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# **Strengths and Deficiencies of International, European and Regional Collaboration and Coordination of MariFish Partner Countries**

**Deliverable 3.3 (3.1 + 3.2)**

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## Executive Summary

Collaboration of major European national funders of marine fisheries research at the international, European and regional level is weak, despite the fact that collaboration at the working level represents contemporary marine fisheries research.

To identify existing international, European and regional collaborative links a survey was carried out visiting the majority of MariFish partners. During questionnaires and desk-based studies the strengths and deficiencies of international, European and regional collaboration in the area of marine fisheries research were gathered. This information was then shared with participants to further verify findings. In a next step two regional workshops were organized, disseminating the findings and evaluating existing collaboration by means of SWOT (strengths, weaknesses opportunities and threats) analysis, to formulate recommendations and practical guidelines for better collaboration of national funders of marine fisheries research.

National funding structures are heterogeneous and not all major national funders are MariFish partners. This is directly linked with the varying perception of marine fisheries research and the decision whether to include or exclude fish stock assessment in MariFish activities.

The collaboration at international and regional levels is also heterogeneous. Further difficulty arises from the fact that country memberships – in collaborations on funder level – neither reflect details regarding the type of collaboration nor, if funding of marine fisheries research is discussed at all.

At European level an example of collaboration involving joint funding of marine fisheries research is that taking place in DG Fish, concerning the implementation of the Data Collection Regulations (DCR). However this collaboration involves only EU MariFish partners and excludes Norway and Iceland. In addition, it should be noted that EU member states come together within DG Fish to meet their obligations within their EU membership. EFARO is another example of establishing collaboration on European scale, although focusing on the scientific working level. With respect to the European level the EU's Sixth Research Framework Program plays a relevant role, since it aims to promote scientific cooperation at all levels through numerous research projects.

European co-funding as formulated in Article 169 represents a powerful material incentive for collaboration. Further drivers for collaboration include the willingness of MariFish partners to participate and that MariFish partners come from the same policy area. Yet in order to achieve good cooperation it is important to recognize that major national funders are policy makers and scientists with different realities and perspectives.

Tackling current, large-scale problems that require multidisciplinary and holistic research approaches such as illegal fishing, climate change, etc. was seen as a major opportunity of improved collaboration in the future. Therefore one of the recommendations from the MariFish workshop participants was to develop a common research priority setting process with the help of external experts and advisers from the major fisheries research and fisheries management organizations.

An impediment to effective collaboration of national marine fisheries research funders is simply that not all major funders from MariFish countries are members of MariFish. Against the background that the ecosystem approach to fisheries management calls for a broad collaboration, a recommendation was to include other ministries in MariFish, e.g. Ministries of Environment, Ministries of Fisheries, etc.

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## **1 Introduction**

### **1.1 Marine Fisheries Research and the Need for Collaboration**

A recent study from the FAO (2004) estimated that 76 percent of the major world fish resources were categorized as fully exploited, overexploited, depleted, and recovering from depletion. Fish stocks in the Northeast Atlantic, the North Sea and the Baltic Sea are among the most heavily overfished (FROESE and PAULY 2003; DG FISH 2006). Thus, the pressure on European policy- and decision-makers in fisheries management is high. Fisheries research provides the necessary knowledge to formulate recommendations and scientific advice. Since fish stocks ignore national boundaries and migrate into different territorial waters, issues and problems concerning fisheries management are transboundary too. Consequently marine fisheries scientists from different nations have been working together for a long time and have established collaborative linkages that play an important role in contemporary fisheries management.

Fish stocks in EU territorial waters are managed in a concerted action involving all member states. The joint management of fish stocks is formulated in the Common Fishery Policy (CFP), which is the fisheries policy of the European Union. Fisheries research plays an important role in the CFP of the European Union (WILSON and HEGLAND 2005). The scientific advice – concerning fish stocks in the North Atlantic – for the Common Fishery Policy is mainly developed by national scientists working together in the International Council for the Exploration of the Sea (ICES). ICES brings together around 1600 marine scientists from 19 countries to develop unbiased, non-political advice. Beyond ICES, the European Commission has its own advisory committee, the European Scientific, Technical and Economic Committee for Fisheries (STECF) that gives fisheries science advice directly to the European Commission's Directorate-General for Fisheries and Maritime Affairs (DG Fish).

The current weakness in the European system is the lack of coordination between the national funding bodies that decide individually where and how research funds are spent. That means, although strong collaboration across national borders exists on working level, virtually no collaboration exists at the funding level from where funds are allocated to the relevant research institutes.

### **1.2 Scope of the Study**

The overall goal of the ERA-Net project MariFish – funded by the European Commission's Sixth Framework Program – is to develop a network and bring together major European national funders of fisheries research to form an effective working partnership. An example for such a concerted action of creating a network of marine research and development funding agencies in the European Union is the ERA-Net project MarinERA. MarinERA aims to integrate European marine research efforts, however it focuses on fundamental research and not marine fisheries research. The ERA-Net Scheme is the principal means of the European Commission to support the cooperation and coordination of national and regional bodies that finance or manage research activities in an attempt to bring together available resources and improve the efficiency of the European Research Area (ERA). The relevant research objective of the MariFish Work Package 3 (WP 3) to accomplish this goal is to identify existing

international, European and regional collaboration in the area of marine fisheries research and identify where more effective linkages are required.

This involved the development of a questionnaire and the establishment of personal contact with the national organizations participating in MariFish. During these visits the questionnaire was filled out covering the relevant research areas and collecting information about the institutional and organizational structures of national funding agencies. In addition desk-based literature reviews were carried out relying mainly on web-based materials. The collected information was converted into write-ups to reduce the amount of data. This information was then shared with participants to ensure the validity and reliability of the collected data.

In a next step two regional workshops were organized bringing together the national MariFish representatives to examine existing collaboration and cooperation of funders in marine fisheries research and relevant details of national research programs. The first 'Mediterranean' workshop took place in Athens, Greece (15-16 January 2007) under the auspices of the WP 3 partner, the General Secretariat for Research and Technology (GSRT). Participating countries were Greece, Cyprus and Spain, as well as Germany as coordinator of MariFish work package 3. France (IFREMER) did not participate in the workshop. The second 'Baltic, North Sea and North Atlantic' workshop took place in Stockholm, Sweden (25-26 January 2007) under the auspices of the WP 3 co-leader, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS). Workshop participants and representatives came from Sweden, Norway, Iceland, Denmark, Netherlands, Spain, Portugal, Ireland, UK Defra, UK FRS, Germany and Poland, as well as from ICES and BONUS. France (IFREMER) and Belgium (MGV-ALV) did not participate in the workshop. Both workshops started with the presentation of the findings on regional collaboration in MariFish countries to represent the status quo. Presentations demonstrated examples of collaboration in setting up joint research programs, acquiring funds and obstacles that need to be overcome. By means of SWOT (strengths, weaknesses, opportunities and threats) analysis the strengths and deficiencies of contemporary and future collaboration of major national funders of marine fisheries research were identified. As a result of one day of presentations and workgroup exercises recommendations and practical guidelines to improve collaboration of national funders of marine fisheries research were formulated.

### **1.3 Report Structure**

The report is organized around six chapters. In the first chapter the need for collaboration in marine fisheries research is depicted and a context for the study provided.

Chapter 2 continues with a review of definitions, terms and concepts that are used in the evaluation of European marine fisheries research-funding structures within the consensus of MariFish.

Chapter 3 provides a descriptive overview of international, European and regional collaboration of MariFish partner countries.

The two regional workshops provide the basis for chapter 4 identifying the strengths, weaknesses, opportunities and threats of contemporary and future collaboration of funders in marine fisheries research.

In chapter 5 the focus lies on the evaluation of collaborative linkages of the national marine fisheries research funders and the identified strengths and weaknesses. In a next

step the discussion is expanded to the scientific stance before discussing practical issues and their implications how to fund and implement a joint research program.

Finally, in chapter 6 the general conclusion is given and some first implications for future collaboration of national funders of marine fisheries research and joint funding of a common research program are highlighted.

## **2 Funding Marine Fisheries Research**

### **2.1 Problems in Fisheries Research Terminology**

According to the MariFish project proposal:

*“MariFish will focus on that research which provides evidence to managers for the development of strategies for sustainable fisheries, including links with aquaculture, set within the ecosystem based principle.”*

Given that this statement allows for a rather broad definition of marine fisheries research, considerable debates were held with MariFish partners about what to subsume under marine fisheries research and what not. Furthermore, visits revealed that participants had different perceptions of terms and concepts in marine fisheries research. For example, some countries do not differentiate between applied research and basic research. On the other hand some countries differentiate clearly between applied science and what they call “blue sky research”. Another example is the inclusion and subsequently funding of monitoring and fish stock assessment tasks into applied science by some MariFish partners such as Ministries of Fisheries, etc. while other MariFish partners such as Research Councils do not regard monitoring and assessment tasks as research and subsequently do not fund these activities.

Keeping this in mind is relevant when viewing collaborative structures of countries and their respective marine fisheries research systems. For the work of WP 3, all marine fisheries research was included that allows for a better management of fisheries resources, e.g. fish biology and fisheries research, modeling and method development, as well as monitoring and assessment of fish stocks. As a result of the different perceptions of marine fisheries research and the heterogeneous national funding structures, in some countries not all ‘major’ national funders of marine fisheries research are partners in MariFish.

### **2.2 National Funding Structures**

According to the previous paragraph the national funding structure is quite diverse. Some of the national funding agencies that are partners in MariFish do not finance monitoring and fish stock assessment tasks. Instead the relevant ministry in charge of fisheries finances these tasks. However, for some partners of MariFish this is their main activity.

To illustrate national funding structures of marine fisheries research one can differentiate between funding and executive level. The funding level can be further differentiated into national ministries on one side and research foundations with a mandate to implement, manage and fund marine fisheries research on the other side. An example of the first is the German Ministry of Food, Agriculture and Consumer Protection (BMELV); an example of the latter is the Research Council of Norway (RCN). The executive level consists of the respective institutions carrying out marine fisheries research. These might be dedicated fisheries research institutes such as the Federal Research Centre for Fisheries (BFAFI) in

Germany or the Marine Institute (MI) in Ireland. At the University level, departments mainly apply for funds to the relevant research foundation. The following Table 1 gives an overview of the relevant ministries, research councils, national fisheries institutes and universities that act as major funders and recipients in marine fisheries research with their respective political or academic agenda.

**Table 1: National ministries and research councils and their main recipients in the context of marine fisheries and their affiliation with MariFish.**

Country	Political Responsible for fisheries, e.g. Ministry	Main Recipient	Academic basic research orientated, e.g. Research Council or Ministry	Main Recipient
UK Defra	DEFRA	CEFAS	NERC	Several (e.g. University of Portsmouth)
Norway	Ministry of Fisheries and Coastal Affairs	IMR	RCN	Several (e.g. University of Bergen)
Germany	BMELV	BFAFI	DFG	Several (e.g. IFM-GEOMAR)
Netherlands	LNV	IMARES		
Sweden	Ministry of Agriculture, Food and Consumer Affairs	SBF	FORMAS	Several (e.g. University of Goteborg)
Iceland	Ministry of Fisheries	MRI	RANNIS	Several (e.g. University of Iceland)
France	Several (e.g. Ministry of Research)	IFREMER		
Denmark	DFFAB	DIFRES		
Portugal	MADRP	IPIMAR	MCTES	
Poland	Ministry of Agriculture and Rural Development	MIR	MSHE	
Cyprus	Ministry of Agriculture, Natural Resources and Environment	DFMR	RPF	
Greece	Ministry of Rural Development and Food	NAGREF	GSRT	HCMR/FRI
Ireland	DCMNR	MI		
Belgium	MGV-ALV	ILVO-Fisheries		
UK FRS	SEERAD	FRS		
Spain	MAPA	IEO	MEC	

MariFish partner

To further complicate and confuse matters the arrangements and responsibilities of funders are not consistent and vary considerably from country to country. In Germany for example the major national funder of marine fisheries research is the Ministry of Food, Agriculture and Consumer Protection (BMELV), whereas in Sweden one of the major funders is the Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS). Thereby the German ministry is responsible for fisheries policy whereas the Swedish research foundation is not. Further comprehensive difficulty arises from the fact that a mix of arrangements exists. In the case of Sweden, the Ministry of Agriculture, Food and Consumer Affairs covers fisheries policy and acts as second major funder of marine fisheries research via the Swedish Board of Fisheries. But neither the Ministry of Agriculture, Food and Consumer Affairs nor the Swedish Board of Fisheries are partners of MariFish.

In order to acquire all relevant organizations with decision-making functions in the field of funding marine fisheries research, a simple definition was adopted. Therefore all organizations were treated as funders that have virtually all control over their research budget. This applies for such organizations that are financed via lump sum or government grants and to a large extent allocate funds to their individual research projects independently. The underlying assumption for the work of WP 3 is that responsible officials from these organizations have influence on the development of national research

programs and their funding. Consequently these organizations were considered as funding bodies. However, it should be noted that these officials are not fully free in budget decisions, especially when additional funds are needed.

Ministries are organized into various departments with different duties and responsibilities. Accordingly the ministerial department funding marine fisheries research is not necessarily the ministerial department engaging in fisheries policy. Since information concerning the internal decision-making structures of ministries is difficult to obtain, ministries and their subordinate departments were treated as a whole, depending on the available information. Keeping this in mind is important when comparing collaborative linkages of ministries, since they might suggest collaboration on funding level, whereas collaboration takes place on a fisheries policy level (e.g. quota setting).

### **3 Collaboration and Partnerships**

For the context of this study, the overarching question needs to be answered: What is collaboration? Collaboration occurs when people interact and exchange knowledge in pursuit of a shared goal. This interaction may involve communication, information sharing, coordination, cooperation, problem solving, and negotiation (HALL 1999). However, simply contributing to a shared goal does not constitute collaboration. On the other hand, having a shared goal does not imply that everybody has the same goal. Quite the contrary, collaborators may very well have their own individual goals, yet they must be minimally complementary. Collaboration can be formally or informally organized, e.g. in regular working group meetings or ad hoc meetings and collaborative fora may be international, European and regional organizational structures. However for the purpose of MariFish all types of collaboration were considered.

#### **3.1 International**

The relevant organizations at the international scale are quite diverse and need to be viewed carefully with regard to their agenda and pursuit of objectives. The Food and Agriculture Organization (FAO) of the United Nations for example aims to achieve food security for all, improve agriculture, forestry and fisheries practices and pay special attention to developing rural areas. Thereby the FAO serves as a knowledge network, shares policy expertise and provides a meeting place for nations. FAO membership is by country, yet collaboration occurs on various working levels involving different country representatives from a number of government ministries and offices.

The Intergovernmental Oceanographic Commission (IOC) is part of the UNESCO. The IOC's objective is to contribute to the development of scientific research to obtain better knowledge of the oceans by means of international scientific cooperation. This includes the coordinated use of research vessels, the standardization of methods and the shared documentation and exchange of oceanographic data on an international basis. The IOC implements international research programs with a fishery related component such as GOOS and GLOBEC. The engagement in fisheries and ecosystem studies is highlighted by the IOC's statement:

*“The IOC is concerned with how the environment influences the productivity of commercially important fish stocks and how to detect relevant changes in their*



*health. The IOC uses an ecosystem approach that recognizes the interdependence of species and the need to understand the total environment.”*

Finally the International Whaling Commission (IWC) acts as an international fisheries management organization with the purpose to conserve and manage whale stocks. Incorporated in the IWC is a Scientific Committee comprising of sub-committees and working groups that provide scientific advice. Furthermore, the International Whaling Commission sponsors and supports international fisheries research.

The following Table 2 depicts the collaboration of major national funders of marine fisheries research of MariFish countries in the introduced international organizations.

**Table 2: Collaboration of MariFish countries major national funders of marine fisheries research in relevant international organizations.**

		Funders		Organizations		
		MariFish Partner	Non-partner	FAO	IOC	IWC
Country	UK Defra	DEFRA				X
		RCN				
	Norway		Ministry of Fisheries, (...)		X	X
	Germany	BMELV		X	X	X
		BFAFI			X	X
	Netherlands	LNV		X		X
	Sweden	FORMAS				
			Ministry of Agriculture, (...)	X		
	Iceland	RANNIS				
			Ministry of Fisheries		X	X
	France	IFREMER		X	X	
	Denmark	DFFAB				
	Poland	MSHE				
		MIR				
	Ireland	MI			X	
	Belgium	MGV-ALV/ILVO				
	UK FRS	FRS				
	Portugal	MADRP				
		IPIMAR		X	X	
	Cyprus	RPF				
		DFMR	X	X		
Greece	GSRT					
	HCMR			X		
		Ministry of Rural Development				
Spain	MEC					
	IEO		X	X	X	
		Ministry of Agriculture, (...)				

### 3.2 European

The relevant organizations on European scale represent an administrative structure, a research association and a science promotion foundation.

The Directorate-General for Fisheries and Maritime Affairs or DG Fish is a department of the European Commission, responsible for the political priorities in the area of fisheries, the Law of the Sea and Maritime Affairs. Thereby DG Fish is responsible for the sustainable management of fisheries within the Community, since single member states have transferred their fisheries competencies to the EU. The most important task of the

DG Fish is the management of fisheries and aquaculture, according to the Common Fisheries Policy (CFP) through:

- Formulating and negotiating quotas
- Representing the Community and its respective member countries in relevant international and regional fisheries organizations
- Promoting and funding scientific assessments and research in fisheries.

The latter is implemented through (1) the Data Collection Regulation (DCR) obligating member states to arrange multi-annual national programs for fisheries data collection and (2) funding of fisheries research provided by the 6<sup>th</sup> Framework Program<sup>1</sup>(FP).

The European Fisheries and Aquaculture Research Organization (EFARO) is an association composed by the directors of the main European research institutes involved in fisheries and aquacultural research. EFARO aims to promote scientific cooperation in the area of fisheries and aquaculture by providing information about ongoing research projects, new initiatives and new national strategies. The updated research objectives strive to avoid duplication and redundancies in fisheries and aquacultural research by organizing research activities and promoting synergy between the member institutions. Hence EFARO is a good example of coordination and collaboration at the working level.

The European Science Foundation (ESF) - Marine Board acts as an international research consortium bringing together major national marine research institutes and funding agencies within Europe. The ESF - Marine Board aims to improve the coordination between European marine science organizations and to develop a European strategy for marine research. Therefore the ESF - Marine Board has adopted four main objectives:

- Create a forum for its member organizations
- Identify scientific strategic issues
- Provide a voice for European marine science
- Promote synergy among national programs and research facilities

The aim of the ESF - Marine Board is put into effect in the ERA-Net project MarinERA, which is at the same time managed by the ESF - Marine Board.

As mentioned above MarinERA is a European project with the overall goal to coordinate national and regional marine research and technology development (RTD) activities in Europe. In pursue of this goal MarinERA aims to:

- *“Provide a strategic and operational network of national, EU and international initiatives;*
- *Reduce fragmentation and duplication;*
- *Enhance coordination of marine research infrastructures;*
- *Facilitate reciprocal opening of national marine research programmes;*
- *Establish common marine research funding programmes.”*

In congruence with the objectives MarinERA sees itself as a key facilitator and an important platform to promote marine science in the European Research Area.

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<sup>1</sup> In FP 7, research funding will shift from DG Fish to DG Research (Directorate-General for Research), while DG Fish will further concentrate on writing the work programs for the different calls for proposals.

Table 3 illustrates the collaboration of major national funders of marine fisheries research in the introduced European organizations.

**Table 3: Collaboration of MariFish countries major national funders of marine fisheries research in relevant European organizations.**

		Funders		Organizations			
		MariFish Partner	Non-partner	DG Fish	EFARO	ESF – Marine Board	MarinERA
Country	UK Defra	DEFRA		X			
	Norway	RCN				X	X
			Ministry of Fisheries, (...)		X	X	
	Germany	BMELV					
		BFAFI		X	X		
	Netherlands	LNV		X			
	Sweden	FORMAS					
			Ministry of Agriculture, (...)	X	X		
	Iceland	RANNIS				X	
			Ministry of Fisheries		X		
	France	IFREMER		X	X	X	X
	Denmark	DFFAB		X			
	Poland	MSHE					X
		MIR				X	
	Ireland	MI		X	X	X	X
	Belgium	MGV-ALV/ILVO		X	X		
	UK FRS	FRS		X	X		
	Portugal	MADRP					
		IPIMAR		X	X		
	Cyprus	RPF					
		DFMR	X	X	X		
Greece	GSRT					X	
	HCMR			X	X		
		Ministry of Rural Development	X				
Spain	MEC					X	
	IEO		X	X	X		
		Ministry of Agriculture, (...)	X				

Within the scope of the DG Fish, EU countries and their respective funders of marine fisheries research come together to fulfill their obligations. At a closer look the participants are MariFish partners like government departments and non-partners such as the ministries responsible for Fisheries from Sweden, Cyprus and Greece. Thus the DG Fish represents a forum where national funders of fisheries research meet on European scale.

### 3.3 Regional

For a first comparison of collaboration across countries on a regional scale, the highest aggregated level is depicted, i.e. project participants in MariFish and other major national funders of marine fisheries research in selected organizations of the North Atlantic (Table 4).

The International Council for the Exploration of the Sea (ICES) is the oldest and perhaps the most well known intergovernmental organization in the world coordinating and promoting marine fisheries research. Although ICES is no funding body itself, it is a key player providing advice for fisheries management to its 19 member countries and the European Commission. Moreover, within ICES, members set the scientific agenda and

coordinate research, thus significantly influencing the research programs of their member countries. ICES has an observer role in MariFish and serves as a role model for the possible coordination of national research programs.

Next to ICES, the selected regional organizations of the North Atlantic represent intergovernmental fisheries science and management organizations that comprise of an independent scientific council – aiming to promote research collaboration and cooperation among contracting parties – such as the Northwest Atlantic Fisheries Organization (NAFO). The overall objective of NAFO is to contribute through consultation and cooperation to the optimum utilization, rational management and conservation of the fishery resources of the convention area. The scientific council provides a forum for consultation and cooperation among the contracting parties and encourages and promotes cooperation in and coordination of marine fisheries research. This research focuses on environmental, biological, ecological and fishery aspects of living marine resources and ecosystems of the Northwest Atlantic.

The North Atlantic Salmon Conservation Organization (NASCO) is an international organization with the objective to contribute through consultation and cooperation to the conservation, restoration, enhancement and rational management of salmon stocks in the North Atlantic Ocean. In the case of NASCO the research division is no council but the International Atlantic Salmon Research Board that was established to promote research collaboration and cooperation. This effort has led to a joint International Atlantic Salmon Research Program funded by the contracting parties of NASCO. This program is structured into an Atlantic Salmon Research section and an International Atlantic Salmon Research Fund section. The latter is initiating fund-raising efforts in addition to the financial contribution of NASCO parties to enable major research projects. The former seeks to maintain a detailed inventory of marine research to identify research gaps and priorities for future research.


Finally, the International Commission for the Conservation of Atlantic Tunas (ICCAT) is an inter-governmental fisheries management organization responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas. ICCAT is organized into different committees, whereby the Standing Committee Research and Statistics (SCRS) provides the scientific advice to underpin the management decisions. The committee also coordinates various national research activities and develops plans for special international cooperative research programs.

The Nordic Council represents an organization similar to the EU with the member countries Denmark, Finland, Iceland, Norway, and Sweden. Political cooperation is the basis, however other areas of cooperation include the full spectrum of fisheries, i.e. the implementation of a sustainable management of fisheries resources, research development and the adoption of sound fishery policies in the Nordic Region. The Nordic countries fund cooperation in relation to their gross domestic products.

Table 4 gives an overview of the existing regional collaborative linkages of major national funders of marine fisheries research in the North Atlantic. Although the selected organizations are applicable to member countries of MariFish, in some cases the European Community (EC) is formal member or contracting party of these organizations and the individual countries participate only indirectly through the delegation of representatives to the EU.

**Table 4: Regional collaboration of major national funders of marine fisheries research in selected organizations of the North Atlantic.**

		Funders		Organizations				
		MariFish Partner	Non-partner	ICES	NAFO	ICCAT	NASCO	Nordic Council
Country	UK Defra	DEFRA			X	X	X	
		RCN						X
	Norway		Ministry of Fisheries, (...)	X	X	X		X
	Germany	BMELV			X		X	
		BFAFI		X	X			
	Netherlands	LNV		X				
	Sweden	FORMAS						X
			Ministry of Agriculture, (...)	X			X	X
	Iceland	RANNIS						X
			Ministry of Fisheries		X	X	X	X
	France	IFREMER		X	X	X		
	Denmark	DFFAB		X				X
	Portugal	MADRP						
		IPIMAR		X	X	X		
	Poland	MSHE						
		MIR		X				
	Ireland	MI		X	X	X	X	
	Belgium	MGV-ALV						
	UK FRS	FRS		X			X	
Spain	MEC							
	IEO		X	X	X			

 Country is not member

In the Mediterranean different regional organizations prevail in which collaboration occurs. First and foremost this is the general Fisheries Commission for the Mediterranean (GFCM) – the regional regulatory body on fisheries management in the Mediterranean Sea - that promotes cooperative projects in the area of fisheries research. The main objectives of GFCM are:

- “to promote the development, conservation and management of living marine resources;
- to formulate and recommend conservation measures; and
- to encourage training cooperative projects (includes aquaculture).”

Similar to the structure of ICCAT, the General Fisheries Commission for the Mediterranean has a Scientific Advisory Committee (SAC) that provides scientific input.

Another organization is the International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM). The mission of CIESM is to promote international research in the Mediterranean Sea. Thus the Mediterranean Science Commission CIESM supports a network of several thousand marine researchers of various disciplines – including marine fisheries research – through workshops, collaborative programs and regular congresses.

Table 5 provides an overview of the existing regional collaboration in the Mediterranean.

**Table 5: Regional collaboration of major national funders of marine fisheries research in selected organizations of the Mediterranean.**

		Funders		Organizations		
		MariFish Partner	Non-partner	ICCAT	GFCM	CIESM
<b>Country</b>	France	IFREMER		X	X	
	Cyprus	RPF				
			DFMR	X	X	X
	Greece	GSRT				
		HCMR		X	X	X
			Ministry of Rural Development		X	
	Spain	MEC				
		IEO		X	X	X

Similar to the findings in the North Atlantic, the research council in Cyprus has no collaborative linkages with the selected organizations of the Mediterranean. And similar to the research councils in the North, this may be attributed to the fact that the research council focuses very broadly on sustainable development with no specific program but only a priority on Marine Fisheries and Aquaculture. Subsequently the Cypriot Department of Fisheries and Marine Research (DFMR) is responsible for marine fisheries research matters and engages in collaborative activities.

However, most MariFish partners in the Mediterranean have collaborative linkages in each of the selected organizations.

## 4 Regional Workshops

As mentioned in the introductory chapter, the preliminary results were presented during two regional workshops to identify the linkages, overlaps and deficiencies of contemporary collaboration of funders in marine fisheries research. In order to initiate the participatory process and encourage participants to express their opinion SWOT analysis was applied.

### SWOT Analysis

SWOT stands for strengths, weaknesses, opportunities and threats. Thereby strengths and weaknesses characterize the present situation, from which future opportunities and threats derive. The general objective of the SWOT analysis – on the basis of (present) strengths and weaknesses analysis and (future) opportunities and threats analysis – is to identify potential advantages and an internal need for action. Thereby SWOT analysis offers a wide range of applications, e.g. to develop and analyze strategies and procedures within projects. What SWOT analysis cannot do is to provide answers how future funding of marine fisheries research may be organized but it provides a systematic way to collect useful information and food for thought. SWOT analysis is also a powerful tool for awareness building among workshop participants, because it reflects back problems gathered during breakout groups. The SWOT analysis exercise was followed by formulating recommendations and practical guidelines to improve collaboration of national funders of marine fisheries research.

Present situation	Strengths	Weaknesses
Future situation	Opportunities	Threats

The SWOT analysis was conducted pursuing the following process steps:

1. Define the topic and situation that will be analyzed.
2. Collect all information to each aspect of the matrix.
3. Cluster the identified factors and create categories or sub-categories according to the significance of factors.
4. Discuss the identified factors and aspects.
5. Formulate recommendations and practical guidelines on the basis of the SWOT analysis.

## 4.1 Mediterranean Workshop

The main goals of the Mediterranean workshop were:

- to bring together the Mediterranean MariFish partners
- to elaborate a common approach and understanding of the research funding systems in the various European Union Mediterranean member states
- to inform the Mediterranean partners of the respective national funding systems through brief presentations
- to formulate the collection of data from EU member states currently not participating in MariFish (Slovenia, Italy and Malta)
- to elaborate a regional report on the present collaboration of national funders of marine fisheries research in the Mediterranean

The workshop started out with a presentation of the status quo of regional collaboration of MariFish partners. During the workshop the individual countries introduced their respective national fund management systems taking a critical stance and pointing out obstacles of present collaboration of marine fisheries research funders.

### 4.1.1 SWOT Analysis

#### Strengths

There are significant strengths in Mediterranean marine fisheries research. There is a long tradition in marine fisheries research within most countries; especially those of the North (Spain, France, Italy, Greece) and the East (Israel). This long history of research created a critical mass of both scientists specialized in marine fisheries science and research and its various disciplines, as well as research facilities (small and large scale). Experience in fisheries research and management is effectively disseminated through the activities of long-standing bodies such as the General Fisheries Council for the Mediterranean (GFCM) and the International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM), whereby the latter has very limited activity in fisheries research. Several FAO regional projects in the Mediterranean promote collaborative fishery management, scientific collaboration and technical coordination of the research activities between the countries. Striking is that individual countries or groups of countries act as funders of these transnational projects with some additional funding from the EU, e.g. COPEMED (Spain), ADRIAMED (Italy), MEDSUDMED (Italy) and EASTMED (Greece). Thus these countries have established entities capable of financing transnational research. Even though institutes and other organizations involved in marine fisheries research have created strong links and networks (virtual or not), this is not the case at the national funders level. However, these links at the stakeholder level can form the foundation for the creation of linkages at the funders level.

#### Weaknesses

There are several weaknesses in Mediterranean marine research funding, which hinder broader regional cooperation. Most important among these weaknesses are the low participation of stakeholders in research management processes and the different research objectives of scientists, managers and stakeholders. This characteristic seems to have



originated from the limited dissemination of research results and the non-existent (in most cases) linkages between groups of scientists and stakeholders, even though most – if not all – research frameworks provide enough funds for the establishment of dissemination strategies. Other weaknesses like the limitation of national funds prevents – in many cases (for example Greece) – to participate in regional management bodies like the General Fisheries Council for the Mediterranean. This limitation in participation has devalued the significance and role of these bodies in fisheries management and their possible function as cooperation and coordination platforms. Another weakness related to MariFish is the limited participation of Mediterranean countries, i.e. Malta, Slovenia and Italy. However, following an initiative by the General Secretariat for Research and Technology (GSRT), an attempt will be made to contact these countries as well. Yet, 16 countries border the Mediterranean from which only 4 participate actively in MariFish (Greece, France, Spain, Cyprus) and another 3 will be contacted in the process (Italy, Malta, Slovenia) for data collection only. Therefore, absence of knowledge regarding the marine fisheries research processes and structure of the remaining 9 countries reduces the significance of the results and the conclusions that may be derived from them.

### **Opportunities**

There are several opportunities in marine fisheries research in the Mediterranean. The national funders will still remain major actors in the fund management process, since there is a continuously increasing demand for research results and scientific advice for the management of fisheries resources especially in accordance to the new Common Fishery Policy. Moreover, the application of the Data Collection Regulations §1543 and §1639 in all European Union member states – as well as other EU cooperation initiatives (e.g. Article 169, ERA-NETs) – applies more pressure for regional cooperation. The progress in marine fisheries science has created a large number of new scientific disciplines, which have not been supported substantially to create a critical mass of scientists and experience and provide a competitive advantage in Mediterranean marine fisheries research in relation to other countries/regions/continents. An example for this is socio-economic and bio-economic modeling and analysis of fisheries data. In addition, the increased concern of the common and shared management of transboundary stocks and resources provides an additional opportunity for wider cooperation at the funders level.

### **Threats**

There are also some threats, which need to be tackled so that marine fisheries research in the Mediterranean will not be restrained. An important threat is that funds for extensive research projects – covering large portions of the Mediterranean instead of small management units – will reduce our understanding of the state of the resources and ecosystems in the neglected, smaller areas and may undermine the quality of research output and its capacity to support decision-making and management by extrapolation. The limited regional cooperation at the funding level and at the same time the different priorities among funders are a threat for regional cooperation in the medium and long-term. The statutory framework, the variety in legislation in the various countries and lack of interest hinders broader regional cooperation in marine fisheries research through the creation of a virtual or not, common pot.



Figure 1: Graphical overview of the Mediterranean SWOT analysis.

#### 4.1.2 Recommendations and Practical Guidelines

Evaluating the regional collaborative linkages there seems to exist a clear gradient in complexity of the fisheries funding processes along the Mediterranean: the funding system in Spain is highly decentralized with many actors (more than three) with internal and external processes and a diversity of research priorities and goal setting procedures. The Greek system is more centralized with only two main actors and a more centralized research priority setting and goal setting procedure. On the far end, Cyprus funding system is highly centralized with only one actor and controlled research priorities and goal setting procedures.

The same gradient profile exists in the opportunities for regional collaboration. The Spanish fund management system prevents non-Spanish entities to receive funds directly or participate as partners in nationally funded projects (funds originating from Government budget). The Greek fund management system provides limited opportunities for such participation, even though there are examples of foreign entities receiving national research funds even as project coordinators lately. The Cypriot fund management system clearly provides the possibility for foreign entities to participate as partners in nationally funded projects. As it is obvious all three countries allow regional and international cooperation between national and foreign entities in the EU or other international donor funded projects.

The fact that the Mediterranean Sea is unique regarding the characteristics of its fishing industry (multi-species, multi-gear, highly traditional) as well as the fact that many countries border the Mediterranean from which only four are EU member states indicates that regional cooperation is the only solution for the management and conservation of the Mediterranean resources. It is also obvious that in order to achieve cooperation and coordination of research collaboration is required at some level. The existing regional management body GFCM is an added value in this process. Considering the budget limitations of the European Unions Framework Program (FP 7) for fisheries research as well as the high level of competitiveness for receiving these funds (only three calls in FP 7), the need to increase cooperation through the national (Government budget) funds is essential. Currently the biggest opportunities are offered within the Cypriot fund management system and almost none in the Spanish fund management system, with Greece somewhere in the middle. Yet, a common or virtual common pot is considered to be an important component of a regional cooperation and coordination strategy. It is possible that the creation of such a regional pot will aid the alignment of differences between the funders and create the basis for common fisheries research fund management procedures. The main objectives of such cooperation would be:

- unification of efforts to provide adequate scientific advice for the management of Mediterranean fisheries resources and resolving the unique Mediterranean problems
- enhance know-how and technology exchange flow
- create permanent networks or – even better – entity consortia (with some limited or not legal form) which will be an added value in the process to claim research funds from the European Union or other donors
- exploitation of the existing large scale facilities – providing their exists a statutory framework for this

It was agreed that the Mediterranean member states are not well represented in MariFish, since Italy, Malta and Slovenia are not among the members. The WP 3 partner, the General Secretariat for Research and Technology (GSRT) will therefore establish contact with the funding agencies in these three member states in order to receive information on the funding procedures and institutions in those countries following the procedures and methods already used.

The following recommendations and practical guidelines to improve collaboration of funders in marine fisheries research were formulated during the Mediterranean workshop:

- Exchange of information to ensure that everybody speaks the same language, agrees on and uses the same terminology and makes clear what the common goal is
- Commonly agree on the priorities of a joint call
- Organize priority setting – each country collects priorities and enters them into a frame, this prefixed frame is then discussed during a conference
- Each country has to clarify in the meantime how funds can be put into a common pot, i.e. how to overcome legislative impediments

#### 4.2 Baltic, North Sea and North Atlantic Workshop

Similar to the Mediterranean workshop the Baltic, North Sea and North Atlantic workshop started out with a presentation of the status quo of regional collaboration of MariFish partners.

The second presentation by the General Secretary from ICES, Gerd Hubold focused on **collaboration and cooperation on the scientific level** drawing on experience from ICES. Mr. Hubold explained that collaboration and cooperation is common sense among marine scientists. The main difficulty arises when it comes to real commitments between countries. Mr. Hubold stressed that binding agreements are essential to make commitment happen. ICES is an example of such long standing commitments. However commitments are not between scientists but between governments. The legally binding commitments obligating countries to collaborate are set out in the convention from 1902 and were reaffirmed in 1964. As a result scientists from 200 institutions in member states and affiliate countries work together in over 100 expert groups, 8 science committees and 3 advisory committees. The scientific structure is set up according to three different approaches: (1) a disciplinary approach (e.g. Fishing Technology Committee), (2) a multidisciplinary approach (e.g. Marine Habitat Committee) and (3) a regional approach, exemplified in the Baltic Committee. The ICES system is realized in a bottom-up process involving the national scientists from the member states. Next to scientific advice ICES contributes to capacity building in specialized research fields and avoids duplications making use of functioning, cooperative structures. The added value to national efforts through international cooperation and coordination demonstrates the efficient use of the invested funds. “*What can ICES do for us?*” asked Mr. Hubold to the end of this presentation. And the answer is that ICES could advice what research to focus on in the future.

In a next step Kristján Kristjánsson – from the Icelandic Centre for Research (RANNIS) – described the **collaboration of funders in the Nordic countries**. The Nordic countries

have a long history of cooperation, manifested in the Nordic Council (1952) and the Nordic Council of Ministers (1971). NordForsk represents an independent Nordic research board operating under the Nordic Council of Ministers. Funding is provided by the Nordic countries through the budget of the Nordic Council of Ministers and through the participation of national research funding bodies. The general aim of NordForsk is to promote Nordic research cooperation and research of supreme international quality. Thereby NordForsk highlights that the Nordic countries have a stronger position in the competition for European research funding than each country has individually. To achieve its aim, NordForsk focuses on three major activities:

- **Coordination** refers to the identification of research priorities suitable for joint Nordic efforts. The research priorities build upon existing collaborative structures and strategically important areas. Planning of key infrastructures is carried out in close collaboration and participation. All this is working towards common Nordic calls and partial opening up of national programs.
- **Funding** of preliminary studies that serve as a basis for decisions on joint Nordic activities. Financial support to Nordic research efforts is provided together with different national funding bodies. Further funding is provided to professional training of scientists, joint research programs and joint use of major Nordic infrastructures.
- **Policy advice** to the Nordic Council of Ministers and the member states.

NordForsk has several funding principles in place to support relevant Nordic research efforts. Thereby funding only covers the added cost of the NordForsk-initiated activity. Basic research costs of the participants are covered by their respective research institutes and funding agencies.

#### **Funding principles**

Large-scale activities: common pot solutions co-funded from at least three national actors, NordForsk usually contributes 1/3 of the total funding.

Small-scale activities: national funding covers the basic activities, NordForsk provides up to 100% of the extra funding needed.

Co-funding with foreign funding agencies, if a win-win situation and complementarity can be achieved.

One way of raising the quality, efficiency, visibility and international cooperation of Nordic research was the creation of Nordic Centres of Excellence (NCoE). Nordic Centres of Excellence are excellence clusters, i.e. networks of excellent Nordic scientists collaborating within a defined research field. A Nordic Centre of Excellence can take two forms:

- a **virtual centre** consisting of a well-managed network of existing research teams from at least three Nordic countries, or
- a **physical centre** is a research unit of high scientific quality providing facilities and infrastructure also to researchers from other Nordic countries.

To establish these NCoEs a number of Nordic Centre of Excellence Programs were launched. The programs are funded by the Nordic research councils, the Nordic Council

of Ministers and NordForsk. However, this funding only supplements the basic funding provided by the respective national sources. Mr. Kristjánsson called this funding “glue money”, because it ties up research funds. It is explicitly noted that NCoE funds are not “research money”. In general, NCoE funds can be allocated to:

- extra management, operational and coordination costs
- time limited extraordinary professorships
- full fellowships for visiting professors, post docs and/or PhD students

One example for such a Nordic Centre of Excellence Program is the Global Change Program from 2003 to 2007. It comprises of 4 centers and receives approximately 1.6 million Euros annually. The 4 Nordic Centres of Excellence were selected according to the following selection procedure: (1) an international, non-Nordic expert panel performed the scientific evaluation of the applications, (2) the expert panel made site visits to 8-10 of the best candidates, (3) the annual funds of each NCoE were decided in negotiation with NordForsk and (4) a Scientific Advisory Board of non-Nordic members supports the NCoEs throughout the period. One of the NCoE in the Global Change Program is the research center on Biosphere-Aerosol-Cloud-Climate Interactions (BACCI). BACCI involves 12 universities, departments and institutes; comprises of 14 research teams and around 60 senior researchers (total personnel 187). The total funding of BACCI amounts to 8.3 million Euro in 2006, whereby 92 percent of the total funding came from other sources than the Nordic common pot, i.e. universities, research institutions, national funding agencies, companies, private foundations, EU, etc. The Nordic program funding (common pot/glue money) amounted to 0.67 million Euros in 2006, which again came from:

- 1/3 of the common pot from NordForsk (under 3% of total funding)
- 2/3 of the common pot from the national research funding agencies

Mr. Kristjánsson stressed that the Nordic Centre of Excellence Program in Global Change was planned for a long time and initially started out in 1998 while the concept was finalized in May 2000.

Finally Sif Johansson from the Swedish EPA shared experience concerning **practical and organizational issues of establishing networks** within BONUS. This is of particular interest since BONUS is one of the first ERA-Nets in the field of marine science. BONUS was initially launched in 2004 and is currently developing into an ERA-Net Plus. Mrs. Johansson described the rocky start of BONUS and how neither the partners nor the EU Commission knew exactly what to expect from each other. Therefore it was vital to engage in public relations and hold an exhibition in Brussels. In this context material output such as leaflets, brochures, bi-annual and annual reports were extremely important for the external presentation of BONUS. It should be noted that this material is not for scientists but for EU parliamentarians and decision-makers. A direct advice for MariFish was to produce public relations material such as an annual report and engage in political lobbying, e.g. to ask national members of the European parliament to hold an exhibition in Brussels.

An achievement of BONUS was the establishment of a joint research program formulated in a science plan. The science plan consists of 8 themes and was revised by over 800 persons. The key themes are Theme 6 ‘Integrating ecosystem and society’ and Theme 7

'Linking science and policy'. A real disadvantage while developing the science plan was that only natural scientists participated and there was a real lack of knowledge on economics and social sciences. The solution was an advisory board with social and economic scientists. The joint program should be implemented under Article 169<sup>2</sup> of the European Community Treaty. However, Article 169 funds were denied according to the small geographical area covered by BONUS. In this respect it was good to have a report on the annual funding of BONUS partners in order to show the EU how much money flows into the Baltic region. The latest status is that BONUS has been approved as an ERA-Net Plus, which takes a bridging function before going the next step and becoming a 169 ERA-Net. The lesson that can be learned here is that one needs to be flexible, since there is no real EU commitment. Although no science has been funded so far it was confirmed that BONUS has a considerable impact on the scientific community involved, through creating a network and connecting scientists. Especially setting up the science plan had quite some effect through discussions that centered the scientific community. On the other hand there has also been some frustration because no "real" research has happened yet.

BONUS has also made considerable progress to achieve joint funding of trans-national research projects. The European Economic Interest Grouping (EEIG) is a possibility that is currently explored. The EEIG is an instrument that enables to create a new legal entity based on Community law to facilitate and encourage cross-border cooperation. A newly founded grouping could be the easiest way of distributing money among the members. During the workshop discussion a metaphor is expressed that tries to describe the process of restructuring research funding and the participant's perception of this process (see text box).

The process of restructuring research funding is compared with sheep that are exploring a new stable with a vast enclosure they have never seen before. Instead of dashing ahead, the sheep carefully examine the new environment and take a few steps.

Following these stimulating presentations the group was split into breakout groups to perform the SWOT analysis. The outcome is an elaborative list that was further condensed and clustered to display the key aspects of present and future regional collaboration in the area of marine fisheries research.

#### **4.2.1 SWOT Analysis**

The following strengths, weaknesses, opportunities and threats were selected according to their subjective priority. They only provide a brief overview of some of the most important criteria identified during the breakout groups. The comprehensive list can be found in the appendix 7.3.2.

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<sup>2</sup> Article 169 is an instrument that enables the European Community to participate in joint research programs. This includes participation in the structure implementing the research program and co-funding of national funds provided. Thereby eligible research programs must involve enough member states to obtain a critical mass, be of great interest to the Community and deal with topics that fit with the thematic priorities of the Framework Program.

## Strengths

Strengths of contemporary collaboration of national funders of marine fisheries research are the already existing collaborations in intergovernmental, scientific and fisheries management organizations, further the participation in ERA-Nets and the existing network of scientists. The latter is exemplified through collaborative work in the fulfillment of the DCR within the scope of the Common Fishery Policy of the EU. The joint use of research infrastructure (e.g. vessels and laboratories) offers further potential for expansion. Another real strength is that due to centralized funding on EU level, virtual coordination of scientific activities exists by funding multi-national research programs collecting fisheries data. Furthermore these priorities are somewhat coordinated through the priority setting process of DG Fish and a Memory of Understanding between DG Fish and ICES.

### **Existing collaborations**

- Existing collaboration in ICES, NASCO, OSPAR, Helcom, EFARO, Nordic Council, etc.
- Commitment to work together influenced by the Common Fishery Policy of the EU exemplified in the DCR
- Participation in ERA-Nets (BONUS, MarinERA, MariFish)

### **Content**

- Many common research strategies and priorities (minimizing duplication)
- Similar geographical (research) areas funders are interested in
- It is commonly accepted that collaborative work and funding will add value to programs

### **Sharing resources/infrastructure**

- Existing network of scientists (ICES)
- Available EU funds to support national funding
- Research vessels and stations can be better utilized

### **Experiences communication**

- Small, acquainted scientific community with good communication
- Existing regional collaboration within the scope of the DCR
- Sharing of catch data/log books and collaboration in tagging studies



## Weaknesses

MariFish partner countries have different national interests. As a result, research priority setting processes and frameworks (e.g. time frame) for national research programs differ. This and other formal obstacles (legislation/administration) are considered one of the major weaknesses that need to be overcome when setting up a joint research program. The unwillingness of national funders to put money into a common pot and the absence of multinational funding constitute another weakness when considering the financing of a joint research program. Very interesting was the widely shared perception that marine fisheries research is a low profile area that is competing with other more popular research areas.

### **Different priorities**

- No mechanism/political agreement to fund multinational programs
- National importance of the fishery sector varies considerably
- National interests and politics dominate thinking

### **Formal obstacles**

- Different legislation/funding structures/administration in countries
- Unwillingness of national funders to put their money into a common pot
- Some countries are not partners of MariFish

### **Funding and lack of resources**

- Absence of multinational funding
- No common pot

### **Lack of common criteria and fora**

- The big players dominate
- No common fora/table
- Different evaluation criteria

### **Low profile area**

- Low public awareness of fisheries research needs
- Marine science programs compete with Agri/Biotechnology
- Few calls for joint programs

## Opportunities

Tackling current, large-scale problems that require multidisciplinary and holistic research approaches such as illegal fishing, climate change, etc. was seen as a major opportunity of improved collaboration. Thereby there are several factors encouraging future collaboration of marine fisheries research funders such as: the ecosystem-based fisheries management approach set within the CFP, the expanding DCR and EU co-financing (§168, ERA-Net Plus). A huge potential is seen in aligning the existing science cooperation with funding cooperation and agreeing on a common research priority setting process. This includes common policy drivers (e.g. climate change), access to the wider facilities, resources and expertise of the MariFish partner countries and thus increasing the efficiency and better utilization of resources to make changes.

### **Solving problems**

- Solving large-scale, transnational problems, e.g. illegal fishing, climate change
- Ecosystem based fisheries management (CFP) encourages collaboration
- Opportunity for multidisciplinary and holistic research approaches

### **Expand collaboration**

- Joint MariFish call
- Expand collaboration to RAC's and regional research councils
- Align funding cooperation with science cooperation

### **Common goals/infrastructure**

- Collaborate within key research areas
- Determine common research topics/priority areas and agree on a common objective for research management
- Share research facilities (reduce costs)

### **Sharing knowledge**

- Greater capacity to make changes
- Access to a wider expertise base
- Increased exchange of knowledge and ideas across borders

### **Cost effective funding issues**

- Avoid duplication through coordination of science programs
- Increased efficiency (added value) and better utilization of resources
- EU encourages collaboration (co-financing) §169, ERA-Net Plus

### **Excellence in Science**

- Better and more credible science
- Excellence in science through high level of competition
- Raise profile of fisheries research

## Threats

A lack of commitment or decreasing commitment was seen as one of the major threats to the future collaboration of national funders of marine fisheries research. In this respect the question arises how susceptible is this commitment to political and economic changes? Further concrete threats are the administrative, organizational and legislative problems to allocate funds for a joint research program. Yet before this step stands the difficulty to agree on research priorities and funding mechanisms. Others see a risk that national projects compete with collaborative projects and that large attractive research programs focus the attention neglecting local and small research programs. Concentrating research funds to common research projects may lead to a loss in diversity. Along this line is another interesting threat mentioned, namely that the reduced use of national languages in science communication may reduce the credibility of science.

### Commitment

- Domination of stronger partners
- National budget cuts/changes of funding priorities
- Lack of or decreasing interest/enthusiasm

### National interests

- National interests outweigh common interests
- Competition between national projects and collaborative projects
- Susceptibility to political and economic changes

### Structural/Administration

- Administrative, organizational and legislative problems to allocate funds to a common pot
- Disequilibrium of national research budgets
- Communication problems – language, culture, etc.

### Common pot

- No commitment to share funds
- Difficulty to agree on priorities, funding mechanisms, common pot
- Lowest common denominator will be funded

### Research subjects

- Concentrating research funds to common projects leads to a loss in diversity
- Key stakeholders (fishery sector) do not participate
- Different views of research, i.e. basic research versus monitoring tasks

### Scaling problems

- Focus on large and attractive research programs risks to neglect local and small programs
- Joint calls have broad focus in vain of integrating everything with insufficient funding
- Less use of national language in science communication reduces the credibility of science

### Resources

- Lack of infrastructure to undertake cooperation

### Sharing data

- Ownership of results could impede data sharing

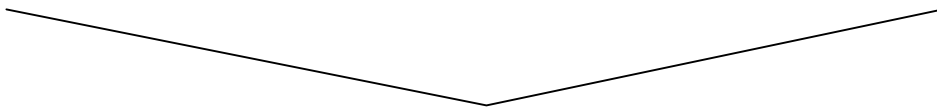
#### 4.2.2 Recommendations and Practical Guidelines

Following the SWOT analysis the plenary was again split up into breakout groups, which were asked to formulate recommendation and practical guidelines to improve collaboration of national funders of marine fisheries research on the basis of the previously acquired knowledge. Thereby the breakout groups focused on three regional areas: (1) international waters, (2) the North Sea and (3) the Baltic Sea.

##### **International Group:**

The emphasis of the international group was clearly on the development of a common research priority setting process with the help of external experts and advisers from the major fisheries research and fisheries management organizations.

- Identify thematic research areas that require large-scale collaboration, e.g. climate change, ecosystems
- Invite key international players to the research priority setting processes and seek their advice in general (ICES, ICCAT, NAFO, GFCM, RACs [international])



to align thematic research areas from MariFish partners  
and international organizations ⇒ WP6

##### **North Sea Group:**

The North Sea group worked out more detailed and elaborated recommendations. Similar to the international group, one of the recommendations was the identification of a common research program. Practical guidelines include the identification of common research priorities, inviting a representative group of scientists to draft a proposal for a joint research program, preparing a realistic plan for a call for proposals and to start with a call for proposals that is broadly accepted and of high significance, if there will be more than one call for proposals. In the meantime MariFish partners are asked to communicate strategic research priorities and to work towards a common funding model. In order to overcome the negative connotation of ‘common pot’ the North Sea group suggests finding a new euphemism.

**Networking and practical parts:**

- Improve cooperation on RV funding coordinated by ICES
- Network (Nordic Council approach)
- Make sure that funding for data series on biological changes/climate is available

**Commitments:**

- Biding rules  $\Rightarrow$  ERA-Nets rules long-term

**Communication:**

- Lobby in EU
- Newsletter on paper & press release
- Inform about MariFish (folders)
- Exchange information on national research programs and calls
- Increased publicity (“too good to ignore”)

**Extend MariFish:**

- Create a subgroup of funders to create additional funds for ecosystem research

**Funding Model:**

- Find euphemism for common pot
- Identify MariFish partner funding rules and propose common funding model

**Links to others:**

- Collaboration with North Sea RAC
- Strong coordination with ICES
- Learn from others, e.g. BONUS
- Establish links between Funders and ICES science planning process

**Common calls/identify research program:**

- Discuss ideas for a joint program
- Prioritize topics that benefit most from wider collaboration (like international group)
- Identify common research priorities
- Ask a representative group of scientists to draft a proposal for a joint research program
- If there will be more than one call for proposals, start with one that is broadly accepted and of high significance
- Prepare a realistic plan for a call for proposals + time schedule and ask the SC to check if this is feasible for everyone

**National preparing:**

- Pinpoint common issues
- Lobby at home
- Communicate strategic research priorities
- Working towards a common pot on national level
- Agreed research areas/priorities

**Baltic Group:**

The Baltic group laid particular emphasis on building on experience from BONUS, respectively the BONUS Baltic Sea Science Plan and member country information acquired during the implementation of BONUS. Of particular interest was the recommendation to include other ministries in MariFish. The background behind this recommendation is that the ecosystem approach to fisheries management calls for a broad

collaboration, e.g. Ministries for Environment, Ministries of Fisheries, etc. And last but not least the Baltic group recommends including the remaining European countries in the Baltic region, i.e. Latvia, Lithuania and Estonia.

- Include information about research funded by other institutions (use BONUS information)
- Get other ministries to join MariFish  $\Rightarrow$  Fisheries Ecosystem Approach calls for broad collaboration
- Use BONUS fisheries research theme to support other regional studies
- Need to include Latvia, Lithuania, Estonia (fisheries interests, funding structure?)

## **5 Discussion**

At first the status quo of contemporary collaboration of major national funders of marine fisheries research is evaluated. Before discussing practical issues how collaboration of funders in the field of marine fisheries research may be improved the question arises, if the shortcomings of the contemporary system are met by the objectives of MariFish or not.

### **5.1 Evaluation of Collaborative Linkages**

The analysis of international, European and regional collaboration in Table 2 to 5 presents a heterogeneous picture of collaboration of national funders of marine fisheries research. Basically, the country is partner of any of the relevant regional organizations and not single funding bodies. The exact type of collaboration remains vague, thus the four tables provide a basis but have no further relevance for the analysis of collaboration of funders of marine fisheries research. This is in particular related to the fact that the tables do not provide any relevant information concerning the type of participation and/or the content being discussed. The crosses in Table 2 to 5 may either represent an organization or that a scientist of that organization participates in the regional organization's meetings and working groups. In terms of participation this covers the number and position of the actors, respectively if the participant is the person in charge of funding. In terms of content this relates to the fact that it is unclear if funding issues were discussed at all. As a result the Tables 2 to 5 act as an orientation about collaboration and require further investigations by the relevant national MariFish partners.

The heterogeneous structure of national funders has various consequences for the identification and evaluation of collaborative linkages. When focusing on fisheries research and management for example, research councils have little collaborative linkages. Exemplary are the few collaborative linkages, other than the Nordic Council, at regional level of the research councils (MariFish partners) in Norway, Sweden and Iceland (Table 4). This may be attributed to the fact that these research councils focus on marine environmental research and its funding and leave research on fisheries management to the respective ministries (non-partners), exemplified through the higher incidence of collaborative linkages (cf. country profiles in the Annex). On the other hand these research councils and the national ministries are consistently represented in the Nordic Council (Table 4). However, when focusing on other levels, research councils very well have strong collaborations. This incidence highlights the strict separation between applied (ministry) and basic science (research council). Thus in northern Europe

the question remains, if the Nordic fisheries bodies should be stronger involved in MariFish? In this respect the northern workshop was a milestone, since representatives of northern fisheries bodies participated in the workshop (see Appendix 7.3.1).

In some countries the ‘major’ national funders of marine fisheries research, with collaborative linkages inside the marine fisheries research sector, are not partners in MariFish. Identifying existing international, European and regional collaboration not necessarily means that these collaborations involve MariFish partners. However, to fulfill the research objective identifying where more effective linkages are required and subsequently building on the strengths of existing collaborations, relevant collaborations and partnerships in fisheries management were assessed and depicted.

### 5.1.1 Strengths

According to the MariFish proposal, MariFish aims to “(...) *link with and influence existing coordination and collaborative systems (...)*”. On international scale the Intergovernmental Oceanographic Commission (IOC) represents an example, providing a framework and mechanisms for implementing international research programs such as GOOS and GLOBEC, in which, however, fisheries plays a minor role.

Exemplary for the encouragement of collaboration to improve fisheries management in the Mediterranean is the Food and Agricultural Organization (FAO). Thereby the FAO acts as implementing agency of several regional research projects in the Mediterranean area.

At the European scale the EU itself represents a major funder of marine fisheries research. This is laid down in the 6<sup>th</sup> Framework Program, which among other research areas prioritizes: “*Fisheries and Aquaculture - Towards sustainable development of fishing and aquaculture activities*”.

The Directorate-General for Fisheries and Maritime Affairs (DG Fish) corresponds to a forum that has the potential to integrate MariFish partners funding marine fisheries research, since all EU countries participating in MariFish are represented. However, this does not include Norway and Iceland. DG Fish further portrays the administrative structure under which MariFish countries meet in pursuit of their European obligations. The Data Collection Regulation (DCR) is such an example, where member states are co-funded by the Community to collaborate in and coordinate multi-annual data collection programs. DG Fish brings together national correspondents for the DCR, directors of the relevant institutes (EFARO list) and directors of national fisheries administrations to discuss the data collection framework according to:

*“Member States and the Commission shall co-ordinate and co-operate to further improve the reliability of scientific advice, quality of the work programmes and working methods of international scientific bodies and scientific bodies belonging to regional fisheries organizations.*

*This coordination and cooperation shall take place without prejudice to open scientific debate and shall aim to promote impartial scientific advice.”*

Regional coordination of the Data Collection Regulation is achieved through Regional Coordination Meetings (RCM's). The RCM's agreed that identifying areas for standardization, collaboration and cooperation between member states on a more regional basis will increase the efficiency, effectiveness and integration of the various DCR National Programs. The four main areas for regional coordination are the Baltic Sea,

North Sea, Atlantic shelf and the Mediterranean waters. Thereby the North Sea RCM has made considerable progress by incorporating Norway to be able to participate as an equal member of the group. Thus DG Fish's DCR is exemplary for regional coordination of national research programs and bringing together not only scientists from different countries but also national funding bodies of marine fisheries research (Table 3).

The European Fisheries and Aquaculture Research Organization (EFARO) is another example of a European organization that brings together many MariFish partners and non-partners (Table 3). Of particular interest is the fact that EFARO has been the main driver in the initiative to create MariFish and thus shares the MariFish objective to promote scientific cooperation in the field of fisheries research. However, EFARO focuses on cooperation on working level and not funding level.

The ESF-Marine Board has been recognizing the need for improved coordination between European marine research institutes and funding organizations for over 10 years. At the same time it recognizes the need for the development of a European strategy for marine research. Therefore it has proposed a strategy for marine science in Europe integrating research areas in a holistic approach. The key priorities for marine research and recommendations to improve integration are formulated in the position paper *Integrating Marine Science in Europe* (BOISSONAS et al. 2002). Although this report incorporates the whole bandwidths of marine science, parts of it relate to marine fisheries research in line with the MariFish objective. That ESF has the capacity to implement such ambitious research programs it has demonstrated successfully when setting up the European Collaborative Research Programs (EUROCORES) in 2003. The aim of the EUROCORES programs is to enable researchers in different European countries to develop cooperation and scientific synergy in essential research areas (cf. IGBP 2006). Thereby ESF acts as coordinator of the international, multidisciplinary collaborative research programs. Each program attracts funds between 5 to 13 million euros that are directly provided from the national funding agencies. Extra funding for coordination and networking is provided by the ESF.

Next to the Regional Coordination Meetings (RCM) mentioned above the International Council for the Exploration of the Sea (ICES) represents the single most important 'system' that coordinates marine fisheries research on regional level in Europe – bringing together the majority of MariFish partners and some of the respective non-partners (Table 4). However, ICES does not cover the Mediterranean Sea. Yet, nearly all MariFish partners collaborate within ICES – except the countries solely fishing in the Mediterranean – whereas Greece has affiliated status. However, with regard to marine fisheries research the General Fisheries Commission for the Mediterranean (GFCM) represents a similar structure than ICES, bringing together the majority of MariFish partners in the Mediterranean. Both these 'systems' have the potential to coordinate funds from major national funders of marine fisheries research in Europe. Since ICES features the expertise planning and coordinating marine research activities of over 1600 scientists from 20 countries within its more than 100 working groups, it is well equipped to help in the process of setting up a joint research program that addresses deficiencies and avoids duplications. In this respect, ICES is in fact the body where the coordination of national research programs on a funders level could take place. The organizational implication is of particular interest in this context, because despite the relative large size of ICES it



represents a virtual organization itself – with a fixed staff of only 41 employees – which could be applied in a modified form to the objectives of MariFish.

Both intergovernmental fisheries management organizations NAFO and ICCAT comprise of an independent scientific council that is experienced in research collaboration and cooperation among different contracting parties – involving one third of MariFish partners (Table 4). Whereas ‘northern’ countries predominate in the Northwest Atlantic Fisheries Organization (NAFO), ‘southern’ countries are more collaborative linked in the International Commission for the Conservation of Atlantic Tunas (ICCAT). Thereby ICCAT takes a bridging function integrating MariFish partners from ‘northern’ and ‘southern’ countries (Table 5).

In a next step, the North Atlantic Salmon Conservation Organization (NASCO) and its respective research board formulate a jointly funded research program that is fitted to their own research needs and priorities – concentrating nearly half of all MariFish partners (Table 4). NASCO’s Structure of the International Salmon Research Program provides a detailed overview of the aspects that constitute a joint research program (see Annex 7.2). Thus the structure could serve as an operational framework establishing a set of ‘factors’ the MariFish participants need to keep in mind when implementing a joint research program.

The Nordic Council characterizes a well functioning inter-parliamentary organization that is deeply rooted in the Nordic culture. Cross-border networking, a minimum of formal restrictions and five committees that lay down the political themes exemplify the cooperation within the Nordic community. In the case of fisheries this is the Environment and Natural Resources Committee that works on environment, fishery and sustainable development issues. The simplified procedures within the Nordic Council from proposed ideas for political initiative to the implementations of recommendations could serve as an interesting example for cooperation and collaboration of MariFish partners (see Annex 7.2). On an organizational level the Council of Ministers for Fisheries and Aquaculture, Agriculture, Foodstuffs and Forestry has the general responsibility for Nordic fisheries cooperation. Within this council the Nordic Working Group on Fishery Research (NAF) provides advice and suggests new research projects. Of particular interest is that Nordic fisheries cooperation is initiated in as well as outside the EU, since only three of the five Nordic countries are members of the EU.

### **5.1.2 Deficiencies**

Existing collaboration as for example in the Data Collection Regulation (DCR) only cover single aspects of marine fisheries science such as fish stock assessment. In this context the assertion proves correct that the strongest impediment of effective collaboration of national marine fisheries research funders is simply the absence of some of these funding bodies in international, European and regional organizations. Thus findings from the questionnaires and personal interviews underline the MariFish statement that there is an “*absence of coordination between the funding bodies*”. Moreover, some countries participate in all of the selected international, European and regional organizations, yet none of the international, European and regional organizations integrate all of the MariFish partners. Quite the contrary, the regional organizations had to be divided into selected organizations of the North Atlantic and the Mediterranean to meet the regional distinctions. Although ICCAT has the potential to involve MariFish partners from

‘northern’ and ‘southern’ countries a number of MariFish partner countries have no membership at all.

To come a close second is the lack of accessible and available information concerning the type of ongoing collaboration in the area of marine fisheries research and funding mechanisms. This concerns questions about direct collaboration, formal or informal collaboration or collaboration on an ad hoc basis.

More important though is the question of the subject matter that is discussed during collaborative meetings. In general, the collected information on international, European and regional collaboration of major national funders of marine fisheries research does not specify the type of collaboration. The question arises, if the participation of a single scientist from any of the MariFish partners allows the assumption to be made that his or her competent funding body is collaborating? The answer in most cases is no. The fact that national funding bodies of marine fisheries research collaborate in international, European or regional organizations, does not necessarily imply that the funding of marine fisheries research is discussed. Quite the contrary, it may be assumed that in particular national Ministry of Fisheries, etc. – when coming together with other ministries – debate fishing quotas and other policies affecting fisheries management and trade. This is most likely the case in the European Directorate-General for Fisheries and Maritime Affairs (DG Fish). Although this is the only organization integrating all of the EU MariFish countries it predominantly focuses on EU Fisheries and Maritime Policy and does not include all MariFish partners.

The type of collaboration as discussed above is directly linked with the competent funding body. Thus the diversity of funding organizations plays an important role and challenges consensus on the level of funding bodies. This diversity is reflected in the fact that some of the MariFish partners are government ministries, some are departments within government ministries, some are research councils, and some are fisheries research institutes with a mandate to fund and implement marine fisheries research.

There is a danger that some of the participating funding bodies have assigned duties and responsibilities concerning the implementation of MariFish to subordinate working levels and fisheries research institutes. Furthermore, national memberships in international, European and regional organizations are often delegated to fisheries research institutes, which is not the same as research coordination on a funding level. Thus a threat to the future work of MariFish is the possible retreat of funding body representatives and the delegation of work to subordinate levels that do not have the power to decide on funding-related issues.

## **5.2 The Scientific Stance**

Discussions with scientists – working in the field of marine fisheries research – revealed that collaboration in contemporary marine fisheries research is strong and trans-national cooperation is the rule and not the exception. If questioned about potential improvements and major weaknesses in current marine fisheries research, scientists never mentioned a lack of collaboration between countries. Bringing together the major national funders of marine fisheries research as pursued by MariFish did not bear any advantages to them. The identified weaknesses in the current system in Europe from the view of the marine fisheries scientists were:

- **Too much work**, i.e. the general workload is continuously growing. Due to new findings and method developments in marine fisheries research, e.g. genetic determination of fish stock and their distribution, multi-species models and simulations and better understanding of ecosystem interactions demands are growing and new questions arise<sup>3</sup>. This development is further accelerated through a growing demand of policy makers to include and extend new aspects and priorities into scientific advice, such as environmental, socioeconomic and ecosystem dimensions to follow the Common Fisheries Policy (CFP) of the European Community based on the precautionary principle.
- **Too few scientists**, i.e. the array of new tasks within marine fisheries research is dealt with an overaged and continuously decreasing scientific community with only a few exceptions. This matter of fact is going to deteriorate as well, considering the pending retirement of scientists. Moreover, young scientists are increasingly scarce and the promotion of scientific education in the field of marine fisheries research and marine science in general has been neglected.
- **Lack of money**, i.e. some countries – although the majority is expecting no change or an increase of the national marine fisheries research budget - are experiencing budget cuts in marine fisheries research. However there is a perceived lack of money, since the available funds are distributed among the growing number of research fields. Furthermore, new research methods and equipment tie up substantial amounts of the research budgets and leave less money for employment and salaries adding to the two points mentioned above.

To ensure the ongoing work while at the same time expanding the scope to new research areas the research institutes (private and public) dealing with marine fisheries research apply for third-party funds from the EU. As a result, scientists get further tied up in the respective project duties and commitments with less time left for the actual basic work. Thus – from a marine fisheries scientist point of view – the MariFish objective to venture into new research areas that allow for the better management of fisheries is not a question about the lack of collaboration but a question about the personnel and financial resources available. An explanation of this discrepancy – again from the viewpoint of marine fisheries scientists – is the widening gap between national funders of marine fisheries research and the relevant marine fisheries institutes performing the work. While representatives of national funders rather have a policy background, representatives from marine fisheries institutes are marine fisheries scientists or marine biologists. As a result there is a lack of understanding of each other's work.

However, neither do these very general assertions apply to all of the MariFish countries and their specific situation, nor do all of the marine fisheries scientists agree with the statements above. Yet, assuming that this is a window onto reality of the current situation in marine fisheries research this information needs to be considered for the establishment and management of a joint research program under MariFish.

One could argue that marine fisheries scientists are nowadays already shaping the national research programs through presenting national research funders with a *fait accompli*, i.e. close collaboration across national borders. This may provide an incentive to major

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<sup>3</sup> A proximate indicator for the development of marine fisheries research and new research fields are the numbers and names of ICES working groups, which have grown considerably in recent years.

national funders of marine fisheries research to participate more closely in the future. An analogy is the connection of the existing bottom-up approach with a still to be developed top-down approach to enhance marine fisheries research in Europe. In this respect MariFish has already created an effect bringing together scientists and funders in the field of marine fisheries science and recognizing the lack of stakeholder-linkages between them. Despite the fact that some of the marine fisheries scientists do not see the benefit of MariFish, i.e. contributing to the personnel and financial resources, this is exactly where MariFish can give impetus to. Pooling resources and combining competencies in a collaborative approach is likely to bear good prospects developing a joint research program, which is jointly financed and implemented, according to the saying: “A sailor does not ask for fair wind. He learns how to sail” (GUSTAV LINDBORG).

### **5.3 Organizational Issues and Implications**

Factors like existing linkages and collaboration at the international, European and regional level are not only hard to detect and comprehend but least likely to be addressed in a satisfactory way. Furthermore, these findings are not transferable to the next MariFish partner country where other types of research institutions and funding mechanisms dominate and competency differs widely. The fact that major national funders of marine fisheries research have different backgrounds implies that they are divided into two arenas – science and policy. This is independent of existing national structures where scientists and policy makers jointly set the research agenda. Exchanging information and sharing knowledge to understand each other’s perspective can bridge the gap between scientists and policy makers. In order to engage in a collective decision-making process that combines the scientific and political frame of reference it is important to recognize that scientists and policy makers have different realities and perspectives, e.g. goals, attitudes towards information, languages, perception of time and career paths (CHOI et al. 2005). The stereotype scientist aims to advance science and his key activity is to publish papers. The stereotype policy maker aims to obtain popular support and his key activity is to put out fires, i.e. manage political crises. Both can exist and work effectively – together antagonistically or complementarily, whereas the latter describes a process in which both benefit (CHOI et al. 2005). Suggested solutions to encourage scientists and policy makers to work together include, the use of knowledge brokers (translational scientists), making organizational changes, defining research in a broader sense, re-defining the starting point for knowledge transfer, expanding the accountability horizon and acknowledging the complexity of policy making (CHOI et al. 2005). On a more practical level a study by INNVAER et al. (2002, cited in CHOI et al. 2005) revealed that the most commonly reported facilitators – concerning the use of research by policy makers – were (1) personal contact between scientists and policy makers, (2) timelines and relevance of research and (3) research that includes a summary with clear recommendations. On the other hand the most commonly reported barriers were (1) the absence of personal contact between scientists and policy makers, (2) lack of timelines and relevance of research and (3) mutual mistrust between scientists and policy makers.

Regarding the last paragraph, the two regional workshops have been a major step towards deepening contacts between the two stances – owned to the fact that MariFish partners (major national funders) are policy makers and scientists – and learning more about each other. Furthermore it was mutually agreed that it is important to strengthen the links

between stakeholders in the fishery sector, i.e. not only policy makers and scientists but also the fishermen. In addition, the outcome of a joint research program should be relevant to the same stakeholder groups. The workshops also revealed that participants, when asked to evaluate the collaboration of funders in marine fisheries research, highlighted organizational and administrative issues before mentioning the extension of collaborative linkages. This includes different priority setting processes, national relevance of the fishery sector, funding mechanisms and the variation of major national funders in MariFish. In particular the question how to fund and implement a joint research program of transnational research projects lead to heated discussions among the participants.

The European Commission's Directorate-General for Research (DG Research) expects under a joint research program setting up a common strategy, a joint work program, joint calls for proposals or tender, a common transnational evaluation system and a common plan for dissemination of results or experience. The Directorate-General for Research also envisages several possibilities how to fund joint research:

1. Each country pays for the participation of its own researchers and research activities (joint call with a virtual common pot).
2. Countries pool funds to finance research projects resulting from a joint call for proposals and according to commonly agreed evaluation criteria. This entails transnational flows of national funding (joint call with a common pot).
3. Mix of 1 and 2
4. Other forms of joint research funding not necessarily based on joint calls.

Experience has shown that not necessarily all ERA-Net partners participate in a joint research program. Moreover, the Commission demands indicators – as important reporting requirement – that attribute synergies and/or impacts to the ERA-Net action. DG Research notes that ERA-Nets do not provide any support for the research activities themselves, i.e. research is generally financed by national funding.

During the workshops MariFish partners generated several ideas with whom and how to develop more effective linkages. On international, European and regional level this were intergovernmental fisheries science and management organizations such as ICES, ICCAT, NAFO, Regional Advisory Committees (RACs), as well as ERA-Nets such as BONUS. Practically this referred to inviting representatives from these organizations to MariFish meetings to assist and give advice in the priority setting process.

During the Mediterranean workshop concern was expressed that GFCM is not well equipped – financially and operational constrained and as a result lacking support of its members – to play a significant role in improving the collaboration of marine fisheries research funders. Yet, recent developments in the European Commission have strengthened the administrative and financial basis of GFCM to make it operational. Furthermore regional projects within the Mediterranean have recently received financial support through the European Commission.

## 6 Conclusion

In general the type of existing collaboration of major national funders of marine fisheries research is difficult to obtain and the subject matter vague. This is particularly the case at the international level. Improving transparency in international and European decision-making structures concerning the funding of marine fisheries research is a necessity and will need to be followed up during the entire MariFish project.

On European level some collaboration exists within DG Fish concerning the common implementation of the DCR. However this applies only for the EU MariFish partners and excludes Norway and Iceland. In respect to the European level the EU's Sixth Research Framework Program plays a relevant role, since it aims to promote scientific cooperation at all levels through numerous research projects. EFARO is another example for establishing collaboration on European scale, although focusing on the scientific working level.

The most powerful material selective incentive available to EU MariFish partners – developing and funding a common marine fisheries research program – is European co-funding such as formulated in Article 169 of the EC Treaty. Thereby it should be noted that similar to the NordForsk example, MariFish partner countries have a stronger position in the competition for European research funding than each country has individually. Another factor supporting collaboration of national funders is that MariFish partners come from the same policy area. However major national funders are policy makers and scientists. In order to work together effectively it is important to recognize that scientists and policy makers have different realities and perspectives. This matter will be taken into account by a work package 1 initiative. MariFish partners already recognized the collective benefit deriving from collaboration by joining the MariFish ERA-Net, i.e. there is a willingness to collaborate. Tackling current, large-scale problems that require multidisciplinary and holistic research approaches such as illegal fishing, climate change, etc was seen as a major opportunity of improved collaboration in the future.

MarinERA follows a similar objective to MariFish with the exception that it encompasses the entire field of marine research instead of focusing on marine fisheries research, as is the case in MariFish. With a head start of one year, MarinERA provides a baseline study of barriers to cooperation and strategic activities how these barriers will be addressed. On the other hand MariFish has and will have answers where more effective linkages are required. The two ERA-Net projects complement one another, hence stronger linkages and cooperation between MariFish and MarinERA and sharing of knowledge through the exchange of lessons learned is expected to result in synergy effects. Exemplary for this cooperation is the newly established contact between BONUS and MariFish during the Baltic, North Sea and North Atlantic workshop. Especially for the Baltic region BONUS has developed a strong expertise manifested in its Baltic Sea Science Plan or BONUS – 169. It must be remembered that other ERA-Nets such as BONUS or MarinERA, as well as fisheries science and management organizations such as ICES, NASCO or GFCM have a wealth of knowledge and expertise that can be tapped into for developing the collaborative network within MariFish. Therefore one of the recommendations from the MariFish workshop participants was to develop a common research priority setting process with the help of external experts and advisers from the major fisheries research

and fisheries management organizations mentioned above. Practical guidelines include the common agreement on the priorities of a joint call for proposals.

Attention should be paid to the possible development of a top-down shift of project participants from funding level to working level. Instead attention should be directed towards scaling-up, i.e. the establishment of partnerships on higher system levels with decision-making power concerning the funding of marine fisheries research. In this respect a recommendation was to include other ministries in MariFish against the background that the ecosystem approach to fisheries management calls for a broad collaboration, e.g. Ministries of Environment, Ministries of Fisheries, etc.

A lack of commitment or decreasing commitment was seen as one of the major threats to the future collaboration of national funders of marine fisheries research. Further concrete threats are the administrative, organizational and legislative problems to allocate funds for a joint research program. And a threat perceived equally in both workshops was that focusing the attention on large, collaborative projects may lead to neglecting local and small research projects, i.e. national projects competing with collaborative projects.

Combined efforts to organize the joint funding of marine fisheries research bear a real potential to tackle priority areas, which require community-based solutions. In the meantime countries are asked to clarify how to fund joint research.

## Acronyms and Abbreviations

AdriaMed	Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea
ARMINES	Ecole des Mines de Paris
ASH	Acoustic Survey in the Norwegian Sea
BECAUSE	Critical Interactions Between Species and their Implications for a Precautionary Fisheries Management in a Variable Environment
BFAFI	Federal Research Centre for Fisheries (Germany)
BITS	Baltic International Bottom Trawl Survey
BMELV	Federal Ministry of Food, Agriculture and Consumer Protection (Germany)
BONUS	Baltic Organizations Network for Funding Science
BTS	Beam Trawl Survey
CEFAS	Centre for Environment, Fisheries and Aquaculture Science (United Kingdom)
CEVIS	Comparative Evaluations of Innovative Solutions in European Solutions in European Fisheries Management
CFP	Common Fisheries Policy
CIESM	International Commission for the Scientific Exploration of the Mediterranean Sea
CNRS	National Center for Scientific Research (France)
CopeMed	Advice, Technical Support and Establishment of Cooperation Networks to Facilitate Coordination to Support Fisheries Management in the Western and Central Mediterranean
DARDNI	Department for Agriculture and Rural Development Northern Ireland (UK)
DCMNR	Department of Communications, Marine and Natural Resources (Ireland)
DCR	Data Collection Regulation
DEFRA	Department for the Environment, Food and Rural Affairs (United Kingdom)
DEPM	Daily Egg Production Method
DFFAB	Directorate for Food, Fisheries and Agri Business (Denmark)
DFMR	Department of Fisheries and Marine Research (Cyprus)
DG	Directorate General
DRA	Danish Research Agency
DYFS	Demersal Young Fish Survey
EastMed	FAO Regional Project in Eastern Mediterranean
EC	European Commission
EFARO	European Fisheries and Aquaculture Research Organisations
EFIMAS	Operational Evaluation Tools for Fisheries Management Options
ENIB	Ecole Nationale d'ingénieur de Brest (France)
ERA	European Research Area
ESF	European Science Foundation
EurOcean	European Network of Excellence for Ocean Ecosystems Analysis
FAO	Food and Agriculture Organization
FISBOAT	Fisheries Independent Survey Based Operational Assessment Tools
FORMAS	Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning
FRI	Fisheries Research Institute (Greece)
FRS	Fisheries Research Services (UK, Scotland)
FSS	Fisheries Science Services (Ireland)
GENIMPACT	Evaluation of Genetic Impact of Aquaculture Activities on Native Populations
GFCM	General Fisheries Council for the Mediterranean
GLOBEC	Global Ocean Ecosystem Dynamics
GOOS	Global Ocean Observing System
GRICES	International Science and Higher Education Relation Office (Portugal)



GSRT	Ministry of Development – General Secretariat for Research and Technology (Greece)
HCMR	Hellenic Centre for Marine Research (Greece)
HELCOM	Helsinki Commission – Baltic Marine Environment Protection Commission
IBTS	International Bottom Trawl Survey
IBWAS	International Blue Whiting Acoustic Survey
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IEO	Spanish Institute of Oceanography
IFL	Icelandic Fisheries Laboratories
IFM-GEOMAR	Leibnitz-Institute of Marine Science (Germany)
IFREMER	French Research Institute for the Exploitation of the Sea
IGFS	Irish Groundfish Survey
ILVO	Institute for Agricultural and Fisheries Research (Belgium)
IMARES	Institute for Marine Resources & Ecosystem Studies (Netherlands)
IMO	International Maritime Organization
IN EX FISH	Incorporating the Extrinsic Drivers into Fisheries Management
INDECO	Development of Indicators of Environmental Performance of the Common Fisheries Policy
INDICANG	Indicating the Abundance and Distribution of the European Eel
INIAP/IPIMAR	National Institute for Agronomy and Fisheries Research/Research Institute for Marine Fisheries (Portugal)
INTAS	International Association for the Promotion of Cooperation with Scientists from the New Independent States of the former Soviet Union (NIS)
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IOR	Institute of Baltic Sea Fisheries (Germany)
IPIMAR	Research Institute for Marine Fisheries (Portugal)
IST	Information Society Technologies
IWC	International Whaling Commission
LNV	Ministry of Agriculture, Nature and Food Quality (Netherlands)
LOV	Laboratoire d'Océanographie de Ville (France)
MADRP	Ministry of Agriculture, Rural Development and Fisheries (Portugal)
MAPA	Ministry of Agriculture, Fisheries and Food (Spain)
MAR-ECO	Patterns and Processes of the Ecosystems of the Northern Mid-Atlantic
MariFish	Coordination of European Marine Fisheries Research
MarinERA	Facilitating the Coordination of National and Regional Marine RTD Programmes in Europe
MCTES	Ministry of Science, Technology and Higher Education (Portugal)
MEC	Ministry of Education and Science (Spain)
MEDITS	Mediterranean International Bottom Trawl Survey
MedSudMed	Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Straits of Sicily
MGV	Ministry of the Flemish Community (Belgium)
MI	Marine Institute (Ireland)
MIR	Sea Fisheries Institute (Poland)
MRI	Marine Research Institute (Iceland)
MSHE	Ministry of Science and Higher Education (Poland)
MUTFISHARE	Mutualisation on Fisheries and Aquaculture European Research Institutes (EFARO)
NAGREF	National Agricultural Research Foundation (Greece)
NERC	Natural Environment Research Council (United Kingdom)
NRM	Swedish Museum of Natural History

OSPAR	Commission for the Protection of the Marine Environment of the North-East Atlantic
PELMED	Mediterranean Small Pelagic Fish Acoustic Survey
Premecs II	Development of Predictive Model of Cod-end Selectivity
PROTECT	Marine Protected Areas as a Tool for Ecosystem Conservation and Fisheries Management
PUBERTIMING	Photoperiod Control of Puberty in Farmed Fish: Development of New Techniques and Research into Underlying Physiological Mechanisms
RANNIS	Icelandic Centre for Research
RCM	Regional Cooperation Meeting
RCN	Research Council of Norway
RPF	Research Promotion Foundation (Cyprus)
RTD	Research and Technology Development
SARDYN	Sardine Dynamics and Stock Structure in the North-east Atlantic
SEERAD	Scottish Executive Environment and Rural Affairs Department (UK)
SELAM	Socio-Economic and Legal Aspects of Aquaculture in the Mediterranean (CIHEAM)
SEPA	Swedish Environmental Protection Agency
SFB	Swedish Board of Fisheries
SFD	Sea Fisheries Department (Belgium)
SGPM	Fisheries Directorate (Spain)
SIBER	Silicate and Baltic Sea Ecosystem Response
SIPAM	Information System for the Promotion of Aquaculture in the Mediterranean
SMHI	Swedish Meteorological and Hydrological Institute
SNF	Danish Natural Science Research Council
STECF	Scientific, Technical and Economic Committee for Fisheries (EC)
TECAM	Technical Aspects of Mediterranean Aquaculture (CIESM)
TTQ Leonardo	Training for Traceability and Quality in the Capture Fish Industry of Europe
UNCOVER	Understanding the Mechanisms of Stock Recovery
UNESCO	United Nations Educational, Scientific and Cultural Organization
WEALTH	Welfare and Health in Sustainable Aquaculture

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## 7 Appendix

### 7.1 Country Reports

#### 7.1.1 Partner 1: United Kingdom

##### *Overview of the United Kingdom Fisheries Research System*

The Department for Environment, Food and Rural Affairs (DEFRA), the Scottish Executive Environment and Rural Affairs Department (SEERAD) and the Department of Agriculture and Rural Development Northern Ireland (DARDNI) are the major national funding bodies of marine fisheries research in the United Kingdom. Executive agencies are the Marine Fisheries Agency, the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and the Agro-Food and Biosciences Institute (AFBI). Minor funding bodies of fisheries research include the Natural Environment Research Council (NERC).

##### *International research programs and surveys*

- According to the EU Data Collection Regulations No. 1543/2000, 1639/2001 and 1581/2004 the United Kingdom carries out surveys with help of DEFRA; SEERAD; CEFAS; DARDNI; and the Scottish Fisheries Research Services (FRS), including:
  - International Bottom Trawl Survey (IBTS)
  - Mackerel and Horse Mackerel Egg Survey
  - International Blue Whiting Acoustic Survey (IBWAS)
  - Herring Acoustic Survey
  - Nephrops Underwater TV Survey
  - Deepwater Survey
  - Beam Trawl Survey (BTS)
- NERC participates in the ERA-Net project MarinERA and the EU project PROTECT.
- The University of Durham and the Southampton Oceanography Centre participate in the international project MAR-ECO within the Census of Marine Life.
- Scientists from the University of Portsmouth and CEFAS participate in the EU funded projects EFIMAS and UNCOVER.
- The University of Wales, Bangor participates in the EU funded project GENIMPACT and UNCOVER.
- The University of Liverpool is coordinator of the EU project IN EX FISH.
- CEFAS is partner of the EU funded projects BECAUSE, FISBOAT, PROTECT, and WEALTH.

#### Collaboration & Partnerships

##### *International*

- IOC: NERC
- IWC: DEFRA

##### *European*

- DG Fish: DEFRA
- EFARO: CEFAS
- ESF - Marine Board: NERC

*Regional*

- ICES: CEFAS
- NAFO: DEFRA
- ICCAT: DEFRA; CEFAS
- NASCO: DEFRA; CEFAS

### 7.1.2 Partner 2: Norway

#### *Overview of the Norwegian Fisheries Research System*

The Research Council of Norway (RCN) administers a part of the funds available for fisheries research, according to guidelines issued by the Ministry of Fisheries and Coastal Affairs. The Council is under jurisdiction of the Ministry of Education and Research. However, funds allocated to the RCN come from various ministries. Major funding, provided by the Ministry of Fisheries and Coastal Affairs, is designated to its Institute of Marine Research (IMR) and the Directorate of Fisheries, who carry out fisheries research and provide advisory services to policy making in the field of fisheries management.

#### *International research programs and surveys*

- Norway has a long history taking part in international surveys. At present IMR participates in the:
  - International Bottom Trawl Survey (IBTS) in the North Sea
  - International Acoustic Surveys
  - Herring Acoustic Survey
  - Herring Larvae Survey
  - Surveys on Pelagic Fish in the Norwegian Sea
  - Northeast Atlantic Pelagic Ecosystem Surveys
- Members of RCN are partners of the ERA-Net project MarinERA.
- IMR is further partner of numerous EU funded projects, including: BECAUSE, CEVIS, EFIMAS, FISBOAT, PROTECT, GENIMPACT, EUROCEANS, UNCOVER, WEALTH.
- And IMR together with the University of Bergen, is coordinating institution of the international research project MAR-ECO within the Census of Marine Life Network.

#### *Collaboration & Partnerships*

##### *International*

- FAO: IMR
- IWC: Ministry of Fisheries and Coastal Affairs
- IOC: IMR

##### *European*

- EFARO: IMR
- ESF – Marine Board: RCN

##### *Regional*

- ICES: IMR; Ministry of Fisheries and Coastal Affairs
- NAFO: Directorate of Fisheries - Ministry of Fisheries and Coastal Affairs
- ICCAT: Ministry of Fisheries and Coastal Affairs
- NASCO: Directorate for Nature Management - Ministry of Environment
- Nordic Council: RCN; Ministry of Fisheries and Coastal Affairs

### 7.1.3 Partner 3: Germany

#### *Overview of the German Fisheries Research System*

The Ministry of Food, Agriculture and Consumer Protection (BMELV) is the main national body funding fisheries research in Germany, which is carried out by the Federal Research Centre for Fisheries (BFAFI).

#### *International research programs and surveys*

- According to EU Regulation No. 1543/2000, 1639/2001 and 1581/2004 the German national fisheries data collection program is coordinated by the BFAFI and carries out the following surveys:
  - Baltic International Bottom Trawl Survey (BITS)
  - International Bottom Trawl Survey (IBTS)
  - Herring Acoustic Survey
  - Sprat Acoustic Survey
  - International Hydro-Acoustic Oceanic Redfish Survey
  - Blue Whiting Survey
  - Herring Larvae Survey
  - Beam Trawl Survey (BTS)
- The Project Management Organization Jülich (PTJ) is partner in the ERA-Net projects MarinERA and BONUS.
- Members of the University of Hamburg and the Leibnitz-Institute for Marine Research (IFM-GEOMAR) participate in the international project MAR-ECO within the Census of Marine Life.
- Further, members of the University of Hamburg and IFM-GEOMAR participate in the EU funded projects PROTECT and BECAUSE.
- BFAFI, IFM-GEOMAR and the University of Hamburg are partners of the EU funded project UNCOVER.
- The Heinrich-Heine University is partner in the EU project IN EX FISH.

#### *Collaboration & Partnerships*

##### *International*

- FAO: BMELV; BFAFI
- IOC: BMELV; BFAFI
- IWC: BMELV

##### *European*

- DG Fish: BMELV
- ESF – Marine Board: German Research Society (DFG); Helmholtz Association of National Research Centres
- EFARO: BFAFI

##### *Regional*

- ICES: BFAFI
- NAFO: BMELV; BFAFI
- NASCO: BMELV

#### **7.1.4 Partner 4: Netherlands**

##### *Overview of the Dutch Fisheries Research System*

The Fisheries Directorate within the Ministry of Agriculture, Nature and Food Quality (LNV) is the main national funding agency for fisheries research in the Netherlands. However, a subsidiary relationship exists between the Ministry of Agriculture, Nature and Food Quality and the Institute for Marine Resources and Ecosystem Studies (IMARES), from the Wageningen University and Research Centre (WUR), which carries out most of the fisheries research. Marginal funding to fisheries research is provided by the Ministry of Education, Culture and Science.

##### *International research programs and surveys*

- According to EU Council Regulation No. 1543/2000 and 1639/2001 the Netherlands national program for the collection of fisheries data is carried out in close collaboration between LNV as national coordinator and Wageningen IMARES collecting data and providing expertise. The following surveys are covered:
  - International Bottom Trawl Survey (IBTS)
  - Herring Acoustic Survey
  - Mackerel Egg Survey
  - Beam Trawl Survey (BTS)
  - International Blue Whiting Acoustic Survey
  - Herring Larvae Survey
- IMARES participates in the ERA-Net project UNCOVER.
- The Netherlands Organisation of Scientific Research (NOW) participates in MarinERA.
- Scientists from the Wageningen University and Research Centre participate in the EU funded projects CEVIS, EFIMAS, FISBOAT, IN EX FISH, PROTECT, and WEALTH.

##### *Collaboration & Partnerships*

###### *International*

- FAO: LNV
- IWC: LNV

###### *European*

- DG Fish: LNV
- DG Research: LNV
- EFARO: IMARES
- ESF – Marine Board: NOW; Royal Netherlands Academy of Arts and Sciences

###### *Regional*

- ICES: LNV; IMARES



### 7.1.5 Partner 5: Sweden

#### *Overview of the Swedish Fisheries Research System*

The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS) is the major national fisheries research funding body under the Ministry of Sustainable Development, the Ministry of Agriculture, Food and Consumer Affairs and the Ministry of Education, Research and Culture. Close second is the Ministry of Agriculture, Food and Consumer Affairs, which allocates funds for fisheries research to its subordinate Swedish Board of Fisheries (SBF) respectively the Institute of Marine Research (IMR).

#### *International research programs and surveys*

- Within the European Common Fisheries Policy (CFP) regulated in Council Regulation (EC) No. 1543/2000, 1639/2001 and 1581/2004 scientists of the SBF participate in surveys including:
  - Baltic International Trawl Survey (BITS)
  - International Bottom Trawl Survey (IBTS)
  - Acoustic Surveys
- FORMAS is partner of the ERA-Net project BONUS.
- The University of Umea is partner of the international research project MAR-ECO within the Census of Marine Life.
- The University of Goteborg is partner in the EU funded projects PROTECT and WEALTH.
- The University of Lulea participates in the EU funded project CEVIS.
- The University of Stockholm is partner in the EU project IN EX FISH.
- SBF is partner of EFIMAS and PROTECT.

#### *Collaboration & Partnerships*

##### *International<sup>4</sup>*

- IOC: Swedish Meteorological and Hydrological Institute (SMHI)
- IWC: Ministry of Sustainable Development; Swedish Museum of Natural History (NRM)
- FAO: SBF

##### *European*

- DG Fish: SBF
- ESF – Marine Board: Swedish Research Council under the Ministry of Education, Research and Culture
- EFARO: SBF

##### *Regional*

- ICES: SBF; IMR; Ministry of Agriculture, Food and Consumer Affairs
- NAFO: SBF
- NASCO: Ministry of Agriculture, Food and Consumer Affairs; SBF
- Nordic Council: Ministry of Agriculture, Food and Consumer Affairs; FORMAS

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<sup>4</sup> Organizations are appointed by the Ministry of Agriculture, Food and Consumer Affairs to represent Sweden in these collaborations. There is good communication between the ministry and appointed organizations.

### **7.1.6 Partner 6: Iceland**

#### *Overview of the Icelandic Fisheries Research System*

The Icelandic Ministry of Fisheries is the major national funding body financing fisheries research. The majority of government expenditure is directly allocated to its subordinate Marine Research Institute (MRI). The Icelandic Centre for Research (RANNIS) is the second biggest funder of marine fisheries research and reports to the Ministry of Education, Science and Culture.

#### *International research programs and surveys*

- MRI participates in international surveys, including:
  - Surveys on Pelagic Fish in the Norwegian Sea
  - Northeast Atlantic Pelagic Ecosystem Surveys
  - International Hydroacoustic Surveys
- MRI is partner of the international project MAR-ECO within the Census of Marine Life.
- MRI is partner in the EU funded project BECAUSE and IN EX FISH.
- The Icelandic Fisheries Laboratories (IFL) is partner in the EU funded project GENIMPACT.
- The University of Iceland participates in the EU funded project CEVIS.

#### *Collaboration & Partnerships*

##### *International*

- IOC: MRI
- IWC: MRI; Ministry of Foreign Affairs

##### *European*

- ESF – Marine Board: RANNIS
- EFARO: MRI

##### *Regional*

- ICES: MRI
- NAFO: MRI; Directorate of Fisheries - Ministry of Fisheries
- ICCAT: Ministry of Fisheries
- NASCO: Directorate of Freshwater Fisheries – Ministry of Agriculture
- Nordic Council: Ministry of Fisheries; RANNIS

### 7.1.7 Partner 7: France

#### *Overview of the French Fisheries Research System*

The Ministry of Research is the major national funding body of marine fisheries research in France, with minor funds coming from the Ministry of Agriculture and Fisheries and the Ministry of Ecology and Sustainable Development. Recipient is the French Research Institute for the Exploitation of the Sea (IFREMER) responsible for the implementation of the national research programs on behalf of the French authorities.

#### *International research programs and surveys*

- According to EC Regulation No. 1543/2000, 1639/2001 and 1581/2004 the national data collection program is carried out by IFREMER involving the following surveys:
  - International Bottom Trawl Survey (IBTS) in the North Sea
  - Channel Ground Fish Survey
  - Sardine-Anchovy-Horse mackerel-Mackerel Acoustic Survey
  - Blue Whiting Survey
  - Mediterranean International Trawl Survey (MEDITS)
  - Mediterranean Small Pelagic Fish Acoustic Survey (PELMED)
  - Tuna Tagging
- IFREMER participates in the ERA-Net projects MarinERA.
- Members of IFREMER participate in the EU funded projects BECAUSE, EFIMAS, EUROCEANS, PROTECT, and UNCOVER.
- Scientists from IFREMER, the University of Lille and LOV (Laboratoire d'Océanographie de Ville) participate in the international research project MAR-ECO within the Census of Marine Life.
- Among other institutes IFREMER participates in the EU funded project INDICANG and GENIMPACT.
- Scientists from IFREMER and ARMINES (Ecole des Mines de Paris) participate in the EU funded project FISBOAT.
- Scientists from IFREMER and ENIB (Ecole Nationale d'ingénieur de Brest) participate in the EU funded project Premecs II.

#### *Collaboration & Partnerships*

##### *International*

- FAO: IFREMER
- IOC: IFREMER

##### *European*

- DG Fish: IFREMER
- EFARO: IFREMER
- ESF – Marine Board: IFREMER; National Center for Scientific Research (CNRS)

##### *Regional*

- ICES: IFREMER
- GFCM: IFREMER
- NAFO: IFREMER
- ICCAT: IFREMER

### **7.1.8 Partner 8: Denmark**

#### *Overview of the Danish Fisheries Research System*

The Directorate for Food, Fisheries and Agri Business (DFFAB) within the Ministry of Food, Agriculture and Fisheries is the main national funding agency of fisheries research in Denmark, which is implemented by the Danish Institute for Fisheries Research (DIFRES).

#### *International research programs and surveys*

- According to EC Regulation No. 1543/2000, 1639/2001 and 1581/2004 the national program for the collection of fisheries data is carried out by DIFRES, DFFAB and the Danish Institute of Food Economics, who participate in the following surveys:
  - International Bottom Trawl Survey (IBTS)
  - Baltic International Trawl Survey (BITS)
  - Herring Acoustic Survey
  - Acoustic Survey in the Norwegian Sea (ASH)
  - International Blue Whiting Acoustic Survey
  - Beam Trawl Survey (BTS)
- The Danish Agency for Science, Technology and Innovation is partner in the ERA-Net project BONUS.
- Members of DIFRES and the Institute for Fisheries Management & Coastal Community Development (IFM) participate in the EU funded projects CEVIS, EFIMAS and UNCOVER.
- Members of DIFRES participate in the EU projects BECAUSE, CONSENSUS, EUR-OCEANS, IN EX FISH, INDECO, NECESSITY, PROTECT, Premecs II, SEAFOODPLUS and, UNCOVER
- The Zoological Museum is partner of the international research project MAR-ECO within the Census of Marine Life.

#### *Collaboration & Partnerships*

##### *International*

- IOC: DIFRES
- IWC: Ministry of Foreign Affairs

##### *European*

- DG Fish: DFFAB
- ESF – Marine Board: Danish Natural Science Research Council
- EFARO: DIFRES; Institute of Agriculture and Fisheries Economics

##### *Regional*

- ICES: DFFAB; DIFRES
- NAFO: Faroe Islands Department of Foreign Affairs; Greenlandic Department of Fisheries and Hunting
- NASCO: Faroese Ministry of Fisheries and Maritime Affairs; Greenlandic Department of Fisheries and Hunting; Danish Ministry of Foreign Affairs
- Nordic Council: Ministry of Food, Agriculture and Fisheries; DIFRES

### 7.1.9 Partner 9: Portugal

#### *Overview of the Portuguese Fisheries Research System*

The main Portuguese funding agencies for fisheries research are the Ministry of Agriculture, Rural Development and Fisheries (MADRP) and the Ministry of Science, Technology and Higher Education (MCTES). The main recipient is the National Institute of Agronomy and Fisheries Research INIAP/IPIMAR constituted by two units – agro/rural (INIAP) and fisheries (IPIMAR), responsible for implementing and managing research as well as representative of national and international commissions.

#### *International research programs and surveys*

- Members of IPIMAR participate in surveys required for the Common Fisheries Policy concerning EC Council Regulation No. 1543/2000, 1639/2001 and 1581/2004 including:
  - Western International Bottom Trawl Survey (IBTS)
  - Mackerel and Horse Mackerel Egg Survey
  - Sardine, Anchovy and Horse Mackerel Acoustic Survey
  - Sardine Daily Egg Production Method Survey (DEPM)
  - Flemish Groundfish Survey
  - Tuna Tagging
- IPIMAR participates in the EU funded projects EFIMAS, IN EX FISH and SARDYN.
- The Foundation for Science and Technology (FCT) is the representative body of MCTES in the ERA-Net project MarinERA and the EU funded project EUROCEANS.
- IPIMAR is member of the international project MAR-ECO within the Census for Marine Life.

#### *Collaboration & Partnerships*

##### *International*

- FAO: IPIMAR
- IWC: University of Lisbon; Institute for Nature Conservation
- IOC: IPIMAR

##### *European*

- DG Fish: IPIMAR
- ESF – Marine Board: International Science and Higher Education Relation Office (GRICES)
- EFARO: IPIMAR

##### *Regional*

- ICES: IPIMAR
- CIESM: IPIMAR
- NAFO: IPIMAR
- ICCAT: IPIMAR

### **7.1.10 Partner 10: Poland**

#### *Overview of the Polish Fisheries Research System*

The Ministry of Science and Higher Education (MSHE) is the main national funding agency for fisheries research in Poland. The primary recipient is the Sea Fisheries Institute in Gdynia (MIR), which is under the supervision of the Ministry of Agriculture and Rural Development. Of secondary importance is the Institute of Oceanology of the Polish Academy of Sciences (IO-PAS).

#### *International research programs and surveys*

- The Polish national program for the collection of data in the fisheries sector according to EC Regulations No. 1543/2000, 1639/2001 and 1581/2004 is carried out by MIR and the Department of Fisheries of the Ministry of Agriculture and Rural Development including:
  - Baltic International Bottom Trawl Survey (BITS)
  - Herring Acoustic Survey
  - Sprat Acoustic Survey
- MIR is further partner of the following 5<sup>th</sup> and 6<sup>th</sup> FP projects: BECAUSE, CEVIS, EFIMAS, ELME, EUROCEANS, FISBOAT, INDECO, IN EX FISH, PROTECT, TTQ Leonardo and UNCOVER
- Members of MSHE and IO-PAS are partners of the ERA-Net projects MarinERA and BONUS.

#### *Collaboration & Partnerships*

##### *International*

- IOC: IO-PAS
- FAO: Ministry of Agriculture and Rural Development

##### *European*

- DG Fish: Ministry of Agriculture and Rural Development
- ESF – Marine Board: IO-PAS
- EFARO: MIR

##### *Regional*

- ICES: MIR; Ministry of Agriculture and Rural Development
- NAFO: Ministry of Agriculture and Rural Development

### **7.1.11 Partner 11: Cyprus**

#### *Overview of the Cyprus Fisheries Research System*

The independent Research Promotion Foundation of Cyprus (RPF) is the major funding agency for fisheries research. Next to funding, the RPF develops and implements national research programs and promotes national and international collaboration of Cypriot researchers. Of minor importance, in terms of funding fisheries research, is the Department of Fisheries and Marine Research (DFMR) within the Ministry of Agriculture, Natural Resources and Environment.

#### *International research programs and surveys*

- According to EC Council Regulation No. 1543/2000 and 1639/2001 DFMR carries out the following surveys within the Cypriote national program for the collection of fisheries data:
  - Mediterranean International Trawl Survey (MEDITS)
  - Tuna Tagging

#### *Collaboration & Partnerships*

##### *International*

- FAO: DFMR
- IOC: DFMR

##### *European*

- DG Fish: DFMR
- DG Research: DFMR
- ESF – Marine Board: DFMR
- EFARO: DFMR

##### *Regional*

- GFCM: DFMR
- CIESM: DFMR
- ICCAT: DFMR

### **7.1.12 Partner 12: Greece**

#### *Overview of the Greek Fisheries Research System*

Fisheries research is mainly funded by the General Secretariat for Research and Technology (GSRT) under the jurisdiction of the Ministry of Development. The GSRT supervises and distributes funds to the most important public research centres in the field of fisheries and aquaculture, such as the Hellenic Centre for Marine Research (HCMR). Minor funding is provided by the Ministry of Rural Development and Food. Recipient is the National Agricultural Research Foundation (NAGREF) in particular the Fisheries Research Institute (FRI).

#### International research programs and surveys

- According to the EU Data Collection Regulations No. 1543/2000 HCMR and FRI carry out surveys, including:
  - Mediterranean International Trawl Survey (MEDITS)
  - Anchovy Daily Egg Production Method (DEPM)
  - Tuna Tagging
- GSRT funds international bilateral projects under bilateral agreements with various countries
- GSRT is partner of the ERA-Net project MarinERA.
- HCMR participates in the EU funded projects EFIMAS, FISBOAT and WEALTH.
- Scientists from the HCMR and the Aristotle University of Thessalonica (AUTH) participate in the EU funded project GENIMPACT.

#### *Collaboration & Partnerships*

##### *International*

- IOC: HCMR

##### *European*

- DG Fish: Ministry of Rural Development and Food
- DG Research: GSRT
- EFARO: HCMR
- ESF – Marine Board: HCMR

##### *Regional*

- ICES: HCMR
- GFCM: Ministry of Rural Development and Food
- CIESM: HCMR
- ICCAT: HCMR



### **7.1.13 Partner 13: Ireland**

#### *Overview of the Irish Fisheries Research System*

The Marine Institute (MI), under the aegis of the Department of Communications, Marine and Natural Resources (DCMNR), is the single major funding body promoting and implementing fisheries research in Ireland.

#### *International research programs and surveys*

- Under the European Data Collection Regulation No. 1543/2000 the Marine Institutes, Fisheries Science Services (FSS) participates in the following surveys:
  - International Blue Whiting Acoustic Survey (IBWAS)
  - Irish Groundfish Survey (IGFS)
  - Mackerel egg survey
  - International Bottom Trawl Survey (IBTS)
  - Nephrops Underwater TV Survey
  - Deep-water trawl survey
- Members of MI participate in the ERA-Net project MarinERA.
- MI is member of the international project MAR-ECO within the Census of Marine Life.
- The University College Cork (UCC) is partner of the EU funded project GENIMPACT.
- And MI participates in the EU funded projects EFIMAS, EUROCEANS and PROTECT.

#### *Collaboration & Partnerships*

##### *International*

- IOC: MI
- IWC: Department of Foreign Affairs

##### *European*

- DG Fish: MI
- ESF – Marine Board: MI
- EFARO: MI

##### *Regional*

- ICES: MI
- NAFO: MI
- ICCAT: MI; DCMNR
- NASCO: MI; DCMNR

### **7.1.14 Partner 14: Belgium**

#### *Overview of the Belgium Fisheries Research System*

The Ministry of the Flemish Community (MGV) and in particular its Department for Agriculture, Fisheries and Rural Development is the major national funding body of marine fisheries research in Belgium. Within the Department for Agriculture, Fisheries and Rural Development the Administratie Landbouw en Visserij (ALV) is the highest coordinating administration for R&D activities in relation to fisheries. Responsible for the implementation of fisheries research is the Institute for Agricultural and Fisheries Research (ILVO-Fisheries) and its respective Animal Science Unit – Fisheries.

#### *International research programs and surveys*

- According to EC Regulation No. 1639/2001 and 1581/2004 the national program for data collection involves the:
  - Demersal Young Fish (and Brown Shrimp) Survey (DYFS)
  - North Sea Beam Trawl Survey (BTS)
- ILVO-Fisheries participates in the EU funded project EFIMAS.

#### *Collaboration & Partnerships*

##### *European*

- DG Fish: ILVO-Fisheries
- ESF – Marine Board: Belgium National Fund for Scientific Research (FNRS)
- EFARO: ILVO-Fisheries

##### *Regional*

ICES: ILVO-Fisheries

### **7.1.15 Partner 15: Scotland**

#### *Overview of the Scottish Fisheries Research System*

The Scottish Executive Environment and Rural Affairs Department (SEERAD) is the major funder of fisheries research, which is implemented through its Fisheries Research Services (FRS).

#### *International research programs and surveys*

- As part of the wider UK effort in support of the European Common Fishery Policy (CFP) the FRS participates in the following surveys:
  - International Bottom Trawl Survey (IBTS)
  - Mackerel and Horse Mackerel Egg Survey
  - International Blue Whiting Acoustic Survey (IBWAS)
  - Herring Acoustic Survey
  - Nephrops Underwater TV Survey
  - Deepwater Survey
- The University of Aberdeen and St. Andrews and the Scottish Association for Marine Science are members of the international project MAR-ECO within the Census of Marine Life.
- Scientists from the University of Aberdeen and FRS participate in the EU funded project UNCOVER.
- FRS participates in the EU funded projects FISBOAT, GENIMPACT, Premecs II, and WEALTH.
- Scientist from both the University of Aberdeen and FRS participate in the EU funded project BECAUSE.

#### *Collaboration & Partnerships*

##### *European*

- DG Fish: SEERAD; FRS
- EFARO: FRS

##### *Regional*

- ICES: FRS
- NASCO: SEERAD

### **7.1.16 Partner 16: Spain**

#### *Overview of the Spanish Fisheries Research System*

The Secretariat of State of Universities and Research under the jurisdiction of the Ministry of Education and Science (MEC) is the main funder of Spanish fisheries research. Recipients are several Universities and regional/national public research institutions, including the Spanish Institute of Oceanography (IEO), which is the most important public research organization devoted to fisheries and marine environment. An interministerial commission between MEC and the Ministry of Agriculture, Fisheries and Food (MAPA) ensures the collaboration and coordination in particular between the Fisheries Directorate (SGPM) of MAPA and IEO. The most important private research center in marine and food research is AZTI-Tecnalia, located in the Bask country.

#### *International research programs and surveys*

- According to the European Data Collection Regulation No. 1543/2000, 1639/2001 and 1581/2004 the IEO participates in numerous surveys, including:
  - International Bottom Trawl Survey (IBTS)
  - Mackerel and Horse Mackerel egg survey
  - Sardine, Anchovy and Horse Mackerel Acoustic survey
  - Mediterranean International Trawl Survey (MEDITS)
  - Tuna Tagging
  - Flemish Groundfish Survey
- MEC is the partner of the ERA-Net project MarinERA.
- Scientists from the University of Murcia and the Spanish National Research Council (CSIC) participate in the EU funded project WEALTH.
- The University of Oviedo participates in the EU funded project GENIMPACT.
- AZTI-Tecnalia participates in the EU funded projects CEVIS, EFIMAS and FISBOAT.

#### *Collaboration & Partnerships*

##### *International*

- IOC: IEO
- FAO: IEO
- IWC: IEO

##### *European*

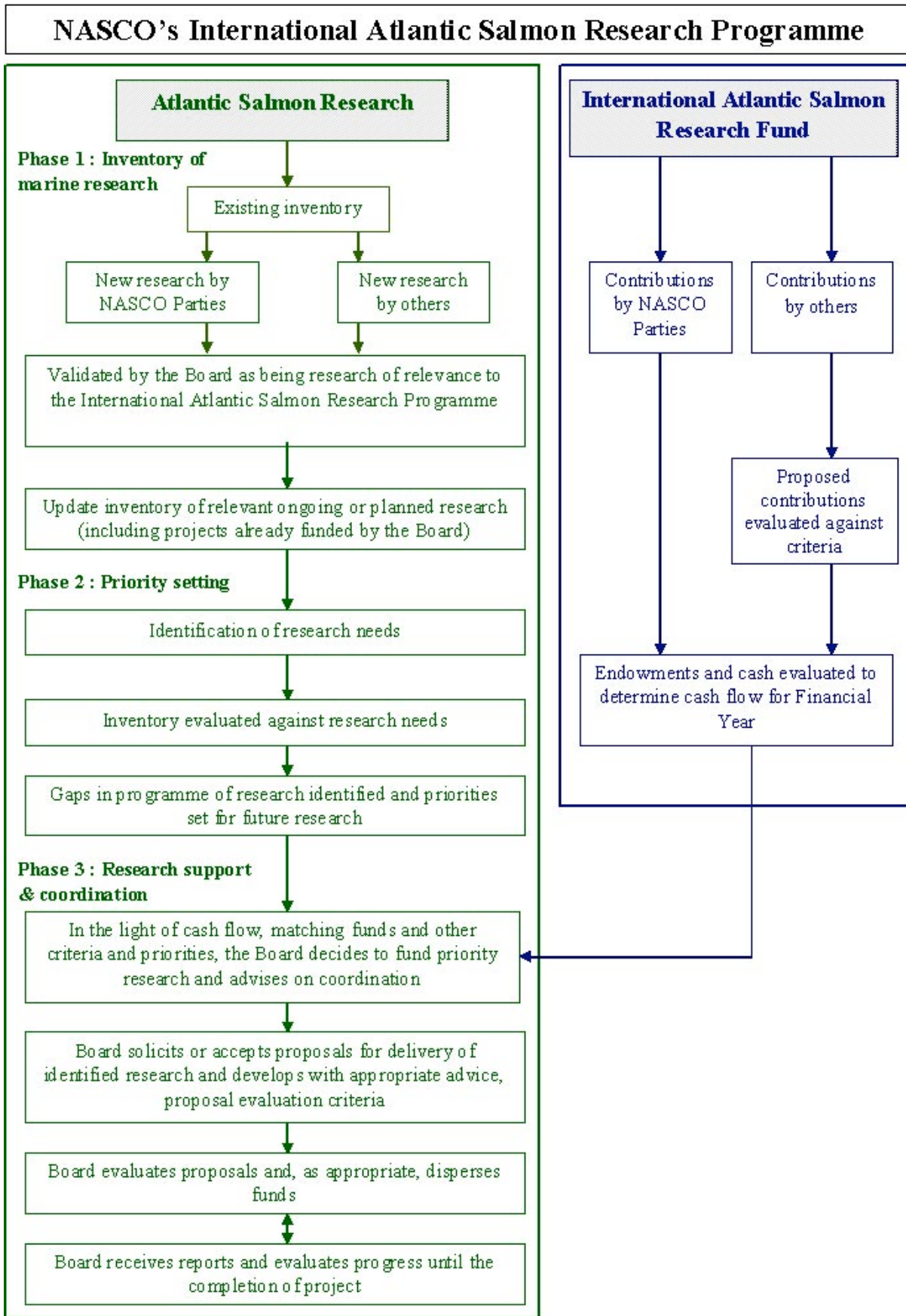
- DG Fish: IEO
- ESF – Marine Board: IEO
- EFARO: IEO
- Franco-Spanish cooperation between the Spanish Institute of Oceanography and the French Research Institute for the Exploitation of the Sea (IFREMER).
- Bilateral agreement between IEO and IPIMAR.

##### *Regional*

- ICES: IEO; AZTI-Tecnalia
- GFCM: IEO
- CIESM: IEO
- NAFO: IEO; AZTI-Tecnalia

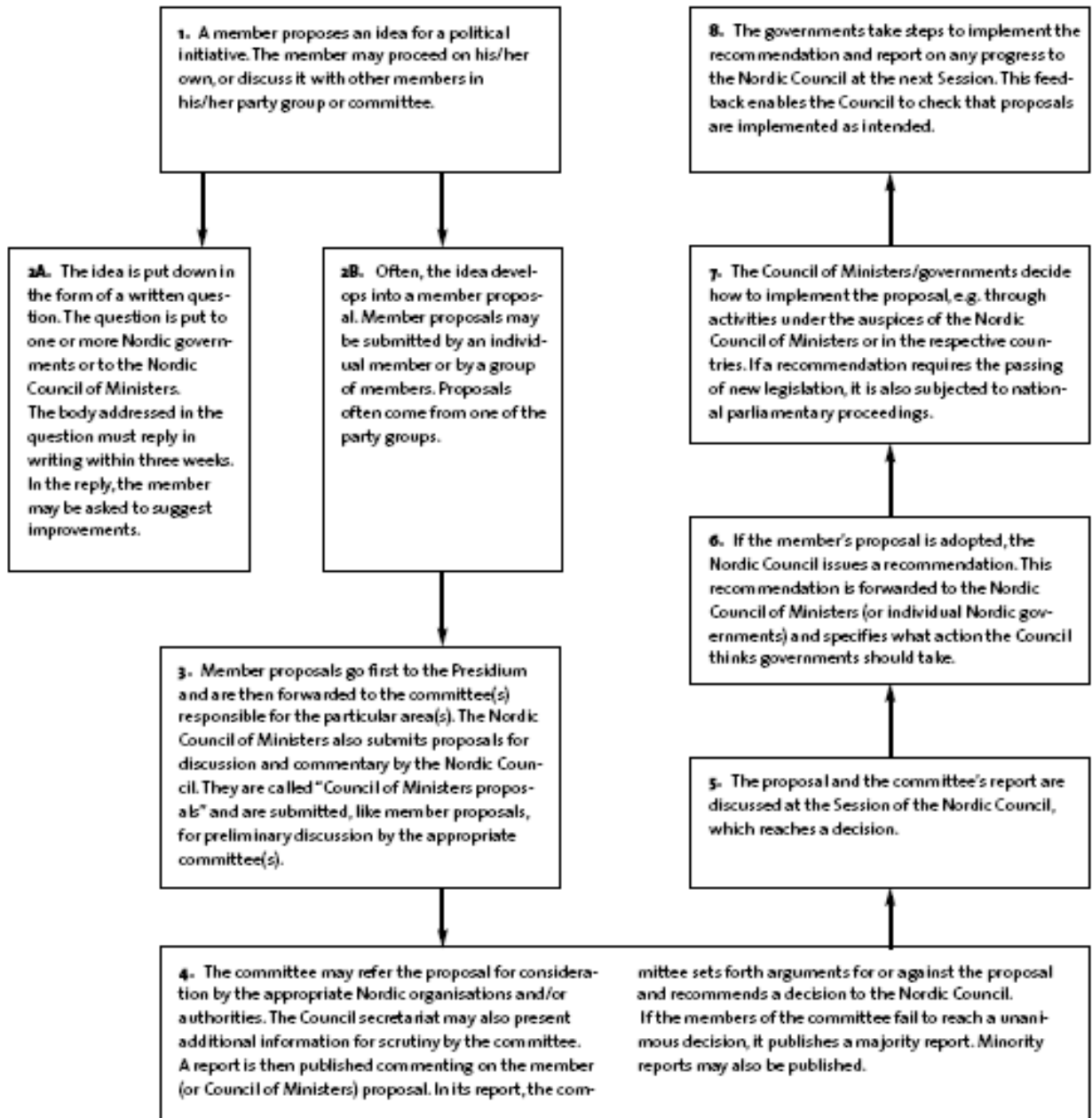
- ICCAT: IEO; AZTI-Tecnalia
- NASCO: SGPM

7.2 Research Frameworks and Procedures



## From idea to result

A simplified outline of Nordic Council procedures



## 7.3 Regional Workshops

### 7.3.1 List of Participants

#### Mediterranean Workshop

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## 7.3.2 SWOT Analysis of the Baltic, North Sea and North Atlantic Workshop

### Strengths

#### Existent collaborations

EU, ICES, NASCO, OSPAR, Helcom (Env. Ministers)  
 Funders already cooperate via ICES, EFARO etc.  
 Nordic collaboration – Nordic priority of research  
 EUROCORES  
 DCR – increased quality comparability & data exchange  
 Long standing cooperation on the working level (e.g. DCR)  
 There is already good collaboration in EU through the national correspondents for the data collection regulation → regular contact  
 Willingness to collaborate  
 Available structure (Institutions) ICES, EFARO  
 Nordic Council:

- minimizing duplication of research
- Forcing joint projects in the Nordic Countries

Indirect collaboration – Working to common goals of the CFP  
 Many funders' agenda influenced by a common policy of EU  
 Existing collaboration in ICES, NASCO, Nordic Council etc.  
 Commitment to work together  
 Demand for cooperation also from Industry & RAC's  
 LAT-EST-POL Joint cruises in the BALTIC  
 Some cross national projects funders exist! (North Sea)  
 ICES provides some co-ordination in deciding research priorities (e.g. new MoU with DG Fish)  
 ICES provides forum for collaboration & coordination  
 EU (DG RTD) has a mechanism of MS consultation to agree high level priorities  
 Participation in ERA-nets (MariFish, BONUS and MarinERA)  
 New data collection regulation (EU-DCR) provides forum for collaboration.  
 DCR experience

#### Content

Similar geographically coverage  
 Focus on important topics and challenges (e.g. climate change, eutrophication, sustainable harvest)  
 Lots of "common geographically areas" funders are interested in  
 It is accepted that collaborative work & funding will "add value" to programmes/projects  
 Many common strategies and priorities  
 Create enough momentum for research breakthrough  
 Provide science that underpin political action on topics that can only be solved across regions  
 Lots of common research areas in national strategy docs.  
 Larger programs  
 Effective marine spatial planning → Celtic Sea  
 Combating illegal unregulated unreported fishing  
 Discussing priorities together  
 EU level:

- FP7 define research priorities
- DG Fish evaluate proposals of member state consortiums

Potential for shared infrastructure lower costs  
 Avoids duplication of research  
 Cooperation Sweden-Finnish ministries funds:

- minimizing duplication (seals & birds)
- increasing research efforts in a common area

EFARO & DG Fish discuss research priorities especially in relation to FP programmes  
 EU – DG fish (STECF) has a mechanism for agreeing data collection priorities

#### Sharing resources/Infrastructure

Available funds  
 Access to scientists – Peer review  
 Stimulate cooperation between scientists in neighbouring countries  
 EU funds available to support national funding  
 EU funds (FP)  
 Data collection programme  
 DG-Fish  
 Additional funds to projects within EU  
 Better use of large infrastructure  
 The BONUS ERA-Net ends up in sharing research vessels & research stations. Reduces the risk of double work  
 Strengthening infrastructure  
 Sharing facilities e.g. ship time  
 Dividing responsibilities  
 Expedition to Antarctic (Nor, Swe, Fin)  
 Use the current network of scientists (ICES) in future collaboration

**Experiences communication**

A small community – people know each other  
 Good communication between us  
 Scientific community ↔ “basic collaboration”  
 A report of a collaborate study will probably be in (English) instead of in local languages. This is to be preferred  
 The surveys for the data collection regulation are done in regional collaboration where practicable  
 Better contact on research can also help when you like to talk about other issues  
 Regional collaboration in marine fisheries research can improve quality of research because more habitats/species can be included. It can be cheaper also, but not always  
 Contribute for a common knowledge base in neighbouring countries  
 Transparency – national policy  
 Sharing data  
 Tagging studies → collaboration → returns sharing catch data/log books informs management plans

**Weaknesses****Different priorities****“Short term” and “small-scale”**

Similar work repeated  
 No common management and research objectives in member states  
 Different priorities some very regionally or social priorities  
 Not same research priorities  
 National interests and politics! Dominate thinking!  
 Different national priorities  
 Differences in national priorities  
 National priorities are very different  
 No common pot (real or virtual) → no maximized collaboration  
 No formal collaboration  
 Different levels of importance of fishing issues  
 Difficult to predict sustainability of fishery industry (e.g. FP7)  
 Differences in national priorities  
 Overlap in research  
 Political agenda  
 Conflicting policy objectives  
 No political agreement to open national funding for international competition  
 No mechanisms of funding multinational programmes from national budgets  
 Draining national funding  
 National priorities overlooked  
 Divergence of the objectives stakeholders – research  
 Divergent goals funders – researchers  
 Communication internal & external  
 Overlap between different collaborations, where they partly geographically overlap  
 Funding dominated by short term (≤2 years) except data collection → Imbalance of applied – basic science  
 Scientists in competition with each other and do not wish to collaborate.  
 Different time schedules in programmes  
 Forcing less optimal research groups together due to “political” arguments

**Lack of common criteria and fora**

The big players dominate (i.e. those with the \$)  
 You are more vulnerable in the process because you depend on decisions in other countries  
 Not a common fora/table  
 Different criteria for evaluation → difficult to make an agreement  
 Lack of confidence in results from other funders

**“Formal obstacles”**

Different rules in countries  
 Large administration – slow processing  
 Collaboration cost more time in preparation  
 We don’t have everybody on board the “the research funders ship”  
 Legislation  
 Unwillingness of national funders to put their money in a common pool  
 Collaboration is depended on the willingness of government workers. New people may have no interest or new government/minister in the research program  
 Funding structures are different  
 Some countries are not partners of MariFish  
 Not political willingness to share funds  
 Structural difference of funders  
 Different legal rules  
 Legal obstacles at national level  
 Regional level:
 

- Absence of multinational funding
- National research council not open to ideas from other countries

 Lack of “harmonization” of national research programs

**“Low profile area”**

National infrastructure is weak in some areas  
 Marine programs compete with Agri/Biotech and others  
 Difficulties to raise funds for novel/risky projects  
 Few calls for joint programs  
 Low public awareness for needs of fisheries research

**Funding and lack of resources**

Research Vessel sharing  
 Lack of funding  
 No common pot

**Opportunities****Common goals / Infrastructure**

Improve infrastructure and long term commitment  
 Determine common research topics/priority areas (strategic)  
 Build on willingness to co-operate “provide the fora”  
 Learn from other ERA Nets (BONUS) Nordic Council  
 Share research facilities (reduce costs)  
 Determine and fill in gaps in data collection programs  
 Organise data sharing (abiotic, biotic, socio-economic)  
 Strengthening infrastructure  
 Collaboration within main/important topics  
 Pin-point large scale problems in common calls  
 Agree on common objectives for research & management

**Expand collaboration**

Using RAC’s as starting point  
 Attract Academia to fish research  
 Align funding co-operation with science co-operation  
 Regional research councils  
 Increased collaboration of funders  
 Systematic mechanism in place  
 Collaborate with other ERA-nets  
 Bring new partners  
 New DCR: Platform for coordination  
 Joint call within MariFish partners

**Sharing knowledge**

Increased understanding of needs through better information access  
 Greater capacity to make changes  
 Stronger lobbying opportunities if we stand united  
 Increased exchange of knowledge and ideas across borders  
 Increasingly common policy drivers e.g. climate change  
 Access to a wider expertise base  
 Upgrade of human resources (staff)  
 Added value  
 Share new ideas and research results  
 Increased cooperation among research groups  
 Learn from others (Benchmarking)  
 Use existing structures e.g. ICES efficiently

**Solving problems**

Opportunities for larger scale regional science  
 Possibility to fund larger and more complicated projects  
 Larger funds – Increased opportunities for larger scale projects  
 Big important problems can be addressed e.g. illegal fishing  
 Solving large-scale problems  
 Opportunities for multidisciplinary approach  
 More holistic approach  
 Addressing research questions to big for national funding  
 Outcomes of MariFish WP8  
 Agreeing on common research priorities  
 Ecosystem based fisheries management (CFP) encourages collaboration – different research fields can be connected in projects (biology/economics/social)  
 Fund bigger trans national projects (Impact of climate on fisheries)  
 Common problem of climate change impacts will bring us together  
 Fishery is a resource  
 Existence of common resources  
 Social demand of Best knowledge of Marine Resources

**Cost effective funding issues**

Expanding DCR into database/assessment coordination with increased budget  
 Avoid duplication by coordination of science programmes (2)  
 Reduced overlap  
 More efficient use of expensive research infrastructure  
 Increased efficiency of collaborative programmes, better value for money  
 More bang for your buck \$ "added value"  
 Efficiency  
 More Eu regulations which require collaboration e.g. data/monitoring requirements drivers for collaboration  
 Better utilisation of resources  
 Strengthening the national science community  
 Review of FP7  
 EU marine strategy (EMS)  
 Review of ERA-nets  
 BONUS 169 (-2009)  
 EU likes to stimulate collaboration – more co-finance possibilities from EU  
 EU is encouraging collaboration §169, ERA+

**Excellence in Science**

Simplification of governance structures  
 Better and more credible science  
 Better quality of resources → better understanding of ecosystem → more common knowledge  
 Opportunities for better outreach and education, best practice learning  
 Added value  
 High level of competition → excellence in science  
 Raise profile of fish research by coordinated funding  
 ESF Marine B + EFARO as coop. fostering → Lobbying

**Threats****Structural/Administration**

Increased bureaucracy, slower decision making  
 Communication problems – language, culture  
 Bureaucratic thresholds  
 Decisions could take longer time – to many intermediate steps  
 Unequal opportunities  
 Lack of equilibrium among budgets  
 Bureaucratization of science  
 Administrative, organisational and legislative problems to allocate funds to a common pot

**Resources**

Political system  
 Lack of infrastructure to run the new cooperation

**“Common pot”**

Lowest common denominator for the priorities of funding  
 Not commitment to share funds  
 Not possible to agree priorities, funding, mechanism, common pot  
 Common pot – no money back  
 Nationalism  
 Common pot bridges  
 Those with no or limited funds will have no voice!  
 Alienation of “non-members”

**National interest**

The laws  
 Agreement upon criteria for evaluation  
 Different funding mechanism  
 Political sensitivities  
 Time and resources taken away from national priorities  
 Draining funds needed for national research/issues  
 National egoism  
 National interest stronger than common interest (priorities)  
 Desire to maintain own teams of experts  
 Competition with national projects (money – who is the winner?)  
 Political, economic – conditions change and funds dry up in some partners

**Sharing data**

Legislation  
 I.P. sharing data  
 Ownership to results from research/use of results

**Commitment**

Increased domination of stronger partners  
 No collaboration  
 Lack of (loosing) interest  
 Less national funding  
 Reduced budgets because of changing priorities  
 Changing of funding priorities  
 Other use of the sea, limitation of fisheries research budget  
 Drift of human resources  
 No long term commitment  
 Politically sensitive issues will not get funded  
 Time & resource pressures mean quality of collaborative project suffers  
 The products of the cooperation are poor of quality or too much delays  
 MariFish partners loose interest in collaboration  
 Decrease commitment from partners  
 The enthusiasm in the SC or MC dies because of whatever reason

**Scale problems (loose regional focus)**

Less use of national languages in science communication reduce credibility of science  
 Funding call addressing everything in vain to integrate everything with insufficient funds  
 Focus on large and attractive programmes – lose the local and the small ones  
 Reduced budgets leading to greater local (national) form  
 Regional versus European wide – Advice generation will be regional to ensure sufficient funds  
 Overselling continuous in fish science

**Research subjects**

To much focus on collaboration can result in less “novel” science  
 To much focus on opportunistic research areas – streamlining  
 Young scientists – recruitment failure  
 Focusing of research money to common applied projects i.e. loss of diversity  
 Fisheries decline  
 Less understanding of marine ecosystems  
 Unemployment at traditional fisheries communities  
 Wastage through excessive international bureaucracy, complexity of national and regional bodies with funding responsibilities  
 Declining economic importance of fisheries leading to decreasing research funding  
 Fisheries management failures  
 Different views on what research really is. basic research versus monitoring and assessment  
 Industry (fishery sector) not involved  
 Mismanagement of natural living resources  
 Industry out of discussion

## **7.4 Marine Fisheries Research Funding and Cooperation in the Mediterranean Region**

### **Overview of marine fisheries funding in Mediterranean member states**

#### **Cyprus**

The Cyprus research framework and activities mainly developed in the last 10-15 years. The current expenditure for research is 0.4% of the GDP and around 27.9 million CYP (2004) aiming to reach 1% by the year 2010. The main agency responsible for funding fisheries research in Cyprus is the Research Promotion Foundation (RPF). The agency was founded in 1996 as an NGO. Research in Cyprus is organized centrally through a dedicated agency. Such scheme is considered adequate for modern national research management, since it prevents confusion, bureaucracy and high variation and diversity in research goal setting and fund management. On the other hand, it requires an effective and broad system of receiving input of stakeholders regarding their needs and perspective on research objectives.

The research funding system in Cyprus is built around cycles – initially 3-year cycles and recently 4-year cycles - starting in 1998 (current cycle DESMI 2003-2007). Within each cycle, a number of RTD programs are planned based on 11 RTD programs covering various thematic areas (Technology, IST, Health, Economy, Environment, Humanities, Social Sciences).

The programs aim to:

- increase the competitiveness of enterprises
- strengthen research infrastructure and provide access to international research infrastructures
- develop the human potential in research - young researchers and Cypriot expatriate scientists
- enhance the international co-operation
- promote research culture

From those 11 programs emanate 34 specific research goals within 3 actions: thematic actions, specific actions and supporting actions.

The recognized constraining factors are:

- Low level of spending on Research - Inadequate financial contributions of the private sector
- Limited number and unsatisfactory distribution of researchers
- Rather insufficient research infrastructure
- Small size of the Cypriot economy and enterprises, which do not favor the development of industrial research
- Weakness in the priority setting system

Several possibilities exist for regional collaboration within the national research programs, providing that:

- Organizations from other countries are allowed to participate (as partners) in the RPF programs and receive funding
- Networking is funded by the Research Promotion Foundation, i.e. participation in events, conferences, seminars, visits to laboratories etc
- English language is allowed in some of the programs

## Greece

There are two main funders of research in Greece, the Ministry of Agriculture Development and Food and the Ministry of Development through its agency General Secretariat for Research and Technology (GSRT). These two ministries manage funds for fisheries research –among other thematic areas and topics.

The Ministry of Agriculture Development and Food manages the Operational Plan for Fisheries (EPAL). The OPF is elaborated by the Managing Authority of EPAL and has a duration of 5 years. EPAL is approved by the European Commission. The recent plan was for the period 2000-2006 and today the EPAL 2007-2013 is in the preparation stage ([www.alieia.gr](http://www.alieia.gr)). The EPAL program is financed by the 3rd Community Support Frame (European Union funds) and aims to support the industrial fisheries sector. The EPAL 2000-2006 composed of 6 thematic axes. EPAL covers all funds available for the fisheries sector (capture fisheries, inland fisheries, aquaculture and processing) and includes many measures targeting a great variety of themes (from early retirement of fishermen to fisheries infrastructure). Among those measures, are Measure 4.4 and 4.6 aiming to fund fisheries research and development projects. Measure 4.4 aims to cover projects that are

proposed and submitted by stakeholders in the fisheries sector (fishermen unions and associations etc.) while Measure 4.6 covers funds specifically for pilot, demonstration and innovative projects (fundamental and applied research).

The Ministry of Development through the General Secretariat for Research and Technology manages the Operational Program for Competition (EPAN; [www.antonistiki.gr](http://www.antonistiki.gr)). The EPAN program comprises of 8 thematic axes. Its main aim is to support the operational competitiveness of businesses, its participation and co-funding of research, technological progress of businesses, technology and know-how transfer to the private sector and the establishment of links between the research centers and institutes with the private sector. Among the various thematic axes and measures covered by the EPAN program, those with particular interest to fisheries research are: (a) Measure 4.5 'Research and Technological Development Consortia for National Priority Sectors' and (b) Measure 8.3 'Human Research and Technological Resources'. Measure 4.5 aims to support coordination activities between public research centers, institutes and universities with the private sector. Measure 8.3 aims to support the training and experience-gain of new research staff, the creation of staff positions for researchers in private companies, and other related subjects.

In addition to the main national research programs named above, there are also several opportunities to obtain fisheries research funds through other frameworks. These are the Inter-regional Structural Programs, INTERREG: INTERREG program (currently INTERREG III) a Community initiative, which aims to stimulate interregional cooperation in the EU between 2000-2006. The European Regional Development Fund (ERDF) finances the INTERREG program. INTERREG-Greece ([www.interreg.gr](http://www.interreg.gr)) was developed in order to enhance and support inter-regional cooperation between Greece and its neighboring countries as well as clusters of countries within the Mediterranean region. The INTERREG Authority of the Ministry of Economics and Finance manages INTERREG funds. INTERREG is composed of 4 packages from which the following have particular interest for fisheries research: (1) transboundary projects, (2) bilateral projects (CADSES, MEDOCC and ARCHIMED), (3) regional collaboration projects (SOUTHZONE, EASTZONE) and (4) other projects (ESPON and INTERACT). Fisheries research alone is not a priority for the INTERREG program. However, it is possible to receive funds for fisheries research within projects with a broader subject such as coastal oceanography, coastal zone management, socio-economic enhancement of rural areas etc. The last call of the program focused on the protection of coastal ecosystems (lagoons etc.).

All funds for research in Greece originate from the government (national budget) and the priority setting process is centrally organized (within the ministries) with the participation – usually limited - of other external advisors (researchers and/or university professors).

The main beneficiaries of research are:

- Hellenic Centre for Marine Research
- National Agriculture Research Foundation
- Fisheries Laboratory, Ministry of Rural Development and Food
- University of Athens
- University of Patras
- University of Thessaloniki

- University of the Aegean
- University of Thessaly
- University of Crete

In general no opportunities exist for regional cooperation within the current scheme of funding research regarding national funds, i.e. there seems to be limited opportunities (if any) for a non-Greek organization to receive national funds for research in Greece. However, there have been recent examples of foreign organizations, which received funds for research through the EPAL program (Ministry of Agriculture Development and Food) as coordinators of a project (University of Portsmouth, UK). However, extensive cooperation between Greece and Mediterranean member state organizations exists within externally funded projects (from European Union or other international donor). Other special funds for networking are not provided separately by the ministries.

### Spain

Research funding in Spain is rather diverse in terms of funding bodies. The main funding bodies are:

- Ministry of Education and Science responsible for promotion and general coordination of scientific research and technological innovation, ERA-Nets as well as research funding through the IEO (Instituto Español de Oceanografía)
- Ministry of Agriculture, Fisheries and Food responsible for fisheries management, funding of agreements and the national strategy on fisheries policy
- Other ministries (mainly for bilateral agreement frameworks)
- Public and private institutions which have their own – yet limited – budget, based on internal competitive processes of calls (IEO, AZTI, Universities, CSIC-National Research Council, ICM-MCI, IIM-MRI)

Research funding in Spain can be external through open calls for proposals announced by the ministries as well as internal within the various organizations such as IEO. In accordance to this scheme, research priority setting can be either external (based on national policy) or internal (based on specific perception and needs).

The assessment of the funding process in Spain at the funders level yielded the following conclusions:

- There is a good heterogeneity of funds and funders
- The process is complicated and confusing
- The research priorities seem divergent and not centrally coordinated
- Cooperation among funders is considered weak and there is a lack of coordination between commissions, agencies and committees responsible for setting goals and programs

There does not seem to exist clear opportunities for regional cooperation within the current scheme of funding research regarding the internal national funds, i.e. there seems to be limited opportunities (if any) for a non-Spanish organization to receive national funds for research in Spain. However, extensive cooperation between Spain and Mediterranean member state organizations exists within externally funded projects (from European Union or other international donor).