SCIENTIFIC COOPERATION TO SUPPORT RESPONSIBLE FISHERIES IN THE ADRIATIC SEA

MiPAF

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Meeting Memorandum

Fano, Italy, 26th - 28th April 2006

AdriaMed Working Group on Shared Demersal Fisheries Resources

The Meeting of the AdriaMed Working Group on Shared Demersal Fisheries Resources (henceforth referred to as WG) was held at the Laboratory of Marine Biology and Fisheries in Fano, (Italy) from 26th to 28th April 2006. The meeting was attended by researchers from the Adriatic fisheries research institutes involved in Project activities and members of the relative AdriaMed networks from Albania, Croatia, Italy and Serbia-Montenegro; the deputy secretary of the GFCM also attended as well as staff of FAO Fisheries Projects. The list of all nineteen participants is given in Annex 1.

The main aim of the meeting was to discuss some specific technical issues related to demersal fisheries resources in the Adriatic Sea and to bring the participants up to date on some AdriaMed activities in which the different Adriatic research institutions are involved. Particular importance was attached to establishing the trawl surveys programme, issues related to the nursery areas and the Adriatic databases, furthermore the identification of indicators for fisheries management (Annex 2) was discussed. Participants were provided with the draft of the final report of the AdriaMed trawl survey 2004.

A summary of the meeting's discussion and outcome is given hereunder:

Adriatic Trawl Survey Programmes and related AdriaMed Information Systems

The AdriaMed Trawl Survey for 2006 activity was discussed. The scientists responsible for the AdriaMed trawl survey research programme in GSA 17 and GSA 18 were informed about the trawl surveys carried out during the winter (2005/2006) Trawl surveys were carried out in January and February 2006 in Croatia and in Italy (also covering Albanian waters). For technical reasons the survey in Montenegro has not been carried out yet. Discussion was held to organise the AdriaMed trawl survey in the eastern Adriatic Sea, which is to be carried out during the forthcoming autumn season. The possibility of involving Serbia-Montenegro in the MEDITS survey in June/July (2006) was discussed this will be duly investigated and

counterparts from Serbia-Montenegro will be informed in due time by their Italian colleagues who are involved in this programme.

The next AdriaMed trawl survey is expected to be held in the months of September/October 2006. Depending on budget availability, AdriaMed will support the surveys in the Serbia-Montenegrin and Albania waters. The number of stations will be discussed at a later stage. Some aspects of the trawl survey research protocol were reviewed by the experts. On the basis of the outcome of the recent MEDITS meeting held in Kavala, (April 2006), the list of the target species was proposed to be updated with the inclusion of *Trigla lucerna* and *Boops boops*. Moreover the addition of a global picture of the catches in the net for each sampling station was proposed. It was further agreed that, when possible, a photograph will be taken and added to the report for each station (macrobenthonic species included).

With reference to the report of the fourth AdriaMed trawl survey, the style of the report was discussed and the experts present agreed to create a single report for the forthcoming AdriaMed Trawl Survey, including the summary of each previous survey carried out (2001, 2002, 2004, 2005/2006) in Slovenia, Croatia, Serbia-Montenegro and Albania, together with the information collected by the parallel Italian survey GRUND in Italian waters. For the technical report, the data will be managed with the same level of aggregation.

The WG was informed and updated on ATrIS, the Adriatic Trawl Survey Information System developed by the Project and now widely applied among the research institutions around the Adriatic Sea. The technical problems met in the development of ATrIS and the efforts made to solve these were also discussed; the technical problems that have arisen in Croatia due to the different version of Microsoft Office used have nearly been solved; the WG was also informed about the achievements so far towards increasing distribution of ATrIS among the Adriatic fishery research institutions (now 8 institutions have installed and use ATrIS).

The possibility of upgrading the application with new modules was discussed. It was decided to upgrade version 1.1 with three new routines: 1) a data import/export routine for the main statistical software (FISAT II, S-PLUS and STATISTICA) in order to permit wider utilisation of ATrIS; 2) a routine to add ancillary information (mainly environmental data); 3) a routine to automatically generate a table with selected biological indicators (on the basis of the indicator list agreed on by the WG on Demersal Resources held in Fano, 2005). The new routines should be completed by the end of the year and the new, updated version will be distributed among the WG members.

The beta version of AdriaSIM (AdriaMed Server Information Maps) was presented and illustrated by the staff of the Project. AdriaSIM is an application that works using an Internet Map Server. It will be hosted on the AdriaMed website and it will basically allow for the on-line creation of thematic maps and a preliminary cartographic analysis, as well as the visualisation and retrieval of fisheries information that is already available on the web pages of the Project. The application will also permit the consultation of the geo-referenced data available on the AdriaMed website (like ports or research institutions), or environmental databanks which will be made consultable through the AdriaMed web pages. The cartography used is the AdriaMed digital cartography provided by the Project in collaboration with the Italian Hydrographic Institute and the Croatian Hydrographic Institute and distributed to the

Adriatic research centres. The possibility of loading other data, to make spatial analyses and personalized maps was illustrated. The first release of AdriaSIM is expected to be published on the AdriaMed web site by the end of June 2006, when some of the routines illustrated will be made available.

Nursery and spawning areas of some demersal species in the Adriatic Sea (GSA 17 and GSA 18)

On the basis of the of the scientific contribution "Nursery area of some demersal species in the Adriatic Sea (GSA 17)" presented during the 7th AdriaMed Coordination Committee meeting (Ljubljana, October 2005) and during the GFCM SAC Sub-Committee on Stock Assessment (SCSA) (Rome, Italy, 26-30 September 2005) a similar paper was presented and discussed for GSA 18. The WG remarked that the application of standardised methodologies for the definition of nursery areas should be taken into consideration.

It was agreed that two scientific contributions should be prepared, for GSA 18 and an updated version for GSA 17, on the methodology to be applied for the identification of the nursery areas. Nicola Ungaro (for GSA 18) and Nedo Vrgoc (for GSA 17), in collaboration with the Research Institution of the Adriatic Sea and the Project staff, will lead the preparation of the reports.

Concerning the spawning areas, the WG agreed that the data series available for the Adriatic Sea are more suitable for the identification of the areas of concentration of matures individuals rather than to map information on the spawning areas of selected species. It was brought to the attention of the WG that for the identification of both the nursery areas and the spawning areas the ecological component should be considered.

The Operational Units in the Adriatic Sea

On the basis of the paper presented by AdriaMed "Adriatic Sea Operational Units - First Identification and Listing" (paper prepared by the Adriatic experts and presented at the 7th SAC meeting held in Rome, October 2004), the applicability of the OUs concept in the Adriatic Sea area was further discussed. It was recalled that the application of the OUs concept is for fisheries management purposes. This follows a recommendation from the GFCM-SAC and further develops previous work promoted by the Project. The initial objective of establishing the OUs concept in the Project area is related to the GFCM discussion on managing Mediterranean fisheries by fishing effort. The WG was further reminded that, during its 30th session held in Istanbul, the GFCM adopted four specific tables for data collection on OUs.

The applicability of the OUs concept was analysed, in particular attention was drawn to the fact that at country level it is necessary to implement fishery data monitoring systems and at the moment this is the main constraint to the applicability of OUs.

The possibility to map the information related to the operational units (mainly fishing gears and fleet segmentation) with other fisheries data was discussed.
The deputy Secretary of the GFCM informed the WG on the next GFCM/SAC Workshop on Stock assessment by Operational Units (Rome, 26-28 June 2006) and the participation of the

scientists from the Adriatic Area was encouraged. The expediency of producing a working paper for the forthcoming meeting of the GFCM-SAC Workshop was discussed. AdriaMed will support the participation of one or more expert to present a paper, if any.

The deputy Secretary of the GFCM also informed the WG on the main recommendations concerning the first meeting of the Permanent Working Group on Stock Assessment Methodologies (PWGAM) held in Istanbul, 8-10 March 2006 on the following: the use of different methods for demersal resource assessment; on the comparison of methods for small pelagic stock assessment; on the exploration and application of ecological and bioeconomic models and on the growth parameters in the Mediterranean. In particular for the demersal resources the use of composite models and direct survival analyses are encouraged. These methods allow the use of independent data from trawl surveys. For this purpose the organization of training courses/workshops dealing with both theoretical background and case studies to be presented to the SCSA are recommended. Moreover the indicators and their trends though the use of trawl surveys (i.e. MEDITS) were acknowledged for their importance in stock assessment methodology. The elaboration of these indicators for other areas and the potential identification and application of additional ones was therefore recommended. It was suggested that these could be presented at the next SCSA. The advance copy of the report of the meeting of the PWGAM was distributed to the WG participants.

Biological and Economic Indicators for the Adriatic Sea fisheries

As high relevance is given in the GFCM-SAC mandate to the issue of biological indicators and reference points, the same presentation as was given to the GFCM-SAC Sub Committees on Stock Assessment (Rome, September 2005) was made to the WG, the content of which was based on the list agreed by the AdriaMed Working Group on Operational Units in the Adriatic Sea in Zagreb (14^{th} and 15^{th} of September 2004) and the guidelines for the standard compilation of the selected indicators. The document "A preliminary contribution on the applicability and the performance of some biological and economic indicators for the Adriatic Sea demersal fisheries, the case of the Operational Units in the western GSA 18", also presented during the GFCM SAC Sub-Committee on Stock Assessment (Rome, Italy, 26-30 September 2005), and based on the traffic light approach, was distributed to the participants.

The issues of identification of reference points and their constraints were discussed to some extent. It was agreed that a scientific contribution should be prepared to be presented to the next GFCM SAC Sub-Committee meetings, the importance of eliminating the indicators which are considered redundant from the list was also stressed.

Jabuka/Pomo Pit

The WG was reminded that the issue of the Pomo/Jabuka Pit critical area and the need to identify management options has been indicated as a priority since the first meeting of the AdriaMed WG on shared demersal fishery resources (Fano, July 2001). The paper "*The Jabuka/Pomo Pit area (Adriatic Sea, GSA 17): general features and considerations to support management options of fisheries resources (Merluccius merluccius and Nephrops norvegicus)--Working notes for the Working Group on Shared Demersal Resources (Fano, 26-28 April 2006)*" was distributed among the participants and the main concepts were illustrated. These

include part of the work carried out to date, highlighting some considerations coming from previous meetings of the Adriatic experts on the Pomo Pit, some management options and the implementation of a monitoring programme to be adopted in the area (biological and economic surveys). These working notes would represent the basis on which prepare a document which critically assembles and reviews all the available scientific knowledge on the Pomo/Jabuka area with particular reference to fishery aspects. This document will be distributed by the Project to the National Focal Points, who in turn will circulate it among the relative administrations. Mr Enrico Arneri accepted the task of assembling and compiling the information with the full cooperation of Corrado Piccinetti and Nedo Vrgoc. The experts involved will maintain contact between themselves, also communicating with FAO AdriaMed as necessary. It was also suggested that a technical meeting to review and assess progress on this issue might be organized on a one-day basis.

Other scientific contributions on the Adriatic demersal resources' research activities

Since one of the management options included in the working notes on Pomo Pit focuses on mesh size regulations, Mr Antonello Sala of ISMAR, Ancona: "Comparison of size selection and efficiency by diamond- and square-mesh codends of Mediterranean bottom trawl". Mean selectivity curves were estimated for the two codends for which a number of individual hauls was fitted taking into account the *between-haul* variation of the selectivity parameters and based on pooled data. Reliable selectivity results were obtained on *Merluccius merluccius*, *Mullus barbatus*, *Parapenaeus longirostris*, *Arnoglossus laterna*, *Illex coindettii*, *Pagellus erythrinus*, *Trachurus mediterraneus*, *Trisopterus minutus capelanus* and *Nephrops norvegicus*. The 50% retention length *($L_{50\%}$)* computed for the diamond mesh codend were always lower than those computed for the square mesh codend. The diamond mesh codend always released lower numbers of individuals than the square mesh codend. Efficacy comparisons were done on the main commercial species: comparative results confirmed a general idea that the diamond mesh codend efficacy on some Cephalopod species is high when compared with the square mesh codend, while all the other differences on main commercial fish species resulted not significant. Nevertheless, the diamond mesh codend showed a very low relative efficacy on some commercial Crustacean species.

There was general agreement that the circulation of the final results of this experiment would constitute a source of useful information and a valuable tool for the Project.

A second intervention was made on the influence of twine thickness on PA codend size selectivity of Mediterranean bottom trawl. Two codends were made by meshes with the same mesh opening (around 44 mm) but different twine thickness. The two codends had the same nominal circumference and were daily alternated on the same trawl. Codend selectivity was measured using the covered codend technique, where the cover was supported by circular hoops. The results demonstrate for all the species analysed a significant reduction in selectivity with increased twine size. For all the species considered, the lengths at 50% retention (L50%) measured for the trials codends indicate that the increase in twine thickness from 2.38 cm (Rtex 3644) to 2.89 cm (Rtex 5312) reduced selectivity by about 20-25%. Therefore the twine thickness of codend netting played a significant role on selectivity, so it would be essential to include this factor in EU legislation, aimed at improving codend selectivity in Mediterranean.

There was general agreement that the circulation of the final results of this experiment would constitute a source of useful information and a valuable tool for the Project.

Ms Betulla Morello of ISMAR, Ancona presented the results of scientific experiments carried out in the Pomo/Jabuka Pit area on *Nephops norvegicus*: "Preliminary evaluation of underwater television (UWTV) as a fishery-independent method for stock assessment of Norway lobster, *Nephrops norvegicus*, in the central Adriatic Sea" as an example of methodology to assess demersal fisheries resources giving additional data to compare with the trawl survey data. A fishery-independent method relying on the use of towed UWTV was evaluated for a restricted area within the western Pomo pit and illustrated as having great potential if integrated within existing *Nephrops* assessment techniques. This methodology uses *Nephrops* burrow counts as an index of stock abundance and, if appropriately integrated with otter trawl hauls, burrow counts may be converted into biomass estimates within a defined area. The employment of this method is subject to a series of assumptions and is heavily reliant upon accurate attribution of burrow openings to *Nephrops* and biomass estimates should be handled with caution. Nevertheless, its usefulness is wide-ranging, from stock assessment, to the study of the ecology of muddy fishing grounds, to studies related to the catchability of this species.

SOLEMON Project (*Solea vulgaris*)

The preliminary results of the "Stock assessment of Solea solea in the northern and central Adriatic sea and evaluation of the impact of the different fishing activities" were presented. The aims of the project are: a) to evaluate the stock assessment of *Solea vulgaris* in the Northern and central Adriatic Sea using both trawl survey data and landing data, b) to evaluate the spatial distribution of this fisheries resources and c) to estimate the fishing effort. The Project started in 2005 and will end in 2007. There was general agreement that this kind of project would provide relevant economic, biological and ecological information At the end of the SOLEMON Project, AdriaMed will be informed on the main results achieved and these will be further circulated among the Adriatic experts.

Regional database on bottom trawl fisheries regulations in the Adriatic Sea

The WG was informed on the recent progress of the work carried out by the AdriaMed Project to establish a regional database for bottom trawl fishery regulations in the Adriatic Sea. The purpose of this database is to produce a set of relevant thematic charts for the Adriatic Sea. Mr Nedo Vrgoc presented the database created so far including all the fishery regulation measures relevant to demersal trawl fishery in Albania, Slovenia, Croatia and Serbia-Montenegro. A similar activity has been carried out by UNIMAR, commissioned by the Italian Ministry of Agriculture and Forestry Policies. The work carried out by UNIMAR was presented, underlining with some examples the support that this kind of mapping of information can give to fisheries management.

It was thus deemed advisable to develop collaboration with UNIMAR in order to have a complete picture of the fisheries regulations applied to the demersal fisheries resources in the Adriatic Sea.

AdriaMed Database on Shared Fisheries Resources of the Adriatic Sea

The WG was informed on the forthcoming publication on the AdriaMed web pages of the Database on Shared Demersal Fisheries Resources of the Adriatic Sea. Based on the AdriaMed Technical Document N.12, the database contains the relevant information on 13 species. Additional information on legislation was collected using the AdriaMed Technical Document N. 14 and genetic data were compiled using the AdriaMed IPUAS project data. The WG was asked to keep the information given on the website up to date once it is available.

Annex 1

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Annex 2

Agenda

1. **Opening of the Meeting**

2. **Objectives of the Meeting**

3. **Adriatic Trawl Survey Programmes**

4. **Nursery and Spawning areas of some demersal species in the Adriatic Sea (GSA 17 and GSA 18)**

5. **The Operational Units in the Adriatic Sea**

6. **Biological and Economic Indicators for the Adriatic Sea fisheries**

7. **Jabuka/Pomo Pit**

8. **Regional database on bottom trawl fisheries regulations in the Adriatic Sea.**

9. **Presentation of the research "Estimation of biomass using different fishing tools: SOLEMON Project (*Solea vulgaris*)"**

10. **Discussion of the workplan for the AdriaMed Demersal Resources Network**

11 **Other matters**