InterMareC – Interregional Maritime Cluster: The Benefit of Interregional Cooperation

InterMareC
K.E.R.N. Brest Gdansk

Operated by Technologie-Region K.E.R.N. e.V./ Germany, Technopôle Brest-Iroise/ France and Pomerania Development Agency Co./ Poland

PROJECT PART-FINANCED BY THE EUROPEAN UNION
North East South West INTERREG IIIC

Imprint

Editorial office:
schiff-Beratungs-Gesellschaft für Betrieb und Region mbH
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December 2007

Photos:
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Ship Design & Research Centre: 45
Gdynia Shipyard: 45
getty-images: 1, 15

Design:
conrat, agentur für marketing und kommunikation, Kiel

Production:
L+S, Kiel

Print:
AKOBI, Gdańsk

Booklet in context of the INTERREG IIIC Regional Framework Operation InterMareC – Interregional Maritime Cluster

Development and Improvement with
K.E.R.N.-Region / Germany, Brest / France and Gdansk / Poland

December 2007

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Greetings

Consul Wolf-Rüdiger Janzen
Chairman InterMareC Steering Committee

The objective of InterMareC was to establish a cluster of maritime competencies and potentials and expand international contacts and commercial relations. A programme was envisaged which allowed EU subsidies to be used directly for supporting sub-projects through a committee set up specially for the purpose.
After the submission of the application form within the framework of the INTERREG IIIC programme in early 2004 by Gdansk, Brest and K.E.R.N., representing three maritime regions, the letter of approval from the Joint Technical Secretariat of the Investitionsbank Schleswig-Holstein arrived in September 2004. The total volume of the project was 3.2 million EUR, 1.75 million EUR of this being EU subsidies.
Now, three years later, we can look back on a total of 20 subsidised sub-projects in the domains of Offshore and Oceanographic Technologies, Coastal Services and Activities as well as Ship and Boatbuilding, Supply and Services. 46 different companies and scientific institutions from the three participating regions were involved in these projects, some of them even in more than one. If each sub-project participant were to be counted individually, the total number of participants would be almost 80.
The project managers have always attached a great deal of importance to the networking of the subsidised projects within the framework of InterMareC, and consequently there have not only been international workshops, but also meetings at regional level. These meetings allowed us to gain insight into the progress of the collaboration and also provided stimulation among participants.
The greatest benefit for the participating companies was presenting their products at exhibi-
tions in the partner countries and also at the InterMareC community pavilions at international trade fairs.
The implementation of the projects generated decisive momentum in the respective domains in Schleswig-Holstein. The Technologie-Region K.E.R.N. has been able to gain a great deal of ex-perience in organising clusters in these three years.
The InterMareC project does in fact come to an end at the end of 2007, but the subject of maritime clusters and international cooperation will continue to figure high on the agenda. We are aware of the political backing for our future activities in our three regions. I am therefore more than confident that we shall succeed in future in utilising our existing contacts and continue to strengthen the maritime industry in our regions.

Peter Harry Carstensen
Minister-President of Schleswig-Holstein

Schleswig-Holstein has since time immemorial been a land bridge between cultures and between Western and Northern Europe. And we Schleswig-Holsteiners are convinced that Europe will
only survive if its regions take an active role on the European stage. Europe offers the great opportunity for its people to enrich each other, learn from one another by exchanging experiences and become stronger through joint projects. The European idea becomes reality through cultural diversity based on common values.
InterMareC is based on the cooperation of the three coastal regions of Schleswig-Holstein, Brittany and Pomerania. Each of these regions has its own historical, political, cultural and economic profile. Each region has its own visions and objectives.
It is all the more interesting that these three regions have decided to pool their efforts within the framework of the InterMareC project and in part develop the opportunities of the "sea" as a resource together.
For centuries the seas and coasts have influenced the identity and culture of Europe, have characterised trade and change, its economic structure and its working environment. The seas and coasts were both a link and bone of contention between the European powers but also between Europe and its neighbours. Their role in health, leisure and tourism has gained considerable importance particularly in the last few decades.
This has gone hand in hand with an increasing conflict between the interests of protection and utilisation.
I am pleased that the InterMareC project has become part of the European process seeking concrete solutions and practical results.
I congratulate you on the results you have achieved: you have succeeded in bringing together maritime companies, researchers, business development organisations and public administra-tion in an interregional maritime network and hence trigger economic impulses for innovation.
The InterMareC interregional cooperation project has generated many concrete initiatives in the domains of Offshore and Oceanographic Technologies, Coastal Services and Activities in Coastal Areas and Ship and Boatbuilding.
You have been involved with sub-sea acoustics, safety solutions in the transport of hazardous materials, waste water management on ships, with aquaculture and much more.
These activities will set the standard for others and serve as an example for future action.
I am therefore pleased that the talks on a maritime cluster in the Baltic Sea Region are forging ahead and that the partners in the current project intend to continue their cooperation.

Greetings

Frauke Tengler
Vice-President Schleswig-Holstein Parliament

InterMareC stands for the cooperation of coastal regions in the form of interregional maritime clusters. In the last three and a half years around 80 participants from Brittany, Pomerania and Schleswig-Holstein have pooled their maritime competences in 20 sub-projects, extended their commercial relations and generated new economic impulses.

The institutions responsible for the project and I are pleased that InterMareC has been brought to a successful conclusion and the German-Polish-French partnership could be further cemented. InterMareC is more than an economic and scientific cluster. It symbolises what are known as „soft" success factors such as partnership, reliability, intercultural understanding and appreciation. InterMareC is therefore a kind or European political union in miniature.

What we need for the benefit and protection of the seas is an integrated political approach at European and at international level in order to create the basic conditions to be imbued with life at interregional level. InterMareC serves as a best-practice example within this framework.

An integrated political approach at European level will only succeed if the activities of regional parliaments and governments in the coastal regions and the various actors in maritime policy are supported locally.

The definition and implementation of an integrated European Maritime Policy is still high on the agenda both for the European Parliament and for the Baltic Sea Parliamentary Conference, the Forum of the Regional Parliaments of the South Baltic Sea Area and the Schleswig-Holstein Parliament.

The bon mot of former Russian president Mikhail Gorbachev that anyone who comes too late is punished by life can also be phrased in positive terms:
Anyone who participates at an early stage will be rewarded!

The actors of InterMareC have perfected this recipe for success in their networking philosophy. I am confident that they will succeed in further expanding their interregional maritime cluster, establishing themselves as an example of best practice at European level and continuing their success story.

Jan Kozłowski
Marshal of Pomerania Region

Ladies and Gentlemen, dear Friends,

let me start with a quotation from the State of the Region Report 2007 published by the Baltic Development Forum: „Cross-national cooperation is not a goal in itself – it is a tool to achieve other, more ultimate goals like economic prosperity or security. Whether or not cross-national cooperation is useful depends on its ability to make a significant contribution to reaching these ultimate goals. Cross-national cooperation is appropriate as long as the energy and resources it requires are not more efficiently used at home or at other geographic levels".

I think we're all ready to agree with this statement. And – we are all present here: representatives of businesses, research and development sectors, as well as of public authorities. Thus, the conclusion seems to be obvious – the international project of which the final conference is now taking place has been appreciated as an effective tool leading to the ultimate goal of economic development of our regions.

Ladies and Gentlemen,

as you are aware the Self-government of Pomorskie Voivodeship has not been a formal partner of InterMareC project. However, I want to ensure all of you that we have been following with great interest its development and we are delighted to see it as a success. I am very glad to listen to you summarizing your cooperation up till now and to watch the maritime cluster being created. Maritime economy is obviously of tremendous importance for Pomorskie Voivodeship. Its modern development as well as the way it is perceived are essential aspects here. The confirmation of this importance is in the Pomorskie international activities, where it plays a significant role. Both the long-lasting and numerous contacts with Schleswig-Holstein land – with which we have a formal co-operation agreement, as well as some more occasional actions performed in cooperation with Bretagne relate widely to maritime issues as such. Here I would like to take the opportunity to share with you my great satisfaction with the recent opening in Gdansk of the joint office of the Land of Schleswig-Holstein and the Free Hanseatic City of Hamburg, which is a continuation of the Office of Schleswig-Holstein Land that had been operating in Pomorskie since 1995. We also consider very important cooperation for the benefit of well developing maritime policy within the framework of the Forum of South Baltic Parliaments or the Baltic Sea States Subregional Co-operation in which Schleswig-Holstein Land is so active, too.

And while talking about the BSSSC, one just cannot forget to mention the conference that took place right here, in Kiel, in September 2006, whose final declaration contained, among other things, call for support of scientific research in maritime economy sector and creation of maritime clusters.

Ladies and Gentlemen,

we have been involved in a project that's ending and many other spheres of cooperation within which we have been doing our best to strengthen our economy – through stronger and more modern maritime sector. Let me express my hope that in the future we will not be less active or efficient than we have been so far. As the Marshal of the Pomorskie Voivodeship I would like to confirm our interest in further cooperation in that area. I hope that your activities in InterMareC project will continue, and that the cluster established as the result of the project and with a bottom-up approach will grow in strength both as far as the number of participants and the quality and effectiveness of actions are concerned. This should help us on the global market. I would also like to express our support for continuation of the project, on which – as I understand – you are just now working. This would be in conformity with the rule we have adopted – if a project is important for companies and other entities in Pomorskie, then it is also important for us.

Ladies and Gentlemen, finally, I would like to thank you for your invitation and giving me the opportunity to participate in the conference. I wish you all the success in your work and assure you that we want to contribute to it.

Greetings

Yveline Gourvennec
Vice-President of Brest métropole océane

Minister, European Regional Authority Representatives, Project Partners,
Ladies and Gentlemen!

We can congratulate ourselves on what we have accomplished over the past three years, not only in Kiel, Gdansk and Brest but also Schleswig-Holstein, Pomerania and Brittany which successfully completed joint work, collated their experiences and found the required leverage for collaborative action.
Taking a gamble on our regions' apparent geographical handicap, I believe that out of this "decentralization" we have forged a genuine force enabling us to overcome the occasionally cumbersome administration involved in coordinating European joint ventures. We have responded by relying on the economic and scientific diversity of our regions and on the desire in Europe for territory-wide harmonization.
Improving competitiveness, innovation and research within our respective regions is what each of us wants, but it does not constitute a wish to act independently. Our desire is given substance and weight in an international marketplace through a combination of our strengths and opportunities. This is actually what is meant by successful European integration, what I would term "horizontal" integration, based on co-operation, exchange and understanding.
We have a number of common issues of which our economic and scientific stakeholders are aware. The concept of the cluster is in this respect crucial as, by skill sharing in areas of competitiveness, we contribute to strengthening Europe's position on the international stage. We are establishing expertise with the two-fold result that it can serve both Europe and our own regions.
The important point which we may draw from an assessment of these years is that we have reached a key stage and have decided to go yet further by creating more wide-reaching associations of interested European stakeholders through this innovative initiative.
Redevelopment of harbour wasteland, oceanography, aquaculture, environmental risks, integrated management of coastal zones, shipbuilding and leisure boat-building are some of the many examples demonstrating our competitiveness. We have the chance to disseminate these skills and expertise more widely alongside the joint initiative which supports them.
This dissemination is important for our local economic stakeholders as well as for our scientific capabilities and the tremendous opportunities they afford. More broadly, the involvement of these areas of competitiveness in everyday life means they directly concern our fellow citizens. Therein lies a further, perhaps even major, reason why we should be encou-raged to persevere.
In this way, next year will be an important one for us. It will also, more particularly, be a significant one for Brest which I have the honour of representing and which is organizing its major international festival of the sea, Brest 2008, an event traditionally held every four years. Like the "Kieler Woche" organized by our friends in Kiel, the Brest festival brings together all types of boats from around the world and features all the land and sea-based social interaction of the seagoing fraternity during a whole week from 11th to 17th July.

Naturally, you will all be most welcome to attend.
So, let us make it a date for 2008.
I wish you a very happy end to the year.
Thank you all very much.


Kanalstraße
Holtenauer Reede

Introduction

InterMareC, a cooperative project within the framework of INTERREG IIIC involving the three coastal regions of Schleswig-Holstein in Germany, Brittany in France and Pomerania in Poland, focused on the setting-up, development and establishment of an interregional maritime cluster.

Basing its strategy on facilitating a working cluster and exploiting related sub-project funding incentives, InterMareC demonstrated its capacity to drive forward the maritime economies and job markets in the three regions. The development of innovative, collaborative initiatives between maritime companies, scientists and public authorities (the "Triple Helix" principle) had been identified as a means of exploiting existing market potential. Using this approach, InterMareC concentrated on three thematic fields:

- Offshore and oceanographic technologies,
- Coastal services and activities,
- Ship- and boat-building, supply and services.

After forty-two months, the three official partners, Technologie-Region K.E.R.N. e.V., Technopole Brest-Iroise and Agencja Rozwoju Pomorza S.A., are more than satisfied with the success of the InterMareC operation in that it has made dynamic maritime development in the regions possible.

In this brochure, the official partners aim to provide some background to the InterMareC operation and the results of some sub-projects, as well to draw attention to the benefits of interregional cooperation in the cluster-building process.

Technologie-Region K.E.R.N. e.V., Technopole Brest-Iroise and Agencja Rozwoju Pomorza S.A. now look forward to informed, sustainable development of maritime activities at regional, interregional and global levels in the future.

1 InterMareC: A project devoted to maritime clusters

1-1 Introduction to InterMareC

1-1-1 Background to the operation

The InterMareC project was funded partly by the INTERREG IIIC EU programme which was designed to strengthen economic and social cohesion throughout the European Union by fostering balanced development of the continent through inter-regional cooperation. InterMareC was created as a Regional Framework Operation (RFO), synonymous with a "mini-programme", giving the RFO partners the responsibility to use most of their budget for specific sub-project funding.

The three coastal regions of Schleswig-Holstein in Germany, Brittany in France and Pomerania in Poland are all peripheral regions which benefit from direct access to the sea and an associated maritime sector. Their maritime potential was insufficiently exploited, especially at the time the InterMareC project started in 2004. As a consequence, dynamic regional development was being hampered. The central problem was, in general, the complexity of the maritime sector: the various stakeholders involved from the maritime economy, research, and public authorities operated in many different fields. Generating significant new economic impetus through an overall strategy supported by regional, national and international co-operation and increasing awareness of existing maritime sector potential were aspects to be considered in order to foster more dynamic regional development.

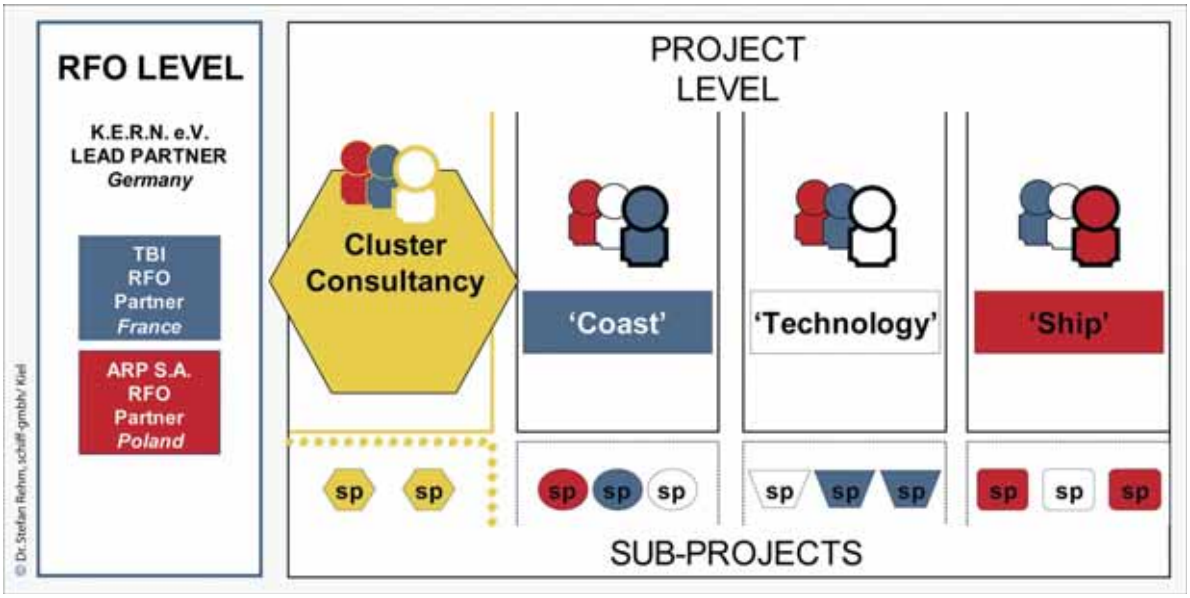
The overall objective of InterMareC was to set up, develop and establish an interregional maritime cluster. This was intended to open up prospects for growth in the maritime sector and to boost the regional economy and job market. By integrating a "top-down" and "bottom-up" approach to cluster development, InterMareC enhanced cooperation between local and regional stakeholders from the maritime sector, particularly by creating innovative collaboration among maritime companies, scientists and public authorities (the "Triple Helix" principle). This approach improved access to resources and expertise and resulted in more effective use of their potential. Activities carried out in twenty sub-projects included organizing workshops, seminars, conferences and fairs, and developing new products and services for the maritime sector relating to underwater acoustics and robotics, aquaculture, hydrodynamics and the marine environment.

The overall aim of promoting regional development was based on early implementation of activities such as actual, working projects, preparatory projects and strategic/operational management projects.

1-1-2 Structure and organization of InterMareC

It was crucially important that both the InterMareC 'mini-programme' and the cluster itself were professionally managed in order to generate added value and thereby regional development. Effective and efficient management had for all participants to be as simple and transparent as possible with responsibilities clearly defined and professionally implemented.

The operation of InterMareC was jointly led by the three official RFO partners. They were responsible for RFO management, coordination, moderation and overall control. In addition, three cluster consultants – one from each region – facilitated project development for the whole period of the project and organized day-to-day management in an efficient and professional way. Nine thematic coordinators – three sector experts for each region and each thematic component – assisted them with specific expertise and knowledge.



Organisation chart InterMareC

The procedure for selecting sub-projects centred on three joint calls for proposals followed by a two-stage selection process. The first stage involved submission of a Letter of Intent which was evaluated by an Executive Board comprising the cluster consultants and thematic coordinators. They examined the technical requirements and the quality of the proposed sub-project. The second stage was the submission of a seven-page proposal evaluated by the Executive Board and approved by the InterMareC Steering Committee which acted as a supervisory board and was made up of nine representatives from the RFO partner regions. The decision-making process was based on the principle that all activities should be geared to the needs of stakeholders within the maritime community.

1 InterMareC: A project devoted to maritime clusters

1-2 InterMareC and maritime clusters

1-2-1 InterMareC objectives relating to maritime clusters

The main objectives of InterMareC focused on:

a) Enhancing dynamic development of the three maritime regional clusters through an exchange of experience aimed at facilitating improvement of the clusters' organization and functioning,

b) Building an interregional cluster by encouraging the setting up and realizing of sub-projects through establishing networks of research laboratories, services, training centres, large companies and small and medium-sized enterprises (SMEs) from the three different regions.

The object was to bring about skill-sharing among the three regions in order to improve competitiveness at an international level when responding to European and international tenders for studies, research projects and collaborative initiatives.
The three coastal partner regions lay on the periphery of important, shared national and international economic areas and markets. They had the opportunity to profit from direct access to the sea and from an associated maritime sector. All three regions had a strong maritime history and do have a promising position regarding maritime activities in their respective countries. This position related specifically to the sectors of marine research, fisheries, seafood processing and ship repair in Brittany, ports, shipbuilding, ship repair and marine research in Pomerania and marine acoustics and marine instrumentation in Schleswig-Holstein.
Particular mention may be made here of the fact that all three regions possessed top-class marine R&D centres which were mainly concentrated in urban areas and which were viewed as local revenue-generating enterprises. These centres involved maritime and marine-related activities mainly in the three following sectors:

- Shipbuilding and ship repair,
- Acoustics and marine instrumentation,
- Coastal management services.

Each of the three regions organized various initiatives relating to R&D, services, companies and training following a cluster-based approach but using slightly different overall strategies.

1-2-2 Different approaches to maritime clusters

A Harvard University lecturer, Michael Porter, is one of the best-known authors to have developed the cluster concept. In 1998 he defined it as "a group of the same or similar elements gathered or occurring closely together". This set-up involves organizing competitor companies from a particular industry, e.g. furniture, paper pulp or car, into networks. These networks depend both on vertical, i.e. supplier-customer, relationships and on horizontal relationships such as common input, technology and distribution networks.

According to the Harvard Business School website, clusters are defined as "geographically proximate groups of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities and trade associations". The cluster environment is characterized by a climate of inspiration, basic research, research and development, specialized supplies, production, marketing and business service functions as part of an added-value chain. The aim of the cluster is therefore to increase productivity, efficiency and creative potential in order to catalyze dynamic regional development. This might increase the initial size of the cluster, but that would not be its primary motivation. Consequently, a common hierarchy of measurable goals has to be defined. Clusters may be driven by (a) large, international key players within the sector, or (b) a number of innovative and flexible SMEs connected by an operational network and creating a high degree of transparency surrounding information and existing knowledge.

In the maritime field in Europe, these two distinct approaches can be found in two types of clusters.

- The first complies with Porter's "industry-based approach" and is often developed around ship-related products or oil and gas production at a national level. For example, the maritime cluster model of the northern Europe countries, Norway, Finland and Sweden, is dominated by activities which relate to what is traditionally called the maritime industry, i.e. shipping companies, associated services such as brokerage and insurance, the port industry and services, ship repair, shipbuilding and ship equipment as well as the whole offshore technology sector.

- The second approach is driven by skills transfer undertaken by a range of sector stakeholders from science, business and public authorities. The companies are therefore mostly SMEs. R&D and technology transfer from universities, research centres and engineering schools to private companies and services as well as transparency of expertise improves sector performance as has been shown in the Dutch maritime cluster. It comprises all the traditional maritime activities plus fisheries, aquaculture, marine and coastal tourism, marine research, naval industries, coastal engineering and services and oceanographic instrumentation.

The **Brittany innovative maritime cluster** is close to the second definition just as the **Polish maritime cluster** is close to the first, being mainly dominated by **shipbuilding**.
The **Schleswig-Holstein maritime cluster** on the other hand is inspired by aspects of both approaches.
Strictly speaking, the northern European model is the more accurate as clusters usually involve the same type of activities interacting with each other. A cluster brings together companies, services and R&D facilities from the same sector or from neighbouring sectors along one added-value chain. Hence the maritime cluster has often to be divided into different thematic sub-clusters. It is worth underlining here that specialized maritime clusters exist which focus on one or two major themes as with the fishing and aquaculture industry in Galicia, or encompassing various activities such as in Brittany, Schleswig-Holstein and Pomerania.

Examples of different approaches to such maritime clusters appear in the following section introducing the maritime economy in the three regions.

2 The maritime economy in the three regions

The maritime economies of Brittany, Pomerania and Schleswig-Holstein are presented below with a general introduction, details of major marine-related activities and a general or specific activity-related SWOT analysis depending on the region and interest for the InterMareC project.

2-1 Brittany

2-1-1 Introduction

Brittany is the region in France with the longest coastline, stretching for about 1 700 km and accounting for 30 % of the whole French coast. The peninsula is located on the west coast of France between the English Channel and the Bay of Biscay. Not surprisingly, it is the foremost region for various maritime activities.
The population of Brittany is about three million. Apart from in the main city of Rennes, with approximately 300 000 inhabitants in the urban area, most of the population is concentrated on the coast which is where the region's other major towns and cities are located, including Brest (urban area population of approximately 220 000), Lorient (urban area population of approximately 170 000), St Brieuc (approximately 100 000), Quimper
(80 000) and St-Malo and Vannes which account for about 60 000 inhabitants each.

2-1-2 Insight into the regional maritime potential of Brittany

Below are the current, major employment-related maritime activities for an economically active population of about 80 000 people in Brittany.

1 **Maritime security and safety:** Employs a total of about 25 000 people
Maritime security is the predominant activity in this sector.
Services sector: Employs about 21 500 people. Brittany is home to the second and third largest French naval ports (the Navy employs about 17 000 naval staff + 4 000 civilian), the Affaires Maritimes (government department employing 430), customs and excise, etc.
Naval equipment and weapons integration industries: Employs 2 000 people (Thales SA)

As regards maritime safety in particular, Brittany is the leading French region for accidental marine pollution response services (CEDRE and CETMEF), search and rescue services, shipping surveillance (employing around 250 in the lighthouse service plus naval staff involved in CROSS), maritime safety training and research. This is considered a major field in Brittany and is continuing to develop.

2 **Coastal tourism:** This is a key activity in Brittany which is one of France's leading tourist regions. Hotels, restaurants, campsites, beach leisure activities, coastal paths, water sports, thalassotherapy, maritime festivals and events, aquariums, etc. employ about 20 000 people although many jobs are seasonal.

3 **Fishing, aquaculture and marine products commerce and processing industries:** This sector employs about 15 500: Fishing – 6 000, aquaculture – 2 500 and about 7 000 in fish trade and processing. Brittany is the foremost French region for fishing and seaweed

production and is among the first for aquaculture in the form of oyster- and mussel-far-ming. It is one of the leading French regions for fish processing industries and the main French region for seaweed processing and algae-based marine biotechnology research.

4 **Shipbuilding and repair:** Foremost French region for merchant and naval ship repair employing around 10 000 people in 2007 and one of the first for shipbuilding, especially small and middle-sized merchant and naval ships – naval frigates, patrol vessels, offshore supply vessels, small passenger ferries and service vessels.

5 **Marine leisure boating industry:** With about 5 000 employs in Brittany, it is France's leading region for yachts and second leading region for leisure boats and water sports (additional 1 100 employees), marinas and leisure boating services. The region is less important for the leisure boat-building industries which employ about 1 000 people, but is the top region for competition yacht building (e.g. boats, masts, sails and measuring equipment).

6 **Marine research:** Foremost French region for marine research mainly in marine biology, ocean sciences, coastal seas, marine geology, ship engineering, hydrodynamics, hydrography, etc.

7 **Shipping:** Brittany does not possess many large-scale companies, but this sector leads the way for jobs and employs around 2 200 people all of whom are French and mainly from Brittany. Brittany is also the base for several small companies providing ferry links to coastal islands and bay and estuary cruises.

8 **Port services:** Brittany possesses four small commercial ports, three with traffic of between two and three million tons plus some much smaller ones. There are about ten fishing ports with five being among the main ones in France and several marinas of which at least five cater for more than 1 000 boats. Excluding ship-repair activities, the total number directly employed in commercial harbours is around 2 000.

Other employment-related specialist activities:

Two other fields are considered **key activities** in Brittany even if they currently do not contribute much to regional employment:

- **Civilian marine technology:** Second leading French region for ocean technology especially in underwater acoustics but also including marine electronics, radar imaging and computer modelling.

- **ICZM:** Brittany possesses particular skills in the study, monitoring and management of coastal seas through research laboratories and private sector companies and in related services through its marine reserve management teams.

2 The maritime economy in the three regions

2-1-3 SWOT analysis of maritime activities in Brittany

A general SWOT analysis was carried out in Brittany as the region developed a global maritime cluster approach encompassing all marine activities.

Strengths	Weaknesses
A range of top-class maritime activities: **Coastal tourism:** Main activity in Brittany, one of the top French regions for tourism, offering natural landscapes, beach leisure activities, coastal paths, water sports, thalassotherapy, maritime festivals and events, aquariums, etc. **Marine research:** First French region for marine research mainly in marine biology, ocean sciences, coastal seas, marine geology, ship engineering, hydrodynamics, hydrography, etc. **Fishing and aquaculture:** Foremost French region for fishing and seaweed production and among the first for aquaculture. Leading region for marine product processing. **Marine biotechnology:** Main French region for seaweed processing and for algae-based marine biotechnology research with the development of new biotech companies. **Shipbuilding:** Foremost French region for merchant and naval ship repair and one of the first for shipbuilding, especially small and middle-sized merchant and naval ships – naval frigates, patrol vessels, offshore supply vessels, small passenger ferries and service vessels. **Marine leisure boating industry:** Second French region for the number of leisure boats and foremost for yachts, and top region for competition yacht building (boats, masts, sails, measuring equipment, etc.). **Maritime safety:** Foremost French region for accidental marine pollution response and search and rescue services and top region for shipping surveillance. **Marine security:** Brittany is home to the second and third largest French naval ports and naval weapons industries. **Marine technology:** Second French region for ocean technology especially underwater acoustics. **ICZM:** Brittany possesses particular skills in the study, monitoring and management of coastal seas (research laboratories and private sector companies).	**Weaknesses in some sectors:** **Harbours and logistics:** Lack of a major commercial harbour in Brittany with only three ports handling about 2 to 3 million tons. **Shipping:** No major shipping company except one ferry company, a leading French company in terms of seamen employed. **Aquaculture:** Conflict of use and lack of available sites prevent development of coastal and sea-based aquaculture. **Maritime human sciences:** Much less developed than "hard" sciences: skills in maritime law, economics and politics exist but at a limited level with almost no skills in maritime sciences.

Opportunities	Threats
Pôle Mer Bretagne: Brittany is one of two regions (the other being PACA – Provence Alpes Côtes d'Azur) to possess an officially recognized innovative maritime cluster which aims to strengthen the competitiveness of Brittany companies by facilitating access to R&D offered by research centres, engineering schools, universities and major companies. **Marine research:** Growing concerns over marine ecosystem protection and over the marine climate will lead to more and more studies. **Marine biotechnology** is a developing sector: the increase in basic marine research and skills is a major asset for encouraging development of marine biotechnologies. **Expertise in marine pollution response** can be offered as a specialist service to other regions in Europe and throughout the world. Various **water-quality initiatives** for undertaking and improving the study and monitoring of coastal waters and marine ecosystems. **ICZM** skills are developing in Brittany through experience sharing by various European regions, through increased networking among European research companies and laboratories (currently Littoralis) and through development of various inter-institutional collaborative initiatives. **Marine renewable energy:** Natural potential for current and wave energy as in other similar regions of the Atlantic seaboard – Scottish highlands and islands, west and south-west coasts of Ireland, Galicia and Portuguese west coast. **Marine telecommunications:** Brittany is a leading region in the telecom field with engineering schools, companies and science parks attempting to develop marine applications. Offshore marine energy development (i.e. deep- ocean oil and gas) may lead to an understanding of **technical needs and deep-ocean physics** while renewable marine energy requires a similar understanding in shallow coastal waters. Development of **competitive yachts** demands research skills in naval architecture, hydrodynamics, new materials, improved sail and navigation equipment and maritime telecommunications development.	**Damage to marine and coastal environment:** Water quality threatened by chronical and accidental pollution as well as coastline facesspread of urbanization. **Tourism:** Development could be jeopardized by environmental degradation yet has also to face growing customer demand and competition from other regions. **Shipbuilding:** International competition from third world countries even for building fishing vessels and boats, e.g. China. **Fishing** is a declining sector which faces environmental and regulatory constraints plus high fuel costs. **Aquaculture** could be jeopardized by water quality issues and new conflicts of use. **Coastal oceanography** and ocean meteorology forecasting faces intensive competition both at national and international level. **ICZM:** Increasing conflicts of use in coastal waters between various activities including those under development such as angling, sailing, water sports, etc. and those about to be developed such as renewable marine energy. Lack of or ineffective collaboration could disrupt progress in this field preventing adoption of efficient strategies for tackling future conflicts of use between activities and could have a negative impact on the marine and coastal environment.

2 The maritime economy in the three regions

2-2 Pomerania

2-2-1 Introduction

Pomerania (województwo pomorskie) is one of most important regions in Poland. It is a coastal region of 18 300 sq km located near the Baltic Sea. The region's coastline stretches for 312 km, i.e. about 60% of the total coastline of Poland. Outside the coastal zone, where most human activities are concentrated, the remaining part of the region is more sparsely populated and less developed with many forests and lakes. Numerous industrial, transport and service facilities, mainly belonging to the marine-related industries, are concentrated along the coastline. There are shipyards, ship equipment manufacturers, ports, ship-owner offices, fish-processing works, various regional government bodies, R&D institutions, education facilities etc.

The region's population was 2.2 million in 2005. In terms of area and population, Pomerania is the eighth largest region in Poland. About a third of the total population lives in the three cities of Gdansk (approx. 460 000), Gdynia (approx. 253 000) and Sopot (approx. 39 000) with as much as half the population of Pomerania living in the greater metropolitan area of the three cities plus adjoining towns. The region has the highest birth rate and lowest death rate of all regions in Poland. It is estimated that the region's economically active population will continue to rise until 2010 when there will be a downturn. Pomerania is a region of educated people and is the second region in Poland for the percentage of people with a degree and the first for the percentage of households with a personal computer.

2-2-2 Insight into the regional maritime potential of Pomerania

The maritime sector has been and will continue to be of strategic importance to Poland and especially the Pomerania region due to the nature of its economy, topology, history and cultural traditions. Shipbuilding is a key maritime industry which has contributed significantly to Poland's maritime past and which remains strategic for its maritime future. It is also a considerable source of employment. In the global market economy of today, Polish shipbuilding and other related industries, in order to stay competitive and to be in line with common EU policy regarding the industry, are faced with an urgent need for restructuring, modernization and innovative technologies. An efficient maritime industry could guarantee that Poland would be in a position to participate adequately and successfully in the international market. The situation in the different maritime industries and their adjustment and development processes are therefore of importance to Poland's future. The maritime industry sector in the Pomerania region covers various activities including production, transport, services, R&D, education etc. Numerous companies and institutions employ highly qualified and competent staff capable of generating income and increasing profits.

As indicated in section 1, the Polish approach to maritime clusters has emphasized an "industry" analysis, in this case of sectors of the maritime economy including the "ship" industry and, more precisely for Poland, the shipbuilding industry. Analysis of the Pomeranian situation therefore focuses mainly on this sector but also features a "marine environmental sciences" cluster.

(a) A specialized cluster: The shipbuilding industry

The aim of the present analysis is to formulate ways of improving the competitiveness, productivity and profitability of the main maritime industry of the Pomerania region – i.e. the shipbuilding industry. The analysis includes the main characteristics of the region, its geography and demography as well as a description of the main shipbuilding and ship repair yards, their production capacity and output. A simplified SWOT analysis, featuring the most important factors influencing the industry, is also included. An important part of the analysis is a discussion of the three organizational initiatives to improve the shipbuilding industry – the Polish Maritime Industries Forum, the Polish Technology Platform for Waterborne Transport and the Maritime Branch Contact Point for EU Research Programmes. Finally, the most important R&D needs which must be addressed in order to improve the situation of the Polish shipbuilding industry are specified.

Shipbuilding has for many years been and still is the major of all the maritime industries in Pomerania. Shipyards are the leading employer providing jobs for many thousands of people and representing a significant level of exports with their sales often exceeding half a billion dollars a year.

Shipbuilding does not only involve shipyards, as building a ship requires many products and services. Numerous manufacturers and service providers supporting the shipyards are therefore to be found in Pomerania. The products and services have to meet the highest standards of quality as specified by international rules and regulations and checked by industry quality assurance inspectors. Manufacturers operate according to ISO 9001, 9002 and 14 000 standards and, to improve their performance and competitiveness, they are active members of the **Association of Polish Maritime Suppliers (APMS).**

Strengths	Weaknesses
a) Polish shipyards have specialized in building certain types of ships. Gdynia Shipyard specializes in building vehicle carriers for between 2000 to over 6000 vehicles. In Europe, only the Croatian shipyard Uljanik in Pula has a similar order book to the Gdynia Shipyard (17 vessels). Most vehicle carriers are on order in Japan (Toyohashi Shipyard – 28 vessels and Shin Kurushima – 18 vessels). Szczecin Shipyard specializes in chemical tankers and ropax ships. Moreover, all Polish shipyards build standard container ships and general cargo ships. b) High production capacity which is only partly utilized. c) Relatively low production costs due to low cost of labour in relation to Western European shipyards. d) Highly qualified workers as well as management and engineering personnel. e) Export-oriented nature of Polish shipbuilding and ship equipment manufacture with practically all ships built in Poland being designed for foreign owners.	a) Obsolete organizational structure of maritime companies. b) Lack of private investors able to modernize the shipyards and ship equipment manufacturers. c) Shortage of highly qualified, blue-collar workers who leave the shipyards and other firms looking for better jobs abroad or in Poland but outside maritime sector companies. d) Lack of innovative technologies able to lower production costs. e) Heavy debts resulting from poorly negotiated contracts concluded in previous years and from defaulting. f) Increasing price of steel and other products with steady price of contracts, which can lead to significant losses. g) Importance of the shipyards for politicians who treat the companies as a large group of voters and interfere in the shipyards' activities by choosing their political supporters for top management positions instead of allowing the highly qualified and experienced managers able to take necessary but risky decisions to take the positions. h) Strong trade unions which often concentrate on job security and pay rises and not necessarily on economic calculations on which the maritime industries' future should be based.

2 The maritime economy in the three regions

Opportunities	Threats
a) Convenient geographical location of Poland and Pomerania, in particular between Western Europe, Scandinavia and Russia. b) High intellectual potential due to large number of science institutions and universities in Pomerania (Gdańsk Technical University – Politechnika Gdańska, Gdynia Maritime University – Akademia Morska, Naval Academy – Akademia Marynarki Wojennej, Ship Design & Research Centre – Centrum Technki Okrętowej S.A., Fluid Flow Machinery Institute of Polish Academy of Sciences – Instytut Maszyn Przepływowych PAN, Maritime Institute in Gdańsk – Instytut Morski w Gdańsku, Research & Development Marine Technology Centre – Centrum Techniki Morskiej S. A.). c) European Maritime Policy, now in the consultation phase, will in future create many new development opportunities for EU (and thus for Polish) shipbuilding, marine equipment manufacturing, offshore industries, tourism, naval defence etc. d) Membership of the European Union provides the Polish maritime industries with access to various sources of funding, in particular for research and development activities, restructuring of companies, closure of excessive production capacity etc. Membership also gives Polish companies the chance to participate in various initiatives and to cooperate with Western European partners obtaining much needed experience and synergy. e) High and increasing demand for new ships worldwide. In August 2006 order book of the world shipyards totalled almost 5 100 ships of 271 million dwt and in January 2007 the number increased to 5 600 ships of 307 million dwt. However, the trends for main ship types were not the same: in the period specified, order book numbers for tankers, bulk carriers and dry cargo ships increased and for container ships slightly decreased.	a) Supremacy of Far Eastern shipyards in winning orders for the majority of commercial ships due to innovativeness and good organization as in Japan and South Korea or low production costs as in China and Vietnam. b) Lack of incentives formulated by the Government for Polish ship owners to order their ships in Polish shipyards. c) Low financial outlay by Government for research and development activities in the maritime industries. d) High exchange rate of Polish currency in relation to US dollar limiting the profit margin of Polish maritime companies or creating losses for contracts previously concluded in different financial conditions. e) Low priority of maritime industry problems on Polish Government agenda.

Initiatives for improving Polish maritime industries

There has long been an awareness of the need to enhance the competitiveness of maritime industries in the European Union. That is why, as early as 1992, the Maritime Industries Forum (MIF) was established and later, in June 2000, was re-launched. The main type of MIF activity is the plenary session. The MIF is guided overall by a coordination group while the work of the Forum takes place in its working groups. The advantages of the MIF were recognized in Poland and thus the Managing Director of the Ship Design and Research Centre put forward a proposal in September 2003 to set up the Polish Maritime Industries Forum; this proposal was accepted at the beginning of the year 2004.

Summary shipbuilding industry

The maritime cluster and shipbuilding in particular face difficult challenges in the Pomerania Region and in Poland as a whole. Problems appear in the technical, economic and social spheres. Obsolete facilities and equipment in shipyards and other maritime industry companies need urgent updating. A heavy burden of debt resulting mainly from large increases in steel prices and the rise in the value of the Polish currency in relation to the dollar also need to be tackled through refinancing with the help of the Government. Finally, employees' concerns regarding job security and their livelihood and the resultant poor social conditions have to be addressed.
All these problems could however be overcome provided that the companies within the maritime cluster were able to offer competitive and innovative products to their potential customers. Such a situation could be achieved only if significant R&D efforts were concentrated on the needs of the maritime industries. Polish companies have taken on such R&D work for some years, cooperating with Western European partners within various themed networks or within the MIF for example.
Now, with Poland a member of the European Union and Polish companies and institutions actively participating in EU initiatives, these R&D efforts could be more effective and bring tangible results. Only carefully targeted R&D work could produce innovative, cost-effective and competitive ships and equipment, giving the Polish shipyards an edge over their far eastern rivals in selected niche markets. That edge would have to be based on high-tech solutions as recommended by the EU and associated bodies for all Community members. Only such a base could provide the Polish maritime cluster with a chance for prosperity.

(b) Marine environment skills cluster

The Gulf of Gdańsk is a unique region in terms of biodiversity. Its biodiversity results from habitat diversification and, primarily, from low salinity (approx. 7 PSU). Marine species typically found in other regions in marine waters of high salinity (35 PSU) co-habit in this area alongside typical freshwater species. Moreover, areas of Gulf of Gdańsk seabed covered in sea grass are spawning grounds for herring and garfish.
The Gulf of Gdańsk area, including Puck Bay, is a valuable asset for Pomerania as its beauty attracts many tourists and anglers. It is also prized by fishermen because of the aforementioned spawning grounds.
Given its value, a large part of this marine area is protected and belongs to a Special Protected Area (NATURA 2000 "Zatoka Pucka" PLB 220005). In addition, it is being considered for HELCOM Baltic Sea Protected Area conservation status. Polish and other relevant laws and regulations are concerned with protecting rare species, preserving unique habitats and providing rules for establishing and managing terrestrial protected areas such as national parks, landscaped parks, reserves, etc.
At the same time, the area is under severe human pressure which is causing changes to its biodiversity either directly, e.g. by over-fishing, or indirectly by introducing alien species and altering habitats, e.g. through eutrophication, pollution and construction. Biodiversity changes might, as a result, reduce the value of the coastal area for tourists as well as for fishermen and anglers.
The Puck Bay area is undergoing dynamic development with much new infrastructure appearing every year: jetties, small piers, ports, campsite expansions and seashore consolidation, all entailing habitat changes. Typically, Puck Bay sandy or reedy beaches are being transformed into rocky or concrete shores, which causes native species to disappear and is conducive to the growth of communities of alien species.

2 The maritime economy in the three regions

2-2-3 SWOT analysis of marine environment expertise in Pomerania

Strengths	Weaknesses
1. Scientific potential: Many marine research and education institutions – institutes, universities and academies. 2. Unique nature of coastal waters and extraordinary tourist value of Pomerania region – beaches, dunes, forests and cliffs. 3. Constantly improving quality of Baltic waters. 4. Good quality sea produce – fish. 5. Coexistence of freshwater and marine species.	1. Ecological sensitivity of the Baltic ecosystem, unique in the world. 2. Quality of water flowing into the Baltic Sea. 3. Insufficient level of awareness and knowledge about the sea, its resources and ecological interdependency in society, local and other levels of government administration and among decision-makers. 4. Weak legislation – dispersed powers and lack of effective regulations with socio-economic value of biodiversity not being considered. 5. Impact of economic, political and social enterprises on marine ecosystem is often not taken into account. 6. Absence of tradition of using marine products other than fish.
Opportunities	**Threats**
1. Improving education and increasing knowledge of society about marine environment – professional training of stakeholders, policy-makers, administrators, etc. 2. Development of cost-effective strategies for decision-makers and, in consequence, of improvements to environmental management. 3. Sustainable use of marine resources – biodiversity indicators as useful tools for assessing quality of the environment. 4. Rehabilitation of living marine resources by sustainable aquaculture – high productivity potential of the Baltic Sea. 5. Promotion of Baltic products other than fish. 6. Sustainable development of tourism and angling – preserving natural 'wild' beaches and habitats.	1. Aggressive and uncontrolled forms of tourism in relation to nature. 2. Degradation of coastal zone and physical deterioration of habitats. 3. Eutrophication of the Baltic Sea. 4. Pollution of seawaters. 5. Ill-considered decisions with regard to planning and implementation of both coastal and seabed hydro constructions. 6. Lack of cooperation and consensus between "exploiters" and "protectors". 7. Lack of integrated coastal zone management. 8. Overexploitation of marine resources. 9. Risk of introduction of non-native species, e.g. in ballast waters.

2-3 Schleswig-Holstein

2-3-1 Introduction

Schleswig-Holstein, covering a total area of 15 763 km^2, is the most northern and most "maritime" of Germany's "Länder". It is located just south of Denmark's Jutland peninsula between two seas: the North Sea on the west coast with several large islands such as Sylt, the largest one (97 km^2), Föhr (83 km^2) and Nordstrand (48 km^2) as well as the more distant island of Helgoland and, on the east coast, the Baltic Sea with Fehmam (185 km^2), the largest of Schleswig-Holstein's islands. The total coastline along both seas is 1 190km.

The southern border of Schleswig-Holstein is marked by the Elbe River and the city of Hamburg which is also a "Land" in its own right and whose northern, western and eastern suburbs spread out into Schleswig-Holstein. Except for in the cities near to Hamburg, most of the 2.8 million inhabitants of Schleswig-Holstein are located in the KERN region which is a metropolitan area around Kiel of about 250 000 inhabitants and includes various other cities such as Eckenförde (23 000), Rendsburg (28 500) and Neumünster (78 000) and the urban conurbations of Lübeck (200 000) and Flensburg (86 000).

2-3-2 Insight into the regional maritime potential of Schleswig-Holstein

Various maritime activities are well established in Schleswig-Holstein. Some are associated with the metropolitan region of Hamburg which represents both a major maritime cluster given Hamburg's status as the most important port in Europe and the second largest for container traffic and also a significant maritime financial centre offering many insurance services. The urban area is a focus too for ship-repair and ship engineering industries, marine equipment suppliers, hydrographic services (BSH) and university marine science laboratories.

Schleswig-Holstein is the base for around 1 700 companies in the maritime industry with an annual turnover in 2006 of € 8.5 billion and employing upwards of 47 000 people. Schleswig-Holstein offers excellent conditions for further growth in this sector*.

* "Potentialanalyse für die maritime Wirtschaft in Schleswig-Holstein und in Deutschland" BALance Technology Consulting, Bremen, www.balance-bremen.de & Marketing Consulting, Kiel, www.jarowinsky-marketing.de

Major activities centre on merchant and naval ship industries, marine equipment, shipping and seaports as well as various other sectors such as coastal engineering, marine tourism, fishing and aquaculture and marine sciences.

The most prominent field in Schleswig-Holstein covers shipping and transportation, offshore wind energy, water-sports and cruise tourism and maritime research.

The maritime activities sector in Schleswig-Holstein includes the following:

- **The navy and defence** with about 8 800 to 10 000 employees.
- **Shipbuilding**, both merchant and naval, the main shipyards being: HDW-Thyssen Group for submarine and container ships, Lindenau for double-hull tankers, Lurrsen for super yachts and Flensburg for ferries, employing about 4 700 people with a turnover in 2006 of € 1.6 billion.
- **Marine equipment including the shipbuilding supply industry** with about 150 companies employing between 15 000 and 16 000 people with a turnover in 2006 of € 2.1 billion.

2 The maritime economy in the three regions

- **Maritime transport, ports and logistics**: Lübeck is the most important cargo and ro-ro ferry port in Schleswig-Holstein. Kiel and Puttsgarten are sites of important ferry traffic but the activity in Kiel fjord is by far the more significant as the Kiel canal takes a huge amount of shipping. The ports employ between 2 000 and 2 500 people with a turnover in 2006 of € 250 million.
- **Shipping**, producing a turnover of € 3.2 billion in 2006, is the largest maritime activity in Schleswig-Holstein.
- **Hydraulic engineering** and **coastal engineering** employ 2 600 people with a budget in 2006 of € 240 million.
- **Fishing and aquaculture** employ about 1 800 people.
- **Training and research** employ about 1 000 people with IFM-GEOMAR, a world-leading marine research institute, located in Kiel. The institute's excellence has been demonstrated by approval of their proposal for a cluster of excellence last year.
- **Marine tourism**, employing between 2 300 and 2 500 people with a turnover in 2006 of between € 620 and 700 million, is a developing sector. The water-sports industry, marinas and maritime tourism have significant potential due to Schleswig-Holstein's unique position between two seas.
- **Offshore and marine technology**: Covering ROVs, oceanographic measuring tools and hydro-acoustics, the offshore and underwater technology sector offers considerable international market potential. For Schleswig-Holstein to benefit requires a strengthening of commercial offshore technology, marine research and oceanographic technology networks.
- **Marine renewable energy**: There is strong interest in offshore wind farm technology, a developing area which in 2003 employed between 150 and 200 people. The companies supplying key components and services to the offshore wind energy business are mainly located on the west coast of Schleswig-Holstein with the principal locations being Husum and Brunsbüttel.
- **Marine services** offering **hydrography** and ICZM consultancy.

Significant networks do currently exist in Schleswig-Holstein:
- Maritimes Cluster Schleswig-Holstein
- German Hydrographic Consultancy Pool (GHyCoP w.V.)
- German Gashydrate Organization
- Marina Networks

Most significantly, Schleswig-Holstein political leaders are committed to maritime issues which were of key importance during Green Book consultation processes.

Shipping, marine equipment, shipbuilding and marine tourism together accounted for a turnover of € 7.5 billion in 2006, representing the most important components of the Schleswig-Holstein maritime sector.

These 4 activities acquired the following share of the total turnover of the whole German maritime economy in 2006:

- Shipping (17%)
- Marine equipment (20%)
- Shipbuilding (30%)
- Marine tourism (19%).

2-3-3 SWOT Analysis of maritime activities in Schleswig-Holstein

Strengths	Weaknesses
• Scientific potential: German Cluster of Excellence in marine research is based at Kiel (institutes, universities and academies) • Maritime transport: With a focus on the importance of the Kiel Canal and its expansion and on maritime transport and logistics potential in the Baltic Sea region (Lübeck/ Kiel). • Shipbuilding supply industry with strong expertise in naval, IT, energy and propulsion as well as ship operational technologies: support for closer cooperation between suppliers but also with shipyards to offer systems solutions and thereby become a leader in this field; strengthening the share of the regional supply industry to Schleswig-Holstein shipyards; support for research, development and innovation; particular emphasis should be placed on specific growth markets of the supply industry such as maritime safety and security technologies. • Shipbuilding: Support for concentration on important segments of specialized merchant and naval shipbuilding in addition to strengthening the network with suppliers. • Kiel, as the largest German cruise ship port, has a strong market position in the Baltic Sea region.	• Too few links between suppliers for developing systems solutions. • Only a few large global companies – SMEs >80%.
Opportunities	**Threats**
• Further strong and positive international market development expected mainly for shipping, shipbuilding and ship supplies. • Strong position in EU context regarding maritime issues. • Number of maritime-related initiatives – marina networks, hydrography and consultancy. • Development of proposed Maritime Economic Excellence Cluster. • Sustainable use of marine living resources (GMA/ MariCub, Büsum, Marines Wirkstoffzentrum, Kiel and other companies). • Leading position in maritime research on gas hydrates and CO_2 capture and storage. • Highly skilled at designing component solutions.	• Highly diverse range of stakeholders. • Lack of overall strategy for maritime cluster development. • Environmentally sustainable use of marginal seawaters of the Baltic Sea, e.g. wastewater management, marine safety, etc. • Lack of integrated coastal zone management.

2 The maritime economy in the three regions

2-4 Comparing the three regions

What follows is a synthesis of the importance of various maritime economy sectors. It provides an overview of the major activities in the three regions. Some sectors are extremely important in one region and less so in another.

The importance of each activity has been quantified as follows:
1: Major activity in the region
2: Important activity in the region
3: Medium activity in the region
4: Secondary activity in the region
5: Weak or no activity in the region

This classification combines various criteria:
- Absolute economic importance of the activity (number of people employed and, if available, turnover),
- Relative economic importance of the activity (compared to other coastal regions of the country and to the two other regions),
- Priority recognized in each region (by local authorities, i.e. maritime cluster local authority).

Main field	Sectors	Brittany	Schleswig-Holstein	Pomerania
Marine tourism	Coastal tourism	1	2	1
	Water sports and ports	2	2	3
	Cruises	4	2	3
Maritime security and safety	Maritime safety	1	2	
	Maritime security	1	2	3
Exploitation and commercialisation of marine living resources	Fishing, aquaculture and seafood processing	1	3	3
	Marine biotechnology	2 (algae)	2	
Ship and boat engineering and naval equipment	Shipbuilding and repair (both merchant and naval)	1	1	1
	Naval equipment/weapons	1	1	4
	Leisure boat-building industry	2	2	4
Marine and offshore technology	Underwater acoustics	1	2	
	Underwater robotics	3	3	3
	Marine renewable energy	5	1	3
Shipping and port services	Shipping companies	4	2	
	Port services	3	3	1
Coastal management and engineering	Coastal operational oceanography	1	2	
	Integrated Coastal Zone Management	2	2	2
	Marine pollution	3		
Deep-sea oceanography	Deep Ocean	1		
	Oceanic circulation and climatology	1		

In order to bring out the main R&D priorities in the three regional clusters, these results can also be presented as follows.

Brittany (Main activities and projects recognized by Pole Mer Bretagne)	**Schleswig-Holstein** (Main activities referred to in "Zukunft Meer" and Maritime Cluster publications)	**Pomerania** (Various Polish and international reports)
Common activities often quoted as priorities		
Ship- and boat-building/repair	Ship- and boat-building and subcontracting	Ship- and boat-building/repair
Maritime safety and security (monitoring, surveillance, etc.)	Shipping, ports and logistics	Ports and logistics
Marine and offshore technology	Marine and offshore technology	Marine and offshore technology
Marine telecommunications		Marine telecommunications
Marine pollution detection and response	Renewable energy	Renewable energy
Aquaculture and marine biotech	Aquaculture and marine biotech	Aquaculture and marine biotech
Marine environment and ICZM	Marine environment and ICZM	Marine environment and ICZM
Common activities not emphasized in various documents		
Ocean and coastal sea cartography and hydrography	Ocean and coastal sea cartography and hydrography	Ocean and coastal sea cartography and hydrography
Particular activities		
Fishing (gear selection, management support and communications)		
Marine and coastal tourism (foremost maritime activity in Brittany)		

Taking all this tabled information into account, a synthesized table of existing and potential collaborative initiatives is set out in the next chapter.

3 Main results and success stories

3-1 Benefits of interregional cooperation and cluster-building process

3-1-1 Definition of cluster

According to the theories of Michael Porter from Harvard University, a cluster is "a geographically proximate group of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities and trade associations".
A cluster could therefore lead to effective private-public partnership if it were defined along specific added-value chains and were broad enough to include all relevant stakeholders from businesses, research institutions and public authorities with connections to the core activities of the cluster. The aim of the cluster would be to increase productivity within the network and not primarily to extend the size of the cluster. The precondition for resulting dynamic regional development would be the existence of a common hierarchy of measurable goals.

3-1-2 Interregional dimension

The InterMareC concept involved (a) support for the development of the three regional maritime clusters through an intensive programme of experience sharing and (b) the building of an interregional cluster by encouraging the setting up and carrying out of interregional sub-projects in the three thematic fields.
All three regions were the focus for substantial maritime activities and were considered as being among the leading regions relating to the maritime industry in their respective countries. The specific sectors involved were marine research, fisheries, seafood processing, marine communications, maritime technology, ports, shipbuilding and ship repair as well as ICZM.

Cooperation resulting from the interregional maritime cluster was expected to produce the following benefits:

- Ongoing exchange of information on cluster building to help improve the operation of the cluster and to encourage development of each of the three regional clusters,
- Increased opportunities for collaboration by the addition of new partners bringing new skills in R&D, technology transfer, services, manufacturing and training,
- Promotion of competitiveness through interregional sharing of labour using subcontracting and input from different sources for increased economic and technological competitiveness,
- Improved access to markets through exchange of information on international, European and respective national or regional market opportunities.

3-1-3 Facilitation tools

The methodology on which the InterMareC operation was based focused on (a) three regional partners, (b) three thematic fields only and (c) professional and on-going facilitation of the operation by the 'cluster consultancy'. This strategy aimed to set up sustainable, subject-based nucleii which would grow over time. The opportunity to provide sub-project funding at an early stage of development created an incentive-based system for new interregional cooperation and R&D projects.

3-2 Overview of sub-projects

Following submission of sixty-nine Letters of Intent by various partners from the three
regions, 20 sub-projects with 79 participants from 46 institutions were selected during the InterMareC project. All sub-projects were successfully realized with most leading to active exchanges of information, expertise and experiences between partners. Moreover, the partners forged close relationships based on trust, an essential component for successful collaboration.
The results of these sub-projects varied considerably however: some led to modest collaboration, while others were considered very successful. Some examples are presented in section 3-3.

3 Main results and success stories

Table of sub-projects

Call	Comp. No.	RFO sub-project title	Name of sub-project participant
1	4	Thematic Coordination component 5	Ship Design & Research Centre University of Applied Sciences
	5	Thematic Coordination component 3	MC Consultants – Michael Jarowinsky
			Gdansk University of Technology / taken over by Maritime Institute in Gdansk
	3	Thematic Coordination component 4	Chamber of Commerce & Industries Maritime Institute in Gdansk
	2	MariMatch - Maritime Matchmaking and Co-operation Forum	Business Development and Technology Transfer Corporation of Schleswig-Holstein (WTSH)
			schiff-gmbh
			Bretagne Innovation
			Pomerania Development Agency Co.
			Ship Design & Research Centre
			Technopôle Brest-Iroise
	3	Offshore Devnet - Offshore industry development	Technopôle Brest-Iroise
			Ifremer
			Competence Network Marine Technology Schleswig-Holstein
	5	Intermodul - Modularisation in ship equipment	Ship Design & Research Centre
			Stocznia Gdynia S.A.
			ENSIETA
2	2	ImpulseC - Actual implementation of a maritime cluster – tools & strategies	Technologie-Region K.E.R.N. e.V.
			KiWi GmbH
			Technopôle Brest-Iroise
			Ship Design & Research Centre
			Maritime Institute in Gdansk
			Institute of Hydroengineering of the Polish Academy of Sciences
	3	Underwater Acoustics - International Network Underwater	L-3 Communications ELAC Nautik GmbH
			Federal Armed Forces Underwater Acoustics & Marine Geophysics Research Institute
			Bundeswehr Technical Center for Ships & Naval Weapons (WTD 71)
			IfM-GEOMAR – Ocean Research Institute
			Sea & Sun Technology Trappenkamp
			G2RA - Groupement Regional de Recherche en Acoustique et Imagerie Sous-Marines – Represented by Thales Underwater Systems SAS
			Gdansk University of Technology / taken over by Maritime Institute in Gdansk
	3	USV-Unmanned Surface Vehicle	Veers Elektronik + Meerestechnik GmbH & Co. KG
			TKMS/HDW GmbH
			DW-Ship Consult
			Ifremer
			ENSIETA
			Gdansk University of Technology / taken over by Maritime Institute in Gdansk

Region of sub-project participant	mail LSP	contact person
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Schleswig-Holstein Schleswig-Holstein Bretagne Pomorskie Pomorskie Bretagne	pawlowski@wtsh.de	Tomasz Pawlowski
Bretagne Bretagne Schleswig-Holsetin	eric.vandenbroucke @tech-brest-iroise.fr	Eric Vandenbroucke
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Schleswig-Holstein Schleswig-Holstein Schleswig-Holstein Bretagne Bretagne Pomorskie	veers@veers-kiel.de	Frank Maurer

3 Main results and success stories

Call	Comp. No.	RFO sub-project title	Name of sub-project participant
2	3	SEA TEST - Underwater technology on sea test rig and long-term observatory	IfM-GEOMAR – Ocean Research Institute Ifremer Technopôle Brest-Iroise THALES UNDERWATER SYSTEMS SAS CRM Coastal Research & Management
	4	BEAD - Baltic environment for aquaculture development	Cempama / Agrocampus-Rennes CEVA Technopole Quimper-Cornouaille Institute of Oceanography, University of Gdansk CRM - Coastal Research & Management
	4	PI-ICZMnet - Development of a network of consulting institutions and companies to support ICZM	Maritime Institute in Gdansk HYDROMOD Scientific Consulting (Regional Coordinator) Company for Environment and Coast German Hydrographic Consultancy Pool w.V. (GHyCoP) Littoralis / Part taken over by NASCA Geomarine Geomor-NIVA Maritime Office in Gdynia
	4	ASTIR - Assessment Study on Requirements for Technologies, Decision Making Tools and Baseline Information Requirements for Operational Oceanography and Integrated Zone Coastal Management	HYDROMOD Scientific Consulting GbR Institute of Hydroengineering of the Polish Academy of Sciences Ifremer
	5	SAILSEA - Sailing yachts in seaway	Forschungs- und Entwicklungszentrum der FH Kiel GmbH (FEZ) ENSIETA
	5	MASSNET - Maritime Security Solutions NETwork for dangerous containers	Argus Networks ANW Maritime Institute in Gdansk MARTEC
3	2	ImpulseC+ - Actual implementation of a maritime cluster – evaluation & perspectives	Technologie-Region K.E.R.N. e.V. Technopôle Brest-Iroise Kiwi GmbH
	4	MariMatch II - Maritime Matchmaking & Co-operation Forum	WTSH (Lead Participant) Bretagne Innovation Pomerania Development Agency Co. Ship Design & Research Centre Technopôle Brest-Iroise
	4	POSCO - Imperatives, potentials and strategies for a conversion of military into civil use at coastal military facilities considering principles of Integrated Coastal Zone Management (ICZM)	CRM - Coastal Research & Management schiff-gmbh Brest-métropole-océane- Urban Community
	4	Coastal Risk - Natural and Human Risk in Coastal Zone Prediction	Universitiy of West Brittany Company for Environment and Coast Actimar, Brest Institute of Hydroengineering of the Polish Academy of Sciences Maritime Institute in Gdansk
	5	Green Ship	DCN Ingénierie ENSIETA Ship Design & Research Centre

Region of sub-project participant	mail LSP	contact person
Schleswig-Holstein Bretagne Bretagne Bretagne Schleswig-Holstein	plinke@ifm-geomar.de	Dr. Peter Linke
Bretagne Bretagne Bretagne Pomorskie Schleswig-Holstein	maelle.robin@tech-quimper.fr herve.guyot@educagri.fr pierre.mollo@educagri.fr	Hervé Guyot Pierre Mollo
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Bretagne Schleswig-Holstein Bretagne Pomorskie Pomorskie	Blaise.Nsom@univ-brest.fr	Blaise Nsom
Bretagne Bretagne Pomorskie	yvan.kosc@dcn.fr	Yvan Kosc

3 Main results and success stories

3-3 Sub-project success stories

3-3-1 USV: Unmanned Surface Vehicle – A product leading to interregional cooperation

Sub-project leader
Veers Elektronik + Meerestechnik GmbH & Co. KG (D)

Partners
Brittany:
- Ifremer
- ENSIETA

Pomerania:
- Gdańsk University of Technology/ Maritime Institute in Gdańsk

Schleswig-Holstein/Germany:
- DMG Darstellungsmittel GmbH
- TKMS /HDW GmbH
- DW-Ship-Consult
- L3 Communications ELAC Nautik GmbH (associated partners)
- Diehl BGT Defence GmbH & Co. KG (associated partners)
- Wankel Motors (associated partners)

The chief market for unmanned surface vehicles is the offshore oil and gas industry, ocean sciences sector, fisheries and hydrographic services as well as security and antiterrorism applications.
Demand is high especially in civilian markets for cost-effective solutions to replacing expensive manned surface vehicles. The project directors, Veers Elektronik and Meerestechnik from Kiel/ Germany, therefore aimed to perfect autonomous craft which manoeuvred like manned surface vehicles, and to explore the COTS potential ("Commercial Off-the-Shelf Technology") of unmanned surface vehicles.

This ambitious task would ultimately offer a product based on a reliable floating platform with enough payload capacity for specialist equipment and proper onboard telemetric, data transmission and satellite communications systems. It would incorporate a manageable design in terms of launch and recovery from land or ship as well as being operationally cost-effective. Lastly, the participating partners would require the right access to the intended market.
The small company Veers Elektronik and Meerestechnik decided to use the opportunity afforded by InterMareC to increase their interregional network of partners. The leading InterMareC RFO-partner provided an environment which was able – even within the restrictive framework of publicly funded projects – to optimize creativity and flexibility in order to generate the best results from the sub-project and ultimately to make the participating regions more competitive.

Fruitful collaboration on the Unmanned Surface Vehicle sub-project made it possible to refine the requirements and jointly develop the technology for such a system. Cooperation resulted in the drawing up of publications and active participation at workshops and a number of fairs. In autumn 2007, the successful presentation at the "Harbour Protection Trials 2007" in Taranto at the invitation of the NATO-Mari-

time Capability Group 1 was the final highlight of the project and offered new cooperation and business opportunities for the consortium in the future.

The sub-project participants of this interregional cooperation benefited through an improvement in the network of experts from business, science, public authorities and the defence sector and an improvement in their activities. Given the limited number of active stakeholders in this market, the interregional exchange of experience and expertise had a substantial impact with regard to the partners' global market position. Consequently, a number of highly diverse stakeholders is now motivated to improve the new technology for this USV system. This will in turn lead to dynamic developments at a local, regional and interregional level and will ultimately have an impact at international level too.

3-3-2 BEAD: Baltic environment for aquaculture development – New opportunities

Sub-project leader
Cempama / Agrocampus-Rennes site de Beg Meil, Fouesnant (F)

Partners
Schleswig-Holstein:
- CRM – Coastal Research & Management, Kiel

Pomerania:
- Institute of Oceanography – University of Gdansk, Gdynia

Brittany:
- CEVA, Pleubian
- Technopole Quimper-Cornouaille, Quimper

The idea of a sub-project devoted to aquaculture came from all three regions independently. In Pomerania there were some attempts many years ago to establish marine aquaculture on an experimental scale in Puck Bay on the Baltic Sea but, despite the demand for aquaculture products, there was no existing mariculture in Poland. In Schleswig-Holstein a few, small-scale mariculture activities were located on the coast. Given the demand in Poland and Germany for marine products as mentioned above, the extensive experience and range of skills of the French partners (Agrocampus-Rennes site de Beg Meil, CEVA, Ifremer and Technopole Quimper-Cornouaille) and the long tradition of producing and using mariculture products in Brittany, this sub-project idea and the partnership seemed a natural development. The partners had a chance to meet and started collaborating following submission of Letters of Intent to the InterMareC project.

Cooperation as part of the BEAD sub-project focused on assessing the possibilities of developing sustainable mariculture in the Baltic Sea. The Baltic, as a brackish, virtually enclosed sea with minimal water exchange with the open ocean, possesses a very vulnerable ecosystem. The low salinity of the Baltic waters also results in low biodiversity. Aquaculture, or in this case marine aquaculture/mariculture, is a possible source of human food as well as of active compounds and valuable substances which could have an application not only in the food industry as food supplements but also in pharmaceuticals or cosmetics. The BEAD sub-project was conceived in part as a means of exchanging information and best practice regarding water quality and eutrophication problems

between Brittany on the Atlantic and the Baltic regions of Pomerania and Schleswig-Holstein. The Baltic countries were more experienced at solving these problems while Brittany offered the potential of transferring, adapting and implementing farming techniques for crustaceans, mussels, fish and algae to the brackish Baltic environment. Pomeranian partners from the Institute of Oceanography at the University of Gdansk were interested in transferring methods and knowledge which would allow development of sustainable mariculture of endangered Baltic species and species of high commercial value such as cod (*Gadus morhua*). Establishing such a fish farm would help counter the low biodiversity problem in the Baltic Sea. German partners from Coastal Research & Management were already operating a small algae farm (*Laminaria* sp.) near Kiel for cosmetic and pharmaceutical purposes, but were interested in improving techniques of algae farming and extraction and in learning mussel-farming techniques.

Developing sustainable aquaculture in the Baltic Sea offered a way of providing the coastal regions with many opportunities: marine organisms possessed a hitherto unexploited potential which could be applied in many ways, for example in the food industry as a direct alternative to fishing, as a food additive such as agar-agar, in medicine and pharmaceuticals in the form of alginates and chitin for example, or in the cosmetics industry in the form of algae extracts or collagen.

The BEAD sub-project brought together French, Polish and German experts in fields relating to aquaculture enabling them to work towards finding the best solutions which might be applied in each region. This also provided business opportunities for companies and organizations located in the partner regions, particularly for those interested in seeking out new commercial or industrial applications for cultivated bio-resources.

Cooperation between project partners was very dynamic due to the efforts and commitment shown by all. During the project, the partners organized a three-day workshop devoted to aquaculture to which experts from all three partner-regions were invited. This event gave an insight into specific aquaculture interests and problems which were also related to water quality, a crucial issue for mariculture activities in Pomerania, Brittany and Schleswig-Holstein. From that point, cooperation within the framework of the BEAD sub-project grew and resulted in two study tours: one to Kiel in Germany and another to Gdynia and Hel in Poland. During these site visits, the partners had an opportunity to see locations for potential mariculture developments and to discuss problems connected with marine aquaculture in Germany and Poland. The BEAD sub-project gave two Polish PhD students the chance to visit ECOMARES, a German fish and shrimp farm based on advanced seawater re-circulation or closed systems. Additionally, at the end of the sub-project, the Project Director (Agrocampus-Rennes site de Beg Meil) organized a two-week mussel-farming course for the German and Polish partners where participants were able to learn in a very practical way the methods of farming not only mussels but also algae and crustaceans.

The BEAD sub-project provided all partners involved with the knowledge and experience to help with implementing mariculture techniques in Pomerania and Schleswig-Holstein, and to improve water quality in Brittany.

Such fruitful collaboration would not have been possible without a willingness on the part of admirable, open-minded people to share experiences based, of course, on common interests.

Mussel longlines in Brittany

Laboratory where micro-algae are cultivated as food for mollusc and crustacean larvae

Study tour in Poland

3 Main results and success stories

3-3-3 ICZMnet – A new benchmark for cooperation

Sub-project leader
Maritime Institute in Gdańsk (PL)

Partners
Schleswig-Holstein:
- HYDROMOD Scientific Consulting (Regional Coordinator)
- Company for Environment and Coast
- German Hydrographic Consultancy Pool w.V. (GHyCoP)

Brittany:
- Littoralis / Part taken over by NASCA Geomarine
- Geomor-NIVA

Pomerania:
- Maritime Office in Gdynia

The idea of contacting and bringing together different consultancy companies and scientific organizations dealing with the practical problems of ICZM (Integrated Coastal Zone Management) was originally submitted in three different proposals: one from HYDROMOD Scientific Consulting and other two from the departments of the Maritime Institute in Gdansk. Following the suggestion of the Cluster Consultants, these sub-projects were merged into one application which was later selected for funding.

It was fortunate that the sub-project was carried out within the framework of the Interreg InterMareC project which included the region of Brittany, as such a process had already been completed in that region. This meant that the German and Polish partners could make use of French experience in this field.
The French EEIG Littoralis was already known to other partners of the sub-project so Nasca Geomarine, as a member of Littoralis, was the most appropriate French partner for the sub-project. The German and Polish partners were also known to the relevant national co-ordinators.
The project was aimed at establishing a skilled, high-performance network of experienced multidisciplinary partners involving service providers, manufacturers and suppliers in the three regions active in ICZM-related fields.
Attention was focused on close interaction between network members with a much more coordinated relationship between stakeholders and customers and with a substantially greater level of efficiency through resource and experience sharing among network participants. Stakeholders and customers were able to address their research and development needs to one body which was in turn able to coordinate new developments and applied research activities within the network in a collaborative way.

As the ICZM theme was of interest to SMEs, research centres and local authorities, a much wider range of options than was available from an individual partner could be offered to local authorities. Polish partners were able to develop closer contacts with French and German partners with a further result of cooperation being a joint application in response to a call to tender for ICZM services in Senegal.

The main sub-project results were:
- Establishment of a network and partnership,
- Two German participants, HYDROMOD and CfEC, joined EEIG Littoralis,
- Two Polish participants, Geomor-Niva and MIG, established close relations with German and French participants,
- Papers presented at the COREPOINT-CoastNet conference in Galway on ICZM and on the European Commission's future EU Marine Policy Green Paper and Maritime Strategy,
- Networking with several South American countries (Argentina, Chile and Uruguay),
- Joint application in Senegal tendering process by a common consortium led by Littoralis with HYDROMOD providing technical instrumentation and MIG the modern research vessel,
- Input to the working group of the German ICZM Strategy and significant outreach work among maritime communities and associations,
- Links established with ENCORA, EUCC and other initiatives.

Exchange of best practice included:
- Working out large interdisciplinary projects (French partner had the greatest experience among partners),
- Mathematical modelling of coastal environment (German partner, Hydromod, was the most advanced in this area),
- Planning of research vessel survey use (Polish partner MIG had the most extensive experience among partners).

The research vessel of the Maritime Institute in Gdansk, IMOR.

To sum up, this collaborative initiative created a new dynamic within the ICZM network and, in addition, led to successful cooperation in upcoming projects.

3-3-4 InterModul – Database of international quality resulting from interregional cooperation

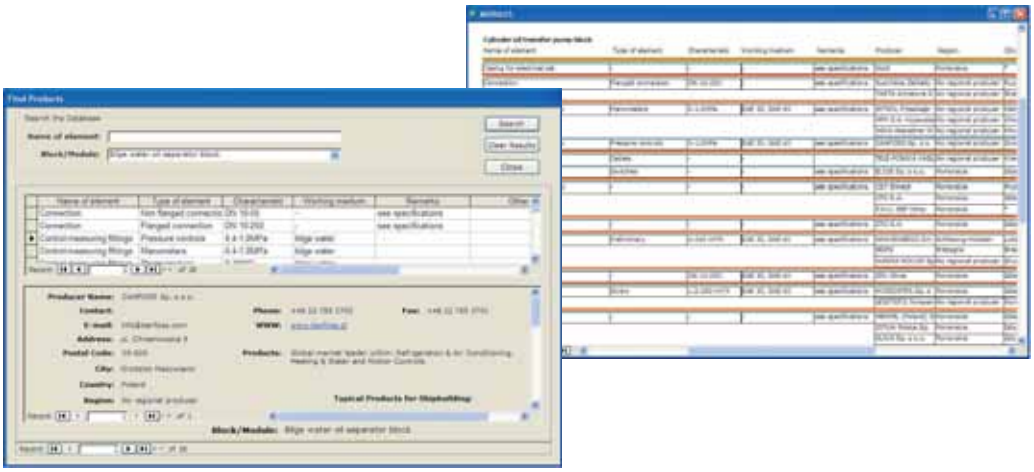
Project director
Ship Design and Research Centre (PL)

Partners
Brittany:
- Ecole Supérieure D'ingénieurs – ENSIETA

Pomerania:
- Gdynia Shipyard

One of the InterMareC sub-projects was InterModul (Modularization of Ship Equipment). The sub-project was carried out by the Design and Technology Department of the Ship Design and Research Centre in Poland together with its partners, Gdynia Shipyard (Stocznia Gdynia S.A.) in Poland and the Ecole Supérieure D'ingénieurs (ENSIETA) in France.
The InterModul sub-project involved development of a database of regional manufacturers of products installed in modules for the shipbuilding industry in the partner regions. The database comprised details of manufacturers (address, telephone number, production schedule, etc.) and information on the modules together with their components currently used in shipbuilding.

3 Main results and success stories



Examples of InterModul database screens

The InterModul database is intended for use by shipyard designers and procurement departments to compare the technical and economic specifications of modules. Equipment manufacturers could also use it to assess whether a given product can be manufactured using local supplies and suppliers. To increase access to the database, it was therefore developed based on Microsoft access software and could be modified in accordance with user requirements. Once logged in, the InterModul database can be accessed at the website: http://www.cto.gda.pl/InterModul.

The InterModul database could enable interested parties to find a production niche or unexploited area of production which could be developed and lead to the manufacture of a complete onboard module using regional manufacturers and suppliers. The InterModul database would provide an incentive for companies from partner regions to develop new production solutions given that shipyards were currently looking to cut costs in the shipbuilding process and the off-site manufacturing of modules for complete ship equipment or hull systems could enable shipyards to make savings if only by shortening the shipbuilding process.

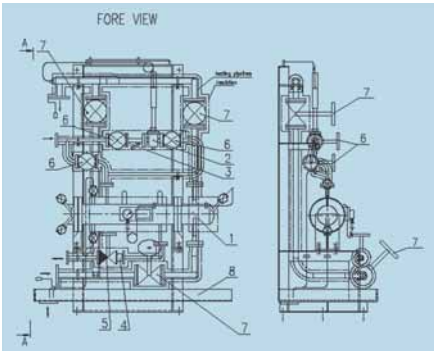
Just a few months after the work of this sub-project was completed, it became clear that all the above assumptions were right. Some companies have developed and are working with their own versions of the InterModul Database. Gdynia Shipyard Design Office has already designed some new modular solutions and has had practical experience of installing these on ships. These are just some of the fruits of the InterModul sub-project.

Example of a modular solution – A fuel block

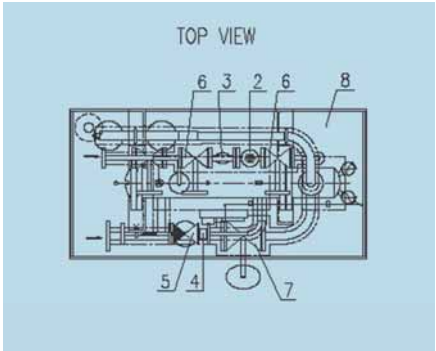
Design for a modular solution – Ready-mounted, on-board fuel block

Example of a modular solution – A funnel block

Fuel heater for boiler –
Actual location on the ship



Design for a modular solution



Drawn up by:
MSc Eng Krzysztof Nawacki

3 Main results and success stories

3-4 Results and impact of sub-projects

Taking the **skills and expertise** in the three regions and the **opportunities created by the sub-projects of InterMareC** into account, the potential **collaborative developments** can be summarized in the following table.

Main field	Sectors	Potential for collaboration between Brittany, Pomerania and Schleswig-Holstein
Marine tourism	Coastal tourism	Activity mainly developed in Brittany and Schleswig-Holstein. Also strong development in Pomerania: Exchange of experience possible.
	Water sports and ports	Competition and leisure sailing in the three regions.
	Cruises	Collaboration more appropriate between the two Baltic sea regions but developing activity in Brittany as well.
Maritime security and safety	Maritime safety	Major issue in Brittany; strong interest in Pomerania (marine pollution response) and also in Schleswig-Holstein (heavy traffic in Kiel canal).
	Maritime security	Collaboration existing in mines warfare between Brest and Kiel – collaboration developed through "Unmanned Surface Vehicle" of interest to several navies. Good collaboration initiated through MASSNET on container security issues.
Exploitation and commercialisation of marine living resources	Fishing, aquaculture and seafood processing	Drive for collaboration by "BEAD" in aquaculture: good prospects.
	Marine biotechnology	One of the main 6 fields in Schleswig-Holstein overall strategy; major activity in Brittany (mainly seaweed-based industry, but also development of new marine biotech activities).
Major field of engineering and naval services	Shipbuilding and repair (both merchant and naval)	Existing subcontractor links between Brittany and Pomerania – collaboration developed mainly through INTERMODULE, less through Green Ship.
	Naval equipment and weapons	Integration in weapons systems in the three regions (Brest-Lorient, Kiel, Gdynia) – opportunities to use priming partnership of Underwater Acoustic Network and Sea Test Rig.
	Leisure boat-building industry	Activity developing in the three regions (mainly Schleswig-Holstein and Pomerania for motor boats, but also in Brittany); collaboration on competition yacht design through SAILSEA.

Main field	Sectors	Potential for collaboration between Brittany, Pomerania and Schleswig-Holstein
Marine and offshore technology	Underwater acoustics	Strong skills in Brittany and Schleswig-Holstein – no project on the topic itself but this topic is included in Sea Test Rig.
	Surface/Underwater robots	No projects on ROV or AUV but interest and skills in the three regions; collaboration on surface drone through Unmanned Surface Vehicle project.
	Marine renewable energy	No approved projects in InterMareC but various initiatives in LOI: good prospects for collaboration.
Shipping and port services	Oil and gas offshore energy	Collaboration mainly between Brittany and Schleswig-Holstein through OFFSHORE DEVNET.
	Shipping companies	Three regions site of heavy car-ferry traffic; until now no comparative studies conducted but strong interest in three regions for monitoring maritime traffic.
Coastal management and engineering	Port services	No major collaboration on port services but containers monitoring through MASSNET.
	Coastal operational oceanography	Collaboration on coastal operational oceanography through ASTIR and ICZMnet: good prospects for collaboration.
	Integrated Coastal Zone Management	Collaboration on ICZM through ICZMnet will continue; collaboration on coastal erosion through Coastal Risks will continue and possible continuation of redevelopment of port zones with POSCO partners.
Deep-sea oceanography	Marine pollution	Collaboration on water quality monitoring through ASTIR; no projects developed on marine pollution response but interest and skills in the three regions (interest in impact of pollutants in water for partners of Coastal Risk).
	Deep ocean	Common interest in the three regions which possess marine research skills in this field (in Brest, Kiel, Gdansk)
	Oceanic circulation and climatology	Common interest in the three regions which possess marine research skills in this field (in Brest, Kiel, Gdansk).

4 General conclusion

The objectives of INTERREG projects are to promote relations and contact between various European regions in order to facilitate exchange of experience, to help develop future cooperation and to encourage common initiatives supporting regional economic and social development. The aims of InterMareC fully comply with these objectives in a specific field: the marine and maritime sectors.

Brittany, Pomerania and Schleswig-Holstein are three coastal regions of the EU which face common problems and issues. They all have to deal with current challenges such as the degradation of marine waters and the protection of marine and coastal ecosystems while confronting the decline of traditional sectors such as naval defence, naval and merchant shipbuilding and fishing. They have to find solutions which enable them to maintain and develop economic activities while safeguarding the environment at the same time as trying to offset the consequences of climate change, issues which are at the heart of current maritime policies including, of course, the emerging EU maritime policy.

In trying to follow EU strategies issuing from Lisbon (in response to the decline of some sectors and to competition from emerging countries through innovative development) and from Gothenburg (in relation to marine environmental protection), the three regions have favoured the development of maritime clusters. The way the cluster concept has found expression in the three regions and as a result of the regions' own histories, backgrounds, geographical situations and constraints, socio-economic characteristics and cultures, the views and experiences of maritime clusters do not in fact differ widely in the participating regions.

The main objectives of InterMareC were to help building these emerging clusters through exchanging experiences – what are other regions doing in this field and for what purposes? – to support development of each of the clusters and to try to promote creation of an interregional maritime cluster.

Despite varying approaches, the three regions successfully supported many interregional contacts and projects. They decided to promote local initiatives through facilitating contacts between companies, laboratories and public bodies in the three regions and by initiating collective projects. Sixty-nine Letters of Intent were submitted in response to three calls for projects and, following a rigorous selection process, twenty sub-projects were eventually accepted.
All the sub-projects were completed although with varying levels of success and with some offering more opportunities than others. Given, however, that the aim of InterMareC was to provide "seed money" for new, upcoming projects and ideas for cooperation, the results were more than satisfying.

Moreover, all sub-projects contributed to a better understanding of partners and offered opportunities for the future. From a technological aspect, it should be underlined that the projects have to some extent paved the way for the future. For example, the Offshore Devnet and Sea Test Rig initiatives are continuing in Brittany as "Pôle Mer Bretagne" sub-projects. Cooperation took time to get underway but, at the end of the day, the outlook is promising.

Within horizontal sub-projects from the Cluster Consultancy Component such as „Im-pulse C", the exchange of information on the organization of the emerging cluster contributed much to mutual understanding of maritime activities in the three regions. Partners of this sub-project – on the initiative of the Technopole Brest Iroise – facilitated a meeting between two new bodies which emerged during the three years of InterMareC, namely the Pôle Mer Bretagne and the Maritime Cluster Schleswig-Holstein. This meeting led to an agreement between the two bodies which looks very hopeful for the future.

The "Ship" component of InterMareC enabled cooperation in developing fields such as container tracking (MassNet) and reducing ship waste (Greenship) while improving shipbuilding efficiency through a successful sub-project involving a Brittany engineering school laboratory, the major Polish body for ship design (CTO) and a Pomeranian shipyard. Even when not wholly successful, sub-projects such as Greenship contributed to improving internal discussions and to preparing new projects for big companies such as DCNS. The latter, unfortunately, had to face restructuring during the sub-project which disrupted collaboration with CTO, already a close partner of DCNS. Shipbuilding and repair are major activities, principally in Pomerania but in the two other regions as well, and future collaboration will certainly develop between the partners.

In the "Coast" component of the project, most of the sub-projects were not only very active but also led to ongoing collaboration between partners. BEAD is quoted as an example of good practice with substantial exchanges in associated discussions and field visits to the three regions and practical outcomes such as training opportunities for Schleswig-Holstein and Pomerania in Brittany. The partners involved in ICZMnet and Coastal Risk are now preparing work on a joint project. In the case of ICZMnet, the project not only contributed to an exchange of experiences but also led to the launch of an actual interregional dedicated cluster with two new, additional Schleswig-Holstein partners joining the Brittany-based EEIG Littoralis and led to unofficial but practical collaboration by Pomeranian partners.

Relations developed between the cluster consultants from the three regions who sometimes joined sub-project partnerships to encourage future cooperation. For example, the Technopole Brest Iroise developed relations as a cluster consultant and as a participant in the sub-project Impulse C (adding to the efforts of partners in the POSCO sub-project, such as Brest métropole océane) and proposed links between Kiel and Gdansk on a future port zone redevelopment project to be shared with Atlantic seaboard cities. Schleswig-Holstein partners, schiff-gmbh and WTSH, suggested that the Brittany and Pomeranian partners should participate in a future "Baltic InterMareC" bringing in other regions from Finland, Sweden and Norway.

4 General conclusion

To sum up, InterMareC appears to have been a very successful project. It not only enabled better mutual understanding among partners from the three regions and achieved practical results and positive prospects for some sub-projects but also created the base for a strong network of maritime clusters in Europe with the potential to join up with various other European clusters.
Each of the three regions has already started to inform other maritime regions of Europe, on the Atlantic as well as Baltic shores, and is currently preparing projects to enlarge the network. The partners' ambitious aim is to create the nucleus for an emerging European network of maritime clusters as claimed in the Blue Book for the future European Integrated Maritime Policy. The first step towards inter-cluster cooperation has already been taken.

schiff-gmbh

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