

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE

Report of the eighth session of the

COMMITTEE ON AQUACULTURE

Paris, France, 13-15 March 2013

Rapport de la huitième session du

COMITÉ DE L'AQUACULTURE

Paris, France, 13-15 mars 2013

Draft version before final editing

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PREPARATION OF THIS DOCUMENT

This is the final report approved by the participants at the eighth session of the Committee on Aquaculture of the General Fisheries Commission for the Mediterranean held in Paris, France, from 13 to 15 March 2013.

PRÉPARATION DE CE DOCUMENT

Le présent document est le rapport final adopté par les participants de la huitième session du Comité de l'aquaculture de la Commission générale des pêches pour la Méditerranée tenue à Paris, France, du 13 au 15 mars 2013.

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ABSTRACT

To be added in the final version

RÉSUMÉ

A ajouter dans la version finale

TABLE OF CONTENTS

OPENING AND ARRANGEMENTS FOR THE SESSION	8
ADOPTION OF THE AGENDA.....	8
MAIN DECISIONS ADOPTED DURING THE THIRTY-FIFTH AND THIRTY SIXTH SESSIONS OF THE GFCM.....	9
ACTIVITIES OF THE COMMITTEE ON AQUACULTURE IN THE INTERSESSIONAL PERIOD 2011-2012.....	9
RESEARCH ACTIVITIES ON AQUACULTURE CARRIED OUT BY MEMBER COUNTRIES...14	
FORMULATION OF ADVICE AND PRIORITIES IN THE FIELD OF AQUACULTURE MANAGEMENT AND RESEARCH.....	16
REVIEW OF TASK FORCE ACTIVITIES RELEVANT TO THE CAQ AND UNDER THE FIRST PHASE OF THE GFCM FRAMEWORK PROGRAMME	20
PROPOSAL OF A CAQ REFERENCE FRAMEWORK AND ROLE TO BE PLAYED IN SUPPORT TO THE SUSTAINABLE DEVELOPMENT OF AQUACULTURE IN THE MEDITERRANEAN AND BLACK SEA	20
PROPOSED WORK PROGRAMME 2013-2014	21
ELECTION OF THE BUREAU OF THE COMMITTEE ON AQUACULTURE	24
ANY OTHER MATTERS	25
DATE AND PLACE OF THE NINTH SESSION.....	25

TABLE DES MATIÈRES

APPENDIXES/ANNEXES

A: Agenda	27
A: Ordre du jour	28
B: List of Participants/Liste des participants.....	29
C: List of documents / Liste des documents	36
D: Terms of Reference for the SIPAM National Focal Points (revised) / Mandat des points focaux nationaux du SIPAM (révisé)	38
E: Preliminary canvas for the biennial report on the state of aquaculture in GFCM Member States / Structure préliminaire du rapport biennal sur la situation de l'aquaculture dans les Etats membres de la CGPM.....	39
F: Draft Terms of Reference of the Regional review on the current status of aquaculture in the GFCM Competence Area / Projet de mandat pour l'examen régional de la situation actuelle de l'aquaculture dans la zone de compétence de la CGPM	41
G: Draft standard format for national reports on research activities* / Projet de modèle pour les rapports nationaux sur les activités de recherche*	43

OPENING AND ARRANGEMENTS FOR THE SESSION

1. The eighth session of the Committee on Aquaculture (CAQ) of the General Fisheries Commission for the Mediterranean (GFCM) was held in Paris, France, from 13 to 15 March 2013. The session was attended by representatives from 17 GFCM Members as well as observers such as the International Organisation for the Development of Fisheries in Eastern and Central Europe (EUROFISH), the International Union for Conservation of Nature (IUCN), the AQUAMED project funded by the European Union (EU) and representatives of the GFCM Secretariat. The list of participants is provided in Appendix B to this report.
2. The session was called to order by Mr François René, CAQ Chairperson. He welcomed and thanked the delegates before giving the floor to the representative of the hosting country, Mr Christophe Chassande, Deputy Director for Maritime Fisheries and Aquaculture, who addressed the audience on behalf of the Minister in charge of Transports, Maritime Affairs and Fisheries. Mr Chassande stressed the importance of the development of sustainable aquaculture activities in the Mediterranean and Black Sea and the crucial role of this sector for food security and economic growth, highlighting the need to foster effective development objectives. He concluded expressing wishes for a fruitful work in order to advance the reflection on current issues and challenges.
3. Mr Stefano Cataudella, GFCM Chairperson, thanked the hosting country and welcomed participants. In stressing the importance of interactions between capture fisheries and aquaculture, he emphasized the key role played by the GFCM as a Regional Fisheries Management Organization (RFMO) with a mandate for both capture fisheries and aquaculture. He also made considerations on the regional nature of the works of the GFCM and recalled the process of the Task Force established to facilitate the modernization of the legal and institutional framework of the GFCM. In light of aquaculture trends over the last years, he highlighted the need for a more concerted and common approach to aquaculture policy in the GFCM area.
4. Mr Abdellah Srour, GFCM Executive Secretary, also thanked France for the hospitality and the excellent organization of the meeting. He underlined the crucial function played by the aquaculture sector for economic development and poverty alleviation in the Mediterranean and the Black Sea, in a context of global and regional crisis. He also acknowledged the relevant contribution provided by several projects in support to CAQ activities and subsidiary bodies, thanking donors and FAO for their efforts and contribution, and he insisted on the importance of strengthening the work of CAQ in view of future challenges for the aquaculture sector. He recalled the first strategic GFCM Framework Programme (FWP) – launched also thanks to support from France – which is expected to help the GFCM to effectively support its Members in their efforts to develop sustainable aquaculture.
5. The CAQ Chairperson underlined that the development of Mediterranean and Black Sea aquaculture should be supported by the GFCM and that the growth of aquaculture was relentless. He recalled some of the challenges facing the sector in the fields of research, market, training and access to sites. In this latter respect, he acknowledged the role played by the CAQ to operationalize the concept of allocated zones for aquaculture (AZAs) so that it could be accounted for and possibly transposed into national legislations.

ADOPTION OF THE AGENDA

6. After delegates and observers introduced themselves, the agenda was introduced and adopted with some changes (see Appendix A to this report).

7. The documents brought to the attention of the Committee are listed under Appendix C to this report.

MAIN DECISIONS ADOPTED DURING THE THIRTY-FIFTH AND THIRTY SIXTH SESSIONS OF THE GFCM

8. Mr Fabio Massa, from the GFCM Secretariat, presented a summary of the main GFCM decisions relevant to the CAQ as adopted by the Commission at its thirty-fifth and thirty-sixth sessions. He underscored in particular that the Commission supported CAQ advice that AZAs should be considered as a priority for GFCM Members by adopting Resolution GFCM/36/2012/1 on Guidelines on allocated zones for aquaculture. It was also recalled that the Commission gave mandate to the GFCM Secretariat to prepare specific guidelines on sustainable indicators, environmental monitoring programmes, and coastal lagoons management to be submitted to CAQ.
9. In the ensuing discussion, delegates acknowledged the work carried out by CAQ in the field of aquaculture and the need to implement concrete actions to build on this work. The Committee also underlined that GFCM Members were at different levels of aquaculture industry maturity, depending on multidimensional factors and local specificities. It concurred that the heterogeneity of the sector needed strategic actions to address national and sub-regional specific challenges and expectations.
10. The Executive Secretary acknowledged the willingness and political commitment of GFCM Members to support sustainable aquaculture development. He reiterated the importance of a new strategic approach to aquaculture development and the need to provide technical support at national level. In this respect he emphasized the necessity to mobilize extra-budgetary funds and to benefit from the FWP for the preparation of concrete actions. Finally, he stated that the CAQ was called to adopt a renovated vision and approach of work to address the varying needs, main concerns and growing interests in connection with aquaculture development in the GFCM area.

ACTIVITIES OF THE COMMITTEE ON AQUACULTURE IN THE INTERSESSIONAL PERIOD 2011-2012

11. The Secretariat presented the intersessional activities undertaken, on the basis of document GFCM:CAQ/VIII/2013/2, and reference was made to the work carried out by the CAQ subsidiary bodies.

Working Group on Aquaculture Sustainability (WGSA)

12. The activities of the WGSA were implemented within the EU co-funded project “Indicators for Sustainable Development of Aquaculture and Guidelines for their use in the Mediterranean (InDAM). InDAM carried out the following tasks: assessment of the identified indicators reference system and follow-up on pilot studies in Tunisia and Turkey (step 2), implementation of new pilot studies in Morocco and Spain (step 1); identification of regional indicators and the publication on *Indicators for sustainable aquaculture in Mediterranean and Black Sea countries. Guide for the use of indicators to monitor sustainable development of aquaculture* (GFCM Studies and Reviews series n. 93). A workshop on pilot case studies and guidelines and application of sustainable indicators was organised in Malaga, Spain, November 2011.

Working Group on Site Selection and Carrying Capacity (WGSC)

13. The activities of the WGSC were implemented with the support of the EU co-funded project “Developing site selection and carrying capacity for Mediterranean aquaculture within aquaculture appropriate areas (SHoCMed)”. The main activities and outputs during the intersessional period

included: i) the preparation of a draft glossary on site selection and carrying capacity; ii) a Delphi exercise on environmental quality standards parameters (EQS); iii) the preparation of a review on allowable zones of effect (AZE); iv) the set-up of a platform to share matrix-based data on aquaculture monitoring and environmental standards and, v) the elaboration of the draft publication establishment of Allocated Zones for Aquaculture (AZA) – *Guide for establishing coastal zones dedicated to aquaculture in the Mediterranean countries*. A workshop on the definition and environmental monitoring of aquaculture activities within allowable zones of effect (AZE) in the Mediterranean was organized in Malaga, Spain, November 2011.

14. A training workshop on site selection, allocated zones for aquaculture and site management for coastal marine aquaculture was organized in Morocco (M'diq, February 2013). A meeting on an environmental monitoring scheme for marine aquaculture was also held back-to-back.

Working Group on the Black Sea (WGBS)

15. The activities of the WGBS related to the aquaculture component were presented, namely the first meeting of the ad hoc WGBS held in Constanta, Romania, January 2012 (see GFCM:CAQ/VIII/2013/Inf.17). The meeting provided a general overview of aquaculture in the Black Sea region and identified priorities for developing the sector in the Black Sea countries. With specific regard to aquaculture, a training workshop on site selection, allocated zones for aquaculture and site management for coastal marine aquaculture was held at the Central Fisheries Research Institute in Trabzon, Turkey, February 2013. A back-to-back meeting on Black Sea aquaculture species diversification was also held.

Lagoon management and interaction between aquaculture and capture fisheries

16. The LaMed project was introduced by the GFCM Secretariat. This project on “Strengthening cooperation on fisheries and aquaculture management in the Mediterranean and the Black Sea” funded by Italy was launched in September 2010, and the objective of one of its components was to explore interactions between aquaculture and capture fisheries in Mediterranean coastal lagoons.
17. The meeting on “*Mediterranean coastal lagoons management: interaction between aquaculture and capture fisheries*”, held in Cagliari, Italy, June 2011, addressed several issues related to the use, conservation and restoration of coastal lagoons, and relevant priorities were formulated to pursue sustainable management of these environments. It was also urged to develop an integrated plan of action for the sustainable development of aquaculture and capture fisheries in coastal lagoons within the GFCM area.

Coordination Meeting of the Working Groups on Aquaculture (CMWG)

18. After the seventh session of the CAQ, the outcomes of the Working Groups have been reviewed during the fifth Coordination Meeting of the Working Groups (CMWG) held at the GFCM headquarters in Rome, Italy, March 2012. The CMWG discussed a preliminary programme for 2012–2013 as well as priority issues for regional aquaculture development and within the FWP.
19. A general discussion followed, during which delegates appraised the fruitful work undertaken by the CAQ, the lessons learnt and the sound methodology applied. Delegates recognized that the dissemination of the outcomes produced by the working groups to producers should also be strengthened and capacity-building should be implemented through pilot projects.
20. Some delegates recalled the relevant role played by farmers within sustainable aquaculture development and the relevance of their participation in the decision-making process.

21. The delegate of Algeria highlighted the importance of aspects of inland aquaculture related to interactions and conflicts over water and land use as well as tourism, which should be addressed when considering aquaculture development.
22. Delegates expressed their satisfaction regarding the amount of activities implemented and stressed that the results achieved should then be translated into concrete actions in support to countries and that multilateral and bilateral cooperation should be fostered.
23. The Committee concurred on the need to assess the current status of marine aquaculture to identify priorities in light of the regional, sub-regional and national specificities.
24. The Executive Secretary acknowledged the growing interest for aquaculture in the region and underlined the importance for CAQ to broaden its working perspective and maximise the efforts deployed at this very important moment for aquaculture development.
25. He also stressed that CAQ should take this opportunity to put forward to the Commission innovative actions and project proposals requiring a sound information basis to address effectively the development of the sector specificities in the GFCM area. To concretely address this challenge, the Executive Secretary proposed to undertake a *Regional review on the current status of aquaculture in the GFCM competence area* via a thematic regional survey in order to take stock of the aquaculture status in the region.
26. The Committee concurred that although information was available, there was a lack of overarching synthesis of the sector and links between sources of information were necessary for a sound analysis of the sector.
27. The Committee welcomed the initiative of preparing a regional review and agreed on the relevance of timely information and an up-to-date knowledge of the situation of the aquaculture sector in the GFCM area.
28. Furthermore, the Committee recognized that this regional review would help setting-up a suitable regional platform to exchange experiences, improve the knowledge and strengthen cooperation in the aquaculture sector among GFCM Members.
29. The Committee agreed that the regional review could provide useful elements in support to aquaculture action plans in the GFCM area and should be included in the activities of the FWP. The draft Terms of Reference to undertake the regional review are provided in Appendix F to this report.
30. The Committee also proposed that an effective result dissemination programme targeting mainly policy-makers should be undertaken along with a regional workshop after the completion of the regional review in order to share data and results.
31. The IUCN representative expressed the will to support this interesting initiative and participate in its implementation, namely on aspects related to aquaculture, environment and biodiversity.

SPECIAL SESSION OF THE INFORMATION SYSTEM FOR THE PROMOTION OF AQUACULTURE IN THE MEDITERRANEAN (SIPAM)

32. Mr Hadj Ali Salem, SIPAM Coordinator, opened this point of the agenda and recalled the history of SIPAM mentioning in particular the importance of the recommendation GFCM/35/2011/6 on reporting aquaculture data and information. He also explained that the decision to include the fourteenth session of the SIPAM within the agenda of the eighth CAQ session had been taken to guarantee an optimal level of participation from Members.

Report on the intersessional activities carried out within SIPAM

33. Mr Federico De Rossi, from the GFCM Secretariat, summarized the activities carried out within the framework of SIPAM during the intersessional period. He presented the progress made in the production statistics database in terms of data quality, homogeneity and consistency. He further clarified that, until 2008 dataset were reviewed by the Secretariat, whereas from 2008 the national focal points intervened directly, with the exception of four countries (Israel, Lebanon, Libya and Syria) for which the Secretariat filled the gaps on the main production values. He also outlined the browsing facility for SIPAM production statistics, accessible by registered users (including national focal points), according to the outcomes of the last Committee of Compliance (CoC) session (May 2012).
34. The Secretariat outlined the main peculiarities of the three SIPAM online submission tools currently in place i.e. production statistics, capture-based production and production centres. As for the latter, it was recalled that a testing phase with national focal points was still ongoing in order to better define the type of information and the level of aggregation. It was mentioned that all the SIPAM online facilities together with the receipt submission system and the powerful matrix-based data meta-analysis tool were deeply described in the updated version of the *Quick Start Guide for National Coordinators*.
35. The audience was also provided with a summary situation of production statistics submission by year and country, which clearly showed an increased compliance. To date, 326 records from 15 Members had been submitted and published for the reference year 2008, 364 records from 16 Members for 2009 and 401 records from 17 Members. Moreover, for the reference year 2011 (submission still ongoing at the time of writing this report), 429 records from 14 Members had been submitted and published.
36. A preliminary version of the GFCM Aquaculture Statistical Yearbook (reference year 2010) was presented. This document was prepared in cooperation with the SIPAM national focal points, as agreed at the thirteen SIPAM session (Salerno, February 2012).
37. In the ensuing discussion delegates underlined the importance of sharing the wealth of data on aquaculture production available in SIPAM databases, in order to provide a clear picture of the aquaculture sector in the Mediterranean and Black Sea.
38. The representative of EUROFISH stressed the importance of cooperation and data-sharing at regional level recalling the Memorandum of Understanding (MoU) with the GFCM, adopted in May 2012.
39. The Committee expressed appreciation of all the work done and agreed upon the principle of disseminating data and information stored in SIPAM.
40. The Executive Secretary suggested defining a broader use of the aquaculture statistical yearbook publication in order to present not only data but also a more exhaustive regional and national profile of the aquaculture sector in the GFCM area.
41. The Committee agreed on the proposal made by the Secretariat and suggested that the aquaculture statistical yearbook publication be aligned with the publications produced for the Committee on Fisheries (COFI) such as the State of World Fisheries and Aquaculture (SOFIA).
42. The Committee agreed on the biennial frequency of the publication as well as on the importance of adopting a participatory approach during the preparation of this document by involving SIPAM focal points, national experts and other relevant stakeholders.

43. The GFCM Secretariat prepared a preliminary canvas for a biennial report on the state of aquaculture in GFCM Members (see Appendix E to this report). A proposal was tabled to also draw inspiration from the publication “Facts and figures on the Common Fisheries Policy” produced by the EU. Some delegates suggested that the report also include statistical information reported in a cumulative and comparative format among countries.
44. Finally, the Committee endorsed the updated version of the terms of reference for national focal points, including direct reference to the GFCM decision on reporting of aquaculture data and information (see Appendix D to this report).
45. Mr Valerio Crespi, from the FAO Aquaculture Service, underlined the excellent collaboration between FAO, and the GFCM Secretariat particularly through SIPAM and took the opportunity to invite those national coordinators not having updated yet their National Aquaculture Sector Overview (NASO) to do so.

Survey on aquaculture farmers’ organizations

46. Mr Ferit Rad, Coordinator of the Working Group on Marketing of Aquaculture Products (WGMA), presented the online survey on aquaculture farmers’ organizations launched in November 2012. This survey was implemented in cooperation with EUROFISH and with the support of the SIPAM national focal points, farmers’ organizations, and other relevant experts and national contact points.
47. He recalled that this initiative aimed at gaining a clear understanding of the status/structure of aquaculture farmers’ organizations in GFCM Members and of organizational/managerial constraints and challenges faced by these organizations.
48. The WGMA Coordinator reported on the preliminary analysis of the survey results, taking into account the limited responses received so far (11). “Association” was the most common type of aquaculture farmers’ organization and the size was variable. Concerning the legislative framework, even organizations with similar legal status (e.g. “association”) functioned under different legal arrangements in different Members.
49. He also reported that most of the farmers’ organizations tended to be multifunctional, providing advocacy, technical and economic services to their Members. He further emphasized that farmer organizations were much less effective on economic services including marketing and market related issues e.g. collection and dissemination of market data/information and facilitating the access of farmers to modern supply chains.
50. He informed that the surveyed organizations had been mainly contacted through the national focal points and had filled the questionnaire on a voluntary basis accessing the online form available on the SIPAM portal.
51. Finally, the Committee was informed by the FAO Aquaculture Officer of a similar initiative carried out by FAO in the Sub-Saharan African region in the member countries of the Aquaculture Network for Africa (ANAF), which produced a comprehensive report on Aquaculture Farmers Organizations (AFO) along with guidelines to assist governments wishing to support the establishment and strengthening of AFOs. The Committee was invited to consider the elaboration of regional guidelines for the establishment of AFOs in the GFCM Members.
52. The Committee commended the work carried out and acknowledged the importance of farmers’ organizations in the development process of sustainable aquaculture.

AQUAMED databases

53. Mr Ignacio Arnal, from the AQUAMED project, delivered a presentation on the three AQUAMED databases related to Mediterranean aquaculture (i.e. research institutions, research projects and stakeholders). He recalled that these databases were aimed at mapping the existing information about current research teams, tools, projects, and networks at local level using partners in the consortium as reference entry points in their country. He also described the structure and results of the three related online surveys through which AQUAMED collected the information. Mr Arnal concluded by highlighting the opportunities to link AQUAMED databases with the SIPAM information system.

THE GLOSSARY ON AQUACULTURE

54. Mr Davide Fezzardi, GFCM Consultant, presented the work carried out for the elaboration of a glossary on aquaculture in order to harmonize the main aquaculture terms used by CAQ. The terms identified in the glossary were also consolidated with other terminology from the SAC and FAO glossaries.
55. The Committee acknowledged the work done and advocated wide consultations among the scientific community and the partner organizations prior to the final adoption of this draft glossary. It was also suggested harmonizing this glossary with the FAO Glossary on aquaculture in collaboration with the FIRA and FAO terminology team in order to ensure adequate consistency.

RESEARCH ACTIVITIES ON AQUACULTURE CARRIED OUT BY MEMBER COUNTRIES

56. The Chairperson introduced this point of the agenda and recalled the important role of applied research at national level for the future development of aquaculture, inviting delegates to present research and development activities in their country.
57. The delegates reported on the main research activities on aquaculture carried out and implemented at national level as presented in Appendix H to this report.
58. The GFCM Chairperson recalled the relevance of the research for aquaculture development and stated that during the pioneering phase of aquaculture industry in the Mediterranean and the Black Sea, public research efforts were focussed on supporting farmers with fundamental and applied research towards increasing productions over time.
59. He emphasized that nowadays, the sector needed research to enhance public service including, *inter alia*, the protection of the environment through reliable protocols and models for monitoring and control according to the principles of the FAO Code of Conduct for Responsible Fisheries and the “Future we want” report of the Rio+20 Conference.
60. The Committee stressed that core research initiatives were being undertaken by Members encompassing a wide range of thematic areas as well as geographical zones (inland, coastal and off-shore). It was recognized that current disparities in research focus also reflected the different levels of aquaculture maturity which existed among countries.
61. The Committee recalled the importance of strengthening scientific regional cooperation and stressed the need to share knowledge and experiences. The Committee suggested implementing multi-country training for aquaculture development to take advantage of experiences and body of knowledge of member countries.

Adoption of a standard format for national reports on research activities

62. The GFCM Secretariat presented the proposal of a standard format of national reports for the submission to the CAQ of information on aquaculture research and development activities on the basis of document GFCM:CAQVIII/2013/Inf.22.
63. This format comprises eight sections aimed at gathering information on the main topics of aquaculture research and development activities such as biological, scientific, technical, social, economic and environmental aspects (see Appendix G to this report).
64. Delegates remarked the importance of this initiative to collect relevant information on aquaculture research activities in a standard format, as requested at the seventh CAQ session.
65. The Executive Secretary recalled the positive experience acquired so far by the GFCM Scientific Advisory Committee (SAC) for the preparation of national reports on research activities on capture fisheries submitted a month before its session, to be further elaborated by the Secretariat and presented to the SAC.
66. The Committee stressed that the dissemination of the results from research activities would provide an additional contribution to scientific cooperation and additional inputs for management advice towards the development of sustainable aquaculture in the GFCM area.
67. The Committee agreed to submit the proposal for reporting, on an annual basis, national information on aquaculture research and development activities through the proposed standard form to the Commission (May 2013) for its final consideration.

Presentation by AQUAMED project

68. Mr Jean-Paul Blancheton, from AQUAMED, introduced the main features of this EU co-funded project and expressed gratitude and appreciation to the CAQ for having followed AQUAMED activities from the outset. He recalled that the project aimed at developing a common cross-border research strategy to support the sustainable development of aquaculture by improving the coordination of aquaculture research in the region and promoting synergies and innovative research. The main actions undertaken were: i) the set-up of a database on research; ii) the identification of the main constraints faced by some countries in order to formulate opinions and recommendations; iii) the development of a multi-stakeholder platform to validate the recommendations.
69. Ms Giovanna Marino, from AQUAMED, informed about the results of the “Consultation on challenges and research priorities in Mediterranean Aquaculture”. She clarified that this project activity enabled to prioritize the main challenges to be faced for aquaculture development at regional and country level and to identify research priorities, key goals and specific research actions.
70. Among the top-15 challenges to be faced, the following were identified: lack of appropriate policy measures and of long-term spatial planning, conflicts with other sectors, red tape in licensing procedures, poor access to capital and funds and inadequate linkages between industry-research-extension services through the value chain. She added that these results could serve as a basis for the development of the strategic research agenda for Mediterranean aquaculture within AQUAMED as well as for defining further actions within a strategic aquaculture development plan in the Mediterranean.
71. Further details about the multi-stakeholder platform on research were provided by Mr Noam Mozes, from AQUAMED. After describing the objectives, he put forward a proposed framework for collaboration between the AQUAMED platform and CAQ. This cooperation could be

instrumental also to implement key actions and projects within the framework of a strategic research, innovation agenda and a plan of action.

72. The Committee commended the work carried out by AQUAMED and the results of the consultations to identify research priorities and challenges in aquaculture. Interest was expressed for the involvement of stakeholders in the consultation process in order to define the priorities of the sector.
73. Some delegates acknowledged the potential role that the platform could play in identifying areas for future investment and anchor its basis in the Mediterranean through EU funds.
74. The GFCM Chairperson pointed out that the multistakeholders platform provided a new generation instrument increasing knowledge capital and improving cooperation. He also stressed that an equal participation and autonomy of all GFCM Members was considered fundamental in order to guarantee and maintain reasonable representation and involvement.
75. The The Committee discussed on the possibility to host and maintain the AQUAMED databases in the SIPAM information system. It therefore invited the project team to elaborate a conceptual note describing databases specifics to assess potential implications in terms of financial and human resources.
76. The Committee acknowledged the proposition to set up a possible framework of collaboration between AQUAMED and CAQ in relation also to the multistakeholder platform and suggested that additional information would be needed. The Committee therefore invited AQUAMED to submit to the Secretariat an exhaustive proposal before the next GFCM session.

FORMULATION OF ADVICE AND PRIORITIES IN THE FIELD OF AQUACULTURE MANAGEMENT AND RESEARCH

77. The Chairperson introduced this point of the agenda recalling the significance for the Commission to receive advice from CAQ on the basis of results and achievements of the activities carried out by the subsidiary bodies.

Lagoon management and interaction between aquaculture and capture fisheries

78. The Secretariat presented the document on “Key issues towards guidelines for the sustainable management of coastal lagoons in the Mediterranean and the Black Sea” (GFCM:CAQ/VIII/Inf.11).
79. Following the request of the Commission at its thirty-sixth session, the document had been prepared in order to share with CAQ a set of elements which were necessary to address the preparation of guidelines for the sustainable management of coastal lagoons taking into consideration the interaction between aquaculture and capture fisheries.
80. In the ensuing discussion, the Committee acknowledged the most salient issues presented. The delegates also underlined the strategic role played by coastal lagoons given their extension in several countries and the traditional aquaculture and artisanal fisheries involved. Delegates agreed also on the proposed element identified addressing the conflicts among the different users.
81. The delegate from Egypt recommended that consideration be given to the balance between artisanal fisheries and aquaculture and the interests of communities living around the lagoons. He urged to address on a regular basis the issues of aquaculture interaction with the sedimentation and the need to guarantee a good hydraulic management.

82. The Committee stressed the specificity of lagoons in the Mediterranean ecosystems and underlined that the ecological balance in these environments was at stake. The Committee concurred that ecological issues and ecosystem services provided by lagoons should be taken into consideration also from an international perspective in terms of biodiversity preservation.
83. The Spain delegation highlighted the issue of climate change and its impact on Mediterranean coastal lagoons.
84. The delegate of Albania stated that demographic pressure and urbanization were among the main threats to coastal lagoons. In preparing the guidelines he suggested considering the need to avoid the establishment of intensive aquaculture in these environments and an ecosystem approach for their management.
85. The Algerian delegation called the attention of the CAQ on legislation regulating the management of channels between lagoons and sea and requested technical assistance to undertake studies in this field.
86. The SIPAM Coordinator stressed the need to have indicators on the sustainable development of aquaculture and to seek assistance in establishing national development plans in order to face the issue of coastal lagoons drying off and decrease in production.
87. The representative of IUCN agreed on all the consideration made and on the key issues identified, reiterating that it was important to preserve these fragile and unique environments and expressing the willingness of his organization to participate in this work, also within the RAMSAR Convention.
88. Several delegates highlighted that the guidelines for the management and development of coastal lagoons would represent a basic framework for many GFCM Members and that not only preservation but also restoration measures were needed.
89. The Committee acknowledged the relevance of coastal lagoons and the need to prevent any further degradation of these environments. It concurred on the necessity to achieve an optimal balance between conservation and use in particular as far as extensive aquaculture and capture fisheries were concerned.
90. The Committee decided to bring the draft guidelines before the Commission for consideration and adoption.

Working Group on Site Selection and Carrying Capacity (WGSC)

91. Mr Ioannis Karakassis, Coordinator of the WGSC, presented the concepts used and the progress achieved by the working group since the seventh CAQ meeting. He recalled in particular the priorities connected to AZAs, the identification of environmental quality standards (EQSs), the need to adopt the concept of allowable zones of effect (AZE) in the close vicinity of fish farms and the initiatives towards harmonization of environmental quality indicators among Mediterranean and Black Sea Members.
92. The WGSC Coordinator concluded by stressing the need for future research in order to improve the knowledge on application of the AZA concept, its optimal use and related EQS indicators.
93. The Committee acknowledged the progresses achieved and the need to launch further research activities and scientific cooperation on AZA in the region.

Working Group on Aquaculture Sustainability (WGSA)

94. Mr Pablo Avila, Coordinator of the WGSA, presented the document on “Key issues towards guidelines for the use of indicators to monitor the sustainable development of aquaculture in Mediterranean and Black Sea”. He recalled the key concepts related to the promotion of sustainability in all its dimensions (i.e. economic, social, environmental and overarching governance) and ways to measure sustainability through the use of indicators. In this respect, he highlighted the key role of the InDAM project in identifying a methodology for the selection and the use of indicators as a communication tool. Finally, elements to be considered for the development of guidelines for the use of indicators to monitor the sustainable development of aquaculture in the Mediterranean and the Black Sea were presented.
95. The delegates of Tunisia and Morocco reported on their positive experience in participating in the InDAM pilot studies for the selection and assessment of indicators. They emphasized the importance of a participatory consultative process and highlighted that pilot studies were instrumental to increase general awareness on aquaculture sustainability. They also indicated that the next step would be the adoption of indicators at the appropriate level and according to target users.
96. The delegate of Spain suggested implementing more pilot studies to support countries in the process of selection and adoption of a national system of indicators, also for monitoring shellfish aquaculture and sustainable use of lagoons. He finally recalled that during one of the InDAM workshops, it was proposed to set up a regional observatory to monitor sustainability in the GFCM area.
97. The Committee suggested continuing the work on the development of a draft set of guidelines for the use of indicators taking into account the results of the CAQ discussions and of the pilot studies.
98. Finally the delegates expressed the need to share knowledge and results of the CAQ subsidiary bodies activities to address the challenges of sustainable aquaculture in the region. In this regard the Secretariat was asked to consider providing technical assistance.

ADVICE AND RECOMMENDATIONS

Lagoon management and interaction between aquaculture and capture fisheries

99. The Committee agreed to develop a set of guidelines for the sustainable management of coastal lagoons in the GFCM area and concurred on considering the following issues:
- interactions between aquaculture and capture fisheries in coastal lagoons;
 - traditional aquaculture and artisanal fisheries, multiple uses of coastal lagoons and integrated coastal zone management;
 - prevention of degradation of coastal lagoons and conservation of biodiversity and natural habitats;
 - traditional uses of coastal lagoons, namely aquaculture and capture fisheries, and their interactions with other uses of coastal lagoons and activities having an impact on them and on coastal fisheries communities;
 - conservation of traditional aquaculture and capture fisheries, with specific reference to extensive aquaculture and to artisanal fisheries, including traditional knowledge of coastal communities;
 - interactions between species, taking into account the role of ichthyophagous seabirds and other non-marine species in coastal lagoons management;
 - restoration of the ecosystems associated to coastal lagoons.

100. Additionally, the set of guidelines should also take into consideration elements emerged during the session: lagoons sedimentation, hydraulic and channels management.

Working Group on Site Selection and Carrying Capacity (WGSC)

101. The Committee agreed that further work and research activities should be launched to optimize the use of AZA as a suitable spatial planning tool for the integration of aquaculture in coastal zones.

102. Future work and research should focus, *inter alia*, on the following:

- provide support to countries for the implementation of AZA;
- undertake further research projects and pilot actions on AZA (e.g. review of the characteristics of the existing aquaculture zonation schemes effect on local spatial planning and social acceptance, environmental issues, managerial synergies in the AZA context, optimization of size, distance and depth, potential use of models in the AZA context, compatibility with other uses of marine environment);
- foster cooperation between research institutions and other stakeholders involved in environmental monitoring to define common relationships between aquaculture management, levels of production, site characteristics and environmental responses.

Working Group on Marketing on Aquaculture Products (WGMA)

103. The Committee agreed on the following recommendations related to aquaculture farmers' organizations and based on preliminary assessments made so far by the survey:

- foster recognition of the role played by farmers' organizations in the development process of sustainable aquaculture in order to formulate supportive policies and legal arrangements to empower farmers' organizations;
- promote the managerial capabilities of farmers' organizations on market governance issues in order to meet the challenges and opportunities of modern supply chains for seafood;
- further promote cooperation between CAQ and farmers' organizations (farmers/producers) in order to obtain first-hand information on the dynamics of the sector and for the formulation of proactive policies for the sustainable development of aquaculture within the GFCM area.

Working Group on Aquaculture Sustainability (WGSA)

104. The Committee agreed to carry on the work on the development of guidelines for the use of indicators. Pilot studies on indicators should also be undertaken considering land-based aquaculture and mollusc culture.

105. The guidelines should, among others, be based on the following elements:

- sustainability of aquaculture and use of indicators as means to strengthen the public perception of aquaculture, market competitiveness, environmental sustainability and social acceptability;
- establishment of a system of indicators at national level together with procedures for its application according to national legislation;
- multi-stakeholder and consensus-based approach (co-construction) to be mustered during a consultative process to select indicators;
- establishment of a regional reference system for aquaculture sustainability by integrating the economic, social, environmental dimensions of sustainable development;
- use of the ecosystem approach to aquaculture (EAA);
- objectives for which each indicator is identified as adapted to the Mediterranean and Black Sea aquaculture specificities in terms of species reared, technologies and production systems applied;

- methodology for the selection of indicators based on qualitative and quantitative tools to assess their applicability and stakeholders consultation for final validation;
- number of selected indicators for each pillar of sustainability balanced among dimensions (economic, social, environmental, and overarching governance);
- methodology sheet for each selected indicator outlining the geographical level of applicability (i.e. regional, national, local and farm), definition, methodology to measure it (formula and measurement frequency), reference values/baselines/ standards, and sources of data and information;
- technical protocol on how to apply indicators, data display (e.g. traffic-light, radar charts), regular revisions of the indicators and associated reference values/baselines/standards.

REVIEW OF TASK FORCE ACTIVITIES RELEVANT TO THE CAQ AND UNDER THE FIRST PHASE OF THE GFCM FRAMEWORK PROGRAMME

106. The Executive Secretary presented the main activities relevant to the CAQ and undertaken upon recommendation by the GFCM Task Force.

107. He recalled that the Commission examined, at its thirty-fifth session, the recommendations made by the expert panel that performed the GFCM Performance Review. This panel identified a number of strengths and weaknesses and advised, *inter alia*, to revise the GFCM Agreement and its associated rules. Acting on this advice, a Task Force had been set up with the aim of assisting the Commission in becoming more effective, including through the negotiation for a new agreement or the amendment of the existing one.

108. The Executive Secretary informed that, in 2012, the GFCM launched its first FWP aimed at constructing a regional and holistic vision of the management of marine capture fisheries and aquaculture. The FWP is a tool that should make the GFCM more functional in discharging its duties, while providing adequate support to the activities launched under the GFCM Task Force. It was also mentioned that the FWP was supported by extra-budgetary funds through a multi-annual and multi-donor funding mechanism.

109. The five work programmes composing the FWP were outlined (4 thematic, 1 geographical), each addressing specific topics relating to marine capture fisheries and aquaculture. A first series of activities within the FWP has been launched thanks to the financial support of the EU, France and Italy.

110. Delegates expressed strong appreciation for the achievements of the Task Force and for the first FWP.

111. The Committee acknowledged the extensive work undertaken by the GFCM after the Performance Review and commended the FWP initiative.

PROPOSAL OF A CAQ REFERENCE FRAMEWORK AND ROLE TO BE PLAYED IN SUPPORT TO THE SUSTAINABLE DEVELOPMENT OF AQUACULTURE IN THE MEDITERRANEAN AND BLACK SEA

112. The GFCM Secretariat presented key considerations regarding the relevant national and international framework for the development of aquaculture and the efforts and achievements undertaken by GFCM in this respect. The aquaculture component of the FWP on “Promoting the role of aquaculture for food security and economic growth”, its expected outputs and outcomes were presented. Subsequently, the GFCM Secretariat described the five actions that should be translated into projects addressing the identified priorities for aquaculture development in the region.

113. Finally, the GFCM Secretariat highlighted the key role to be played by the GFCM in coordinating Members' efforts towards aquaculture sustainability in the region through institutional and technical capacity-building in order to promote better governance¹.
114. Delegates acknowledged that the identified challenges to address effectively aquaculture sustainability in the Mediterranean and Black Sea should be considered as a priority and that additional effort should be made to foster aquaculture development in the region.
115. The SIPAM Coordinator recalled the importance of data collection and dissemination and expressed the wish that it clearly appear as a component within the FWP.
116. The Spanish delegate presented a brief document elaborated by the Ministry of Agriculture, Food and Environment in collaboration with the Spanish Aquaculture Producers' Organization (APROMAR) summarizing the current Spanish situation of the aquaculture sector and including proposals for aquaculture development in the GFCM area. The Committee was also informed about the Spanish Strategy for the Sustainable Development of Spanish Aquaculture (EDSAE).
117. The Spanish delegate also outlined the key areas of interest including animal health, marketing and trade, governance, and the idea of establishing a farmers' organization at Mediterranean and Black Sea level to be involved in decision making processes. Finally the need to strengthen regional cooperation through, *inter alia*, exchange of expertise, transfer of technology and know-how, and coordination with other FAO commissions and other existing aquaculture networks worldwide, such as the American and African Aquaculture networks, was highlighted.
118. The Committee acknowledged the renewed international and national interest and commitment to foster aquaculture development in the GFCM area.
119. The Committee stressed that any development plan for aquaculture should be established bearing in mind the regional dimension of marine aquaculture activities in Mediterranean and Black Sea. The delegates also highlighted the need to establish a regional reference framework for the sustainable development of aquaculture and the need to identify key priorities in order to achieve common goals.
120. The Committee concurred that the preparation of the "Regional review on the current status of aquaculture in the GFCM competence area" would be instrumental in gathering essential information and fine-tuning the reference framework for the sustainable development of aquaculture in the region. It was also stated that this activity should be included in the FWP.

PROPOSED WORK PROGRAMME 2013-2014

121. The GFCM Secretariat introduced the programme of work on the basis of the document GFCM:CAQVIII/2013/2 dealing with the implementation of the medium-term objectives identified by the CAQ Working Groups, the LaMed-2 project and SIPAM.

¹ Governance is to be intended as "a systemic concept relating to the exercise of economic, political and administrative authority. It encompasses: (i) the guiding principles and goals of the sector, both conceptual and operational; (ii) the ways and means of organisation and coordination of the action; (iii) the infrastructure of socio-political, economic and legal instruments; (iv) the nature and modus operandi of the processes; and (v) the policies, plans and measures" (see FAO Fisheries Glossary and GFCM e-Glossary of scientific terms of interest: <http://151.1.161.77/eGlossary>).

Working Group Aquaculture Sustainability (WGSA)

122. WGSA will mainly focus on implementing the following InDAM project's activities:

- Identify reference points and standards for selected indicators;
- Implement new pilot studies in cooperation with partners;
- Test the indicators reference system at the local level and implement a communication and dissemination strategy;
- Identify a strategy for the involvement of interested parties in the use of indicators;
- Implement new pilot studies on indicators for the sustainability of other aquaculture systems and group of species, such as molluscs.

Working Group on Site Selection and Carrying Capacity (WGSC)

123. WGSC will mainly focus on implementing the following SHoCMed project's activities:

- Organize a regional workshop on the definition of reference points for EQS and monitoring aquaculture;
- Implement a programme for the dissemination of the technical results and outcomes of SHoCMed activities on AZA and allowable zones of effect (AZE);
- Establish an IT forum platform on site selection and carrying capacity for data sharing within WGSC;
- Carry out an EQS calibration exercise and set up a database;
- Prepare a guide on aquaculture environmental monitoring for the Mediterranean and Black Sea aquaculture.

Work plan of the Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM)

124. SIPAM activities will focus on the following identified priorities:

- Follow progress on data collection on: production centres, production statistics and market;
- Finalize the integration of SIPAM activities and databases within the WGBS and follow-up assistance provided to the countries in terms of aquaculture data submission;
- Reactivate the "Research and Development Programmes" database and cooperate with other relevant institutions working on regional databases on aquaculture for data sharing such as AQUAMED.

Work plan on lagoon management and interaction between aquaculture and capture fisheries

- Identify indicators for the sustainable development of aquaculture and capture fisheries activities within coastal lagoons;
- Continue the updating of the database on coastal lagoons based on country reports and data sheets prepared within the LaMed-2 project and made available on the web.

Working Group on Marketing of Aquaculture Products (WGMA)

125. WGMA activities will be implemented in close cooperation with WGSA and SIPAM and will focus on:

- Work with WGSA on indicators and reference points for sustainable aquaculture related to economic and marketing issues;
- Work with SIPAM on aquaculture marketing data and issues related to data surveys on economic aspects;

- Finalize, in cooperation with partners, the regional survey on farmers' organizations, and prepare a review of the legislation and present status of producers' organizations and farmers' organizations in the GFCM member countries;
- Cooperate in the organization of a scientific and technical conference on Mediterranean aquaculture (Bizerte, Tunisia 11–14 June 2013) on a "Market-oriented approach to sustain the development of Mediterranean aquaculture".

Working Group on the Black Sea (WGBS)

126. WGBS activities will be implemented in close cooperation with WGSA and WGSC. WGBS activities will focus on the following and will be updated and re-orientated on the basis of the outcomes of the second WGBS meeting to be held in Varna, Bulgaria, in April 2013:

- Organize a workshop/training on classification and zoning for molluscs culture as well as certification protocols (Black Sea);
- Implement regional initiatives to harmonize the environmental monitoring programme on aquaculture within AZA;
- Undertake pilot studies for aquaculture projects (including new species for aquaculture and new farming technologies).

Other priorities

- Finalize the aquaculture project proposals considered within the FWP in support to sustainable development of capture fisheries and aquaculture;
- Carry out a regional survey on aquatic animal health and biosecurity on aquaculture (to be included in the FWP);
- Carry out a regional survey on the main aspects related to certification and traceability in aquaculture (to be included in the FWP);
- Prepare a project for the elaboration of a *Regional review on the current status of aquaculture in the GFCM competence area* and organization of a final workshop for the dissemination of results (to be included in the FWP);
- Drafting of a report on the state of the aquaculture sector in the GFCM member countries, to be released on a biennial basis.

Meetings and trainings scheduled for 2013–2014

TITLE	PERIOD	PLACE
WGSA – WGMA - InDAM - Workshops on the identification of reference points for social and economic indicators on aquaculture	November 2013	TBD
WGSA – WGSC – InDAM - SHoCMed Workshops on the identification of reference points for environmental indicators on aquaculture	November 2013	TBD
WGSA – InDAM – AdriaMed Pilot study Step 1 in Montenegro on the identification of indicators for sustainable aquaculture	July 2013	TBD
WGSA – InDAM –Pilot study in Tunisia Step 3 on the implementation of a system of indicators for sustainable aquaculture	June 2013	Monastir (Tunisia)
WGSA – InDAM –Pilot study in Morocco Step 2 on indicators assessment and definition of a quantitative reference framework	December 2013	M'diq (Morocco)
WGSA – InDAM –Pilot study in Spain on the identification of indicators for sustainable aquaculture (molluscs)	TBD	TBD
Sixth Coordination Meeting of the Working Groups of CAQ	November 2014	TBD
Fifteenth SIPAM session	TBD	TBD

127. The Committee invited the Working Groups Coordinators to liaise with the Secretariat to draft terms of reference for all proposed meetings before the next GFCM session.

128. The Committee proposed to extend by one day the next CAQ session (in two years time) in order to include the SIPAM session. It was also suggested organizing a technical meeting of SIPAM during the intersessional period, subject to extra-budgetary resources available, in order to coordinate and update with the national focal points their duties.

129. The Committee endorsed the proposed work plan for 2013-2014 as above.

130. All proposed activities will be implemented subject to the availability of funds.

ELECTION OF THE BUREAU OF THE COMMITTEE ON AQUACULTURE

131. The Committee acknowledged the excellent work carried out by the former Bureau and unanimously re-elected Mr Francois René (France) as Chairperson. Mr Pablo Avila (Spain) was unanimously promoted as first Vice-Chairperson and Mr Houssam Hamza (Tunisia) was elected as second Vice-Chairperson. The Committee finally thanked Mr Hayri Deniz (Turkey) for its valuable contribution and outstanding work during his mandate.

ANY OTHER MATTERS

132. The SIPAM Coordinator informed the audience about a scientific and technical conference on Mediterranean aquaculture to be held in Bizerte (Tunisia) from 11 to 14 June 2013. All participants were invited to take part in the meeting.
133. The Committee thanked France for the excellent organization of the eighth session of the CAQ as well as for the hospitality in the beautiful city of Paris.
134. It also expressed its gratitude to the Working Groups Coordinators for the efforts deployed and impressive results obtained. Appreciation for the excellent work done by the GFCM Secretariat and the staff to enable the smooth implementation of the activities was reiterated.
135. In turn, the dynamism and efficient involvement of all delegates was acknowledged and the importance of encouraging the active participation of all GFCM Members at the CAQ meetings was reiterated.

DATE AND PLACE OF THE NINTH SESSION

136. The Committee took note of the offer by the Moroccan delegate to host the next session in Morocco, subject to the confirmation by the competent authorities in his country. The exact date and venue of the ninth session in 2015 would be determined at a later stage.
137. The report was adopted on 15 March 2013.

OUVERTURE ET ORGANISATION DE LA SESSION

Agenda

Opening and arrangements for the session

Adoption of the agenda

Relevant Recommendations of the thirty-fifth and thirty-sixth sessions of the General Fisheries Commission for the Mediterranean (GFCM)

Activities of the CAQ during the intersessional period:

- Working Group on Aquaculture Sustainability
- Working Group on Site Selection and Carrying Capacity
- Working Group on Marketing in Aquaculture
- Working Group on the Black Sea (aquaculture component)
- Lagoon management and interaction between aquaculture and capture fisheries
- Coordination Meetings of the Working Groups on Aquaculture

Special session of SIPAM:

- Report of the intersessional activities
- Submission of aquaculture data and information (Rec. GFCM/35/2011/6)
- Aquaculture statistics, information and databases
- GFCM-SIPAM Aquaculture Statistical Yearbook
- Issues related to the future functioning of SIPAM
- Survey on aquaculture farmers' organizations
- AQUAMED database

The glossary on aquaculture

Research activities on aquaculture carried out by member countries

- Presentation by countries
- Presentation by AQUAMED project
- Adoption of a standard format for national reports on research activities

Formulation of advice and priorities in the field of aquaculture management and research

Review of the relevant Task Force activities relevant to the CAQ and under the first phase of the GFCM Framework Programme

Proposal of a CAQ Reference Framework and role to be played in support to the sustainable development of aquaculture in the Mediterranean and Black Sea

Work programme 2013-2014

Election of CAQ Bureau

Any other matters

Date and place of the ninth session

Adoption of the report

Ordre du jour

Ouverture et organisation de la session

Adoption de l'ordre du jour

Recommandations formulées par la Commission générale des pêches pour la Méditerranée (CGPM) à ses trente-cinquième et trente-sixième sessions intéressant le Comité de l'aquaculture

Activités du Comité de l'aquaculture pendant la période intersessions

- Groupe de travail sur la commercialisation des produits aquacoles
- Groupe de travail sur la sélection des sites et la capacité de charge
- Groupe de travail sur l'aquaculture durable
- Groupe de travail sur la mer Noire (volet aquacole)
- Système d'information pour la promotion de l'aquaculture en Méditerranée (SIPAM)
- Gestion des lagunes et interactions entre aquaculture et pêches de capture
- Réunions de coordination des groupes de travail sur l'aquaculture

Session spéciale du SIPAM

- Rapport sur les activités pendant la période intersessions
- Communication de données et d'informations sur l'aquaculture (Rec. GFCM/35/2011/6)
- Statistiques, informations et bases de données sur l'aquaculture
- Annuaire statistique sur l'aquaculture CGPM-SIPAM
- Questions relatives au futur fonctionnement du SIPAM
- Enquête sur les organisations d'exploitants aquacoles
- Base de données AQUAMED

Glossaire sur l'aquaculture

Activités de recherche en aquaculture menées par les États membres

- Présentations effectuées par les membres
- Présentations effectuées par AQUAMED
- Adoption d'un format de présentation normalisé pour les rapports nationaux

Formulation d'avis et priorités en matière de gestion et de recherche aquacoles

Examen des activités du Groupe de travail pour la modernisation du cadre juridique et institutionnel de la CGPM intéressant le Comité de l'aquaculture et des activités pertinentes relevant de la première phase du programme-cadre de la CGPM

Proposition d'un cadre de référence et rôle du Comité de l'aquaculture à l'appui du développement durable de l'aquaculture en Méditerranée et dans la mer Noire

Programme de travail pour 2013-2014

Élection des membres du Bureau du Comité de l'aquaculture

Autres questions

Date et lieu de la neuvième session

Adoption du rapport

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Appendix C / Annexe C**List of documents / Liste des documents**

GFCM:CAQ/VIII/2013/1	Provisional Agenda
GFCM:CAQ/VIII/2013/2	Executive report on intersessional activities, recommendations and workplan (2013 – 2014) of the CAQ and its subsidiary bodies
GFCM:CAQ/VIII/2013/Inf.1	Provisional list of Documents
GFCM:CAQ/VIII/2013/Inf.2	Provisional list of Participants
GFCM:CAQ/VIII/2013/Inf.3	Report of the Seventh Session of the Committee on Aquaculture (FAO HQ, 8-10 March 2011)
GFCM:CAQ/VIII/2013/Inf.4	Report of the Thirty-fifth Session of the GFCM (FAO HQ, 9-14 May 2011)
GFCM:CAQ/VIII/2013/Inf.5	Report of the Thirty-sixth Session of the GFCM (Morocco, 14-19 May 2012)
GFCM:CAQ/VIII/2013/Inf.6	Report of the Fifth Coordination Meeting of the Working Groups (CMWG) (GFCM HQ, 7-9 March 2012)
GFCM:CAQ/VIII/2013/Inf.7	Short notes on the SIPAM intersessional activities (2012)
GFCM:CAQ/VIII/2013/Inf.8	Report of the Thirteenth Session of the Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM) (Italy, 1-3 February 2012)
GFCM:CAQ/VIII/2013/Inf.9	Trend and issues of marine and brackish water aquaculture in the Mediterranean and Black Sea
GFCM:CAQ/VIII/2013/Inf.10	Key issues towards Guidelines for the use of indicators to monitor sustainable development of aquaculture in Mediterranean and Black Sea countries
GFCM:CAQ/VIII/2013/Inf.11	Key issues towards Guidelines for the sustainable management of Mediterranean coastal lagoons
GFCM:CAQ/VIII/2013/Inf.12	Brief notes on regional biosecurity and aquatic animal diseases
GFCM:CAQ/VIII/2013/Inf.13	Brief notes on aquaculture certification, traceability and existing guidelines
GFCM:CAQ/VIII/2013/Inf.14	First GFCM Framework Programme (2013-2018) in support of Task Force Activities (FWP)
GFCM:CAQ/VIII/2013/Inf.15	SIPAM Quick Start Guide for National Coordinators (updated)
GFCM:CAQ/VIII/2013/Inf.16	Draft glossary of scientific terms of interest for the CAQ
GFCM:CAQ/VIII/2013/Inf.17	Report of the first meeting of the ad hoc Working Group on the Black Sea (Romania, 16-18 January 2012)
GFCM:CAQ/VIII/2013/Inf.18	Report of the SHoCMed Workshop on the definition and environmental monitoring within allowable zone of effect (AZE) (Spain, 16-18 November 2011)

GFCM:CAQ/VIII/2013/Inf.19	Report of the InDAM Regional Workshop on the pilot case studies and guidelines and application of sustainable indicators in aquaculture (Spain, 14-16 November 2011)
GFCM/CAQ/VIII/2013/Inf.20	Report of the meeting on the interaction between aquaculture and capture fisheries (IACF) in Mediterranean coastal lagoons (Italy, 28-30 June 2011)
GFCM/CAQ/VIII/2013/Inf.21	Resolution GFCM/36/2012/1 on guidelines on allocated zones for aquaculture (AZA)
GFCM/CAQ/VIII/2013/Inf.22	Draft template for the preparation of national reports on aquaculture research and development activities
GFCM/CAQ/VIII/2013/Dma.1	Indicators for sustainable aquaculture in Mediterranean and Black Sea countries. Guide for the use of indicators to monitor sustainable development of aquaculture. GFCM Studies and Reviews N. 93 (Fezzardi et al., 2013)

Appendix D / Annexe D**Terms of Reference for the SIPAM National Focal Points (revised) / Mandat des points focaux nationaux du SIPAM (révisé)**

Recognizing his/her government's commitment to SIPAM under the auspices of the General Fisheries Commission for the Mediterranean (GFCM) the SIPAM National Focal Point shall:

- ensure the statistical data submission to the GFCM through the SIPAM information system according to the recommendation GFCM/35/2011/6 on reporting of aquaculture data and information, amending recommendation GFCM/33/2009/4;
- coordinate at national level data flow of aquaculture information between his/her government and the GFCM;
- in conformity with relevant GFCM rules regarding the attendance to statutory meetings, represent the SIPAM network during the relevant GFCM meetings on aquaculture;
- cooperate with the GFCM Secretariat to exchange aquaculture data at regional level.

Appendix E / Annexe E

Preliminary canvas for the biennial report on the state of aquaculture in GFCM Member States / Structure préliminaire du rapport biennal sur la situation de l'aquaculture dans les Etats membres de la CGPM

PART 1 - Overview of the general trend of the sector in the Mediterranean and Black Sea aquaculture

- **General information**
 - *Production volume and value*
 - *Analysis of trends of on-growing production according to the time series (ten years);*
 - *Trend analysis according to the environment*
 - *Species (mollusc, finfish, crustacean) trend analysis (volume and value)*
 - *Juveniles production trends*
 - *Structure of aquaculture industry (environment, species, enterprise)*
 - *Socio-economic indicators (employees, facilities, etc.)*
- **Market aspects of farmed fish**
 - *Seafood consumption*
 - *Consumption of farmed products*
 - *Farmed on-growing trade flows*
 - *Farmed juveniles trade flows*
- **Regulatory framework**
- **Issues** *(to be defined according to selected or ad hoc priorities)*
- **Case studies** *(i.e. market; commodities; diversification; research achievements; other).*

PART 2 - Country status of aquaculture sector (info by country)

- **General information and country profile**
 - *General trend analysis*
 - *Regulatory framework*
 - *National development plan*
 - *Structure of aquaculture industry (environment, species, enterprise)*

- *Socio-economic indicators (employees, facilities, etc.)*
- **Country status**
 - *Production volume and value*
 - *Analysis of trends of on-growing production according to the time series (ten years);*
 - *Trend analysis according to the environment*
 - *Production for structure and typology*
 - *Species (mollusc, finfish, crustacean) trend analysis (volume and value)*
 - *Juveniles production trends*
- **Market aspects of farmed fish**
 - *Seafood consumption*
 - *Consumption of farmed products*
 - *Farmed on-growing trade flows*
 - *Farmed juveniles trade flows*

Appendix F / Annexe F

Draft Terms of Reference of the Regional review on the current status of aquaculture in the GFCM Competence Area / Projet de mandat pour l'examen régional de la situation actuelle de l'aquaculture dans la zone de compétence de la CGPM

The social and economic relevance of sustainable development in aquaculture within the GFCM area has been stressed on many occasions and in several fora. At present, aquaculture industry consists of various segments depending, *inter alia*, on the rearing system, the farming environment and the cultured species. In addition, it is important to recall that GFCM Members are at different stages of industry maturity, depending on multidimensional factors and local specificities.

This heterogeneous regional industry calls for strategic actions to address fundamental differences among countries and between sub-regions in order to guarantee equal opportunities and social, economic and environmental sustainability. The preparation of these actions requires timely information and updated knowledge of the aquaculture sector in the GFCM area including with regards to main issues such as market competition, use of coastal zones, legislation, and research.

To concretely address this challenge the GFCM will undertake a *Regional review on the current status of aquaculture in the GFCM competence area* via a thematic regional survey in order to take stock of the aquaculture status in the GFCM area.

The Regional review would help setting-up a suitable regional platform to exchange experiences, improve the knowledge and strengthening the cooperation on the aquaculture sector among GFCM Members. The Regional review will also be instrumental to identify priorities in light of the regional, sub-regional and country specificities, and hence provide useful elements in support to aquaculture action plans in the GFCM area.

Within the GFCM remit of promoting sustainable development of aquaculture, the overall objective of the regional review is to gather key information for a thematic evaluation of aquaculture in the GFCM Area through a regional survey which will comprise the following main activities:

1. Carry out an inventory of regional initiatives, projects and programmes dealing with Mediterranean and Black Sea aquaculture in order to build on their outcomes and achievements;
2. Perform an analysis at regional, sub-regional and national level of the status of aquaculture in terms of:
 - Farming technologies
 - National expertise
 - Market (traceability, certification, national and international markets)
 - Species diversification including on-going experimentation
 - Aquatic animal health including biosecurity, veterinary and quality control
 - Aquaculture nutrition, feed technology and use of fish meal (nature, origin)
 - Availability of infrastructure and integrated activities
 - Existing national development plan for aquaculture

- Organization of the private sector
 - System of data collection systems and reporting of aquaculture
 - Aquaculture-related legislation
 - Research and education facilities
 - Government and private sector investments
 - Environment monitoring programmes
 - Climate change
 - Organic aquaculture
 - Public perception of the aquaculture sector and aquaculture products
3. Identification of priorities, challenges and technical assistance needs at national, sub-regional and regional levels;
 4. Organization of a workshop to present and disseminate the results of the regional review and define a strategic reference framework for aquaculture.

Appendix G / Annexe G

Draft standard format for national reports on research activities* / *Projet de modèle pour les rapports nationaux sur les activités de recherche**

1. General information

Country	
Name of compiler	
Title of compiler	
Institution of compiler	
Date of submission	

2. Status of national research framework

Description of the national research framework and research projects related to aquaculture of interest to GFCM CAQ Working Groups.

3. Status of the biological sciences and technical studies on aquaculture in progress during the intersession

Description of the achievement and/or progress in activities related to the national research on the biological aspects of the aquaculture sector (seed production; new species; aquatic animal health; farming systems and technology; feed production; etc.).

4. Status of the economic studies on aquaculture in progress or achieved during the intersession

Description of the achievement and/or progress in activities related to the national research on the economic aspects of the aquaculture sector (production trends and possible future scenarios; national and international market studies; market risk analysis; market oriented approach and strategies for the sustainable development of aquaculture; certification and traceability; new products; etc.).

5. Status of the social sciences studies in progress or achieved during the intersession

Description of the achievement and/or progress in activities related to the national research on the social aspects of the aquaculture sector (role of aquaculture farmers' organizations; employment in aquaculture; etc.).

6. Environmental studies with reference to the aquaculture activities

Description of the main results from actions, studies and monitoring programs in progress and carried out during the intercessional period, and which are relevant to the impact on the marine environment and ecosystems originated by aquaculture activities.

7. List of funded aquaculture research programs and projects since 2010

8. Future aquaculture research programs and projects at national and international level

** report to be provided on annual basis at least one month before the annual session of CAQ or the Commission*

Appendix H / Annexe H

Research activities on aquaculture carried out by GFCM Members / nouveau modèle pour les rapports nationaux

Albania

Albania was developing a new 'Law on Aquaculture' thus recognizing the importance of this sector for the country. Several specific aquaculture research activities were implemented in the past in support to the sector. In 2012 a training on advanced methodology of Chinese carp artificial reproduction was delivered in cooperation with Hungarian aquaculture specialists. In terms of technical support Albania was supporting molluscs' farmers in Saranda district in implementing quality schemes and HACCAP system applied to molluscs. A laboratory with necessary equipment to carry out basic analyses was also provided. With the support of FAO AdriaMed project and the FAO Regional Office in Budapest (Hungary), a comprehensive assessment of the sector has recently been carried out. The evaluation provided important information on biological, technological, productive, economical, social and environmental aspects of aquaculture in the country.

Algeria

Research in the field of fisheries and aquaculture in Algeria was conducted by more than a dozen universities and research centres. Funding of research projects was provided by the Ministry of Research. On the other hand, the Ministry of Fisheries and Fisheries Resources and through the National Centre for Research and Development of Fisheries and Aquaculture (CNRDPA) conducted research projects directly related to the problems of sector. The main research topics included in the field of aquaculture were the following: (1) *Development of marine aquaculture*: control of the production and reproduction of aquaculture species (fish, crustaceans and molluscs); pathology of marine farms; identification of references for the species to be farmed; fish fry collection (mullet, eel, European seabass) and their adaptation in the environment; (2) *Development of inland aquaculture*: diversification of species with high commercial value; mastery of broodstock breeding; determination of a protocol and implementation of an experimental unit for the operation of the brine shrimp; development of aquaculture products; assessment of reference for production according to species; pathology; development of water reservoirs (dams) in fish farming; (3) *Socio-economics of fisheries and aquaculture*: marketing of fishery products; assessment of value structures, cost structures and margins; assessment of reference price; (4) *Environment and quality of aquatic ecosystems*: safety of the aquatic environment; networks of bio-monitoring of the environment; study on aquatic ecosystems; sources of pollution and their impacts on the aquatic environment.

Bulgaria

In Bulgaria a series of studies and research initiatives on aquaculture were recently being carried out. A comprehensive survey research on the impact of freshwater aquaculture on hydro-systems in ponds and dams in Bulgaria was being implemented by the Executive Agency of Fisheries and Aquaculture, Institute of Fisheries and Aquaculture, Sofia University and University of Plovdiv. The research addressed the main physical and chemical parameters of the water and the demersal sediments, the dynamic and the species variety of the zooplankton, zoobenthos and phytoplankton. An analysis was conducted of the crayfish (*Astacus leptodactylus*) and freshwater finfish species. The research was very relevant for the development of freshwater aquaculture in the region while avoiding potential negative impacts on the environment. Bulgarian Academy of Sciences and Science Council of Japan (SCJ) concluded the bilateral Agreement of Cooperation on 30 March 2012, with the purpose to promote basic and applied sciences as well as humanities and social sciences. Among those, SCJ identified some proposals from the Bulgarian Academy of Science (BAS), which relates to a key item,

that is sustainability and cooperation. Other projects, researches and surveys carried out in Bulgaria in the past included the following: (i) development of system of rules for increasing the production efficiency in aquaculture (2007); (ii) impact of the primary plankton productivity on the breeding of carp fries and larvae and herbivorous species in the polyculture (2006-2008); (iii) research and analysis of the gametogenesis and the reproduction potential of some alien aquaculture species and the optimization of the restocking of pike (2007-2009); (iv) survey on the balance of bio-genetic elements and the structure of the common reproduction processes in the freshwater fish farming (2007-2009); (v) analysis of the perspectives for introduction of alternative plant protein sources of juvenile carp feeding (2006-2007); (vi) analysis of the perspectives for introduction of bio-fish farming in the freshwater fish farming in Bulgaria (2004-2006); (vii) introduction of sturgeon (*Acipenseridae*) in the inland water basins on the territory of Bulgaria and development of the technology for their farming (2002-2006); (viii) characteristics, dependencies, and perspectives for management of the ecological parameters in the freshwater fish farming (2002-2006); and (ix) development of technology for breeding and farming of pike (2002-2005).

Croatia

Over the period 2011–2013 Croatia implemented very few research and development projects on aquaculture. All these projects were national projects dealing with disease issues in seabass and seabream farming, new technologies in mussels' cultivation, introduction of new species, and bluefin tuna feeding. All research projects supported by the Ministry of Agriculture and related to genetics and the selection of broodstock for different species (seabass, seabream, carp, and trout) were concluded. Croatia continued to support research activities on bluefin tuna farming, including the use of stereoscopic camera systems. Since several universities in Croatia provided postgraduate studies on fisheries and aquaculture, significant research has been carried out within PhD thesis activities, covering different aspects of aquaculture including technology, biology, sociological and market aspects, and consumers' preferences towards aquaculture products. There was also one research project on different aspects of bluefin tuna breeding in captivity funded by the private sector. Several research projects dealing with the introduction of new species were in progress as well. Croatia did not implement any data collection system on a national basis regarding aquaculture research projects, which made the collection of such data very difficult.

Cyprus

Aquaculture in Cyprus started in 1969 with attempts to develop trout farming in the Troodos mountain range. The experimental freshwater fish culture station of the Department of Fisheries and Marine Research (DFMR) was constructed at Kalopanayiotis village and initially served as a pilot research station.

Regarding marine aquaculture, the first attempts were made in 1972 with the construction of a marine research station by the DFMR at Gastria, on the east coast of Cyprus, about 15 km northeast of Famagusta. In 1974 the Government lost access to the station due to the Turkish invasion. Research work in marine aquaculture continued from 1978-1989 in the Paphos Harbour where the DFMR successfully operated a small hatchery for the experimental reproduction of marine fish, mainly the European seabass (*Dicentrarchus labrax*), gilthead seabream (*Sparus aurata*), white seabream (*Diplodus sargus*) and marbled spinefoot (*Siganus rivulatus*) also called rabbitfish. Broodstock was reared in small cages in the harbour area. A new experimental marine aquaculture station at Meneou, near Larnaka airport, was built by the DFMR in 1989 and all marine aquaculture research activities were resumed there. The station had a hatchery, a small grow-out facility and a number of floating cages. In 2012, the marine research station was completely reconstructed and modernized and its name was changed to Cyprus Marine Aquaculture Research Center (CMARC).

The research programmes that have been undertaken at CMARC focused mainly on new candidate species for fish farming, such as rabbitfish (*S. rivulatus*), common pandora (*Pagellus erythrinus*), greater amberjack (*Seriola dumerili*) and meagre (*Argyrosomus regius*). The main objective of the research work is the diversification of aquaculture production with new species, a task that will

contribute to the sustainability of the sector. The main projects that have been running during 2012 were i) Reproduction and larval rearing protocols for the mass production of fry of the rabbitfish (*S. rivulatus*) and the fattening in sea cages until marketable size (in the content of this work, 25,000 fingerlings of rabbitfish were sold to a private company for fattening them in off-shore sea cages), ii) Study of the effects of temperature and oxygen concentration on the metabolism of rabbitfish, iii) Evaluation of broodstock nutrition in *P. erythrinus* in respect to reproductive performance and quality of produced eggs and larvae, iv) Larval culture of *P. erythrinus* using the mesocosm technique and evaluation of the quality of produced fingerlings, v) The effect of dietary crude protein and fat levels on the growth of *S. dumerili*, vi) Management of amberjack broodstock, performing a trial on reproduction using LHRHa hormone (in co-operation with a private company a group of broodstock was placed in an off-shore sea cage farm), vii) Fattening of meagre in tanks and observation of its feeding behaviour, and viii) Evaluation of the culture of rotifers with different feeds and determination of their nutritional value. Some of the above research projects were implemented with the participation of students during their practical work or thesis project at CMARC.

Egypt

In Egypt many universities and research bodies including an important specialized research centre under the Ministry of Agriculture, carry out academic and applied research in the field of aquaculture. The research topic encompasses fields such as genetics, development of new strains more tolerant to different environmental conditions, research on breeding and hatcheries, aquaculture nutrition, use of hormones, aquaculture quality control and environmental impacts from aquaculture. At present, the General Authority for Fish Resources Development (GAFRD) is implementing applied researches to induce spawning for some marine species. Preliminary encouraging results were obtained in breeding mullets, and further research is needed before direct application of knowledge and technology will be possible for the marine aquaculture development in Egypt.

France

The French research initiatives in the field of aquaculture, fundamental as well as applied, focuses mainly on continuation of previous work on genetics of fish and molluscs including: (i) experiments for the selection of strains of trouts and/or other fish that can be mainly fed with raw material of vegetable origins. This will allow, in the medium term and in a global context of a growing sector, to substitute more efficiently raw material of marine origin (particularly fishmeal and fish oil) currently included in the diet of farmed fish; (ii) In consideration of the sanitary crisis impacting the oyster culture, research activities are also implemented on the selection of strains of oyster resistant to the herpes virus responsible of massive summer mortality of spat oysters. This work is on-going and French authorities wish they can succeed rapidly.

Many other promising research initiatives are in progress concerning the culture and utilization of micro and macro algae which could be commercially viable.

Furthermore, there are also new fields of research potentially to be considered in the short and medium term such as: (i) the development of pilot aquaculture facilities located off-shore and using wind-generated electricity, and also integrated multi-trophic aquaculture including fish, shellfish and algae systems; (ii) research activities on carrying capacity and biological potential in the framework of spatial planning of aquaculture activities, to be considered within the framework of maritime integrated policy, a new dimension of the Political Common Policy for the fisheries of the European Union for the period 2014-2020.

Finally, it should be noted that some of the future work will be carried out by a scientific consortium “Fish farming tomorrow”, a platform created in 2012 bringing together leading research agencies concerned, the private sector involved in fresh and marine aquaculture, as well as the public administration.

Italy

The research sector in Italy was very active and diversified. There were 26 institutions involved in aquaculture research. All these institutions carried out research and some of them also provided training, monitoring, and extension and demonstration activities. Over the last three years, 30 projects were implemented. Most of these were integrated and coordinated, involving stakeholders, mainly farmers' and producers' associations. Sixty percent of these projects were financed through national public funds, the remaining with EU funds. The main funder was the Ministry of Agriculture, followed by the Ministry of Environment, Research and Health. Projects focused on the following thematic research areas: health and welfare (24 percent); product quality, consumer safety and health (23 percent); interactions between aquaculture and environment (17 percent); biological life-cycle management and diversification (13 percent); technology and production systems (9 percent); socio-economic issues (8 percent); sustainable feed (4 percent); knowledge dissemination (2 percent). Research priorities for the Italian aquaculture sector were identified through an extensive consultation with stakeholders which included more than 100 actors, promoted by the Ministry of Agriculture. As a result, key goals for future aquaculture development and research activities aimed at improving the sustainability and competitiveness of the aquaculture sector at the national level were identified. Strategic objectives related to the following four thematic areas: 1) governance in aquaculture (long-term spatial planning to secure allocation of water and space, reduce conflict, facilitate licensing procedures and reduce red tape, AZA); 2) guarantee of aquaculture products with high quality standards, taking into account consumers demand and health benefits; 3) improve the use of natural resources and maintain biodiversity; 4) Improve fish health and welfare of aquatic farmed animal mainly through the access to effective vaccines and chemicals and the implementation of biosecurity measures. These results have been carefully considered and included in a multiannual national plan for aquaculture, in preparation within the framework of the 2014–2020 EU Common Fisheries Policy.

Lebanon (to be provided)**Montenegro**

As a result of a project started in 2009 aimed at exploring the possibility of oyster farming in Montenegro, one private oyster farm was established in Boka Kotorska Bay. In 2012 the farm produced the first oysters in Montenegro. The project for the reconstruction of the experimental mussel farm in front of the Institute of marine biology was implemented in 2012 and the “laboratory in the sea” was eventually functional. Although it was not a real research project, it enabled the realization of different activities. Researches were carried out by the Institute of Marine Biology of Kotor. Since 2012, no further research projects were funded by the government, and therefore no research activities were undertaken. Moreover, the country had not involved in any international research project that could potentially contribute to the development of mariculture in Montenegro e.g. introducing new native species in the farming process, transfer of new technologies and development of “off-shore” mariculture.

Morocco

Aquaculture research in Morocco is mainly carried out by the National Institute of Fisheries Research (INRH) in marine waters area and the National Centre of Hydrobiology and Fish-culture (CNHP) in freshwaters area. Generally, this research has a more practical and operational aspect. Generally, this research has a much more practical and operational aspect while the fundamental aspect is fewer and mainly undertaken in joint cooperation with universities. During the last CAQ intersession period, national highlights were mainly characterised by the implementation of the National Strategy for Fisheries Development called “Halieutis Plan” through the creation of the National Agency for Aquaculture Development (ANDA) and the establishment by INRH of a new Strategic Development Plan for marine aquaculture research in consultation with the Marine Fisheries Department (DPM) and ANDA.

Aiming at mobilizing an advanced research and producing scientific and technical knowledge required for sustainable development of marine aquaculture at national level, the new strategy for aquaculture research has been focused on three pillars: (i) Research and Development, (ii) Support to both public and private sectors dealing with aquaculture (Advice and Expertise) and (iii) Communication and dissemination (scientific Data, technical factsheets and demonstration operations). The aquaculture research programs have been thus refocused on the following four major aspects:

- Technology: development of techniques for captive breeding, fingerling production and on-growing of new species of aquaculture interest, nutrition research and zoo-technical performances improvement;
- Environment: site selection study for aquaculture, study of functioning of aquacultural ecosystems and study of the interaction between environment and aquaculture;
- Economy: study of technical and economic feasibility and financial viability of aquaculture projects, study of operation of aquaculture farms and study aquaculture products market;
- Social: study of the social perception of aquaculture and characterization of groups of persons targeted by aquaculture development efforts.

Romania

Research in aquaculture in Romania was carried out by research institutes and universities. Over the past two years research focused on diversification of production by rearing valuable species (e.g. turbot in marine water, and sturgeon in fresh and marine water), and on environmental-friendly culture systems (i.e. closed recirculating systems). The research results were then transferred to the private sector and the first turbot rearing farm, with a closed recirculating system, was established on the Romanian coast. It was co-funded by the European structural funds and the Fisheries Operational Programme and by a private company. Aquatic animal health programmes were also developed by specialized institutions, taking into account the need for biosecurity, veterinary and quality control of aquaculture products. Water monitoring activities of the rearing and exploitation of shellfish were continued by the National Institute for Marine Research and Development “Grigore Antipa” under the coordination of the Ministry of Environment and Climate Change. These activities followed the objectives provided within the EU Directive 79/923 “Shellfish Waters”, subsequently repealed and replaced by Directive 2006/113/EC to support private companies in the exploitation of natural mollusc populations and rearing farms (only one, in Romania).

Spain

Spain has currently has 39 research centers working in aquaculture. Nine are located in Galicia, seven in Andalusia and the rest are around the rest of the Spanish geography.

In addition to these resources, 28 Spanish universities and within these 56 schools and 87 university departments carried out research and teaching related to aquaculture.

The main research subject: nutrition and food quality and traceability, growth and health and genetics and physiology.

Spain has, at national level, three lines to fund aquaculture research projects:

1. National R + D, managed by the Ministry of Economy and Competitiveness (MINECO), within which aquaculture has been framing in various programs and subprograms. In the period 1998-2010 have developed a total of 289 aquaculture research projects. 78% of these projects are framed within the research lines of optimization of production systems and health aspects.

2. The second line of research is developed by the Center for Industrial Technological Development, also dependent MINECO, through various forms of financial support. In the period 1998-2010 have been implemented by the companies a total of 82 projects in this line.

3. Finally, the National Plan, which manages the National Advisory Board for Marine Farming, Ministry of Agriculture, Food and Environment, are projects agreed between the regions and framed within five strategic areas: health issues, food quality and safety, environmental management, new

species and optimization of the production conditions. Within this line have been funded a total of 202 research projects in the period 1998-2010.

During this same period, the total budget for the implementation of these 573 projects has been more than 110 million euros.

Syrian Arab Republic (to be provided)

Tunisia

La recherche aquacole en Tunisie relève de plusieurs instituts sous tutelle du Ministère de l'agriculture et précisément l'Institut de Recherche et de l'Enseignement Supérieur Agricole (IRESA). Ces institutions regroupent plus de 40 chercheurs répartis dans 3 instituts : l'Institut National des Sciences et Technologies de la Mer (INSTM), l'Institut National Agronomique de Tunisie (INAT) et l'Institut Supérieur de la pêche et de l'aquaculture de Bizerte (ISPA).

Les thématiques de recherche sont discutées et évaluées au niveau de l'IRESA afin de les faire correspondre aux besoins de la profession et aux orientations stratégiques du pays. Cette harmonisation des axes de recherche contribue à l'optimisation des budgets alloués et la création d'un réseau d'échange entre instituts. Les principales thématiques sont relatives à la diversification des espèces (sole, pagre, mullet, spiruline palourde, crevette, etc.) ainsi qu'à l'amélioration des techniques de production, à l'instar de l'aquaculture des moules et des huîtres sur *long line* en mer ouverte afin de pallier aux problèmes environnementaux liés aux sites enclavés et aux lagunes.

D'autres thèmes de recherche sont également étudiés et touchent aux aspects relatifs à la détoxifications des coquillages ou encore à la valorisation des produits aquacoles (fumage, salaison, etc.). Les aspects relatifs à la courantologie ou encore à la biodiversité, bien qu'ils ne soient pas spécifiques à l'aquaculture, couvrent un budget et un temps de recherche appréciables et leurs résultats sont valorisés pour la sélection des sites aquacoles.

Turkey (to be provided)