



*SCIENTIFIC COOPERATION TO SUPPORT
RESPONSIBLE FISHERIES IN THE ADRIATIC SEA*

MiPAF

Food and
Agriculture
Organization
of the
United Nations

Italian Ministry
of Agriculture
and
Forestry
Policies

Adriamed

GCP/RER/010/ITA

Report of the First Meeting of the Adriamed
Coordination Committee

Termoli, 30-31 March 2000

By

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(eds)

The conclusions and recommendations given in this and in other documents in the *Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea* Project series are those considered appropriate at the time of preparation. They may be modified in the light of further knowledge gained in subsequent stages of the Project. The designations employed and the presentation of material in this publication do not imply the expression of any opinion on the part of FAO or MiPAF concerning the legal status of any country, territory, city or area, or concerning the determination of its frontiers or boundaries.

Preface

The Regional Project “Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea” (Adriamed) is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Italian Ministry of Agriculture and Forestry Policies (MiPAF).

Adriamed was born to contribute the promotion of cooperative fishery management between the participating countries (Republics of Albania, Croatia, Italy and Slovenia), in line with the Code of Conduct for Responsible Fisheries adopted by the UN-FAO.

Particular attention is given to encouraging and sustaining a smooth process of international collaboration between the Adriatic Sea coastal countries in fishery management planning and implementation. Consideration is also given to strengthening technical coordination between the national fishery research institutes and administrations, as well as between them, the fishery organizations and the other relevant stakeholders of the Adriatic countries.

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Preparation of this document

This technical document is the final version of the report adopted by the participants in the first meeting of the Coordination Committee of the Project Adriamed (*Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea*) held in Termoli, Italy.

Acknowledgements

We wish to acknowledge the assistance of Adriamed personnel, Ms C. Bennett and Mr V. Zeuli, in organising this meeting and finalising this document.

The kind and supportive hospitality provided by Mr A. Chieffo, President of Campobasso Province, Mr A. Montano, Mayor of Termoli, Mr G. Sassi, Director General of the Polo Industriale and Mr D. Bonifacio of the Cosib headquarters is gratefully acknowledged.

Many thanks also to Messrs H. Ben Alaya and S.R. Coppola for their technical assistance in drafting this report.

Lastly, we wish to record the constructive participation of all members of the Adriamed Coordination Committee and, particularly, the effective chairmanship of Prof. S. Cataudella.

Table of Contents

Pages

Acknowledgements.....	5
Table of contents.....	6
Report of the First Meeting of the Adriamed Coordination Committee.....	7
Annex A: List of participants.....	14
Annex B: Agenda.....	15
Annex C: List of documents presented to the Coordination Committee.....	16
Annex D: Brief report on Adriamed's preparatory phase.....	17
Annex E: Outline of project short and medium term activities.....	20
Annex F: Terms of reference for the Adriamed Coordination Committee.....	34
Annex G: Brief overview of Adriatic fisheries landing trends (1972 – 1997).....	36
Annex H: Project Document GCP/RER/010/ITA.....	55

Report of the First Meeting of the Adriamed Coordination Committee

Termoli (Italy), 30-31 March

Opening of the ceremony and election of the Chairman (Agenda Item n. 1)

1. The first meeting of the Adriamed Coordination Committee (CC) was held in Termoli, Italy from 30th – 31st March 2000.
2. The meeting was attended by the Adriamed professional staff, delegates from the participating countries, (the Republic of Albania, the Republic of Croatia, the Republic of Slovenia and the Republic of Italy), a delegate of the Donor, representatives of FAO HQ, the Secretary of General Fisheries Commission of the Mediterranean (GFCM), a representative of the European Commission Fisheries Directorate (EC) and the FAO Copemed Project Coordinator as observer. The list of participants is given in Annex A of this report.
3. The meeting was opened by the Adriamed Project Coordinator, who welcomed the participants; the floor was then given to the local authority representatives (Mayor of Termoli and President of the Province of Campobasso), who greeted the participants and eulogised the role played by the project in the Region, expressing great honour in welcoming the Adriamed Coordination Committee to Termoli. They underlined the importance of strengthening scientific cooperation and the links between the Adriatic coastal communities, especially the friendly relations which can be sustained. They highlighted the antique links between the Balkan countries and the Molise Region.
4. After the local authorities had left, Prof. Stefano Cataudella was elected chairman and he accepted this role.
5. The Chairman declared the meeting open and invited all the participants to play an active role; each participant then introduced himself to the Committee. At this point the Rapporteur was nominated as Dr Piero Mannini.

Adoption of the Agenda (Agenda Item n. 2)

6. The Committee approved the agenda given in Annex B of this report.

Brief report of Adriamed's preparatory phase (Agenda Item n. 3)

7. At the beginning of the meeting, a set of documents prepared by the project staff was circulated. Among other material, the paper entitled "Brief overview of Adriatic fisheries landing trends (1972-1997)", Annex G, was also distributed. The list of documents is given in Annex C.
8. The Committee was briefed on the work carried out during the Adriamed preparatory phase as detailed in the document CC/00/01 in Annex D. Following the considerations of the Project Coordinator regarding the difficulties met because of the current Project budget operating

system, the Committee strongly recommended FAO make every effort to reconsider the budget management procedures through a local bank imprest account.

Outline of project short and medium term activities (Agenda Item n. 4)

9. The Project Coordinator outlined the proposed Adriamed short and medium term activities as presented and detailed in the document CC/00/02 given in Annex E.
10. The Chairman stressed the opportunity for the Committee members to formulate and suggest modifications of the said document and called on the delegates from each country to express their positions regarding each activity proposed and to play an active role in all ensuing discussion.
11. The Albanian delegation recognised the importance of Adriamed, underlining the Project as one of the first regional initiatives in this context and confirmed that the Project is sustained by the Albanian Government at the highest institutional level.
12. It was remarked to the Committee that every country has different development priorities. Some of the important aspects in Albania are: technical training, coastal area management (especially responsible coastal aquaculture) and support for the only existing fishery research institution (Dürres).
13. The Committee was informed that the idea of uniting Adriatic countries in the context of fisheries has existed since 1987. The Albanian delegation also referred to the “Stability Pact” which was recently signed (Sarajevo, July 1999) and which creates the conditions to promote collaboration in the Balkan area, encouraging the hope of integration into the European Union. The Donor country and FAO were consequently acknowledged for this further opportunity for growth in this direction.
14. The Albanian delegation upheld two items in the Project Document as particular priorities. The Project must support creation of an integrated fishery monitoring system, foster regional fishery statistics standardisation and assist the reinforcement of collaboration between public and private sector fishery institutions.
15. The Committee was informed that the fishery industry in Albania is now being structured into category associations. The environmental problems are at the forefront of discussion among these associations. With reference to the FAO Code of Conduct for Responsible Fisheries, one of these associations is called “Pesca Responsabile”. It was stressed that it is very important to promote these initiatives.
16. A review was presented by the Croatian delegation of some issues relevant to national fisheries during the last few decades. Current problems in Croatia due to the transition of national fisheries from a cooperative to largely private sector activity were brought to the attention of the Committee.

17. The importance of the management of Adriatic shared fish stocks was emphasised. Appreciation was expressed for the organisational structure of the Project and the activities identified. It was remarked that the need to detail field research activities is the next step.
18. The Chairman focused attention to the fact that at this stage the first Coordination Committee has to agree on the overall Project policy.
19. The Slovenian delegation were grateful for the informative nature and lucidity of the presentation and also wholly accepted the Adriamed short and medium term activities. They reminded the Committee of Slovenia's ongoing effort to optimise fishery data collection. The Committee was informed that the national fishery research staff are also collaborating in the MEDITS (MEDITerranean Trawl Survey) programme. Particular interest in research work on grey mullet in the North Adriatic and on small pelagic fish was expressed.
20. The Secretary of GFCM stated that the project should develop a pilot scheme, not only on how to collect and process data and carry out research activities, but also how to manage fisheries for the rest of the Mediterranean.
21. The Secretary expressed the wish to see the same focal points designated to coordinate Adriamed activities at national level, also designated as members of the GFCM Scientific Advisory Committee (SAC) sub committees, who should then make every effort to attend all GFCM meetings. These could be experts already involved in international research programmes, using the existing relations they would be in a position to capitalise on the positive conditions already present in the basin.
22. The need to have a sustained training component in the Project programme of work was also emphasised. The Secretary underlined the necessity to harmonise stock assessment activities in order to make the use of the research results for the evaluation of the resources at sub-regional and regional levels possible. The Committee members were informed that standard forms are being developed for this purpose and called on the participants to contribute to the finalisation of the forms.
23. The Secretary of the GFCM also mentioned some of the ongoing activities of high priority to GFCM, such as the definition of management units and the definition of the fishing effort parameter. As far as the management units in the Adriatic sea are concerned, the following partitioning structure was proposed at the GFCM twenty-fourth session (Alicante, Spain, 12-15 July 1999):
 - North and Central Adriatic Sea
 - Southern Adriatic Sea down to the Strait of Otranto
24. The Committee took note of the documents provided by the GFCM Secretary, which were: the report of the first session of the Demersal Working Group; Proposal for a Partition of the GFCM area into Fishery Management Units; the Terms of Reference of the Sub-Committees of the Scientific Advisory Committee.
25. The European Commission representative thanked Adriamed for the invitation to attend the meeting and expressed the great interest of the Commission towards the Adriamed Project,

welcoming the launch in the Adriatic Sea of an initiative similar to the FAO-Copemed project for the Western Mediterranean.

26. The strong support of the EC for the implementation of Adriamed was stressed, particular emphasis was put on the fundamental need for scientific research and data harmonisation. The proposed first short and medium-term activities of the Project were appreciated as a good start, the implementation of which will constitute a valid contribution towards the formulation and implementation of a Mediterranean fishery management policy.
27. The Copemed Coordinator introduced the Copemed Project and summarised the activities accomplished and those currently underway. The similarities and common objectives of Adriamed and Copemed Projects were underlined, both having the aim of strengthening regional scientific cooperation and supporting responsible fisheries in the Mediterranean.
28. Given the analogy between Adriamed and Copemed Projects, the Committee considered it appropriate that the Copemed Coordinator be a permanent observer at Adriamed Coordination Committee meetings, thus following the provision of the Copemed Steering Committee to have the Adriamed Coordinator as permanent observer. Document CC/00/03 Annex F was thereby modified.
29. The Chairman considered essential the need for coordination of the results from regional cooperative research projects such as Adriamed and Copemed, from SAC, and from other projects at subregional level. This is important for the countries, and for the efficiency of the Project, lack of such coordination could generate confusion. It was considered necessary both to improve the quality of information and also to gather information together rather than maintain the present fragmentary nature of regional data collection. In this context FAO's collaboration in supporting the project and the setting up of an information collection point was requested.
30. The Italian officer responsible for national research projects in the fishery sector, appreciated the quality of the documents submitted before the meeting and the project staff's effort to identify initial project activities. The Committee was assured that Italy can give the maximum collaboration for these purposes and that the experience of Italian research will be utilised at its best to achieve the Project aims.

Terms of Reference for Adriamed Coordination Committee (Agenda Item n. 5)

31. Following the general discussion on Agenda Item No. 4, the Committee resolved to make some modifications of the proposed Terms of Reference for Adriamed Coordination Committee.
32. The Committee agreed that the Chairmanship of next Project Coordination Committee Meetings will be held by the representative of the host country. Document CC/00/03 was revised accordingly, see Appendix F.
33. The role and function of the Coordination Committee to identify and propose training requirements was pointed out and it was included in the Terms of Reference of the Committee. Document CC/00/03 was thus amended.

Terms of Reference for the Coordination Committee's Group of Experts (Agenda Item n. 6)

34. Following the discussion on the role of the Coordination Committee's Group of Experts, the Committee considered it appropriate for this advisory role to be covered by experts from the region, however no specific Terms of References were considered necessary.
35. The Committee deliberated that document CC/00/04 was not needed and resolved to modify the Terms of Reference for the Adriamed Coordination Committee (CC/00/03) to include the role of Advisory Group of Experts.

Naming of Focal Points (Agenda Items n. 7)

36. The importance of the role of Project focal point in each country was stressed, the need to ensure assistance to the Project from highly experienced experts was considered a fundamental requisite.
37. The Committee agreed that each country will communicate the names of the country focal point to the Adriamed Project Coordinator within two weeks from the adjournment of the Coordination Committee Meeting.

Any other matters (Agenda Item n. 8)

38. The Albanian delegation emphasised the need for Adriamed's assistance in the development of the fishery statistics system, in training for fishing vessel captains (especially for those involved in data gathering) and training in order that fishery inspectors properly achieve their tasks. Support from Adriamed was requested for the strengthening of national research institutions. The need to support the development of responsible aquaculture was also pointed out.
39. The Croatian delegation indicated the necessity for improvement of the national fishery statistics system and asked for the support of Adriamed to facilitate the exchange of information about the organisation of the fishery sector.
40. The Slovenian delegation stated that no problem is envisaged in the implementation of the Adriamed Project and also called the Committee's attention to the need for research work on the grey mullet and small pelagic fish.
41. The EC delegate underlined the need for a FAO focal point for the coordination and release of up to date information on the activities of the different projects operating in the Mediterranean Sea region.
42. The Copemed Coordinator recommended concrete practical steps to be taken towards real cooperation between Adriamed and Copemed projects.
43. The Secretary of GFCM further emphasised that institutional building is a very important priority to achieve successful and sustainable cooperation between the countries and that

coherence of the project activities and the GFCM mandate should be taken into due consideration.

44. The FAO project subject matter officer observed, and the Committee agreed, that training will be planned as an integral part of each activity, on an “on the job” basis. He further stressed that activities referred to as short term should be implemented immediately and the other activities will be dealt with in due time.
45. The Croatian delegation raised the issue of fishery monitoring and control in the Adriatic Sea before the Committee. A request was also made for the Project to consider publishing an original fishing sector magazine. However, the Committee considered this difficult to realise within the Project framework.
46. The Chairman, on behalf of the Italian Ministry of Agriculture and Forestry Policy, informed the Committee members about the initiative of the Ministry to finance a project activity in the Sicily Channel. The Committee was informed that FAO is being given the mandate to draft a proposal for project activity in accordance with the Ministry’s initiative.
47. The activity will consist of a research programme to be undertaken in the Sicily Channel area involving the bordering countries. The budget will be allocated specifically for such activity.
48. Following the discussion on this forthcoming initiative, it was proposed that, to avoid excessive fragmentation and waste of resources, such a research programme should be under the administrative responsibility of Adriamed. Within this initiative it was proposed to request that FAO create a position for a technical officer in the Headquarters (Fishery Department – Fishery Resources Division) who would co-ordinate the actions and the flow of information derived from the Mediterranean projects.
49. All country representatives welcomed this initiative, and gave full support to the establishment of the project initiative in the Sicily Channel, and also agreed that it should be associated to Adriamed with its own autonomous budget and work programme.
50. Considering the aspects underlined by the Albanian delegates, the issue of responsible aquaculture was recognised by the Committee and the proposal for Adriamed to organise an expert consultation on the relationship between aquaculture and capture fisheries was endorsed.
51. The Committee recommended the highest attention be paid to the establishment of effective cooperation between the Adriamed and Copemed Projects.
52. The Committee invited the European Commission to take into account the problems related to the influence of the EC market on non-EU member national fishery sector, and to consider the possibility for non-EU countries to participate in EU fishery related projects.

Date and Venue of next Coordination Committee Meeting (Agenda Item n. 9)

53. The Committee decided to hold the second Adriamed Coordination Committee around the end of November 2000. Adriamed will propose the appropriate date in due course. It was also

agreed to allow for two weeks from the adjournment of the Meeting for proposals on the venue to be forwarded to the Adriamed participating countries.

Adoption of the Report (Agenda Item n. 10)

54. The Report of the Meeting was adopted on 31 March 2000.

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Agenda

1. Opening ceremony and election of the Chairman
2. Adoption of the Agenda
3. Brief report on the status of Adriamed's preparatory phase
4. Outline of project short and medium-term activities
 - 4.1 Listing of Coordination Committee topics by country
 - 4.2 Discussion and approval of proposed topics
5. Terms of reference for Adriamed Coordination Committee
6. Terms of references for the Coordination Committee's Group of Experts
7. Naming of National Focal Points
8. Any other matters
9. Date and venue of next Coordination Committee meeting
10. Adoption of the report

Annex C

List of Documents

<i>FAO-ADRIAMED: CC/00/01</i>	Brief report on Adriamed's preparatory phase
<i>FAO-ADRIAMED: CC/00/02</i>	Outline of project short and medium-term activities
<i>FAO-ADRIAMED: CC/00/03</i>	Terms of references for Adriamed Coordination Committee
<i>FAO-ADRIAMED: CC/00/04</i>	Terms of reference for the Coordination Committee's group of experts <i>(withdrawn)</i>
<i>FAO-ADRIAMED: CC/00/05</i>	Brief overview of Adriatic fisheries landing trends (1972-97)
<i>FAO-ADRIAMED: CC/00/06</i>	Project Document GCP/RER/010/ITA

Brief report on the status of Adriamed's preparatory phase

Introduction

In this paper the most relevant elements of Adriamed's preparatory phase are synthesised per point. Special attention was paid to the activities included in Output 1 of the Project Document and regarding "*The project institutional and operational framework was established*". The paper is not the project progress report referred to in the Project Document. The "*Project progress report*" will be finalised after the Coordination Committee and will be prepared as FAO standards require, it will follow the distribution indicated in the Project Document. However this paper represents some notes to inform the CC participants on the activities carried out in order to give substance to the discussion.

Project start-up: (September 1999). FAO - Adriamed Project was officially declared operational on 8 September 1999 after a formal meeting between the Italian Authorities and the FAO-TCDM (Unit for Cooperation with Multilateral and Bilateral Agencies) and FAO-FI (Fisheries Department). The project document has been signed by the Republics of Albania (11 August 1999), Croatia (15 September 1999), Slovenia (5 November 1999) and Italy (21 April 1999). The Headquarters of the project was established in Termoli (in the Molise Region - Italy). The Governments named the project Implementing Agency and contact persons.

The project was installed in a temporary office, provided by the '*Provincia*', awaiting the definitive location that will be provided by the "*Comune di Termoli*" (Termoli's Municipality) and by the *Molise Region*.

From November, after formal bidding, the office equipment prerequisite was defined, communication system was finalised. The computers were available in March 2000 as was the office intranet.

The recruitment of project staff (October 1999 – March 2000). The recruitment of the project experts: Project Coordinator and the Fishery Monitoring Expert were appointed in mid October, and at the same time a local job announcement for the secretary-clerk and for the computer expert were published. The selection of the secretary was finalised in November, and entered on duty at the beginning of January. The computer expert was selected in December, and began on the first of March.

Contacts with the participating countries. Adriamed Project established contacts with the participating countries (December 1999) and planned missions from January to February 2000. The meetings were held at: the Department of Inland, Maritime fisheries and Aquaculture, Ministry of Agriculture, Forestry and Food, (Republic of Slovenia); Fisheries Directorate, Ministry of Agriculture and Food (Republic of

Albania); Directorate of Fisheries, Ministry of Agriculture and Forestry (Republic of Croatia); the Fisheries Directorate of the Ministry of Agriculture and Forestry Policies (Republic of Italy).

The aim of each mission was to establish formal contact between the project and the countries. Further purposes of the missions were: to meet representatives of the Implementing Agencies of the Project, where it was possible to meet the staff of the respective Fishery Directorate; to introduce the project after the first three months of implementation and to discuss the project scheme; to propose the date and venue of the first Adriamed Coordination Committee; to have initial information regarding the fishery sector in the countries; to comprehend the national research activities on fishery.

During the mission in Slovenia it was possible to meet the person responsible for fishery research activities, from the University Department, “*Nacionalni Inštitut za Biologijo*”. In Albania, the researchers from the Ministry were met, it was also possible to visit the Dürres Fisheries Research Institute (FRI), meet researchers, visit fishery ports and confer with some fishing industry representatives.

In Italy the project visited some national research centres, institutes which collaborate in fishery research activities, with Slovenian, Croatian and Albanian national scientific institutions. Visits were organised to: the Laboratory of Marine Biology of Fano University of Bologna (Laboratorio di Biologia Marina e Pesca di Fano – Università di Bologna); the Istituto di Ricerche sulla Pesca Marittima (Marine Fisheries Research Institute), of the Consiglio Nazionale delle Ricerche (National Research Council), in Ancona; the Laboratorio Provinciale di Biologia Marina of Bari (Bari Marine Biology Laboratory). The aims of the visits were to introduce the project and to set up possible scientific collaboration with Adriamed.

The Italian General Directorate of Fisheries and Aquaculture organised a meeting at MiPAF in Rome with Adriamed Project and all the Italian Scientific Coordinators involved in scientific research regarding the fishery resources in the Adriatic basin. The project was introduced and the role that the project can play was discussed, as well as the necessity for a common knowledge basis and to resolve the lack of information regarding the fishery sector in the basin.

Establish contact at regional level. From the beginning of the project, contact was established with the FAO-COPEMED Project (Project to provide “*Advice, Technical Support and Establishment of Cooperation Networks to facilitate Coordination to Support Fisheries Management in the Mediterranean (at a first stage Western and Central Mediterranean).*”). The Copemed Steering Committee decided during the meeting held in July 1999, in consideration of the common objectives, that it is important to establish contacts with Adriamed. Accordingly the Adriamed Project Coordinator was invited as observer at the 6th Steering Committee Meeting held in December 1999 in Paris. At the same meeting, this invitation was considered permanent and Adriamed was added to the Copemed mailing-list. For the same reason the project participated, through the Project Coordinator, at the seminar on Developing/Streamlining Copemed’s Work-programming and Monitoring & Evaluation Arrangements, held in Alicante (March 2000).

First informal contacts were established with the GFCM (General Fisheries Commission for the Mediterranean) and with SAC (GFCM – Scientific Advisory Committee). Particular attention was given to

the possible collaboration between the project and with the SAC. Accordingly, Adriamed was invited to present the project at the next meeting SAC (Madrid - May 2000) and at the next meeting of GCFM that will be held in Malta (September 2000).

The meeting with the Chairman of SAC focused on the importance of coordination between the SAC and the Mediterranean sub-regional projects, this in particular for the areas where not all researchers can contribute to such activities or participate international scientific meetings.

In the same context, the Adriamed Fishery Monitoring Expert travelled to Greece. The purpose of the mission was to attend the Balkan Fisheries International Workshop (BFIW) held in March 2000 in Kavala (Greece); to meet participants from the region concerned, particularly from countries of interest to the Adriamed Project; to introduce the Adriamed Project. The contributions from the Albanian and Croatian representatives were of particular significance to the Adriamed Project. The Adriamed Project was used as the relevant and appropriate example to follow.

Other items carried out. Within the frame of the propagation of the FAO Code of Conduct for Responsible Fisheries, authors are being contracted to translate the above code into the Slovenian, Albanian and Croatian languages.

The preparation of the Adriamed Web site is in progress.

Coordination Committee. In accordance with the Project Document, a Co-ordination Committee has been established to promote and advise on the project activities and to participate in the formulation of the annual work plans. The Project, in agreement with the Participating Countries, decided to organise such Committee in order to discuss and establish the project priorities for the countries.

Outlines of Adriamed short and medium-term activities

Introduction

This document presents suggestions from the Adriamed staff, regarding the planning of a work programme for Project components which can start up during the first year of the project. The purpose of this document is not to identify a detailed programme, but more precisely to give the participants some elements to start discussion on the main topics considered important for the project aims at this stage.

The Coordination Committee must consider these as propositions that can be developed through discussion during this meeting. The activities proposed require the Committee's orientation; the detailed planning will be defined by experts involved in the project, together with Adriamed professional staff.

The consideration and the justification of the activities proposed are described hereafter:

According to the International Code of Conduct for Responsible Fisheries, adopted by FAO in 1995, in the presence of shared fishery resources and/or common management problems, effective introduction of cooperative management is the objective, and regional and sub-regional projects concerning responsible fisheries are recommended. Cooperative fishery research is considered a strategic element of this recommendation.

The Adriamed Project is a regional project with scientific cooperation as its priority and is based on support for cooperative fisheries management of the Adriatic basin. Common basic knowledge between the countries is considered a fundamental assumption for the implementation of project objectives. Overall objectives and outputs are described in the Project Document. Output concerning the identification of regional priorities for fisheries management and related research issues is planned for the first year.

The Adriamed Project, according to its mandate and taking into due account the Code recommendation, considers that such cooperative management and common research activities at basin level will facilitate the review of all existing information concerning the fishery sector. The review must be based on the best scientific data available.

In order to understand the knowledge basis of each participating country, to strengthen the regional research institutions and to stimulate the participation of the countries in the Project, a series of activities are identified.

The following activities originate from: the Project Document signed by the countries, coherence with the Code recommendation, the follow up from the first meetings and missions held in the participating countries during the first period of Adriamed.

The activities proposed here are classified in two principle categories: as activities to review the fishery sector and activities as primary support for scientific cooperation. Both considered at regional and national level.

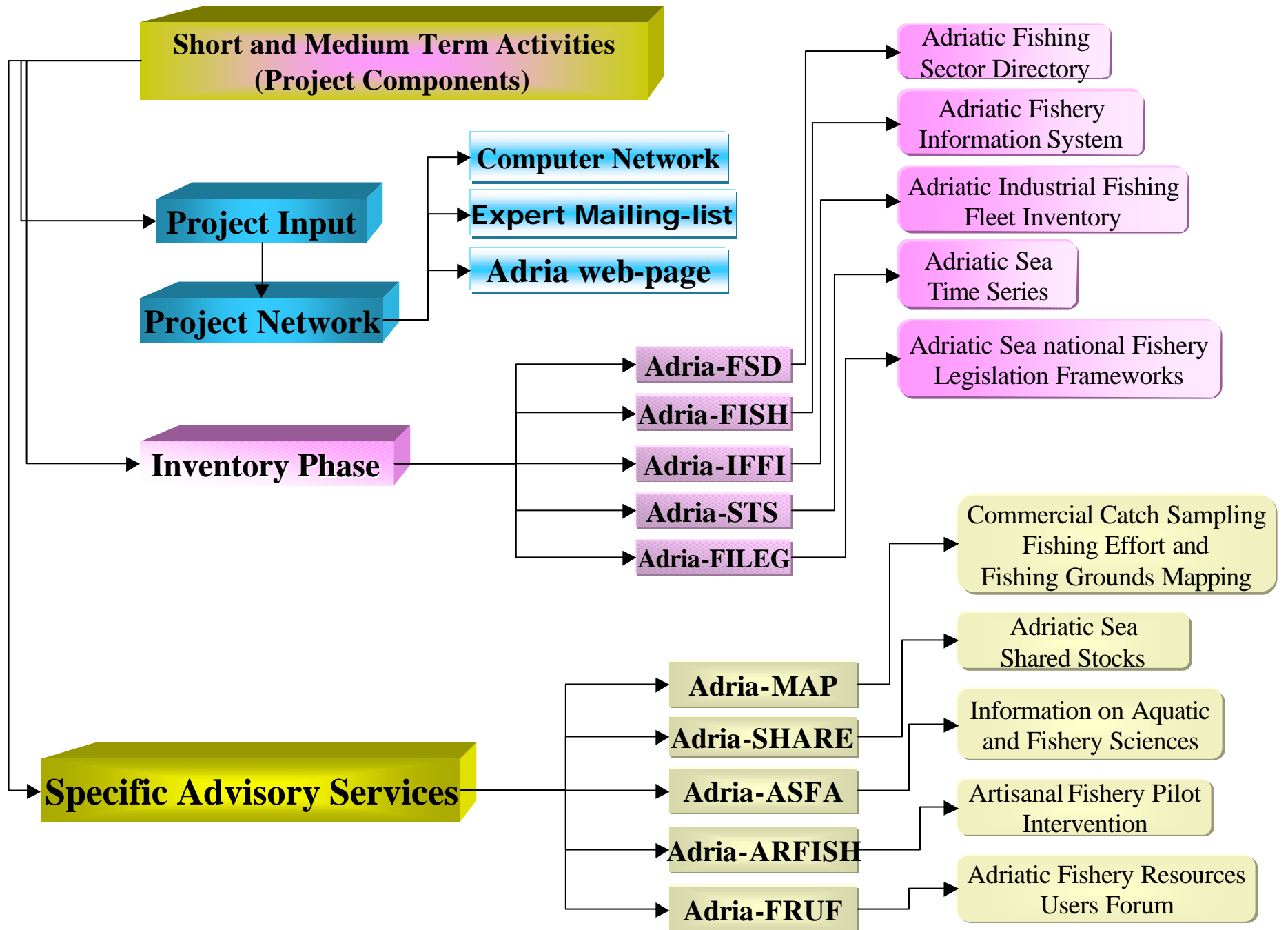
The first category belongs to an “*inventory phase*” used to collect, compile and assess the available data regarding *inter alia*: the institutional and human national research capacity, the statistical information system and the national fishery legislation. Generally the activities included in this category are considered short term. The results of the inventory phase are strategic to obtain a diagnosis at basin level of the fishery sector, to identify the main limits of cooperative management and to develop responsible fisheries. These results are identified as necessary instruments to plan and start up scientific or pilot activities at local and regional level for Adriamed purposes. These activities can be considered propedeutic for the successive phases.

In the second category the activities are considered as “pre-identified scientific specific support” or as “special technical needs”, can be named “*specific advisory services*”. These include activities considered as a service for the countries or a practical intervention in a specific area. The Special Advisory Services (SAS) are also seen as support responding to a particular technical need of the countries. The output of SAS can be considered as pilot interventions that can be applied within or outside the area. Detailed work plans will be drawn up by experts, *ad hoc* working groups, together with Adriamed project staff.

The proposed activities are briefly described in single work-sheets, each indicating the title and its abbreviation, the aim, the proposed methodological approach and the expected final output. The expressions “short and medium or long term” indicated in the project components profile mean that the short term can be finalised within a year of implementation, while the medium to long term are the activities which can start during and continue beyond the first two years of project execution.

The various project components are described without any priority, rather they are described on the assumption that each one can proceed independently. If considered strategic for the project the Coordination Committee can consider some as a priority, reject some or propose others.

The Project network will be established as Project input and not as a preliminary to the activities, it will include: the experts and researchers mailing list; the computer network installation; the Adriamed’s web site (see flow-chart on the following page).



<i>Project Component</i>	<i>Short Title</i>	<i>Code References</i>
Adriatic Fishing Sector Directory	Adria - FSD	<i>Art. 12.18 States and relevant international organisations should promote and enhance the research capacities of developing countries, inter alia, in the areas of data collection and analysis, information, science and technology, human resource development and provision of research facilities, in order for them to participate effectively in the conservation, management and sustainable use of living aquatic resources.</i>
Adriatic Fishery Information System	Adria - FISH	<i>Art. 7.4.4 States should ensure that timely, complete and reliable statistics on catch and fishing effort are collected and maintained in accordance with applicable international standards and practices and in sufficient detail to allow sound statistical analysis. Such data should be updated regularly and verified through an appropriate system. States should compile and disseminate such data in a manner consistent with any applicable confidentiality requirements</i>
Adriatic Industrial Fishing Fleet Inventory	Adria - IFFI	
Adriatic Sea Time Series	Adria - STS	
Adriatic sea national Fishery Legislation frameworks	Adria - FILEG	<i>Art. 7.7.1 States should ensure that an effective legal and administrative framework at the local and national level, as appropriate, is established for fisheries resource conservation and fisheries management.</i>
Fishing Effort and Fishing Grounds Mapping	Adria - MAP	<i>Art. 7.6.4. the performance of all existing fishing gear, methods and practices should be examined and measures be taken to ensure that fishing gear, methods and practices which are not consistent with responsible fisheries are phased out and replaced with more acceptable alternatives. In this process particular attention should be given to the impact of such measures on fishing communities, including their ability to exploit the resource.</i>
Definition of the Adriatic Sea Shared Stocks	Adria - SHARE	<i>Art.7.1.3 For transboundary fish stocks, straddling fish stocks, highly migratory fish stocks and high seas fish stocks, where these are exploited by two or more States, the States concerned, including the relevant coastal States in the case of straddling and highly migratory stocks, should cooperate to ensure effective conservation and management of the resources. This should be achieved, where appropriate, through the establishment of a bilateral, subregional or regional fisheries organisation or arrangement.</i>
Improved Information on Aquatic and Fishery Sciences	Adria - ASFA	<i>Art. 7.3.4. States and, where appropriate, subregional or regional fisheries management organisations and arrangements should foster and promote international cooperation and coordination in all matters related to fisheries, including information gathering and exchange, fisheries research , management and development.</i>
Artisanal fishery	Adria - ARFISH	<i>Art. 12.12 States should investigate and document traditional fisheries knowledge and technologies, in particular those applied to small-scale fisheries, in order to assess their application to sustainable fisheries conservation, management and development</i>
Adriatic Fishery Resources Users Forum	Adria - FRUF	<i>Art.4.4 States and international organisations, whether governmental or non-governmental, should promote the understanding of the Code among those involved in fisheries, including, where practicable, by the introduction of schemes which would promote voluntary acceptance of the Code and its effective application</i>

Project Component: Adriatic Fishing Sector Directory (Adria-FSD)

Aim

To improve the information at regional level on research institutes, resource user associations, fish processing industries and management authorities.

Implementation

National staff and/or consultants coordinated by Adriamed. Information to be collected at relevant national level (e.g. Ministry), verified and updated in the field following standardized procedures.

Activity type

Short term

Scheduled start

As soon as possible in year 2000

Indicative duration

Information gathering: four months

Directory compilation: one month

Expected output

Up to date and comprehensive directory holding all the relevant information on key management, research institutions and productive realities which are components of the overall fishing sector in each of the four countries participating in the project.

Project Component: Adriatic Fishery Information System (Adria-FISH)

Aim

Design, development and setting-up of a fishery information system to enable national institutions to collect, store and analyse the multi-disciplinary data required for fisheries monitoring at national and regional level.

Implementation

Adria-FISH will be developed and structured on the basis of the experience accrued from the implementation of the FAO-ICRAM Itafish Project. The standardisation of the information will be pursued as a necessary requisite. Each country participating in the Adriamed Project will be assisted in developing customised databases. National databases will have a main common structure which will make the core of the regional fishery information system. Under the coordination of Adriamed, national counterparts will be in charge of the information gathering and standardisation process. Adriamed will ensure the harmonious development of the information system and its sustainability through appropriate training and workshop sessions. The Itafish structure will be further modified and expanded to become the fishery information system for the Adriatic basin. Adria-FISH will be designed and developed to be used for either the multi-disciplinary fishery information which will be made available to, and shared with the other countries, and also for information that the owner-state may consider as for only confidential/national use. Coastal countries will have the opportunity to develop customised databases which will have the feature of being fully compatible with the regional component of the information system. Adria-FISH will be developed to hold the existing information and to integrate new data following a standardised method as agreed, within the Adriamed framework, by the users.

Activity type

Medium to long term

Scheduled start

Year 2000

Indicative duration

Throughout the Project

Associated activities

Because of the nature and scope of Adria-FISH, almost all Adriamed activities will be, at some level, integrated or interfaced with it. Currently, the output from the following activities may be expected to be eventually included in Adria-FISH: Adria-IFFI, Adria-MAP (partial), Adria-FILEG, Adria-FSD, Adria-STS.

Expected output

Establishment of a multi-disciplinary integrated, and standardised, fishery sector information system for both national and regional fisheries management requirements. Adria-FISH will constitute a step forward to the standardisation and harmonisation, at regional level, of fishery information. This will correspond to the UN recommendations formulated under the Article 7 (Fisheries Management) in the FAO Code of Conduct for Responsible Fisheries (28th Session of the FAO Conference, 31 October 1995). Also, it will be in line with the development programme of the General Fisheries Commission for the Mediterranean (GFCM).

Project Component: Adriatic Industrial Fishing Fleet Inventory (Adria-IFFI)

Aim

Inventory by country/port/gear of active industrial fishing vessels

Implementation

Data will be collected from national authorities and other relevant sources, field census may be carried out if feasible and deemed necessary. Where it is not feasible to collect information from the relevant national authorities (for reasons such as unsatisfactory or non-existent data records) then direct field census may be carried out by the Project. This would involve national staff, officially authorized and supported by national authorities. Data on fishing fleet/gear will be collected and compiled according to standard classifications for vessels and gear types (tentatively following The International Standard Statistical Classification of Fishery Vessels, ISSCFV, as provided in the FAO *Definition and classification of fishery vessel types*, and in the FAO *Definition and classification of fishing gear categories*, or other currently accepted standards). Industrial fishing vessels are here tentatively defined as of more than 15 metres in length.

Activity type

Short term

Scheduled start

End of year 2000 or early 2001

Indicative duration

Data collection: six-eight months

Data compilation and reporting (incl. 3-4 day meeting of *ad hoc* working group): two months.

Expected output

Update inventory/database of Adriatic industrial fishing fleet; detailed classification of the regional industrial fishing fleet structure; first assessment of Adriatic fishing fleet capacity by vessel type and gear type; support to GFCM; background information for project component Adria-Map. Moreover, the database will be in line with and correspond to the following UN recommendations: Agreement to promote compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Resolution 15/93 of the 27th Session of the FAO Conference, 24 November 1993); FAO Code of Conduct (28th Session of the FAO Conference, 31 October 1995); Agreement on High Seas Fishing (UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, 4 August 1995).

Project Component: Adriatic Sea Time Series (Adria-STS)

Aim

Regional inventory of available historical data series.

Implementation

National consultants coordinated by Adriamed. Consultants will carry out a survey and prepare an inventory of historical data sets and time series of abiotic and biotic variables collected by national research institutes, management authorities and resource users.

Activity type

Short term

Scheduled start

Year 2000

Indicative duration

Information gathering: three to five months

Information compiling: four months

Expected output

Listing and critical review of time series of data which can be made available, upon agreement with data owner, for exchange or cooperative work at regional level. Each data set will be evaluated for the quality of the information and suitability for further use for research purposes. This register could constitute the first step towards establishing a regional historical database, initially managed by Adriamed and accessible for research and management purposes by the Adriatic Sea countries. The database will be in line with and correspond to the UN recommendations formulated in the FAO Code of Conduct (28th Session of the FAO Conference, 31 October 1995).

Project Component: Adriatic sea national Fishery LEGislation frameworks (Adria-FILEG)

Aim

To review and appraise the existing fishery legislation.

Implementation

National qualified staff coordinated by the Project and, if necessary, through the services of an international fisheries legal consultant. The main aspects of the legislative corpus and the institutional issues pertaining to the management of Adriatic Sea fisheries will be reviewed.

Activity type

Short term

Scheduled start

In the second half of year 2000 or in the first semester of year 2001

Indicative duration

Approximately 4 months

Associated activities

Special studies (e.g. thesis, PhD dissertation) may be encouraged and supported on specific aspects of the Adriatic Sea fishery management regulations in cooperation with local universities.

Expected Output

Easily accessible information on current fishery management measures adopted by each of the four coastal countries. Comprehensive review and appraisal of national fishery legislation, and of monitoring, control and surveillance systems; outlining possible legal and institutional strategies toward regional harmonisation of fishery resource management in accordance with the principles of the FAO Code of Conduct for Responsible Fisheries.

Project Component: Commercial Catch Sampling, Fishing Effort and Fishing Grounds Mapping (Adria-MAP)

Aim

Analysis of commercial fisheries dynamics, definition of spatial distribution of fishing effort and seasonal changes in industrial fishing strategies in the Adriatic Sea.

Implementation

Setting-up of commercial catch sampling scheme at selected ports. Commercial catch and effort data by species/gear are collected at selected landing sites (base ports) in cooperative collaboration with industrial fishing units. Cooperation with fishers will be sought on the basis of absolute confidentiality and of the international status of FAO. Sampling will take place at selected base-ports located at approximately the same latitude on the eastern and western Adriatic coast. *Ad hoc* working groups with specific tasks will meet periodically to review and analyse collected data. Working groups will be led by a responsible coordinator in full cooperation with Adriamed staff. Also, data allowing, the spatial information on catch will be analysed and represented by using Geographical Information Systems (GIS) technique to obtain thematic maps representing the fishing effort distribution pattern by gear and the distribution of commercial catch rates for the main species. A specific GIS application/package will be developed to fit the Adriatic Sea fishery characteristics.

Activity type:

Long Term

Scheduled start:

Definition and detailing of the work programme will start in year 2000 and the field implementation in year 2001.

Indicative duration

Throughout the Project. Data collection: 14-24 months (including first two pilot months); Data compilation and reporting: 6 months; GIS development and testing: 3-6 months.

Associated activities:

The work on commercial fisheries dynamics will be integrated with socio-economic analysis of the fishery sector at the selected areas within the Adriatic Sea management units. Also, training session on GIS and their application to fishery data will be held to analyse the available spatial information.

Expected output

Improved knowledge of within-the-year commercial landing composition and dynamics. Comparative insight into current fishery exploitation patterns at regional level. Representation of geo-referenced fishery related data interfaced with the Adriatic fishery database. Definition of commercial fishing grounds and of fishing fleets behaviour. Highlighting of national fishing fleet dynamics, interactions, areas of overlapping activity. Important information to be combined with that from national and international research surveys (e.g. GRUND, MEDITS). Availability of socio-economic indicators of the fishing sector in the four coastal countries participating in the Project. National fishery authorities will be provided with an effective information system and fishery management tool.

Project Component: Adriatic Sea Shared Stocks (Adria-SHARE)

Aim

Strengthening of regional scientific cooperation through the organization of an international Working Group of experts on the identification and definition of the Adriatic Sea shared stocks¹. The Adriatic Sea constitutes one of the few exceptions within the Mediterranean where the shelf area extends beyond territorial into international waters. Many commercial species constitute or will constitute shared stocks, but sound scientific evidence is somewhat fragmentary. There seems to be the need to identify the pattern in which some stocks are shared between countries. Therefore, it would be desirable to produce and assemble evidence on the nature of shared stocks, which may depend on the pattern of movements and, practically, also on the interaction with fishing fleet/gear.

Implementation:

One or more *ad hoc* working groups whose activity will be organised in several sessions. The working groups will consist of regional experts and will be open to external, qualified contributions. *Ad hoc* working groups will have specific tasks and will be coordinated by highly experienced scientists from the region in full cooperation with the Project. Initially the working groups will consider a list of target commercial species which are supposed to constitute shared stocks. Consequently, should the available scientific evidence be uncertain or insufficient, available data (e.g. research data, fishery statistics, etc.) from each country will be cooperatively used for further analysis. Gaps in the scientific knowledge of some shared stocks, which cannot be filled with the existing information, will be highlighted and research proposals formulated.

Activity type

Medium to long term

Scheduled start

In year 2001

Indicative duration:

Throughout the Project. Several sessions lasting from two to six days depending on the nature of the work. Working Groups reports preparation and editing: one-two months per report.

Associated activities

Specific training on analytical methods for stock assessment, identification and estimation of reference points for fisheries management will be organized once appropriate data are made available also using fishery dependent information from the Adria-MAP project component. Training work could be structured in two phases: one theoretical to be followed by a practical phase where any original data available will be used. Lecturers will be experts from the Mediterranean region and from outside. The work on shared stocks together with the Adria-Map project component will contribute to assess the applicability of the Operational Unit concept in the Adriatic Sea region.

Expected output:

Improved definition and assessment of commercially important shared stocks through strengthened regional scientific cooperation. Proposals for joint research priorities where needed. Formulation of fisheries management options, under different exploitation scenarios, which can only be elaborated within international/regional framework due to the shared nature of the stock.

¹ Tentatively, "shared stock" is here used for either straddling and transboundary (non-migratory) demersal and pelagic stocks.

Project Component: Improved Information on Aquatic and Fishery Sciences (Adria-ASFA)

Aim

Provide improved access within Adriamed countries to the aquatic sciences and fishery information and ensure the widest possible circulation of Adriatic Sea scientific literature published in the region.

Implementation

Adriamed Project will become an ASFA data entry centre. Aquatic Sciences and Fisheries Abstracts (ASFA) is an abstracting and indexing service covering the world's aquatic science and literature. The ASFA database contains bibliographic references, including abstracts, to the world's literature on the science, technology, and management of the marine, brackish water, and freshwater environments including their socio-economic and legal aspects. In collaboration with the FAO Fishery Information Service, and upon agreement with the ASFA secretariat and the ASFA Advisory Board, the Adriamed Project will constitute an ASFA data entry point (ASFA centre) for the Adriatic Sea region. An *ad hoc* training course on scientific literature monitoring, selecting, abstracting and indexing will be held at the Project HQ, and attended by selected personnel from each country participating in the Adriamed project. The course will be organised by Adriamed with the assistance of the FAO Fishery Information Service. National ASFA-trained staff will contribute to ASFA by providing bibliographic references to the literature published within their own countries.

Activity type

Short term

Scheduled start

Year 2000

Indicative duration

Throughout the Project. Agreement process with ASFA: two months. Training session: ten days. ASFA centre setting: depending on the timing of Adriamed communication network establishment.

Expected output

Relevant national institutions and their professional staff involved in the Adriatic Sea fisheries management will have access to the ASFA database, which is widely acknowledged as one of the fundamental tools for aquatic scientists. Also, scientific information published within the Adriamed project by participating countries will be ensured world-wide dissemination.

Project Component: Adriatic artisanal fishery (Adria-ARTFISH)

Aim

To review the artisanal, small-scale fishing sector and to assess the development potential where appropriate.

Implementation

Both the review of the sector and experimental fishing to assess the fishery potential will be carried out with the assistance of an artisanal fisheries specialist. Socio-economic aspects of the sector will be analysed by a consultant to identify key-characteristics of artisanal fisheries in the Adriatic Sea region. Experimental fishing will be carried out at selected localities by using different fishing gears. CPUEs and catch composition by species, season and gear will be used as indicators of the fishery potential. Results will be compared with production data from the same type of fishing gear operated in similar area within the Mediterranean Sea.

Activity type

Medium to long term

Scheduled start:

Year 2000-01

Indicative duration

Not yet specified

Associated activities

Inventory of artisanal fishing units might be pursued on the basis of the on-going work of the FAO-Copemed Project.

Expected output

Initially, this project component will be implemented in Albania to achieve the following results: assessment of the current status of small-scale, artisanal fisheries in Albania, and of the fisheries development potential; introduction of selective fishing practices to contrast destructive and unsustainable fishing such as explosive fishing; establishment of the basis for planned development of artisanal fisheries proceeding to create employment opportunities and to increase income.

Project Component: Adriatic Fishery Resources Users Forum (Adria-FRUF)

Aim

The establishment of a regional, consultative, neutral forum for representatives of the fishing industry (*i.e.* fishers and entrepreneurs) of the Adriatic coastal states. Main topics to be addressed by the forum: resource users' perception, understanding and evaluation of the responsible fisheries issue as defined by the UN-FAO Code of Conduct; identification of critical areas of conflict in the Adriatic Sea resources exploitation; identification of shared fisheries and related management aspects.

Implementation

Due to the nature of FAO and its mandate, the Adriamed Project constitutes the proper neutral environment to host such a forum. The project will stimulate, facilitate and coordinate the meeting of the Adriatic fishing industry representatives. Resource user representatives will be identified from each country, Adriamed staff in cooperation with the FAO Fishery Planning Division will coordinate the forum activities and both will constitute the forum secretariat. A series of thematic meetings will be organised by Adriamed following consultations with national professional associations. Participants invited will be asked to submit contributions and key-notes for discussion on selected topics to the forum. Forum work will focus on specific, previously identified topics relevant to the central issue of the development of responsible fisheries in the Adriatic Sea. Qualified representatives of other interested parties may be invited to participate in the forum, contributions based on experience from outside the region may also be sought. Proceedings from each meeting will be issued in the Adriamed project publications series.

Activity type

Long-term

Scheduled start

Year 2000-01

Indicative duration

Ordinary meeting frequency: once a year

Associated activities

All Adriamed activities requiring resource users cooperation and involvement (e.g. AdriaMap).

Expected output

The establishment of the Regional Forum of the Adriatic fishing industry through which to increase the involvement, at basin level, of the fishery resource users in the development of sustainable, and responsible fisheries in the Adriatic Sea and eventually in the fishery co-management process.

Terms of reference for Adriamed Coordination Committee

Introduction

GCP/RER/010/ITA – Scientific cooperation to support responsible fisheries in the Adriatic Sea is a regional project, financed by Italy and executed by FAO. The participating countries are Albania, Croatia, Italy and Slovenia.

In accordance with the Project Document endorsed by the Participating Countries, Coordination Committee (CC) is being established to promote and advice on the project activities and to participate in the formulation of the annual work plans.

Justification and aims

The Project Coordination Committee represents the interests of the countries collaborating in the project. It has an advisory and liaison function with respect to the programme of work and the relevance of this to the national policies of fisheries development and management. The Committee also includes as observers or coopted members, representatives of funding agencies and other organisations that may be engaged in scientific research and fishery management of the Adriatic Sea.

The functions of the Adriamed-CC are:

- To monitor and to assist the project activities;
- To discuss and to agree the annual work plans;
- To propose: study, pilot project; workshop, “*ad hoc*” working group, or meeting in accordance with the project’s objectives and priorities, and identify training activities.
- To guarantee at national level all the necessary backstopping service;

Structure and Membership:

Chairman: the CC is under the chairmanship of the Representative of the Host Country; in his absence the Chairman can be chosen among the members, generally host country member.

Permanent Members: Donor Representative
Country Representatives, one from each of the participating countries. In his/her absence the countries can nominate a deputy.

Representative of EC
Representative of GFCM
Representative of FAO HQ

Ex-officio Members: Project Coordinator

Permanently Invited Observer: Copemed Project Coordinator

Other Observers: Representative of Interested Groups

Secretariat: Project Staff

Under specific request of the of the Coordination Committee, the members of the Committee will be assisted by Experts from the Adriatic/Mediterranean Region.

The Project Coordination Committee should meet at least every year, when possible every six months. The provisional date and the place of the each meeting of the CC is established at the end of the previous meeting. In some case and under the agreement of all the members, the Project Coordination Committee can discuss and approve some specific action thought the *ad hoc* mailing-list.

Brief overview of Adriatic fisheries landing trends (1972-97)

Piero Mannini and Fabio Massa
FAO-Adriamed

Support paper prepared for the first Adriamed Coordination Committee Meeting

Abstract

The General Fisheries Commission for the Mediterranean (GFCM) nominal landing statistics from marine capture fisheries were used to outline production trends in the Adriatic Sea region during the last quarter century. The performance of demersal and pelagic fishery showed different patterns. The combination of environmental and socio-economic factors are thought to have had strong impact on pelagic fishery. The viability of demersal fisheries seems to be determined by resource availability and market demand. The importance of ensuring the basic quality and reliability of capture fisheries data is stressed.

Introduction

This brief overview of capture fisheries landing trends from the Adriatic Sea for the 1972-1997 period aims to outline the fisheries production performance of the region. The document is based on open-access GFCM statistics as available from the FAO Fishstat Plus (Version 2.19, FAO^c 1997, 1998).

Nominal landing figures are provided to GFCM by member states and their reliability, which can differ greatly between countries and regions, could not be assessed in this paper. Therefore, caution is needed when considering trends in fisheries landing. It is important to note that the following main factors may be behind apparent landing trends:

Changes in the level of accuracy of fishery statistics reporting;
Trends in fishing intensity on the species in question;
Environmental trends in the productivity of the system;
Socio-economic factors affecting relative demand or accessibility of the species in question.

Although landing figures are likely to be (largely) underestimated in many cases, it can be reasonably assumed that overall trend patterns in fisheries landing are reflected in the time series.

Data and terminology

Pelagic fish are here defined as those belonging to ISSCAAP (International Standard Statistical Classification of Aquatic Animals and Plants) groups 34-37 which included, in this document, clupeoids, mackerels, mullets and garfish.

Demersal fish are here defined as those belonging to ISSCAAP groups 31, 33, 38, 43, 45, 47 and 57 which included, in this document, mainly: soles, turbot, gurnards, hakes, sparids, surmullet, sharks and rays, cephalopods, spottail squillid mantis and Norway lobster.

The terms West coast or Western fisheries and East coast or Eastern fisheries are used to mean the landings of the Italian fishery and those, pooled, of the ex-Yugoslavia and Albania (1972-91) and of Croatia, Slovenia, Federal Republic of Yugoslavia (FRY) and Albania (from 1992 onward) respectively.

According to GFCM statistical sub-areas definition the Adriatic Sea falls within the area 2.1, thus including only the northern and central basins, while the southern Adriatic basin and consequently the coast of south-western Italy and of Albania are included in the Ionian Sea (area 2.2). In order to have as comprehensive a picture as possible of all Adriatic Sea fishery production, Albanian data originally classified as from the Ionian Sea have been included in the Adriatic data set used. Unfortunately, this was not feasible for the Southwest Italy.

The southern limit of the Adriatic Sea region has been considered here as defined by the line connecting the Albanian-Greek border and Cape Santa Maria di Leuca in Italy, thus taking into account Caddy's observations (1997) and ICCAT recommendations formulated at the 24th GFCM session (GFCM, 1999).

Available landing data covered the period from 1972 to 1997; when three-year running-means were used the year 1973 and 1996 became respectively the first and last data point available of the time series. Relative increase rate of landing between pairs of years was expressed as percentage where zero increase rate in developed fisheries is considered as indicative of mature fisheries with relatively stable production. Also, landing change was given as percentage change relative to mean value from the time series.

Landing trend profiles of some of the major commercial species (in terms of landed weight) were obtained from standardised data with mean and standard deviation equal to zero and one respectively. A polynomial was fitted to the average standardised landings. Recent landing trends were analysed by means of linear regression fitted to the last ten years of available data (1988-1997). Species landings were considered as "recently rising" or "recently declining" if slope of significant regression ($P < 0.05$) was positive or negative respectively.

Capture fisheries landing patterns (1972-1997)

During the 26 year-long period under consideration (1972-1997) the total landing of the Adriatic commercial capture fisheries of Albania, Croatia, Italy, Slovenia, Federal Republic of Yugoslavia (FRY) and ex-Yugoslavia Republic reached its maximum in 1981 with about 220000 t of declared landed catch, to subsequently decline to a minimum of 110000 t in 1993. Since then an increasing trend in the total catch can be observed amounting in the last available year, 1997, to about 130000 t (Figure 1).

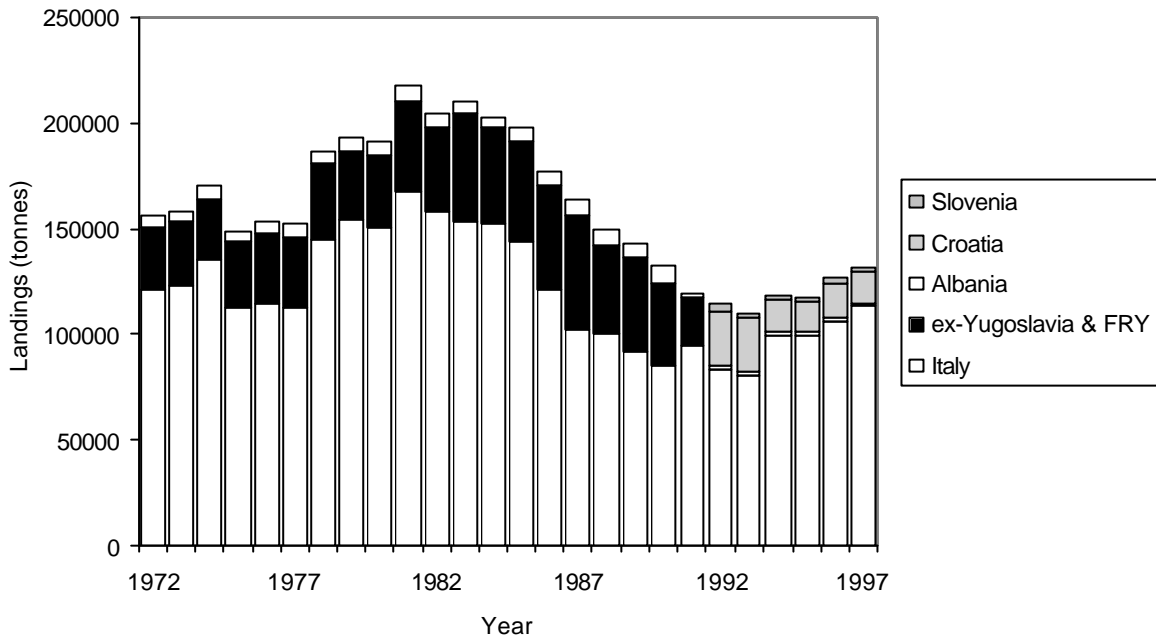


Figure 1. Adriatic Sea capture fishery production (excluding bivalve molluscs and aquaculture).
Data source: GFCM.

In terms of landed weight, the major Adriatic fishing nation is Italy followed by the ex-Yugoslavia until 1991, and after by Croatia, Slovenia, FRY whose total, pooled, landing appears reduced compared to the past. From the available data the current Albanian contribution to Adriatic fishery production is extremely low. The national catch shares between the coastal countries are given in Figure 2.

In the reference years 1976, 1986 and 1996 western fisheries made-up the majority of both demersal and pelagic landing from the Adriatic Sea, followed by the ex-Yugoslavia, recently replaced by Croatian fisheries. Demersal landing share remained relatively constant even though the slight respective decrease and increase of the Italian and Croatian percentage contribution may be observed. In the past the Italian share of pelagic landing was smaller, especially in 1986 when the other countries pelagic fishery performance was at its maximum, compared to recent years because of the low production in the eastern sector.

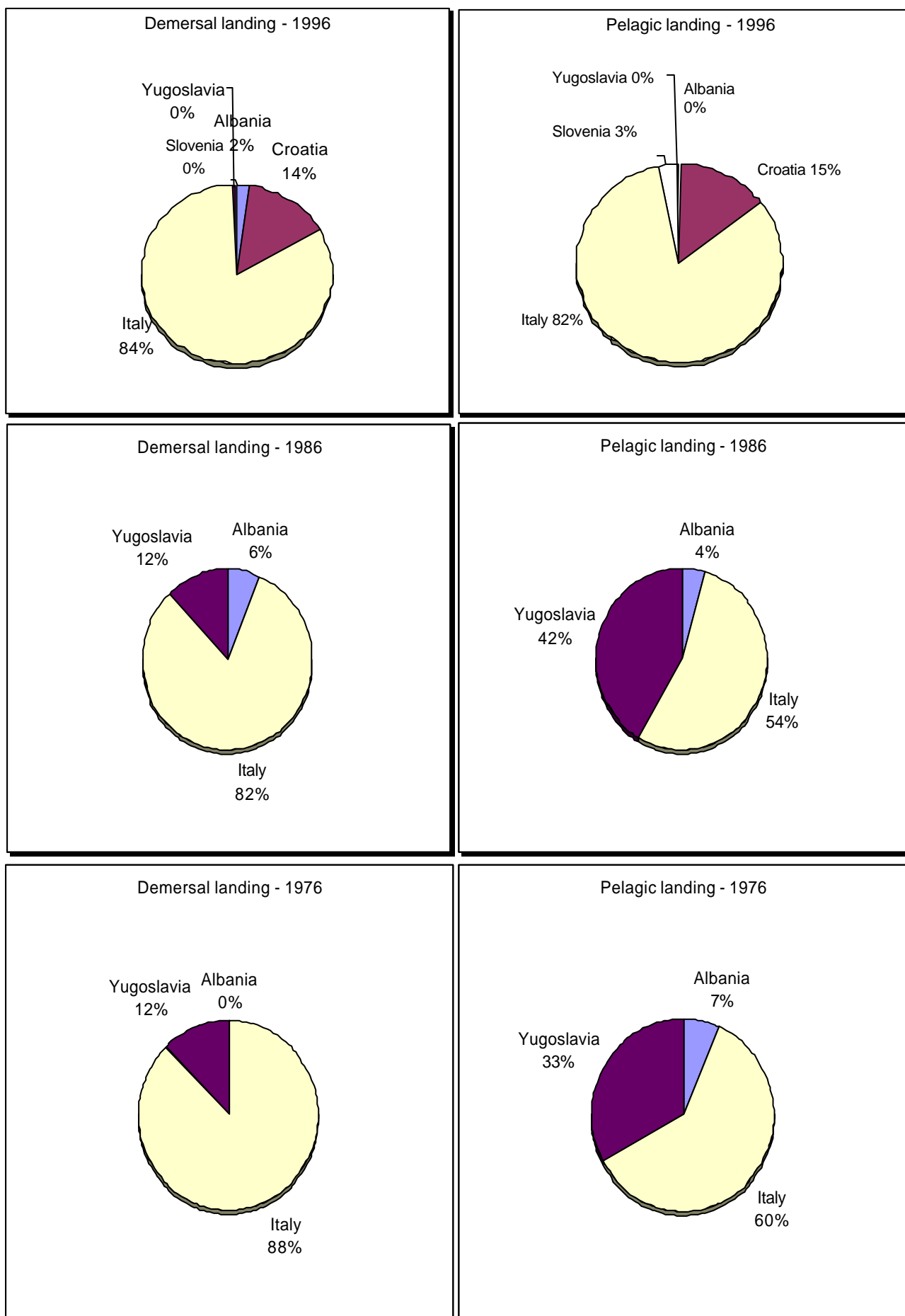


Figure 2. Percentage share by Adriatic coastal countries of demersal and pelagic fishery production in 1976, 1986 and 1996. Data source: GFCM. Note: Species taxa are not indicated in 1976 Albanian data, it is here assumed to be mostly pelagic fish.

The ratio of pelagic fish to demersal fish landings is plotted in Figure 3. Pelagic catch dominated the marine fish landing, particularly in the East Coast fishery, even though from the mid 1980s the contribution of pelagic to total fish landing decreased remarkably as a consequence of the successive downsizing of the anchovy and sardine stocks and, more recently, of the crisis which affected the eastern coastal countries.

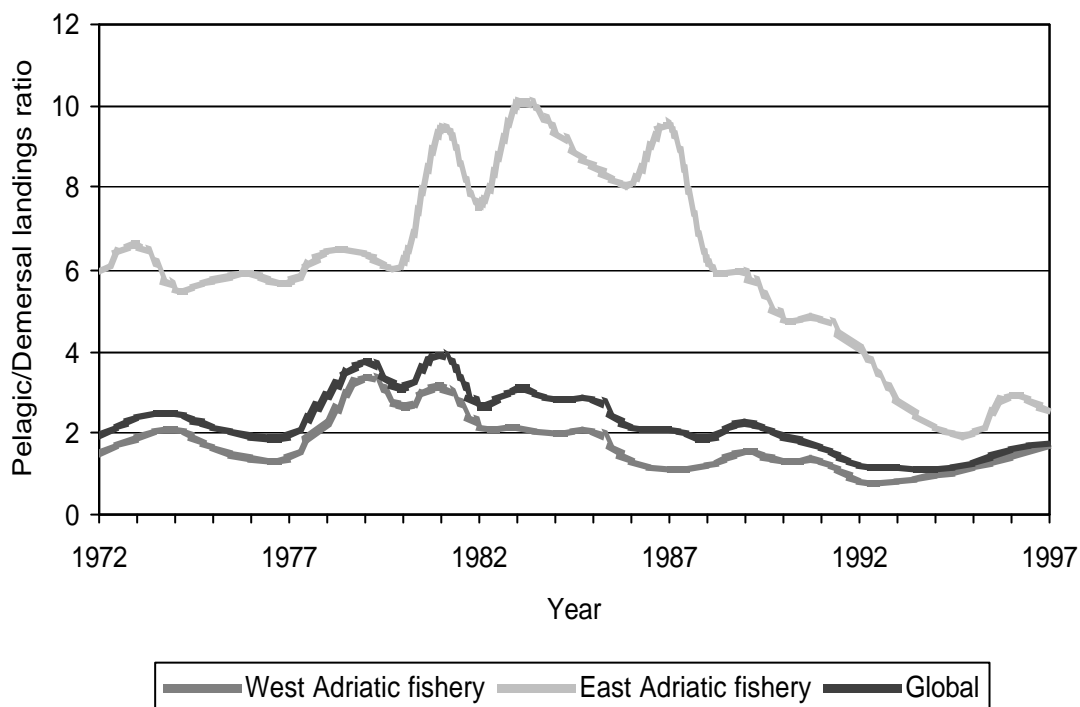


Figure 3. Ratio between Adriatic Sea landings of pelagic and demersal fish by coastal sector and globally. Data source: GFCM

Recent demersal and pelagic fishery landings were compared to peak landings by area and countries (Table 1). The comparison indicated that overall landing of demersal species assemblage remained relatively stable or showed a moderate decrease, while pelagic fishery landings declined by over 40% and 70% in the Western and Eastern Adriatic pelagic fisheries respectively.

Table 1. Comparison by area of recent landing to peak landing of selected species (see text) from Adriatic Sea demersal and pelagic fishery, based on three-year running-means. Year 1996 is the last data point available in the running-mean series. Data source: GFCM. * Pooled data: 1972-1991 from Albania and ex-Yugoslavia, 1992-1997 from Albania, Croatia, Slovenia and FR Y.

Demersal fishery				
Area	Recent landing (t)	Max landing (t)	Year of max landing (t)	Recent/max landing (t)
West Adriatic	37335	39867	1994	0.94
** East Adriatic	4750	5991	1989	0.79
Pelagic fishery				
Area	Recent landing (t)	Max landing (t)	Year of max landing (t)	Recent/max landing (t)
West Adriatic	37335	39867	1994	0.94
** East Adriatic	4750	5991	1989	0.79

The drastic contraction of pelagic fishery landings during the last fifteen years had an obvious impact on the global (pelagic and demersal) capture fishery production in all coastal countries (Table 2), to which it must also be added the effect of the civil and economic crisis in the Eastern Adriatic countries. This led Adriatic capture fishery production to an overall decrease with respect to peak landings ranging from 34% (Italy) to over 60% (from pooled data from ex-Yugoslavia, Croatia, Slovenia and FRY) with the apparent drastic drop of 90% in Albania as would be indicated by the most recent available data. No decrease would appear from FRY 1992-1997 landings.

Table 2. Comparison by country of recent landing to peak landing of selected species (see text) from Adriatic Sea capture fishery. Data source: GFCM, original data. *From 1992 onward. ** Pooled data from ex-Yugoslavia (1972-91) and from Croatia, Slovenia and FRY (1992-1997).

Country	Recent landing (t)	Max landing (t)	Year of max landing (t)	Recent/max landing (t)
Albania	820	8178	1990	0.10
* Croatia	15594	25721	1992	0.61
Italy	103744	157203	1981	0.66
* Slovenia	2136	3582	1992	0.60
* FRY	333	335	1996	0.99
** States of Former Yugoslavia Republic	18063	53944	1987	0.33

The pattern of the relative rate of increase of landings from all countries during the 26 year period is shown in Figure 4, zero increase rate is considered as indicative of fisheries which have reached maximum production. However, changes in stock abundance due to natural fluctuations are difficult to be accounted for and cannot be ruled out.

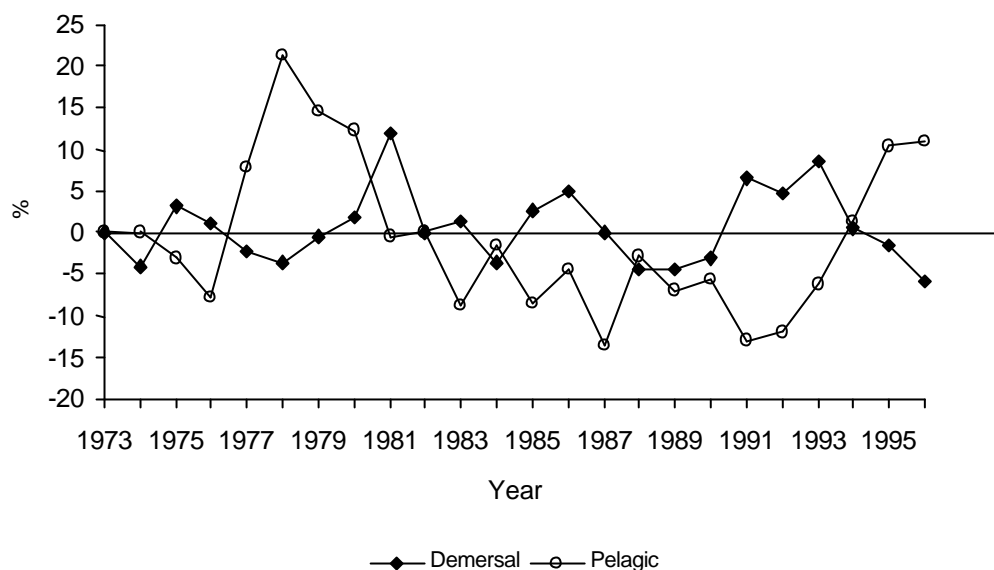


Figure 4. Relative increase rate of landing between pairs of years from all Adriatic countries. Data source: GFCM.

Global demersal fishery landing rates fluctuated around the zero value probably meaning, at least for Italy, a mature fishery with a relatively stable production (Figure 5). The relative increase in landings of the Eastern Adriatic fisheries (Figure 6) showed a trend similar to that of the Western sector during the 1970s and early 1980s followed by a developing phase whose growing trend was sharply interrupted during the 1990s.

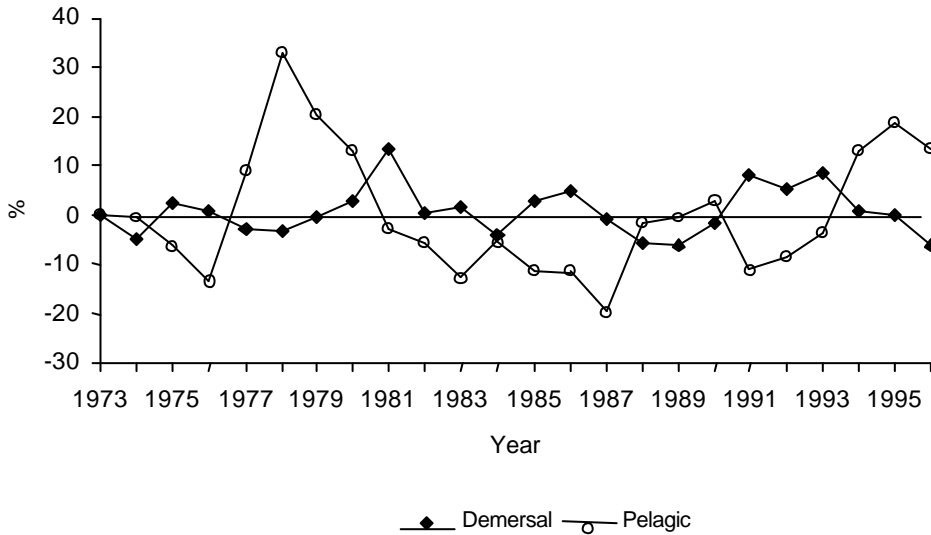


Figure 5. Relative increase rate between pairs of years of Italian fisheries landings. Data source: GFCM.

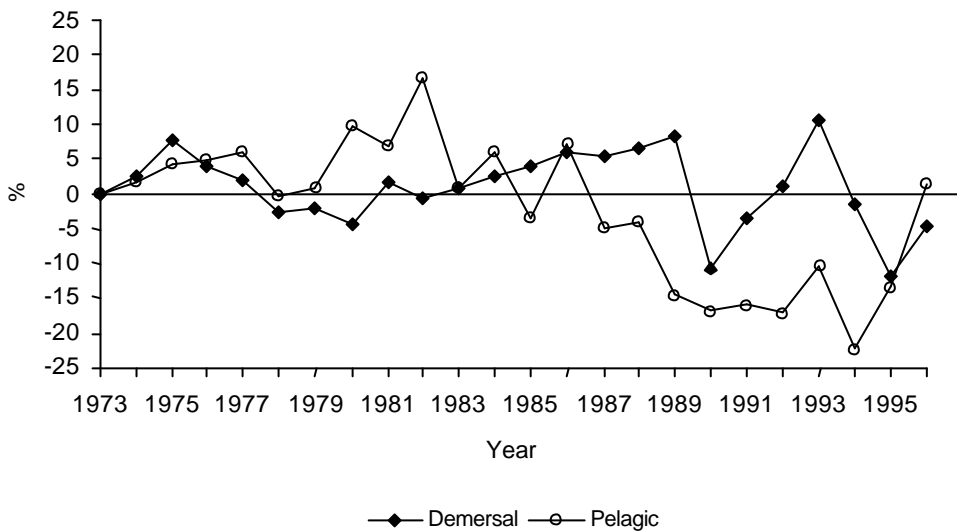


Figure 6. Relative increase rate between pairs of years of pooled Albania, Croatia, Slovenia, FRY and ex-Yugoslavia fisheries landings. Data source: GFCM.

Globally and in both West and East sectors the relative increase rate of pelagic fishery rose rapidly at the end of the 1970s to decline and regress until recently (mid 1990s).

Fishery landing evolution, relative to mean landing value from the whole Adriatic, is shown in Figure 7. It is noteworthy that demersal fisheries showed growing trend of landings during the last fifteen years while in the same period landings of pelagic fisheries declined after

the preceding phase of sharp growth and high landings. Currently the Italian pelagic fishery seems to be recovering unlike that of the Eastern Adriatic (Figure 8 and 9).

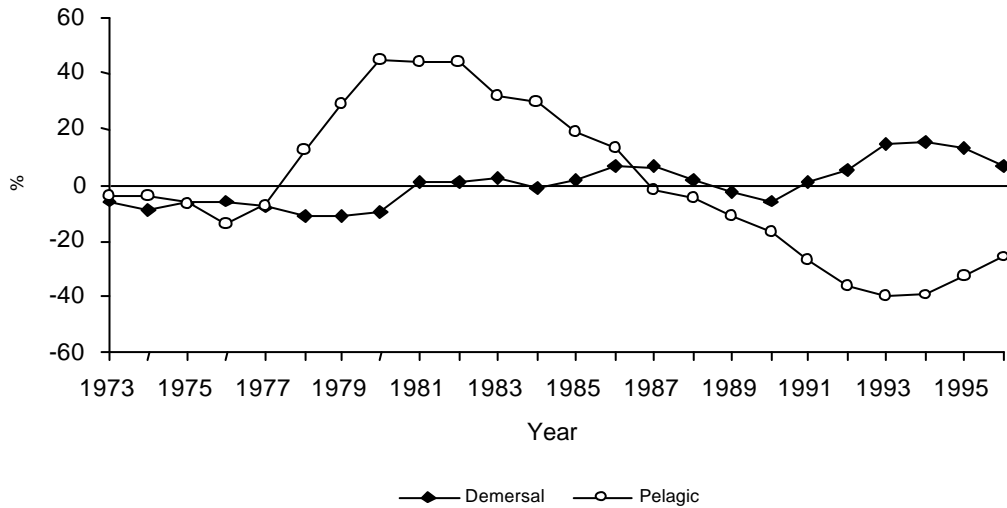


Figure 7. Percentage landing change relative to mean value from all Adriatic countries. Data source: GFCM.

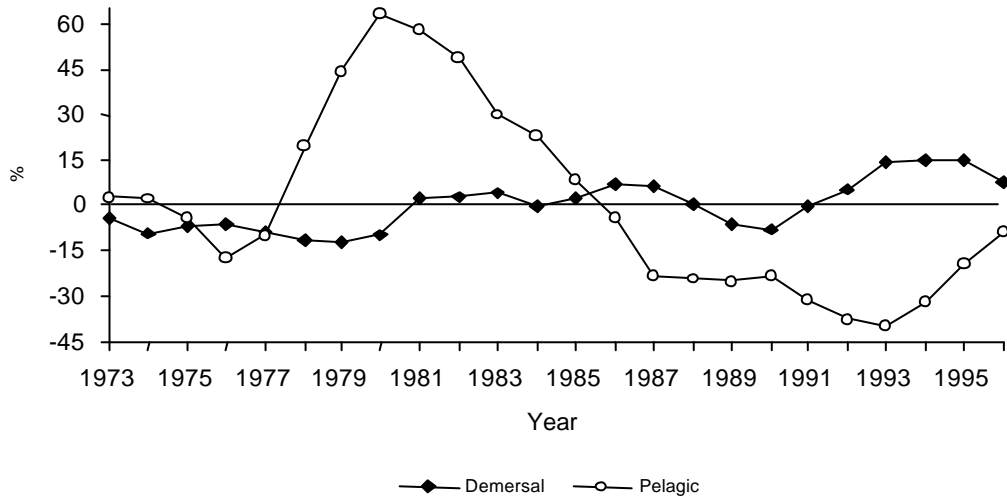


Figure 8. Percentage landing change relative to mean value of Italian fisheries. Data source: GFCM.

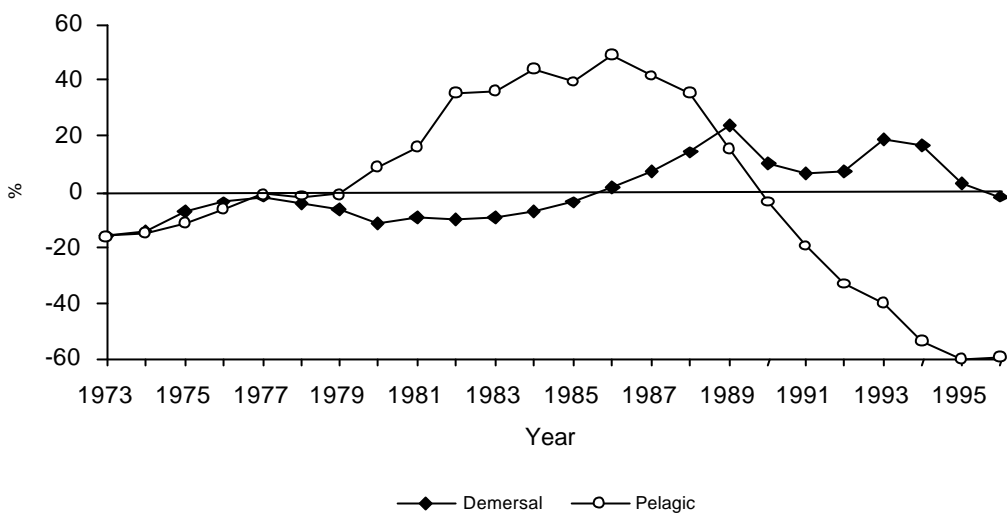


Figure 9. Percentage landing change relative to mean value of pooled Albania, Croatia, Slovenia, FRY, and ex-Yugoslavia fisheries. Data source: GFCM.

Adriatic landing of demersal species is approximately six times higher on the west Adriatic coast compared to the eastern sector. Apart from the early 1990s sharp decline in landing from the States of the former Yugoslav Republic, both west and east coast demersal fishery production pattern show an overall increasing trend, supported by an assemblage of minor demersal and semi-demersal (or semi-pelagic) species, and by a few main species whose composition may be different along the two coasts (Figure 10 and 11).

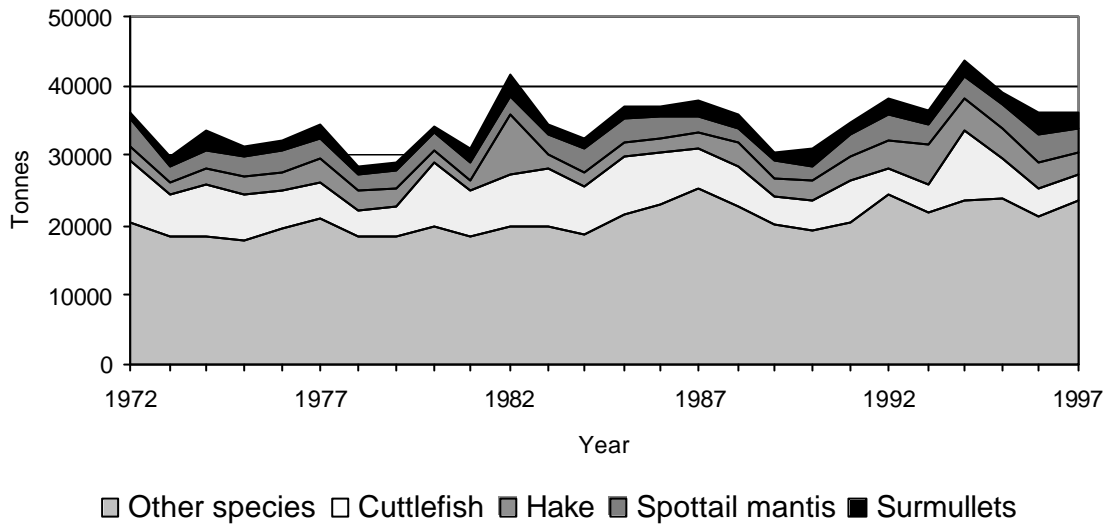


Figure 10. Italian landing of top demersal species and total selected species. Data source: GFCM.

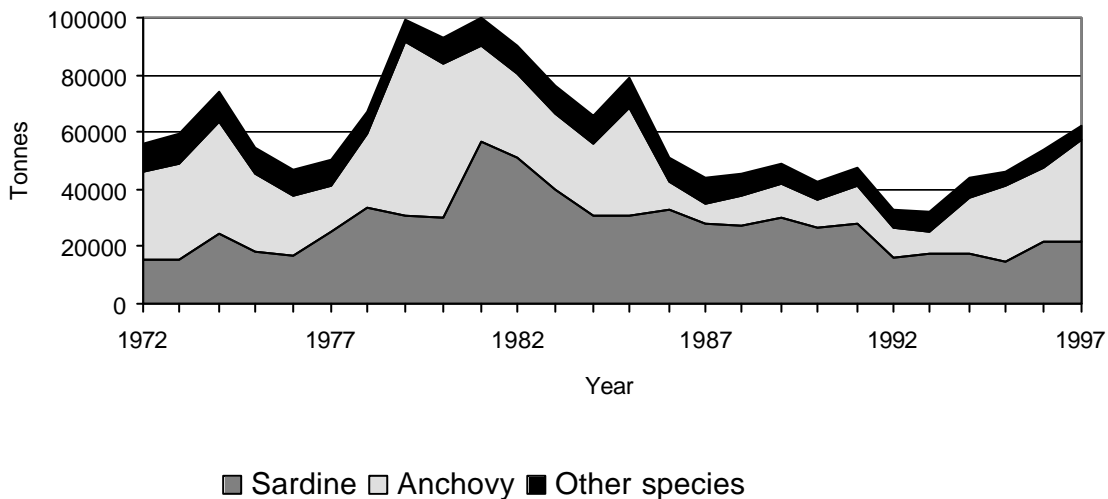
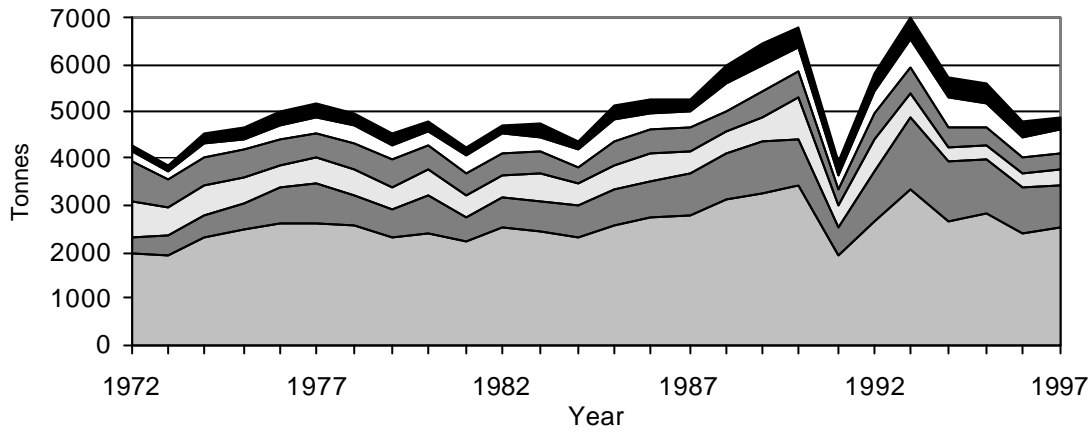


Figure 11. Italian landing of top pelagic species and total selected species. Data source: GFCM.

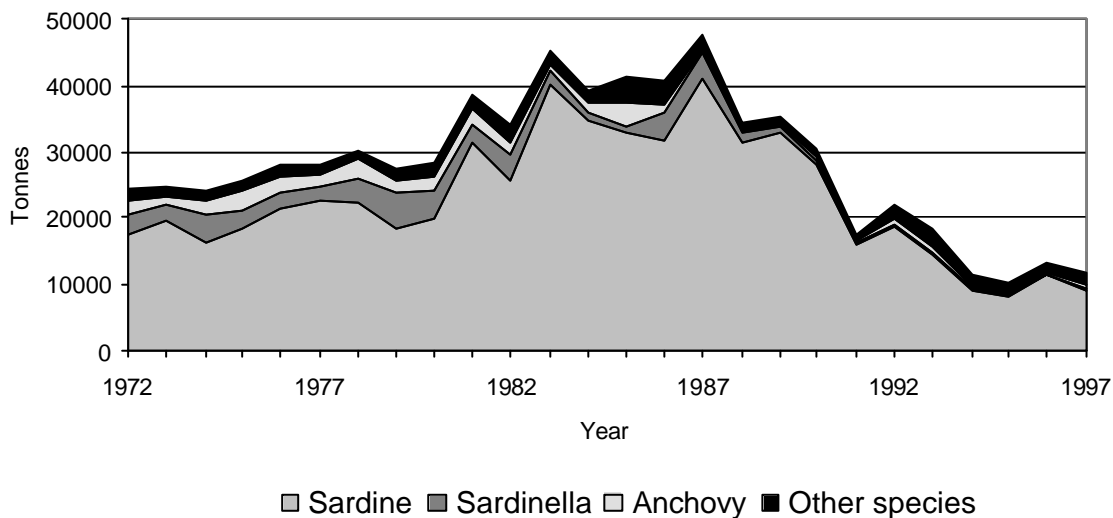
The bulk of the Italian pelagic fishery landing is made of *Engraulis encrasicolus* and *Sardina pilchardus* (Figure 12). Currently the sardine landing is at the 1970s level following a declining trend which started in 1982. Anchovy landing has been recovering during the last five years after the fishery collapse that took place in the second half of the 1980s.



Other species
 Hake
 Picarels
 Bogue
 Norway lobster
 Surmulletts

Figure 12. Pooled Albania, Croatia, Slovenia, FRY and ex-Yugoslavia landing of top demersal species and total of selected species. Data source GFCM.

Seemingly, anchovy landing in the eastern Adriatic Sea sector ceased at the time of the anchovy crisis in 1987 and since then has not recovered (Figure 13). The same can be noticed for landing of *Sardinella* while sardine landings reached the lowest values of the 26 year-long period considered during the 1990s. Overall, the resulting picture of the current East Coast pelagic fishery is that of a nonviable industry going through a phase of crisis.



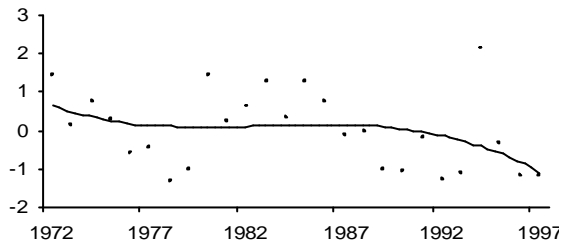
Sardine
 Sardinella
 Anchovy
 Other species

Figure 13. Pooled Albania, Croatia, Slovenia, FRY and ex-Yugoslavia landing of top pelagic species and total of selected species. Data source GFCM.

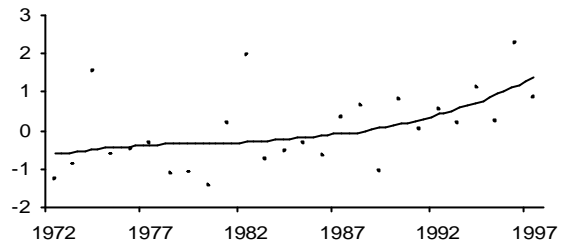
Demersal Fishery

According to GFCM landing statistics the composition and ranking by landed weight of the most important demersal species is not the same along the western and eastern Adriatic coast. Common to both east and west demersal fisheries are *Merluccius merluccius*, *Mullus* spp, *Nephrops norvegicus* and loliginid squids (Fig. 14 and 15). The first three species constitute important fishery targets because of their relatively high market price.

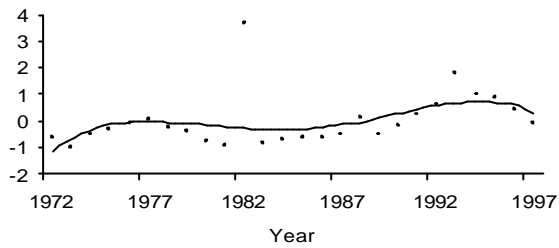
S. officinalis



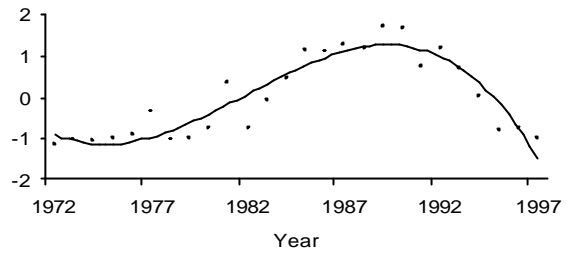
Mullus spp.



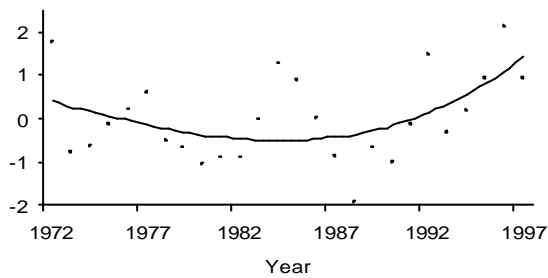
M. merluccius



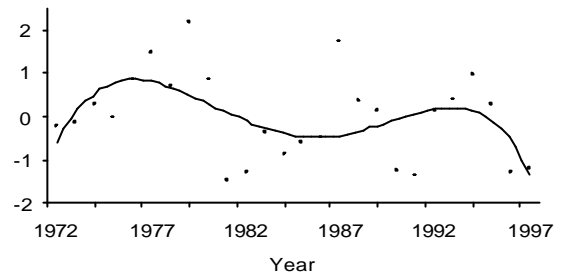
Ommastrephidae squids



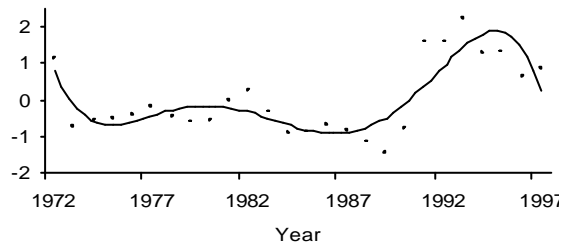
S. mantis



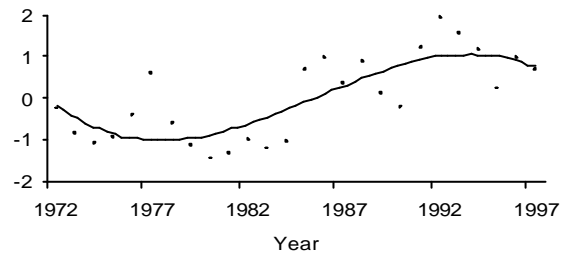
S. vulgaris



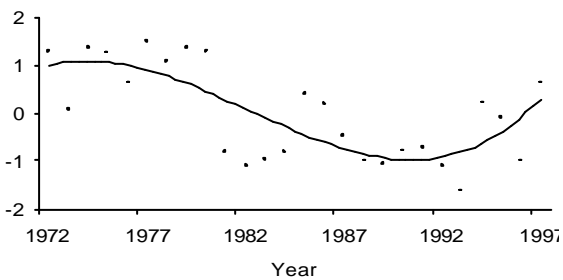
O. vulgaris



N. norvegicus



Loligo spp.



Eledone spp.

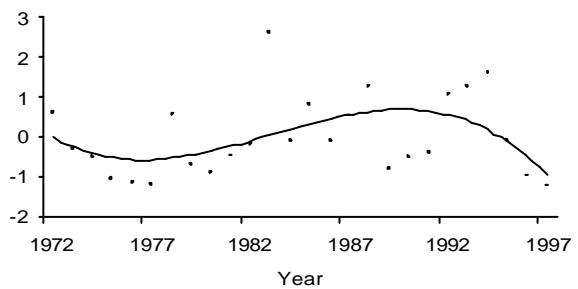
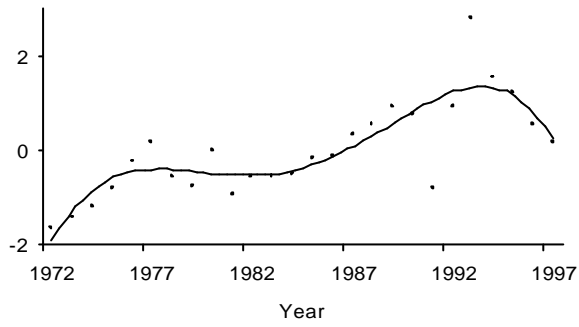
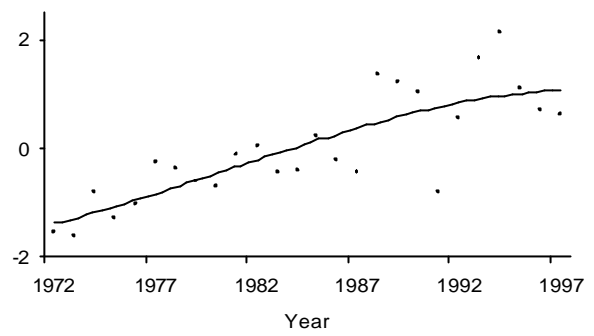


Figure 14. Western landing trend profiles of some of the major demersal species (as landed weight). Average standardised data with fitted polynomial. Data source: GFCM.

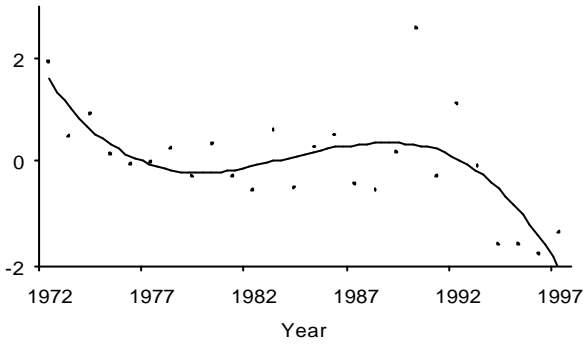
M. merluccius



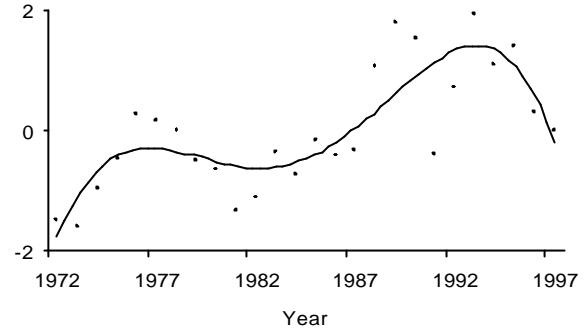
N. norvegicus



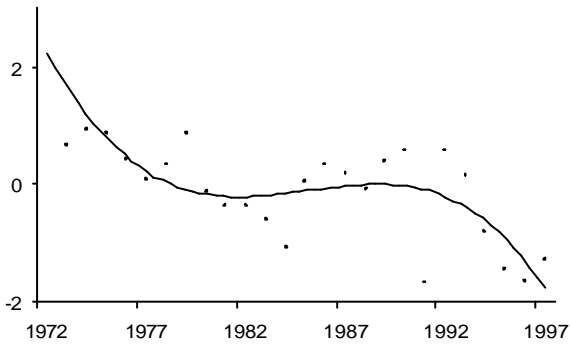
Spicara spp.



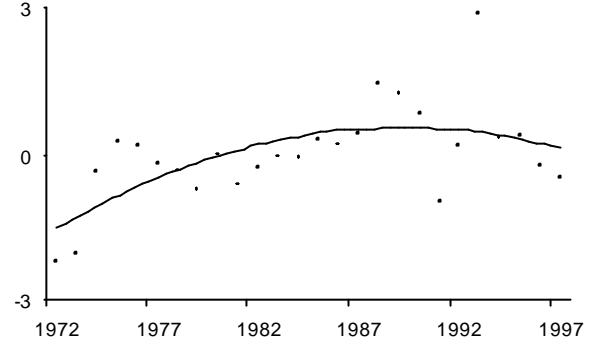
Mullus spp.



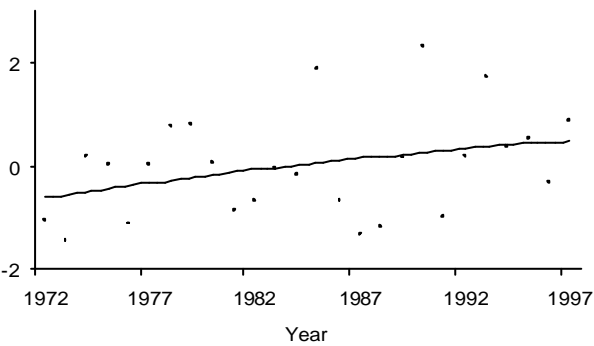
B. boops



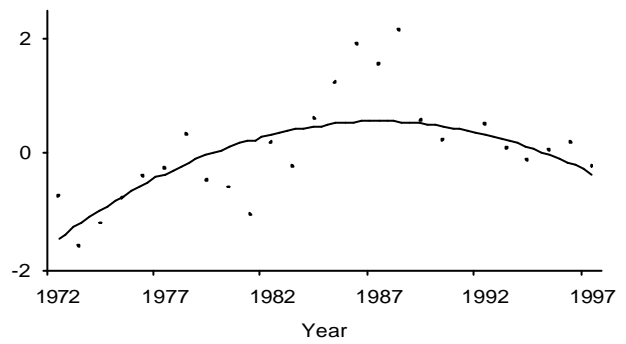
Squalidae



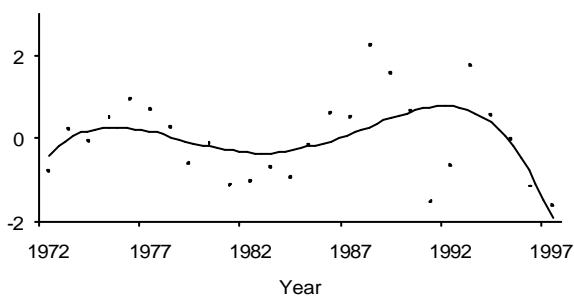
Loligo spp.



O. melanura



Rajiformes



S. officinalis

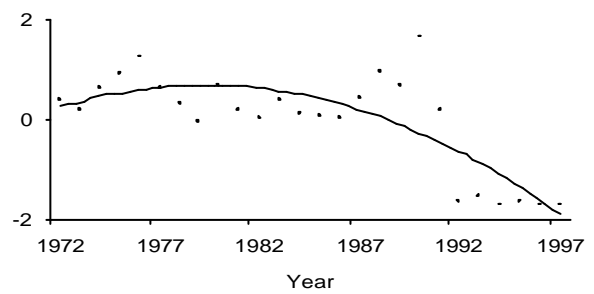


Figure 15. Eastern landing trend profiles of some of the major demersal species (as landed weight). Average standardised data with fitted polynomial. Data source: GFCM.

Landings in Italy of the Mediterranean hake were fairly stable with moderate fluctuations and an overall slightly increasing trend that was much more marked in the eastern sector where hake fishery appeared to have developed quickly.

Surmullets landing although subject to fluctuations showed an overall increase over the time period considered. This positive trend seems to continue in the west while the eastern fishery growth reversed during the second half of the 1990s.

In both sectors Norway lobster landing increased even though there were noticeable fluctuations in the west.

Loliginid squids (mostly *Loligo vulgaris*) showed wide variations probably linked to the production cycle typical of many cephalopods. Also, landing of *Sepia officinalis* displayed a fluctuating pattern, although in recent years a marked decrease took place in the eastern sector.

All landings of the other species along the west coast displayed some degree of fluctuation either typical of well-developed, mature fisheries targeting relatively long-lived species as *Solea vulgaris* or upon short-lived fast growing species such as cephalopods and spottail mantis shrimp (*Squilla mantis*).

Landings of the other species groups in the east sector were characterised by less pronounced short-term variations, however the recent negative trend of cartilaginous fish and the marked decline of *Spicara* spp and *Boops boops* must be observed. The decrease of these last two semi-demersal (or benthopelagic) species might be linked to the negative performance of pelagic fishery.

Pelagic fishery

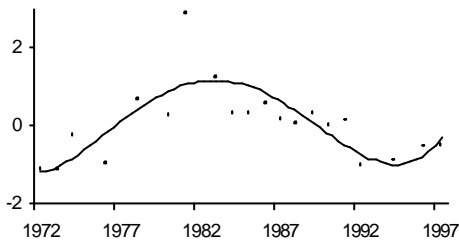
Pelagic fisheries are characterised world-wide by significant fluctuations of regime-driven stocks, and this could explain the trend at least for *S. pilchardus* and *E. encrasicolus*, important in both western and eastern Adriatic fisheries (Figure 16 and 17). However, while Italian landing of anchovies and sardines increased again (particularly for the first species) following the 1980s crisis, no recovery was apparent yet in the eastern sector.

In the whole Adriatic *Trachurus* spp landings declined during the last decade and, since the 1980s those of *Scomber* spp showed a tendency to increase. The overall decrease of mullets and sardinellas landings should also be noted.

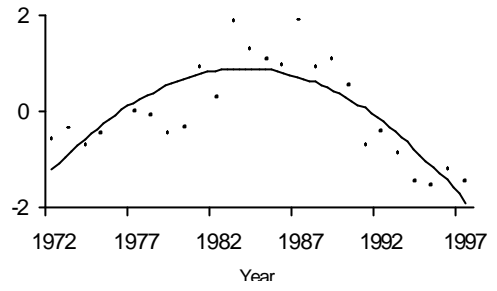
Recent trends

Landing changes (percentage) between the first and the last year in the short-term period (1988-97) are given in Table 3. The comparison showed positive change for ten out of the thirty taxa considered.

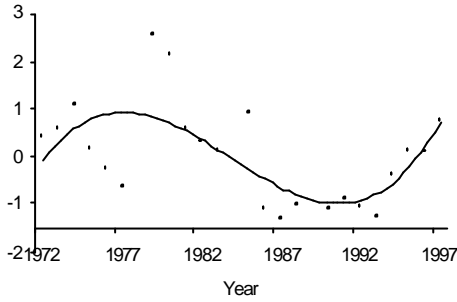
S. pilchardus



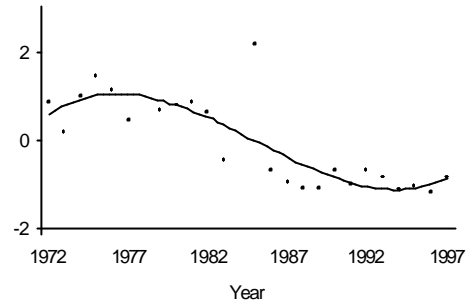
S. pilchardus



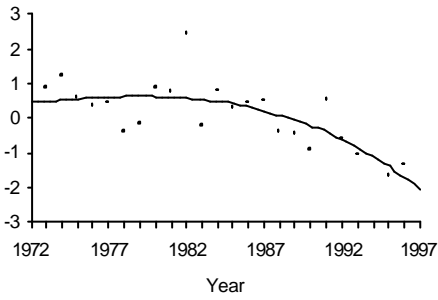
E. encrasicolus



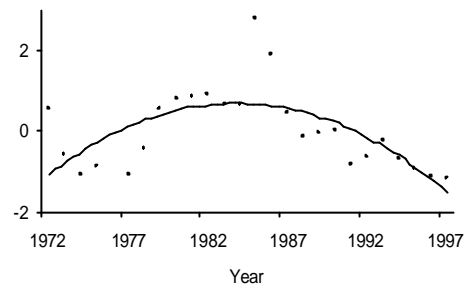
E. encrasicolus



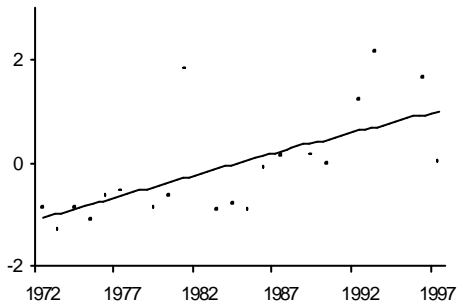
Trachurus spp.



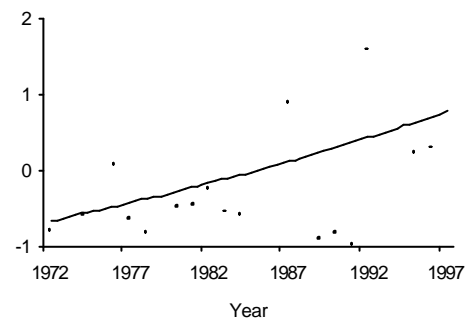
Trachurus spp.



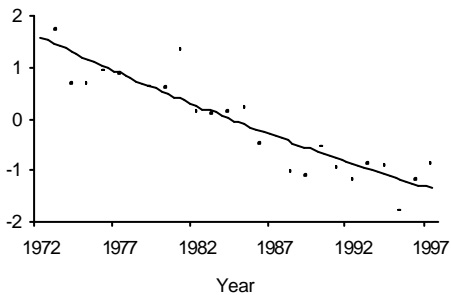
Scomber spp.



Scomber spp.



Mugilidae



Sardinella spp.

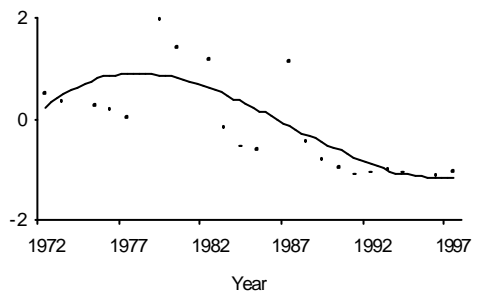


Figure 16. Western landing trend profiles of some of the major pelagic species. Average standardised data with fitted polynomial. Data source: GFCM.

Figure 17. Eastern landing trend profiles of some of the major pelagic species. Average standardised data with fitted polynomial. Data source: GFCM.

Recent landing trends were analysed by means of linear regression over the last ten years of available data (Table 3).

Table 3. Apparent percentage change between 1988 and 1997 benchmark years, and parameters of linear regression fitted to the landing of the last ten years of available data (1988-1997). Species landing were considered as “recently rising” or “recently declining” if slope of significant regression ($P < 0.05$) was positive or negative respectively.

Taxon	Area	% change (198-97)	Slope	R²	F-statistics	P-value
<i>M. merluccius</i>	Western Coast	-6.8	137.5	0.12	0.977	0.356
<i>Mullus spp</i>	“	7.0	146.8	0.43	5.342	0.054
<i>S. vulgaris</i>	“	-37.3	-8.95	0.004	0.030	0.867
<i>S. officinalis</i>	“	-35.7	59.95	0.007	0.048	0.833
<i>Loligo spp</i>	“	64.5	49.97	0.31	3.095	0.122
<i>Ommastrephidae squids</i>	“	-83.7	-486.15	0.93	90.630	« 0.001
<i>O. vulgaris</i>	“	102.5	92.98	0.24	2.244	0.178
<i>Eledone spp</i>	“	-70.1	-14.73	0.006	0.043	0.842
<i>N. norvegicus</i>	“	-5.4	24.45	0.04	0.306	0.597
<i>S. mantis</i>	“	76.1	144.37	0.53	7.883	0.026
<i>M. merluccius</i>	Eastern Coast	-11.1	4.90	0.002	0.017	0.901
<i>Mullus spp</i>	“	-26.8	-11.28	0.15	1.192	0.311
<i>Squalidae</i>	“	-39.7	-10.23	0.08	0.645	0.448
<i>Rajiformes</i>	“	-57.5	-10.72	0.25	2.362	0.168
<i>Spicara spp</i>	“	-22.8	-52.60	0.58	9.788	0.017
<i>B. boops</i>	“	-26.6	-25.62	0.44	5.504	0.051
<i>S. officinalis</i>	“	-97.9	-32.98	0.73	21.280	0.002
<i>O. melanura</i>	“	-31.7	0.25	0.001	0.004	0.949
<i>Loligo spp</i>	“	48.3	-1.42	0.01	0.45	0.837
<i>N. norvegicus</i>	“	-15.8	4.03	0.01	0.086	0.778
<i>S. pilchardus</i>	Western Coast	-19.5	-1242.42	0.38	4.206	0.079
<i>E. encrasiculus</i>	“	228.7	3063.60	0.72	18.275	0.004
<i>Trachurus spp</i>	“	-56.2	-141.10	0.59	9.906	0.016
<i>Mugilidae</i>	“	5.4	-28.82	0.11	0.834	0.392
<i>Scomber spp</i>	“	6.9	46.61	0.13	1.175	0.310
<i>S. pilchardus</i>	Eastern Coast	-71.4	-2852.03	0.79	26.216	0.001
<i>E. encrasiculus</i>	“	77.1	-17.05	0.07	0.502	0.502
<i>Sardinella spp</i>	“	-72.4	-39.80	0.45	5.667	0.049
<i>Trachurus spp</i>	“	-58.1	-62.30	0.69	15.290	0.005
<i>Scomber spp</i>	“	614.2	90.7	0.24	2.163	0.185

The regression resulted significant ($P < 0.05$) or highly significant ($P < 0.01$) in four and five cases respectively, indicating as recently rising the landing of anchovy, and spottail mantis squillid along the west coast and as recently declining the landing of, in the west, *Trachurus* spp and Ommastrephidae squids, and in the east, *S. pilchardus*, *Sardinella* spp, *Trachurus* spp, *Spicara* spp and *S. officinalis*.

Discussion and Conclusions

Analysis of landing trends from nominal statistics is particularly complex and subject to misleading results in the case of highly multi-specific and multi-gear fisheries such as Mediterranean fisheries. Moreover, socio-economic changes and consequent effects on the fishery sector may contribute to further complicate the understanding of fishery exploitation dynamics.

Historical trend of marine capture fisheries of the Mediterranean Sea, together with those of the Baltic Sea and Seto Inland Sea, are generally regarded as remarkable exception within the context of the world fishery development pattern. Although exploitation of fishery resources in the Mediterranean started a long time ago and has increased ever since, fishery production is still slowly rising and no major stock depletion or collapse has been recorded, even though the Mediterranean is considered fully fished (Grainger and Garcia, 1996).

Two main possible factors (or co-factors) have been hypothesised to explain the Mediterranean, and particularly the Adriatic sustained capture fisheries production: nutrient enrichment through eutrophication determining bottom-up effects and high fishing mortality exerted on predators causing top-down effects (Caddy, 1993_a; Caddy *et al.*, 1995).

However, the Adriatic Sea fisheries potential is obviously not unlimited. The maximum nominal production (according to GFCM statistics) was reached in 1981, while the lowest of the period considered 7 years ago. This latter was probably determined by the combined effect of the low stock level of small pelagics and the socio-economic crisis which affected the fishery, mainly the pelagic, of some coastal countries.

Some considerations can be made on the basis of the available landing trends. The overall (both demersal and pelagic fishery) production trend since the 1992 minimum, and after more than 10 years of decline, has reversed, mainly because of the western fisheries performance.

The exploitation of pelagic resources of the Adriatic during the last quarter century may be seen as characterised by two factors, sometime interacting, of different origin: environmental and economic. Environmental factors are thought to play a critical role in pelagic environments causing fluctuations in fish stocks production (Shannon *et al.*, 1988; Lluch-Belda, *et al.*, 1989), often through a non-linear relationship between environmental parameters and recruitment success (Cury and Roy, 1989; Bakun, 1993; Cole and McGlade, 1998).

Biological traits, common to many small pelagic species, such as relatively fast growth and high natural mortality make them vulnerable to recruitment failure due to environmental changes (Csirke, 1988, 1995). Natural changes in the size of pelagic fish stock are often caused by environmental factors which affect recruitment success. Environmental factors and the dynamics through which they affect exploited fish populations are starting to be elucidated for some of the most important stocks in temperate waters on which large, complex historical data sets (several decades) are available (see Cushing, 1995 for a review).

The 1987 drop of anchovy landing is believed to be due to very low recruitment levels in the two preceding years (Cingolani *et al.*, 1996). However, the role played by fishing mortality or environmentally-induced changes (or both) is not clear.

Economic and market factors may be thought to be behind the current low levels of pelagic landing in the East Adriatic, particularly in Albania. The kind of foreign market demand, increased operational costs and international competition make fishing for small pelagics poorly profitable at the moment.

Unlike pelagic fishery, landing of demersal resources has been sustained throughout the period considered. The reasons for this continuity of resources in spite of high levels of fishery exploitation, mainly concentrated on juveniles (Marano *et al.*, 1994; Piccinetti and Piccinetti Manfrin, 1994) is still matter of research. The capacity to withstand heavy fishing exploitation despite the high fishing mortality exerted on juveniles, as for the Mediterranean hake, is believed to be due to adult occurrence in deeper water outside traditional trawl fishing grounds (Abella and Serena, 1998). Other demersal fishery target species of medium and small size are relatively fast growing, especially during the first year of life, thus able, to some extent, to face the effects of early fishing mortality operated by small mesh size trawlnets, allowing for the maintenance of some spawning stock. Also, short-lived species, such as the commercially important cephalopods, with rapid turnover and high production/biomass ratio are particularly resilient to fishery exploitation (as well as to wide natural population fluctuations) compared to longer-lived species. Under these circumstances it is believed that management measures such as closed areas and seasons (e.g. as enforced in Italy since 1987) once implemented in nursery or spawning grounds (or seasons) are likely to be successful (Caddy, 1993_b).

Seemingly, Eastern Adriatic demersal fishery production has not faced the crisis of the pelagic fishery sector. Overall landing trend of the most valuable species such as *M. merluccius*, *Mullus* spp. and *N. norvegicus* has been stable or even increasing. It is possible that the market demand (mainly from abroad), probably coupled with the availability of resources which have been not too intensively exploited in the past, makes demersal fishery a more viable enterprise than small pelagics fishing.

It appears evident that landing information should be considered by main fishery types (e.g. demersal or pelagic) for a better comprehension of fisheries performances. In spite of effort to dispose of compatible information, the quality

and reliability of original data is an essential and determining requirement for basic understanding of the capture fisheries sector. The integration of basic information on fisheries production with other factors (*e.g.* socio-economics, environmental) able to influence the fishery dynamics and performance may turn out to be particularly helpful.

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FAO/GOVERNMENTS COOPERATIVE PROGRAMME

PROJECT DOCUMENT

Project Title: Scientific cooperation to support responsible fisheries in the Adriatic sea (ADRIAMED)

Project Symbol: GCP/RER/010/ITA

Participating Countries: Albania, Croatia, Italy, Slovenia

Donor: Government of Italy
(Ministero per le Politiche Agricole,
Direzione Generale della Pesca e dell' Acquacoltura)

Donor Contribution: US\$ 3 136 760
(First year: US\$ 736 760)

Project Headquarters: Termoli, Molise, Italy

Duration: 5 years

Brief Description

In the relatively closed basin of the Adriatic there has been until recently a reluctance to control fishing effort at safe, economically-productive levels, but the coastal countries have become aware of the risks involved and are now ready to introduce cooperative management initiatives, as recommended under FAO's Code of Conduct for Responsible Fisheries (1995).

The project plans to enable the four initial participating governments to prepare and begin to implement up-dated management plans for each specific fishery, through coordinated investigations and multi-disciplinary analyses undertaken in partnership with the fishing industry. The ultimate beneficiaries will be the fishworkers who depend for their livelihood upon the sustainability of the fisheries resources, as well as the consumers demanding a regular supply of nutritionally valuable fish products.

Through the project, inter-governmental collaboration on fisheries management will be facilitated by setting up a sub-regional computer-based communications network and fisheries-monitoring system, by helping coordinate their fishery research programmes, by the drafting of fisheries-management strategies,

plans and measures, as well as by up-grading the skills of national staff in all of these disciplines, through in-service participation in courses, joint working groups, symposia, and/or through study visits and fellowships.