime transport	Aquaculture Fisheries Marine renewable energies Maritime transport Maritime and coastal tourism	The Living North Sea project (Interreg IV B, 6.4M€ budget) aimed to tackle the different problems surrounding the management of migratory fish stocks in the North Sea
Vastra-Gotaland	Sweden	Baltic	56 (for West Sweden, including Vastra-Gotaland and Halland)		Food, nutrition and health Shipbuilding, energy and raw materials Living, working and leisure in coastal areas	Fisheries Marine biotechnology Marine renewable energies Maritime and coastal tourism	
Southwest Finland	Finland	Baltic	for the whole Finl		Food, nutrition and health Shipbuilding, energy and raw materials	Marine biotechnology Shipbuilding Marine renewable energies	The RENEWTECH project (Interreg Iv, 2.8M€) aimed to produce new commercially applicable wind-power innovations, maintenance concepts and logistics; The International Advanced Water Technologies Centre (IAWTC) project (2007-2013, 1.5M€) aimed to boost the competitiveness and business operation of SMEs.