

**GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN**

**Report of the**

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**EXPERT MEETING TO IDENTIFY THE NEEDS FOR A SUBSIDIARY  
BODY ON THE TECHNICAL AND SOCIO-ECONOMIC ASPECTS OF  
AQUACULTURE IN THE MEDITERRANEAN**

**Santiago de Compostela, Spain, 2–3 June 2006**



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## **PREPARATION OF THIS DOCUMENT**

This document is the final version of the report approved by the experts attending the meeting, held in Santiago de Compostela, Spain, from 2 to 3 June 2006, to identify the needs for a General Fisheries Commission for the Mediterranean subsidiary body of the Committee on Aquaculture which would deal with the socio-economic and technical aspects of aquaculture in the Mediterranean.

## **ACKNOWLEDGEMENTS**

The document was prepared by Mr Raymon van Anrooy (FAO Development Planning Service, FIPP), rapporteur for the meeting, with support from Mr Alessandro Lovatelli (FAO Inland Water Resources and Aquaculture Service, FIRI), Technical Secretary of the General Fisheries Commission for the Mediterranean Committee on Aquaculture.

### **Distribution:**

Participants in the meeting  
GFCM mailing list  
FAO Fisheries Department  
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### ABSTRACT

The Expert Meeting to Identify the Needs for a Subsidiary Body on the Technical and Socio-economic Aspects of Aquaculture in the Mediterranean was held in Santiago de Compostela, Spain, from 2 to 3 June 2006. It was attended by eight experts from the region. The meeting was organized as a result of a process, comprising an external evaluation of the Committee on Aquaculture (CAQ) and its Networks, in 2004, and the endorsement by the General Fisheries Commission for the Mediterranean (GFCM) at its thirtieth session (January 2006) of a meeting of experts to identify the needs for a GFCM subsidiary body of CAQ which would deal with the socio-economic and technical aspects of aquaculture in the Mediterranean. The experts defined the terms of reference, priorities and *modus operandi* of such a subsidiary body. They also requested the fifth session of CAQ a) to endorse the establishment of the Coordinating Steering Group on Technical, Economic and Social Aspects of Aquaculture in the Mediterranean (TESAM) and the ad hoc working groups proposed, b) to present results to the Commission at its forthcoming session, c) to review and redefine the objectives and terms of reference of the GFCM CAQ in order to reflect more precisely the socio-economic and technical issues that CAQ should handle for the Commission, d) to explore the possibility of a merger of the Environment and Aquaculture in the Mediterranean Network (EAM) and TESAM, to ensure a lighter cost-effective and efficient structure for CAQ subsidiary bodies, and e) to instruct the Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM) to start collecting more socio-economic, technical and research-related data and information to facilitate the work of TESAM. The meeting of experts was informed of the findings and recommendations of the Workshop on European Seabass and Gilthead Seabream Markets, that was held in Rome on 12 May 2006. Many of the recommendations from the workshop were translated into activities to be carried out by the ad hoc Working Group on Marketing as proposed by the Expert Meeting.

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## **OPENING OF THE MEETING**

1. The Networks on the Socio-Economic and Legal Aspects of Aquaculture in the Mediterranean (SELAM) and on the Technical Aspects for Promotion of Aquaculture in the Mediterranean (TECAM) were created in 1992 following a Mediterranean Regional Aquaculture Project (MEDRAP) decision. Both networks were active for a number of years in the 1990s. However, since the start of the new millennium, few activities were undertaken. Problems encountered in aquaculture planning, policy development, management, development, marketing, trade, technologies, innovation, education, and so forth, continue to be brought up at GFCM meetings by both private and public sector stakeholders through the Committee on Aquaculture (CAQ).

2. Following the outcome of the external evaluation of the CAQ and its Networks in 2004, the GFCM favoured that SELAM and TECAM activities be resumed. At its Thirtieth session held in January 2006, the Commission endorsed the organization of a meeting of experts to identify the needs for a GFCM CAQ subsidiary body which would deal with socio-economic and technical aspects of Mediterranean aquaculture.

3. The meeting of experts was held back-to-back with the fifth session of CAQ and was attended by eight experts from seven GFCM Member countries and one partner inter-governmental organization. All experts were invited in their personal capacity. Technical support was received from the FAO Development Planning Service (FIPP), and the Inland Water Resources and Aquaculture Service (FIRI). The list of participants and background information are included in this report as Appendixes B and C, respectively.

4. Mr Alain Bonzon, GFCM Executive Secretary, opened the meeting and welcomed the participants. Mr Alessandro Lovatelli, CAQ – Technical Secretary, served as Chairperson for the meeting. The Chairperson, called for a round of short introductions of the experts and then referred to the meeting prospectus, which was made available to the experts together with other background information, such as the above-mentioned “Background paper” (prepared by Mr Marco Magini); the typology of marine farms in the Mediterranean (prepared by Mr Olivier Brunel), the conclusions of the Sidi Fredj Workshop, Algiers 25–27 June 2005, on sustainable development of Mediterranean aquaculture, organized by The World Conservation Union (IUCN), and various other informative brochures.

## **ADOPTION OF THE AGENDA AND MEETING OBJECTIVES**

5. The Agenda as adopted with minor changes is attached to this report as Appendix A.

6. The Meeting of Experts had the following objectives: i) to bring together the relevant expertise and knowledge on issues related to socio-economic and technical aspects of aquaculture in the Mediterranean and Black Sea areas; ii) to identify the rationale, objectives, terms of reference and structure for a subsidiary body of CAQ on socio-economic and technical aspects of aquaculture in the Mediterranean and Black Sea areas, taking into consideration existing programmes, networks and institutional capacity available; iii) to set-up initial common priorities and activities on the basis of a medium-term programme of work for a CAQ subsidiary body on this subject; and, iv) to suggest the most appropriate institutional set-up and *modus operandi* for this subsidiary body.

## FUNCTIONING AND ROLES OF THE TECAM AND SELAM NETWORKS

7. The GFCM Executive Secretary provided a brief historical overview of the SELAM and TECAM network activities since their establishment, clarifying their initial objectives, highlighting some of their major achievements and the reasons for the limited success of networking since the beginning of the millennium. The experts were briefed on the *modus operandi* of the GFCM Scientific Advisory Committee (SAC) and the Committee on Aquaculture (CAQ), as well as on the current structure and relations between the CAQ networks and the Commission.

8. He further explained that although CAQ was fully operational, the GFCM Secretariat still required the services of a full time aquaculture officer to assist the Secretariat in its coordination work and pending such decision was relying upon support from the FAO Fisheries Department. He referred to the difficulties that the TECAM and SELAM networks had encountered as a result of the fact that the contributions in terms of technical assistance, time and financing were mostly voluntary and that the commitments to the two networks has recently been somewhat limited. The institutionalization of TECAM and SELAM as one new network (preliminary called TESAM) as a subsidiary body of CAQ, was considered as essential in order to ensure a revival of the GFCM work in the technical and socio-economic aspects of aquaculture in the Mediterranean.

9. Mr Raymon Van Anrooy made a presentation on the potential for a subsidiary body on the technical and socio-economic aspects of aquaculture. He referred to the background documentation and, in particular, the findings of the Ad Hoc Meeting of Experts on the External Evaluation of the CAQ and its Networks<sup>1</sup> which was held in Rome in March 2004. Weaknesses and strengths of TECAM and SELAM were presented as well as constraints and opportunities for the establishment of TESAM. He also listed a number of areas in which a new subsidiary body would be able to play a positive role, such as i) alleviating the lack of experience/skills in essential disciplines (business planning, record keeping, marketing, etc.); ii) contributing to the improvement of education in aquaculture; iii) increase access to financial services (credit and insurance); iv) support the modernization/development and application of innovative techniques; v) make information on latest aquaculture developments more widely available; vi) increase coherence in policies, planning and legal aspects of aquaculture; and vii) assist in the establishment of an effective aquatic animal health management and monitoring scheme.

10. Mr Van Anrooy further argued that a new subsidiary body would be able to i) assist in the implementation of the European Community (EC) strategy for the sustainable development of European aquaculture and national strategies and plans in a collaborative manner; ii) further the implementation of the relevant Articles of the Code of Conduct for Responsible Fisheries as a joint effort; iii) ensure that the views and opinions of aquaculture stakeholders reach policy/decision-makers at the national and regional levels; iv) pilot test innovative approaches and technologies in Mediterranean aquaculture; v) inform policy-makers of constraints encountered in the development of sustainable aquaculture in the GFCM area; and vi) support access to investment in feasible aquaculture technologies and systems strengthening the competitiveness of the sector. He also listed a number of

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<sup>1</sup> The Report of the Ad Hoc Meeting of Experts on the External Evaluation of the CAQ and its Networks, Rome, 29-30 March 2004, was published as FAO Fisheries Report No 770. It can be found on the internet at: <ftp://ftp.fao.org/docrep/fao/007/y5865b/y5865b00.pdf>

comparative advantages of TESAM, including i) the possibility to directly address policy-makers and decision takers through GFCM; ii) the opportunity to advice on issues that are of regional importance and cannot be dealt with by countries individually; iii) chance to contribute to a more equal playing field; iv) the direct links with ongoing projects in the Mediterranean through GFCM. The discussion which followed the presentation centred around the shortage of funds in support of the activities which were foreseen to have taken place under the old networks, the limited funds for socio-economic research in aquaculture at national level, the influence of the global market on aquaculture production in the Mediterranean, the increasing size of farming enterprises and the lack of mobilization on regional aspects of Mediterranean aquaculture by national governments.

## **KEY PRESENTATIONS BY INVITED EXPERTS**

11. A presentation on the problems, opportunities and innovations in the sustainable development of open sea cage aquaculture was given by Prof. José de Lara Rey of the Universidad Politécnica de Madrid (UPM), Spain. The presentation provided a description of the aquaculture sector which, despite a number of innovations, currently faces some weaknesses and threats, such as:

- limited diversification (species);
- limited or expensive technologies;
- need for investigations in engineering;
- environmental impact;
- conflicts and competition with other sectors;
- scarce suitable inshore locations;
- aggressive environment in some cases; and
- live and delicate products.

12. He argued that part of the weaknesses and constraints to development can be solved through moving towards open sea aquaculture. Open sea cage culture has the following advantages compared to current coastal aquaculture:

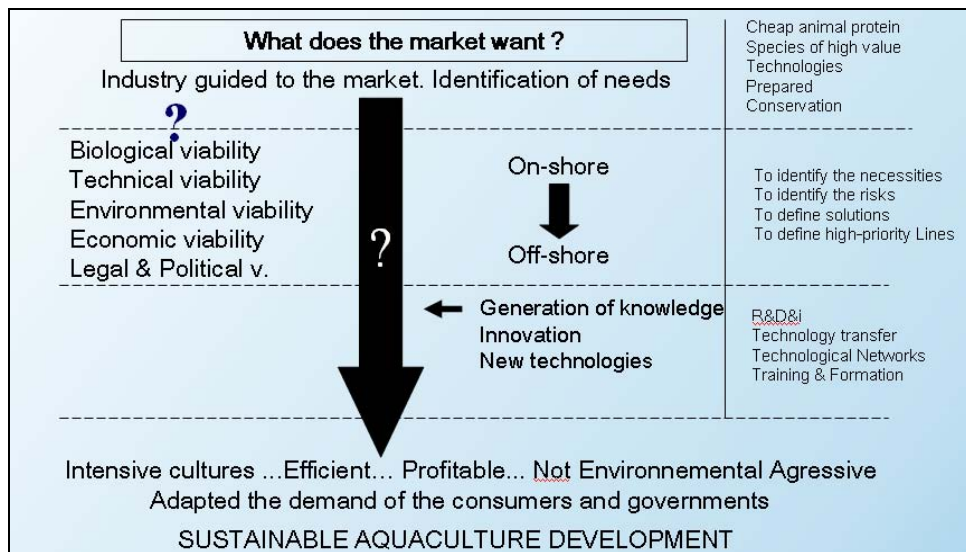
- better possibilities to access the sites;
- possibility of change and rotation of emplacements;
- better culture conditions and higher yields;
- possibility of diversification of species and polyculture development;
- environmental improvements;
- diversification of risks; and
- improvement of the profitability through economies of scale.

13. The speaker then listed a number of problems that may arise from open sea aquaculture development, among others:

- increased distance to the harbour-land bases;
- large volumes of supplies: crafts and platforms of support;
- more severe oceanographic conditions;
- changes required in cage design, nets and moorings; and
- needs for developing more complex and sophisticated equipment.

14. Given the above, he stressed the need to develop a strategy guided by the necessities of the market through which the generation of knowledge, new technologies, technology

transfer and collaboration among stakeholders would allow the sector to develop aquaculture in the open sea without high risks (Figure 1).



**Figure 1:** market guided aquaculture development

15. A fundamental objective of such a strategy for the development of aquaculture in the open sea should be the control and management of risks. The speaker described the numerous risks that aquaculture facilities in open sea are subject to. He classified these risks into three types: physical, biological and chemical: i) Physical, including the loss of physical or mechanical properties or collapsing of the structure or elements that conform it, net breakages, and failure of the mooring system; ii) Biological, including illnesses, pathologies and inadequate conditions in the marine environment (decreasing oxygenation, changes of salinity and pH, etc); and iii) Chemical, including marine contamination. The speaker then continued to discuss the specific problems of mooring systems in the open sea, causes for material and equipment failure and the research activities of the UPM related to open-sea aquaculture.

16. Mr José de Lara Rey listed the main objectives of the research carried out by UPM, which included:

- to establish strategies to control physical risks in aquaculture facilities;
- to develop and install specific instrumentation - prototypes - to measure in real time efforts and accelerations;
- to establish the interrelation among solicitations, environmental conditions of the environment, types of systems and deterioration of the elements that conform an installation;
- to determine the minimum requirements of design and identification of thresholds of failure conditions and collapse;
- to determine the life cycle of materials used in aquaculture;
- to develop mathematical models that establish the existent correlation between the quick aging and the natural one of the materials;
- to validate the results obtained in "towing tank" with physical models by means of behavioural tests at sea; and
- to validate a parametric mooring system.

17. The speaker finally informed the GFCM Secretariat that UPM would be willing to share information with other institutions, but that he foresees that many stakeholders in Mediterranean aquaculture could possibly demand for confidentiality; this would make it more difficult to share findings of research funded by the private sector. He added that when the research funds do not originate from the national government or the EC, the cooperation among research institutions was fairly limited in general.

18. A second presentation was delivered by Mr François Simard of The World Conservation Union (IUCN). He began with an overview of the history of IUCN and the establishment of the IUCN Centre for Mediterranean Cooperation in Spain in 2000. The goal of the centre is “to influence, encourage and assist Mediterranean societies in achieving both the conservation and sustainable use of natural resources, and sustainable development”. He then continued to detail the activities of IUCN in coordination with GFCM, the French institute for exploitation of the sea (IFREMER) and the University of Montpellier, the Federation of European Aquaculture Producers (FEAP) and some other parties in sustainable aquaculture. The speaker pointed out that sustainable development is based on the three following pillars: environmentally acceptable, socially equitable, and economically viable. He also discussed the precautionary principle, the basics of the ecosystem approach, and went on to list the principles of good aquaculture governance.

19. The speaker raised particular attention to the joint FEAP/IUCN Workshop on Sustainable Development of Aquaculture which took place in Algiers, June 2005. The conclusions of the Workshop should be considered as a base for discussion in order to build more precise guidelines for Mediterranean aquaculture ([http://iucn.org/places/medoffice/documentos/Aquaculture\\_sidi.pdf](http://iucn.org/places/medoffice/documentos/Aquaculture_sidi.pdf)). Mr Simard informed that an IUCN working group is currently preparing a set of guidelines for sustainable aquaculture for which a number of issues will be addressed, including criteria and indicators of sustainable development, monitoring, risk management, legal issues. The speaker indicated that there are clear synergies to develop between the work conducted by the GFCM, within the framework of its Committee on Aquaculture, and the Marine Programme of the IUCN Centre for Mediterranean Cooperation.

20. In the discussion that followed it was emphasized that the follow-up of the Algiers workshop should include a number of projects. One of these projects should focus on the development of indicators of sustainability for aquaculture. It was stressed that the GFCM was the sole body which can bind the Mediterranean countries to work towards the development and use of commonly agreed upon sustainability indicators for marine aquaculture.

21. The CAQ Technical Secretary presented the findings and recommendations from the SELAM/SIPAM Workshop on Seabass and Seabream Market Analysis, held in Rome on 12 May 2006. Summary conclusions of the Workshop can be found in appendix D to this report. The discussions which followed centred on recommendations made by the experts attending the marketing workshop and, in particular, on the demand for market information which cannot be met at present by SIPAM. Experts at the TESAM meeting took note of the second recommendation made by the marketing workshop, which reads as follows: “Marketing actions should be encouraged, in particular generic promotion of Mediterranean seabass/seabream, but without abandoning national/private campaigns. The promotion of domestic markets should also be increased”. It was argued that the image of aquaculture

products was something that should receive attention by both TESAM and EAM. Diversification of the Mediterranean aquaculture industry in terms of species, production systems and products for consumption were considered to be important aspects and whilst bearing in mind the demand and need to maintain dialogue with the society, appropriate attention should be given by TESAM.

22. Mr Francois René of IFREMER, France, gave two presentations at the meeting. The first presentation was entitled “Aquaculture and Society: facing our responsibilities in the Mediterranean for sustainable development”. This presentation began with a background overview of aquaculture growth in the world, followed by an analysis of the situation in the Mediterranean. He then listed the main bottlenecks for aquaculture development, which he considered to be the following:

- world shortage of fish oil in the short-term and of fish meal in the medium-term;
- access to space and water;
- sanitary safety and public health concerns;
- rise of energy cost; and
- poorer image of aquaculture products compared to wild products.

23. The speaker stressed that aquaculture sector stakeholders should face their responsibilities. He pointed out that currently the key factors affecting the development of the sector were the access to sites and markets and societies acceptance and stressed that sustainable aquaculture includes, economic viability, social acceptability and environmental compatibility. His second presentation was on “Aquaculture enterprise typology, problems and opportunities”. The presentation included data of a study carried out, in 2004, by the University of Stirling on aquaculture enterprise sizes. These data were coupled with an analysis of other aquaculture enterprise characteristics, such as production volume, ownership situation and source of investment. The speaker concluded that over the last two decades concentration in the sector has taken off, the variety in enterprise sizes is decreasing, and the production cycle for seabass and seabream has matured.

24. The analysis provided was welcomed by the experts. Issues that were brought to the table in the discussion which followed both presentations were among others: the increase in conflicts between aquaculturists and other resource users. It was acknowledged that water is a multi-functional resource and that aquaculture sector stakeholders have in general limited influence and power in processes where water access- and property rights are changing hands and zoning issues are being decided upon. It was further argued that it would be hard to avoid a pork cycle price behaviour in the aquaculture sector as filets can be obtained anywhere in the world. Profitability will be impacted and it is likely that further concentration will take place; innovation will therefore be under pressure.

25. With regard to zoning it was acknowledged that integrated coastal area management is generally proposed as a solution; although the number of stakeholders to be involved, with often conflicting interests, makes it almost impossible to function in theory. The experts believe that the chances that aquaculture loses out in any zoning exercise and integrated management planning, at present, is high. Governments often suggest that aquaculture can also develop out of sight, which in turn increases the risks and costs of the aquaculture entrepreneur. In addition it would increase the likelihood of conflict with capture fisherfolk.

## **SHORT PRESENTATIONS ON RESEARCH AND OTHER ACTIVITIES CARRIED OUT BY THE EXPERTS**

26. Short presentations were made by each of the experts attending the meeting. They highlighted their respective institutional and individual activities of relevance to technical and socio-economic issues and aquaculture in the Mediterranean for consideration within the framework of potential networking, coordination and future TESAM activities.

27. Mr Angel Dror of the National Center for Mariculture in Eilat, Israel, informed the experts that his institution focused in recent years on understanding the environmental impacts of seabream cage culture in the northern Gulf of Aqaba on the underlying sediment geochemistry and on the benthic biotic communities (meio and macro benthos, demersal fish, seagrasses, foraminifera). He described that the ongoing pan-European ECASA (EU FP6) project, aimed to identify indicators to measure the effects of aquaculture on the environment, and vice-versa, and use models to describe relationship between environmental conditions and aquaculture activities over a range of ecosystem conditions. He added that a new (EU FP6) project, SPICOSA, will focus on the use of a Systems Approach framework to generate decision support tools to assist European policy in finding sustainable solutions for coastal management, and in this context, the National Center for Mariculture will focus on the place of aquaculture in the respective coastal zone.

28. The speaker went on to stress that at the national level, aquaculture in Israel faces many of the same problems that reoccur in other Mediterranean countries, such as public perception (the general public image of aquaculture is negative, as a result of a lengthy intensive public debate on the matter), zoning (the coastal zone is claimed by many stakeholders), food safety and profitability of the sector, etc. He added that the bulk of aquaculture production takes place in land-based freshwater ponds; however there is a growing demand for marine species. He also said that Israel imports much more fish than it produces, underlining the fact that there is considerable room for growth of the aquaculture industry. With regards to marine aquaculture production Mr Angel Dror informed the experts of two commercial sea-based fish farms situated in the Gulf of Aqaba which produce the bulk of the local production of seabass/seabream. These farms are in the process of being phased out and a new offshore aquaculture zone for large-scale fin-fish production has been designated in the Mediterranean, five miles west of the city of Ashqelon.

29. Mr Ferit Rad of the University of Mersin, Turkey, began his brief presentation by explaining to the experts that his university only recently established a Faculty of Fisheries. The Department of Aquaculture of the Faculty of Fisheries devoted special efforts to contribute to sustainable development of aquaculture in the Eastern Mediterranean region of Turkey. Projects which have been carried out on economic and technical aspects of aquaculture on national and local bases included the following: Contribution for the establishment of a local database for SIPAM, Study of the market for aquaculture produced sea bass and sea bream species (national report prepared for University of Stirling, European Commission Project no. S12.359200) and Technical and economic survey of Rainbow trout farms in Mersin Province. Other projects that are currently operational relate to the identification of bacterial and parasite diseases in Rainbow trout farms located in Mersin and to integrated aquaculture (Sponge production and cage farming of seabass and seabream).

30. Mr Chadi Mohanna of the Institute of Oceanography and Fisheries, Lebanon, provided a short overview of the aquaculture situation in his country. He referred to the current practice

of trout eggs import from Denmark and problems with low retail prices for cultured trout. General constraints to aquaculture development in Lebanon are the lack of know-how, lack of public support, limited availability of bad weather protected areas, competition with the tourism sector, high land prizes, hostility of fisherfolk towards aquaculture and inadequate legal frameworks.

31. Mr Hassan Nhhala of the Institut national de recherche halieutique (INRH), Morocco, presented an overview of the marine aquaculture production in his country. He informed the experts that whilst the total marine fisheries production has reached approximately 1 million tonnes per year, the marine aquaculture quota did not exceed 0.2 percent of the national seafood production with a maximum recorded amount of 1 500 tonnes in recent years. Marine shellfish culture represents the oldest aquaculture activity, largely composed of oyster culture production in the lagoon of Oualidia. In recent years a slight increase in production has been observed in shellfish culture and diversification in terms of species (mussels, soft clam and scallop), sites (bays, offshore) and technologies (suspended culture). Marine finfish culture dependence on feed, equipment and in some cases fish fry imports remain constraints to the development of sea-bass and sea-bream; moreover the prices of these products were low in recent years. Consequently, three of the four existing marine finfish culture farms have already ceased their production and the remaining farm is still operational but continuously encounters high trade and marketing problems.

32. The speaker further mentioned that marine aquaculture in Morocco recently received greater consideration from the authorities. The INRH undertakes a number of aquaculture research activities, including local integrated aquaculture management of Dakhla Bay and Khnifiss Lagoon, the technological development of breeding process for new cultured species (mainly Atlantic bluefin tuna, red porgy, dentex and meagre) and the zoo-technical and economical optimization of the reared species.

33. Mr Lorenzo Venzi of the Università della Tuscia, Italy, described that 20 years ago aquaculture was considered a profitable activity, but that now constraints to further development are being encountered. He referred to the 17 different authorizations needed in Italy for the establishment of an aquaculture enterprise. He added that the time span required to pass through such a bureaucratic process was more than two years. He also mentioned that regulations were changing continuously and that there is often strong opposition from environmentalist groups to aquaculture activities. Mr Venzi then listed a number of opportunities for the aquaculture sector in the Mediterranean, such as increasing consumption of fish, the fact that the origin of the fish still plays an important role in the price setting at the market and the chances of new hybrid species in the market. He raised some doubts as to the actual production volume as a large part of the aquaculture production is probably not recorded as such and suggested that an input-output analysis of fish feed and consumption fish could clarify this. With regard to the work of the University of Tuscia, the speaker affirmed that most of the research was focused on marine capture fisheries activities, as well as research into the carrying capacity of and fishing effort in lakes. He also referred to the Seminar on the Economics of Aquaculture with respect to Fishery, which was organized by the European Association of Agricultural Economists (EAAE) in Civitavecchia, Italy, from 9 to 10 December 2005 and of which the proceedings would be published soon.

34. To conclude, the first day of the two-day meeting was largely used to discuss the potential for a subsidiary body on the technical and socio-economic aspects of aquaculture, to discuss lessons learned from SELAM and TECAM, to reach consensus on the needs for a



subsidiary body. All experts presented their analysis of the main constraints to and opportunities for sustainable development of aquaculture in their countries and the region at large, and provided insight in the latest work of their institutions in relation to the subject area. The presentations triggered extensive, but interesting, discussions among the experts.

## **MERGING TECAM AND SELAM**

35. During the second day of the Meeting, the Secretariat provided suggestions for the terms of reference (TORs) for TESAM as well as draft objectives for TESAM. The experts recommended that TECAM and SELAM activities be continued by GFCM through a single subsidiary body. They also suggested investigating a possible merge between EAM and TESAM as many priority activities relate to social, economic, environmental and technical issues.

36. With regard to governance and objectives, preferences were given to a merged TECAM and SELAM with slightly modified objectives, which would report directly to CAQ.

37. The experts agreed that the new subsidiary body should have the following title: “Coordinating Steering Group on Technical, Economic and Social Aspects of Aquaculture in the Mediterranean (TESAM)”. The terms of reference of TESAM would include the following:

- discuss priority needs to be raised to CAQ;
- coordinate the activities of the ad hoc working groups and function as interface between the ad hoc working groups and CAQ;
- review and summarize the outputs and suggested follow-up activities of the existing ad hoc working groups for CAQ; and
- seek for additional support to complement the funds made available by GFCM Members.

38. TESAM would have a coordinator with support from facilitators of each ad hoc working group to be established under TESAM. In practice this would imply that coordination of technical activities would be under the auspices of the coordinator and secretariat functions would be assumed by the GFCM Secretariat. Ad hoc working groups facilitators and experts would participate in their personal capacity as it is the case within the subsidiary bodies of the GFCM Scientific Advisory Committee (SAC). The *modus operandi* of the ad hoc working groups would be developed by the GFCM Secretariat upon endorsement of the governance structure.

## **PRIORITIES TO BE ADDRESSED BY TESAM**

39. A considerable part of the discussions during the expert meeting was largely devoted to the identification of priority issues to be addressed in the mid- and short-term by TESAM and the outputs foreseen by the various ad hoc working groups that would have to be established to address such priorities in the short-term. The following list of mid-term priorities for TESAM was identified by the experts (not in order of importance):

- establish and agree upon the sustainability indicators for aquaculture;
- monitor (every two years) the socio-economic conditions of aquaculture enterprises;

- promote diversification in species and in production systems through Research and Development (R and D) (e.g. off-shore cage culture);
- promote development and implementation of better management practices (BMPs) from within the sector (e.g. animal welfare);
- promote site planning along with the integrated coastal zone management concept through good governance;
- promote quality-schemes and organic farming practices (small farmers/traceability and labeling issues);
- promote Mediterranean aquaculture products consumption (communication to society);
- establish and support implementation of an aquatic animal health programme for the Mediterranean;
- increase awareness and knowledge on provisions and strategies under the national and sub-regional policies;
- provide policy analysis and programme evaluation;
- promote collaboration and participation of stakeholders in Mediterranean countries in innovation projects and technology transfer and the access to funding from international programmes;
- promote the development and dissemination of risk management approaches (e.g. insurance, bio-security, etc);
- promote local value addition in the beginning of the market chain (including promotion of short-circuit commercialization –proximity markets);
- promote equal opportunities in trade and harmonization of food safety regulation in the Mediterranean;
- develop a methodology for the ecosystem approach to aquaculture;
- support the involvement of fishers in the aquaculture sector;
- promote the establishment of a Mediterranean federation of associations of aquaculture producers.

40. The experts further agreed to the need to establish three ad hoc Working groups to address the most urgent issues in the short-term. Following extensive discussions among the experts, it was decided to establish individual ad hoc Working groups on sustainability indicators, marketing and aquaculture siting. The short-term (CAQ intersessional period) expected outputs from the working groups and preliminary defined activities were identified as follows:

#### ***Ad Hoc Working Group on Aquaculture Sustainability Indicators***

41. Outputs foreseen:

- Tools for the self evaluation of sustainable aquaculture at all levels (farm, local, national, regional).  
Activities to be carried out will include: a review of existing methodologies (consultancies), liaison with and/or contribute to projects, such as the Mediterranean component of the Sustainability in Aquaculture (“Évaluation de la durabilité des systèmes de production aquacoles” (EVAD) project), Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea (ADRIAMED) (interaction), and other initiatives, and adoption of the appropriate methodologies for application at CAQ level (workshop).

- Advice to Mediterranean countries on how to improve sustainability of aquaculture.  
Activities to be carried out will include: a pilot project to test the set of indicators at different levels, and validation and dissemination of the toolkit of indicators in the region.

### ***Ad Hoc Working Group on Marketing***

#### 42. Outputs foreseen:

- Evaluation of market conditions for aquaculture products within the context of the Mediterranean seafood industry.  
Activities to be carried out will include: the collection and analysis of data, and a comparative study of non-tariff barriers to trade of aquaculture products (e.g. to investigate sanitary regulations).
- Marketing plan guidelines for Mediterranean aquaculture products.  
Activities to be carried out will include: creation of a think-tank (e.g. focused workshop), including socio-economists, marketing strategists, industry members, ecologists, non-governmental organizations (NGOs), educationers, aquaculture researchers, etc. to develop a vision for this program.
- A strategy prepared, in cooperation with private sector organizations, to rehabilitate the image of aquaculture in the Mediterranean (jointly with EAM).  
Activities to be carried out will include: establishment and execution of a set of surveys in close collaboration with representatives from three selected GFCM Member States where the surveys will be conducted, analysis of the public-opinion through surveys and design outreach programs based on the outcome of the surveys, execution of the outreach programs in the target GFCM countries, organization of a regional conference on public opinion regarding aquaculture and on effective design of educational outreach programs, and dissemination of reports through GFCM website; publication of results in the GFCM “Studies and Reviews” series.

### ***Ad Hoc Working Group on Aquaculture Siting***

#### 43. Outputs foreseen:

- Guidelines on site selection (including legal conditions to produce) prepared.  
Activities to be carried out will include: the development of practical guidelines for aquaculture site selection, using the ecosystem approach and following the Integrated Coastal Zone management (ICZM) concept, development of procedures to be used in site selection according to technology and species (e.g. Geographical Information System (GIS) analysis, viewing data over space and time, etc.), and the involvement of stakeholders through participative approaches for site selection.
- Standardized Environmental Impact Assessment (EIA) for different culture systems in the Mediterranean developed and integrated administrative processes.  
Activities to be carried out will include: compilation of existing EIA regulations, evaluation of EIAs with specific emphasis on socio-economic issues, and liaison

with and/or contribute to projects, such as the Ecosystem Approach to Sustainable Aquaculture (ECASA) project, and other initiatives.

- Tools to evaluate, manage the risks, and advice on the useful technologies with particular reference to the characteristics of sites and the adaptation of species. Activities to be carried out will include: identification of appropriate technologies in relation to specific site characteristics (including modeling), and adaptation of appropriate risk assessment methodologies.

44. It was emphasized by the experts that IUCN and the EVAD project will ensure, through active participation in the ad hoc Working groups and formal meetings of the CAQ that no duplication of efforts will take place, but instead that the findings of the joint IUCN-FEAP project on sustainability guidelines for aquaculture and the EU funded EVAD project will contribute to the outputs expected from the various ad hoc working groups above.

45. The experts participating in the meeting brought a number of smaller- and larger project proposal briefs to the meeting for consideration by the ad hoc working groups in their start-up phase. For the initial activities of the ad hoc working groups, to allow for the development of short-term work plans and for the finalization of project proposals to ensure that the activities planned for can effectively be carried out, it was considered that some seed funds should be made available by the Commission. Therefore a call was made to the Commission to earmark 60 000 Euros (20 000 per ad hoc working group) from the GFCM autonomous budget to TESAM.

46. A long-term vision for TESAM was discussed and the experts agreed on the following vision: “To promote the sustainable development of an innovative, market-oriented, competitive and proactive aquaculture sector in the Mediterranean, in compliance with the Code of Conduct for Responsible Fisheries, through enhancing regional communication, capacity building activities and cooperation among all stakeholders”.

47. Due to a shortage in time the meeting did neither manage to discuss in detail the major objectives for TESAM, nor the terms of reference for the coordinator of TESAM, for the facilitators of the ad hoc working groups and for the ad hoc working groups themselves. These essential elements would be discussed following the endorsement by the fifth session of CAQ at the launch of the ad hoc working groups.

### **ADVICE TO THE FIFTH SESSION OF CAQ**

48. The meeting of experts convened to identify the needs for a GFCM Subsidiary body of the CAQ dealing with the socio-economic and technical aspects of aquaculture in the Mediterranean, invited the CAQ to consider the points below at its fifth Session:

- to explore the possibility of a merger of EAM and TESAM in view of the current overlap in ad hoc working group activities, to ensure a lighter and cost-effective and efficient structure of CAQ subsidiary bodies;
- to instruct SIPAM to start collecting more socio-economic, technical and research related data and information to facilitate the work of TESAM;
- to endorse the establishment of the Coordinating Steering Group on Technical, Economic and Social Aspects of Aquaculture in the Mediterranean (TESAM) and the ad hoc working groups proposed;

- to present the Commission in its forthcoming thirty-first session the proposal for TESAM and request sufficient funds for the initiation of the three ad hoc working groups;
- to review and redefine the objectives and terms of reference of the GFCM Committee on Aquaculture (CAQ) at the fifth session to better reflect the socio-economic, environmental and technical dimensions of aquaculture management;
- to underline to the Commission in its forthcoming session that participation of key experts (from both northern and southern GFCM Member States) in the ad hoc working groups of TESAM will be hampered by lack of funds and that this problem should be addressed urgently by GFCM to guarantee success of TESAM.

### **ANY OTHER MATTERS**

49. The Secretariat thanked all participating experts for their contribution in the discussions and welcomed their future involvement in the development of TESAM and implementation of activities. The Secretariat invited the experts to participate in the Coordinating Steering Committee and working groups, and assist in the identification of qualified experts.

### **ADOPTION OF THE REPORT**

50. A summary of the present report was presented as document GFCM:CAQ/V/2006/Inf.17 to the fifth session of CAQ. The current document was finalized by the Secretariat and circulated to all the experts attending the meeting for their comments and approval.



## Agenda

Opening of the Expert Meeting

Adoption of the Agenda and arrangements for the Meeting

Summary historical overview of SELAM and TECAM activities (by Alain Bonzon, GFCM)

Presentation on the potential for a subsidiary body on the technical and socio-economic aspects of aquaculture (by Raymon van Anrooy, FAO)

Presentation on cage culture in open-sea: problems, opportunities and innovations to a sustainable aquaculture development (by José de Lara Rey of Universidad Politécnica de Madrid)

Presentation “towards sustainability of aquaculture” (by François Simard, IUCN)

Findings and recommendations from the Workshop on Seabass and Seabream Market Analysis, held in Rome on 12 May 2006 (by Alessandro Lovatelli, FAO)

Presentation on Aquaculture & Society: facing with our responsibilities in the Mediterranean for sustainable development (by Francois René, IFREMER)

Presentation on aquaculture enterprise typology, problems and opportunities (by Francois René, IFREMER)

Short presentations by other participating experts of the current activities their institutions are currently carrying out on the socio-economic and technical aspects of aquaculture in the Mediterranean

Presentation of draft objectives and terms of reference for a subsidiary body on technical and socio-economic aspects of aquaculture (by Raymon van Anrooy, FAO)

Plenary discussion on the draft objectives and terms of reference for the subsidiary body

Discussions on priority activities and funding sources

Discussions on the operational and management structure of the Sub-committee

Discussions on ad hoc working group issues, outputs and activities

Closure of the Expert Meeting

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## **Background to the Expert Meeting on the technical and socio-economic aspects of aquaculture in the Mediterranean**

### **1. INTRODUCTION**

The Networks on the Socio-Economic and Legal Aspects of Aquaculture in the Mediterranean (SELAM) and on the Technical Aspects for Promotion of Aquaculture in the Mediterranean (TECAM) were created in 1992 following a Mediterranean Regional Aquaculture Project (MEDRAP) decision.

In 1995, the two Networks were linked to the General Fisheries Commission for the Mediterranean (GFCM) Committee on Aquaculture (CAQ) and were placed under the Coordination of the CIHEAM/IAMZ. Both networks were active for a number of years in the 1990s. However, since the start of the new millennium, only few activities were undertaken by these networks.

The limited activities of the SELAM and TECAM networks do not mean that the socio-economic and technical aspects of aquaculture are overcome within the Mediterranean and Black Sea context. Problems encountered in aquaculture planning, policy development, management, development, marketing, trade, education, and so forth, continue to be brought up at GFCM meetings by both private and public sector stakeholders.

As a result of a process, comprising an external evaluation of the Committee on Aquaculture (CAQ) and its Networks, in 2004, the GFCM favoured that SELAM and TECAM activities be resumed.

Therefore a Meeting of experts to identify the needs for a GFCM Subsidiary body of the Committee on Aquaculture (CAQ) which will deal with the socio-economic and technical aspects of aquaculture in the Mediterranean as proposed and endorsed by the Commission at its thirtieth session (January 2006). This meeting will be held on Friday and Saturday 2–3 June 2006 in Santiago de Compostela, Spain.

The Meeting of experts on 2 and 3 June is organized back-to-back with the fifth session of the GFCM/CAQ which will be held in Santiago de Compostela from 5 to 7 June 2006. The findings of the Meeting of Experts will be brought directly into the discussion of the fifth session of CAQ, for decision.

### **2. RATIONALE**

In 1996, the GFCM formally endorsed the four aquaculture related networks established by the UNDP/FAO Mediterranean Regional Aquaculture Project, MEDRAP II (1990–1995). These networks were:

- Information aspects for promotion of aquaculture in the Mediterranean (SIPAM);
- Technical aspects for promotion of aquaculture in the Mediterranean (TECAM);
- Economic and legal aspects for promotion of aquaculture in the Mediterranean (SELAM);

- Environmental Aspects of Aquaculture in the Mediterranean (EAM).

The constitution of SELAM and TECAM took place in a seminar held in Tunis, in May 1993. Several meetings and seminars during MEDRAP I and II have allowed the identification of activities according to priorities selected among the countries' needs, to be developed in both Networks (TECAM and SELAM). The objectives of TECAM and SELAM Networks presented below were basically proposed as a general framework.

The **main objectives** of the SELAM Network were defined as:

- an economic framework for management and marketing of aquaculture;
- strategy for integrated aquaculture;
- legal framework and regulation of aquaculture.

### **SELAM main outputs**

During the above-mentioned SELAM Network constitution seminar, some **main outputs** were defined and agreed upon:

- 1.1 Economic viability of farming systems
- 1.2 Product specification and product development
- 1.3 Marketing information systems
  
- 2.1 Integration of aquaculture into national development plans
- 2.2 Socio economic aspects of integrated aquaculture
- 2.3 Integration of aquaculture in the environment
  
- 3.1 Legal requirements for the establishment of an aquaculture enterprise
- 3.2 Compendium of directories of regional and international norms for aquaculture development

The **main objectives** of the TECAM Network were defined as:

- increase of production by means of biological and technical diversification;
- hatchery management;
- nutrition requirements and feed production;
- reduction of pathological hazards;
- culture of living resources in inland waters.

### **TECAM main outputs**

During the above-mentioned TECAM Network constitution seminar, the following **main outputs** were defined and agreed upon:

- 1.1 Culture of species with high production yield.
- 1.2 Extension of existing culture systems and hybrids of species with appropriate systems.
  
- 2.1 Guidelines for broodstock management.
- 2.2 Guidelines for larvae and fingerlings production.
- 2.3 Live food production.
  
- 3.1 Manufacturing and utilization of appropriate feed.
- 3.2 Qualitative and quantitative feeding requirements.
- 3.3 Establishment of a database on nutritional aspects.
  
- 4.1 Establishment of a database on Mediterranean Fish and Shellfish Disease.
- 4.2 Standardization and uniformity in pathological methodologies: diagnostic techniques and disease control.
- 4.3 Establishment of a regional reference collection of aquatic animal pathogens, etc.
  
- 5.1 Restocking programmes for the establishment of permanent stocks capable of sustaining fishery activities.
- 5.2 Development and extension of technology in pond fish farming particularly for tilapia and carp production.
- 5.3 New culture systems.
- 5.4 Value-added products resulting from processing of freshwater production.
- 5.5 Database on Mediterranean freshwater culture.

A number of activities were undertaken in order to fulfill these objectives and work towards achieving the above outputs. A summary list of activities carried out between 1995 and 2003 can be found in Annex C2.

Although SELAM and TECAM have definitely contributed to capacity building and exchange of experiences and information on socio-economic, legal and technological issues related to aquaculture in the Mediterranean, their functioning was *de facto* suspended in the late 90s. The external evaluation of CAQ and its networks showed a number of weaknesses. Some of the main reasons for non-performance of SELAM and TECAM were reported as follows:

- While experts from national institutions are willing to collaborate there is limited commitment from their national governments to cover the costs involved in active collaboration – in contrast with e.g. SIPAM no GFCM member government has adopted the SELAM and TECAM networks and provided a budget base.
- The commitment of the experts of national institutes waned with decreasing budget available for training and coordinating activities of SELAM and TECAM.
- The visibility of SELAM and TECAM has been poor; other networking and information exchange opportunities with higher visibility were preferred (e.g. EAFE, EAS, WAS, IIFET, EAAE meetings).
- The terms of reference of SELAM and TECAM were not sufficiently clear in terms of their advisory, education and training roles.

- The frequent changes in representatives/experts from the GFCM member countries in SELAM and TECAM activities made it impossible to build-up good and efficient networking relationships – continuity of representation was hindering particularly the relationship with the non-EU GFCM member countries.

### **Rationale for revival of the Network functions of SELAM and TECAM**

GFCM, being the sole regional body for the Mediterranean and Black Sea countries with a responsibility to promote the development, conservation, rational management and best utilization of living marine resources, as well as the sustainable development of aquaculture in the region, can provide an important function to aquaculture entrepreneurs and others active in the aquaculture sector. Through CAQ, GFCM directly addresses and provides guidance decision-makers at national level, to formulate and recommend policy measures for regional implementation. The role GFCM is playing is unlike any other existing association, advocacy group or institution involved in aquaculture, at the regional level, in the Mediterranean and Black Sea at regional level.

The fact that CAQ at this moment lacks input knowledge and expertise in social and economic aspects of aquaculture, makes it impossible to advise on better governance, policies and planning at regional level in support of sustainable and responsible aquaculture development in the region. This gap in advice can potentially be filled by reshaping SELAM and TECAM within a single entity.

## **3. EXPECTED MEETING OUTPUTS**

### **3.1 Objectives:**

- to bring together the relevant expertise and knowledge on issues related to socio-economic and technical aspects of aquaculture in the Mediterranean and Black Sea areas;
- to identify the rationale, objectives, terms of reference and structure for a Subsidiary body of CAQ on socio-economic and technical aspects of Aquaculture in the Mediterranean and Black Sea areas, taking into consideration existing programmes, networks and institutional capacity available;
- to set-up initial common priorities and activities on the basis of a medium-term programme of work for a CAQ Subsidiary body on this subject; and,
- to suggest the most appropriate institutional set-up and modus operandi for this CAQ Subsidiary body.

### **3.2 Documents**

Two meeting documents are being prepared for the Expert Meeting:

- a background paper for the establishment of a GFCM-CAQ network on the technical and socio-economic aspects of aquaculture in the Mediterranean (TESAM): a SELAM-TECAM networks revival;
- an issue paper: socio-economic and technological trends, problems and opportunities of aquaculture in the GFCM membership area.

### 3.3 Expert inputs:

- Participate actively in the discussion to achieve the meeting objectives.
- Present a very short summary (5 minutes) of the current activities his/her institution is carrying out on the socio-economic and/or technical aspects of aquaculture in the Mediterranean.
- Bring additional relevant information in printed and electronic form.
- Bring at least one project brief on priority issues for discussion in the expert meeting and possible follow-up by the re-established body.

Each project brief should be no longer than 2 pages and should consist of the following structure:

- title of activity/project
- background including where priority was mentioned earlier and ongoing activities in the same subject
- project objective
- main activities to undertake
- prior activities required
- agencies/organizations to include
- estimated budget

### 3.4 Selected issues to be addressed during the Meeting

- What are the lessons learned from SELAM-TECAM Networks (Why these networks failed to deliver in recent years)?
- Is there a real need for the establishment of a CAQ Subsidiary body on the technical and socio-economic aspects of aquaculture in the Mediterranean?
- What would be the comparative advantages of such a Subsidiary body?
- What should be the objectives and terms of reference for the Subsidiary body?
- What would be the most appropriate operational and management structure of such a Subsidiary body, including membership?
- What are the immediate and medium – term priorities of such a Subsidiary body?
- What should be the name of the Subsidiary body?
- How should the Subsidiary body activities be financially supported, if needed?

### 3.5 Expected meeting outputs

1. an agreed proposed structure and operational framework for the new CAQ subsidiary body on technical and socio-economic aspects of aquaculture in the Mediterranean and Black Sea areas;
2. list of potential priority issues for the subsidiary body;
3. List of activities on the basis of a medium-term programme of work for the subsidiary bodies;
4. Summary report to be presented at the Fifth Session of CAQ in Santiago de Compostela, Spain, 5–7 June 2006.

#### 4. TECAM and SELAM Networks: Summary of activities

##### 4.1 TECAM Network 1995–2003

Type*	TECAM topic**	Start date (# of days)	Location	Number of participants	Countries represented
S	Disease control	3/95 (5)	Malta	19	10
W	Finfish species diversification (PI)	6/95 (4)	Cyprus	27	8
AC	Food and feeding	5/96 (12)	Egypt	27	12
W	Fish nutrition (PI)	6/96 (3)	Spain	27	11
SP	Fish health management	1/97 (12)	Italy	19	11
S	Genetics and breeding (PI)	4/97 (3)	Spain	41	12
AC	Offshore mariculture (PI)	10/97 (5)	Spain	39	12
AC	New hatchery technologies	2/98 (13)	Spain	27	12
W	Aquafeed manufacturing (PI)	3/98 (3)	Spain	17	10
S	Finfish species diversification (PI)	5/99 (4)	Spain	83	17
S	Environmental impact assessment (PI)	1/00 (5)	Spain	51	14
AC	Fish breeding	4/01 (5)	Spain	32	11
AC	Off-shore mariculture†	5/01(6)	Spain	28	13
AC	Management of fish resources in inland water bodies	11/01	Spain	25	8
S	Mollusc production (PIP)	5/02 (5)	Spain	32	15
W	Fish nutrition (PIP)	6/02	Greece	70	11
AC	Broodstock management	2/03	Spain	35	15
S	Drugs and vaccines (PIP)	5/03	Turkey	90	17
AC	Recirculation systems	1/04	France	42	12
			TOTAL	731	Av = 12

#### 4.2 SELAM Network 1995–2003

Type*	SELAM topic**	Date (# of days)	Location	Number of participants	Countries represented
S	Production economics (PI)	5/95 (3)	France	49	9
S	Marketing (PI)	10/95 (3)	Greece	87	11
AC	Enterprise planning and management	11/96 (5)	Spain	23	8
W	Planning policies (PI)	3/98 (3)	Morocco	16	9
W	Quality assessment (PI)	11/99 (3)	Spain	70	18
S	Marketing of new species (PI)	6/01 (2)	Spain	50	13
TOTAL				295	Av = 11

#### 4.3 Other TECAM and SELAM related activities 1995–2003

Type*	Topic**	Date	Location	Number of participants	Countries represented
HD	International Master on Aquaculture (16 months)	1997	Spain	19	9
TS	Finfish species diversification (PI)	1997-1998	Regional	n.a.	n.a.
TS	Nutrition experts, groups and projects	1998-2000	Regional	n.a.	n.a.
TS	Hatchery genetics and breeding	1998-1999	Regional	n.a.	n.a.
HD	International Master on Aquaculture (16 months)	2000	Spain	17	8
TS	Disease diagnostic laboratories (PIP)	2001-2002	Regional	n.a.	n.a.
SY	Domestication of bluefin tuna (PI)	2002 (6)	Spain	178	23
HD	International Master on Aquaculture (16 months)	2002-2003	Spain	21	8

\* H = Higher degree; SY = Symposium; TS = Technical survey.

\*\* PI = Publication issued in *Options Méditerranéennes*; PIP = Publication in preparation.

† = Repeated course.

\* AC = Advanced course; S = Seminar; SP = Short practical course; W = Workshop.



**Summary conclusions of the  
SELAM/SIPAM Workshop on European Seabass and Gilthead Seabream Markets  
Rome, 12 May 2006**

1. As a follow-up to recommendations from the General Fisheries Commission for the Mediterranean (GFCM) Committee on Aquaculture (CAQ), GFCM and FAO convened a Workshop on European Seabass and Gilthead Seabream Markets held in Rome on 12 May 2006. In preparation for the workshop, a marketing study was undertaken by Ms Marie Christine Monfort, entitled “Marketing of aquacultured finfish in Europe: focus on seabass and seabream from the Mediterranean basin” which was made available to the workshop participants along with a number of other relevant background documents. The objectives of the workshop were: 1) to reach a common understanding of the present status and trends in seabass and seabream markets; 2) to identify constraints to further sectoral development in GFCM Member countries; 3) to elaborate recommendations for the CAQ to deal with these constraints.

2. The 16 workshop participants were amongst experts invited in their personal capacity, representing seabass and seabream producers in the Northern and Southern Mediterranean, industry experts, policy makers, the SIPAM network, the European Commission and academia, as well as FAO and GFCM staff.

3. A consensus was reached on the present state of the seabass and seabream market. It was concluded that the seabass and seabream market is very competitive. Saturation is a concrete threat in some markets, especially those for small/medium sized whole products (portion size) in Southern Europe. Opportunities for expansion exist in Northern Europe and in Southern Mediterranean countries. Further opportunities exist for bigger sizes and for gutted fish. Value can be added through improved marketing, use of labelling, development of niche products such as organic fish and possibly fillets and other more value-added products.

4. During the discussions a number of constraints on sectoral development were identified, in particular the lack of institutional support and inadequate aquaculture legislation. Six recommendations were developed to be presented and discussed at the fifth session of CAQ (5–7 June 2006, Santiago de Compostela, Spain). The recommendations were the following:

**Recommendation 1:** CAQ should look closely at national production and demand trends to identify the markets and product types that are growing, as currently available data are incomplete.

GFCM/CAQ should commission a study on statistical compilation of production and trade data within the region with the view to identify sources of discrepancies between the export and import data of seabass and seabream, as well as to verify whether quantities are being classified as “non-identified” species. GFCM countries should improve the compilation of production data including those on hatchery and feed production and carry out analysis of markets and trade of seabass and seabream products (sizes, qualities, process, products, etc.).

Governments should be encouraged to improve the methodology for compilation and quality of data collected from the industry on production (including hatcheries) and sales including making reporting part of the licensing conditions.

**Recommendation 2:** Marketing actions should be encouraged, in particular the generic promotion of Mediterranean seabass-seabream, but without abandoning national/private campaigns. The promotion of domestic markets should also be increased.

**Recommendation 3:** Public financial support should aim to reduce negative environmental impacts and to improve food safety and product quality.

**Recommendation 4:** Research into new species development should be continued focusing on species that offer good market perspectives.

**Recommendation 5:** Countries should create a clear legal framework for aquaculture to encourage and protect sector investments. If needed, non-EU countries should be given technical assistance to upgrade their institutional capacity on food safety/quality issues, including their regulatory framework and relevant infrastructure to facilitate exports to EU and other markets.

**Recommendation 6:** Market and cost analysis studies, benchmarking and comparison with relevant successful examples in aquaculture are required in order to promote the development of a sustainable aquaculture sector. Analysis should include costs, species, technologies, geographical and environmental characteristics of production sites, education and availability of human resources, legislation, investment, taxation of sector and relations with other coastal activities.

**The Expert Meeting to Identify the Needs for a Subsidiary Body on the Technical and Socio-economic Aspects of Aquaculture in the Mediterranean was held in Santiago de Compostela, Spain, on 2 and 3 June 2006. The meeting was attended by eight experts from the region. The meeting was organized as a result of a process, comprising an external evaluation of the Committee on Aquaculture (CAQ) and its Networks, in 2004, and the endorsement by the General Fisheries Commission for the Mediterranean (GFCM) at its thirtieth session (January 2006) of a meeting of experts to identify the needs for a GFCM subsidiary body of the CAQ that would deal with the socio-economic and technical aspects of aquaculture in the Mediterranean. The experts defined the terms of reference, priorities and *modus operandi* of such a subsidiary body. The meeting of experts was informed of the findings and recommendations of the Workshop on European Seabass and Gilthead Seabream Markets, held in Rome on 12 May 2006. Many of the recommendations from the workshop were translated into activities to be carried out by an ad hoc working group on marketing as proposed by the Expert Meeting. The experts proposed two more ad hoc working groups, being a Working Group on Aquaculture Siting and a Working Group on Sustainability Indicators for Aquaculture.**

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