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Fisheries Information Systems in the Mediterranean. Current state and the need for integration

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SUMMARY - The introduction of Integrated Fisheries Information Systems for the Mediterranean is proposed. A first step for the integration is to establish a Mastertable providing information on the existing national statistics of the different segments of the fishing industry. Next, items liable to integration at the Mediterranean level have to be decided. The structure, nature, quality profile and available time series of existing national statistic systems are reviewed, and summarized information concerning aspects of integration for each segment of the fishing industry is presented.

Key words: Fisheries statistics, Mediterranean Sea.

RESUME - *"Les Systèmes d'Information sur les Pêcheries. L'état actuel de la Méditerranée et le besoin d'intégration". Il a été proposé d'incorporer le Système Intégré d'Information sur les Pêcheries pour la Méditerranée. Le premier pas pour l'intégration est d'établir une Table Maîtresse permettant de connaître les statistiques nationales existantes par segment d'industrie de la pêche. Ensuite, il faudra décider quels éléments sont susceptibles d'être intégrés au niveau méditerranéen. La structure, nature, le profil de qualité et les séries temporelles disponibles à partir des systèmes statistiques nationaux existants sont passés en revue, et une information résumée est présentée concernant les aspects d'intégration pour chaque segment de l'industrie de la pêche.*

Mots-clés : *Statistiques des pêcheries, mer Méditerranée.*

Introduction

The formulation of the European Union fisheries policy in the Mediterranean requires detailed and reliable information concerning the stocks, the fleets, and the catches, upon which biological advice for the management of the resources will be based (Gulland, 1977). Statistical coverage of the economic and social dimension of fisheries is of particular importance not only for the purpose of establishing a policy with a satisfactory reference to the socio-economic aspects of management, but also for assessing the scale of problems likely to be encountered in the frame of an integrated fisheries policy.

The aim of the present work is to propose an Integrated Fisheries Information System (IFIS-M) creating as a last step a Mediterranean Observatory that will improve, harmonize and upgrade information from the national fisheries statistical systems of the various segments of the fishing industry of the four member countries (EU). Further extension may possibly include all Mediterranean countries.

Identification of the problem

In theory, most national statistical systems provide coverage of a wide spectrum of fleet, production and effort, and of economic, social and other data. In practice, however, the quality and utility of data is often poor. For example, general assessments of landings rather than precise estimates of catches are usually available. Besides, there is little usable information from biological sampling. Another problem is the poor quality of existing databases (Ansa-Emmin and Levi, 1975).

In addition, there is a great diversification of the national statistical systems and a poor comparability between the existing time series and supporting databases, even within countries, due to the different approaches followed and lack of standardization in techniques and methodology (Bazigos, 1974).

In order to meet the new data requirements of the conservation policy it is important to improve, standardize, extend, and modify when necessary, the existing survey systems and supporting databases. Also, to develop new databases, taking into account the biological situation and the prevailing socio-economic structures.

A next step is to achieve compatibility of procedures at the Mediterranean level by proceeding stepwise on a country basis. A common framework for data treatment and processing, and harmonization of survey systems should be developed. Last, an integrated fisheries statistics system compatible with the fishing conditions in the Mediterranean should be introduced.

Success is developing appropriate databases relevant to the management of the resources will depend, among others, on the reliability of information obtained. Attention should therefore be paid to the quantity and quality of information provided. Statistical information concerning personnel, fleet characteristics and capacities, landings, discards and other fisheries data have to become organized and more readily available. Scientific work that is based on this information will become facilitated and its quality will be improved.

The view of the above, the integration procedures must proceed in two steps:

(i) Preparation of a Mastertable providing the systematic information on structure, nature and level of compatibility of the existing national statistics by segment of the fishing industry, quality profile of data and of available time series as well as existing gaps and inconsistencies.

(ii) Examination of aspects related to the integration of the existing national statistics and improvements of them.

The above two steps will be discussed in this presentation in the context of three interrelated themes, all of which are important for the improvement and harmonization of the Mediterranean statistical information systems:

(i) The critical evaluation of the existing fisheries statistical systems of all kinds and supporting data bases and their mutual comparability.

(ii) Proposals concerning the improvement and harmonization procedures and sampling techniques, so as to produce comparable statistics, data and information of equivalent accuracy and validity.

(iii) Recommendation for improvements that authorities can actually implement by taking into account existing administrative and budgetary constrains.

Analysis of the proposed statistical system

Structure, nature and quality profile of existing national statistics-Mastertable

The following segments of the fishing industry were considered possible for possible integration at the Mediterranean level:

1. Fishing fleet
2. Production
3. Employment
4. Fishing effort
5. Costs and earnings
6. Fish processing
7. Commercialization (Internal/External Trade)
8. Consumption
9. Prices
10. Scientific data

For the purpose of making an integrated presentation of the existing national statistics of EU member states, a Mastertable was constructed which provides a systematic way of comparing the structure, nature and quality profile of these statistics by segment of the fishing industry.

In the Mastertable, gaps and inconsistencies observed in the national statistics are portrayed. The Mastertable throws some light on the complex statistical system covering the fishing industry in the Mediterranean regions (EU) on a strata-by-strata-basis.

A critical evaluation of the textual content of the Mastertable demonstrates the intricacies of the overall statistical system and reveals the following difficulties which must be taken into account in efforts for integration:

(i) The numerous sources of information, the different survey systems and types of surveys used in data collection and the many sets of survey results.

(ii) The many data categories covered by the individual survey systems, differences in concepts and definitions, and the complete lack of standardized codes for individual data items.

(iii) Deficiencies in the quality of the statistics systems and differences observed between states (ACC, 1994).

(iv) The problems connected with the quality of existing time series, their completeness and the level of compatibility.

(v) The lack of integration of databases within and between, segments both within and between countries.

There are also obvious gaps and inconsistencies in the national statistics, e.g., not one of the official statistical systems collects fishing effort data.

Finally, the Mastertable portrays the interdependency of the statistics on various segments within countries and between countries.

Aspects of Integration and required improvements

In this section, summarized information concerning the general status, as well as some aspects of integration and improvements required for each segment of the fishing industry will be presented.

Fishing fleet

The living marine resources in Mediterranean regions (EU) are exploited by different segments of the fleet utilizing various types of gear, e.g., trawl, purse-seine, surface and bottom lining and different kinds of nets which are differentiated by their technical characteristics, equipment and target species.

The Mediterranean fishing fleet is basically artisan, characteristically made up of small boats with small power and tonnage whose gear rotate according to the target species at given periods of time (European Parliament).

Fishing fleet statistics in the Mediterranean countries (Greece, Italy, France, Spain) use as basic items number of vessels, GRT (Gross Registered Tonnage), power (HP) and fishing method. Gaps in statistics become more evident in the case of the artisan fleet, which is the largest and most difficult to control, since the fishing vessels are continuously changing their gear according to the season and target species. Their activities are discontinuous and irregular, making assessment difficult. Therefore, greater effort should be made to quantify the artisan fleet accurately, not forgetting the larger fleets.

The importance of complete, detailed and accurate fishing fleet statistics based on an integrated fishing fleet census should be stressed. Also, an efficient post-census mechanism should be developed which would be able to provide information on changes in vessel numbers and size and other related characteristics of the fishing fleet population in order to keep the database updated.

Production

The problems, deficiencies and weaknesses of the existing fisheries statistics of catches and landings are clearly described in the Mastertable, whilst the common parameters of fish production statistics on a regional level are analysed.

The following aspects must be taken into account for integration and improvement of the fish production statistics:

(i) Appraisal of the level of production coverage of the artisan fisheries and of the data quality through sampling strategies (quality check sample measures) and revision of existing fisheries time series. Improvements should be introduced in the assessments made by the administration regarding: harmonization of methods, extrapolations from reliable data, introduction of correction factors, etc.

(ii) Introduction of the log book method for larger vessels in order to obtain data on a fishing zone basis.

(iii) Development of a common European standard codification system species.

Employment

Two sources of information were identified regarding the collection of employment statistics: fisheries censuses, and statistics coming from administrative employment statistics.

For the improvement and integration of the employment statistics the following aspects must be taken into consideration:

(i) Publication and wider distribution of an exact census providing employment classified by fishing method, tonnage, engine power and port.

(ii) Collection, analysis and publication on an integrated basis of existing information on registered fishermen according to age, sex, educational and professional level.

Fishing effort

The fishing effort is a measure of the amount of fishing exerted on an exploitable resource. Measuring the fishing effort is necessary for the appraisal of exploitable marine resources and the choice of the most appropriate fishing strategy. Therefore, it must be considered as one of the basic parameters to be measured in fisheries statistics.

In the official fisheries statistics of the member states, no historical documentation of the fishing effort exists, standardized by fisheries or species. There is recognition within the scientific community that official fishing effort data are incomplete and difficult to apply in the evaluation of the surveyed stocks or fisheries. As a consequence, it is recommended that statistical measurements of the fishing effort should be included in the official fisheries statistics.

Measurements of effort should be quantified -at least in fishing days by gear and zone. For coordination purposes these zones should be related to the fishing grounds or at least to the sub-areas recognized for each country in the statistics of the GFCM/FAO. Additional statistical data on fishing effort could be collected concurrently with data obtained in fish markets and other places

of primary sale on the same day as the landing, since the unit of measurements can be easily identified.

Costs and earnings

Mediterranean fishing fleet costs and earnings are poorly documented. Data on vessel prices, subsidies and grants can be obtained in the four countries through different administrative levels. Whilst this information is not of the same nature as that supplied by costs and earnings figures, information on allowances granted to the fishing industry can be used to provide an insight into the expansion trends in the sector. Such data are available from the Commission for those subsidies granted by the EU.

Fish processing

The importance of the fish processing industry and the kinds of processed products sold vary between the four member states.

No systematic information on the fish processing sector can be found in the four EU member states. The data concerning the fish processing are produced by various specialized institutes or general censuses and surveys of national economic performance, where their availability and circulation are plagued. The information produced by these sources is not mutually compatible and there are obvious differences in the classifications use.

The following aspects must be taken into account for the improvement and integration of the existing statistics:

(i) Standardization of concepts, definitions and classifications used in the presentations of statistics.

(ii) Integration of the statistics produced by the different sources of information on a national level.

(iii) Improvement of the statistical monitoring of the sector.

Commercialization

Commercialization statistics concern both internal and external trade statistics. Aspects to be taken into account for the integration and improvement of commercialization statistics are:

Internal trade statistics: Harmonization of the concepts and definitions, and establishment of standardized codes, format of the published statistics, and databases.

External trade statistics: Ensure the regularity of publications and improve the compatibility between: (i) member states; and (ii) national statistics and Eurostat.

Consumption

The statistical framework for the collection of consumption data on fish products in the Mediterranean regions indicates similarities between the survey systems of Greece and Italy on the one hand and of France and Spain on the other.

In the case of Greece and Italy the available statistics are compatible, in the sense that they use the same survey system and address the same target populations. However, there are apparent differences concerning structural aspects of the system, rotation of the surveys and analysis of the results. French and Spanish statistics on main species consumption and product destination are

compatible and similarly detailed. However, there are obvious differences in the rotation system of the surveys (monthly, yearly).

The following measures are recommended for improvement and integration:

(i) Evaluation of the existing survey systems and the existing time series.

(ii) Standardization of the statistics on all species for which data are collected by the member states.

Prices

Price statistics are obtained at various levels by different governmental agencies in each member states. Only in some cases prices for landings are obtained at first sale. At secondary and tertiary sale levels prices are useful for purposes of market information and determination of value.

Aspects to be taken into account for integration of the existing fish price statistics are:

(i) The existing heterogeneity of sources of information, target populations, surveys and rotation systems.

(ii) The unknown quality profile of the existing statistics.

(iii) Difficulties related to series compatibility. The structure of data by species/region/type of seller/period, presents particular problems.

Scientific data

Scientific data requirements are mainly covered by the work of research Institutes and Universities. For the improvement and better coordination of the management of the Mediterranean fisheries resources, it is absolutely essential to establish a regionally coordinated structure for the collection of high quality scientific data that will permit the joint assessment of resources. A prerequisite for that is to fund national biological sampling programmes, which will guarantee a continuos supply of reliable data to the proposed Mediterranean Observatory.

Conclusion and recommendations

At present, the national systems are collections of individual series of statistics, many of which have been developed with no relation to already existing series. For integration and improvement, it becomes apparent that the countries member and the EU must come to grips with certain issues.

The most pressing issue pertains to the delineation of the various stages needed to integrate and improve existing national statistics to the Mediterranean level and the specification of priorities for each branch of the fishing industry.

The next issue regards the implementation of an integrated programme on fisheries statistics within states, which will upgrade the existing survey systems and available statistics taking into account the national peculiarities.

This programme will permit regional integration and will form the basis of INTEGRATED FISHERIES INFORMATION SYSTEM FOR THE MEDITERRANEAN.

The final issue involves the follow up activities needed for integration is the creation of a Mediterranean Observatory (Fig. 1), which should be of meaningful, useful and reliable application to the fisheries administrators, researchers and the fishing industry itself. The integrated programme should also incorporate a mechanism for keeping the Mediterranean Observatory up-to-date.

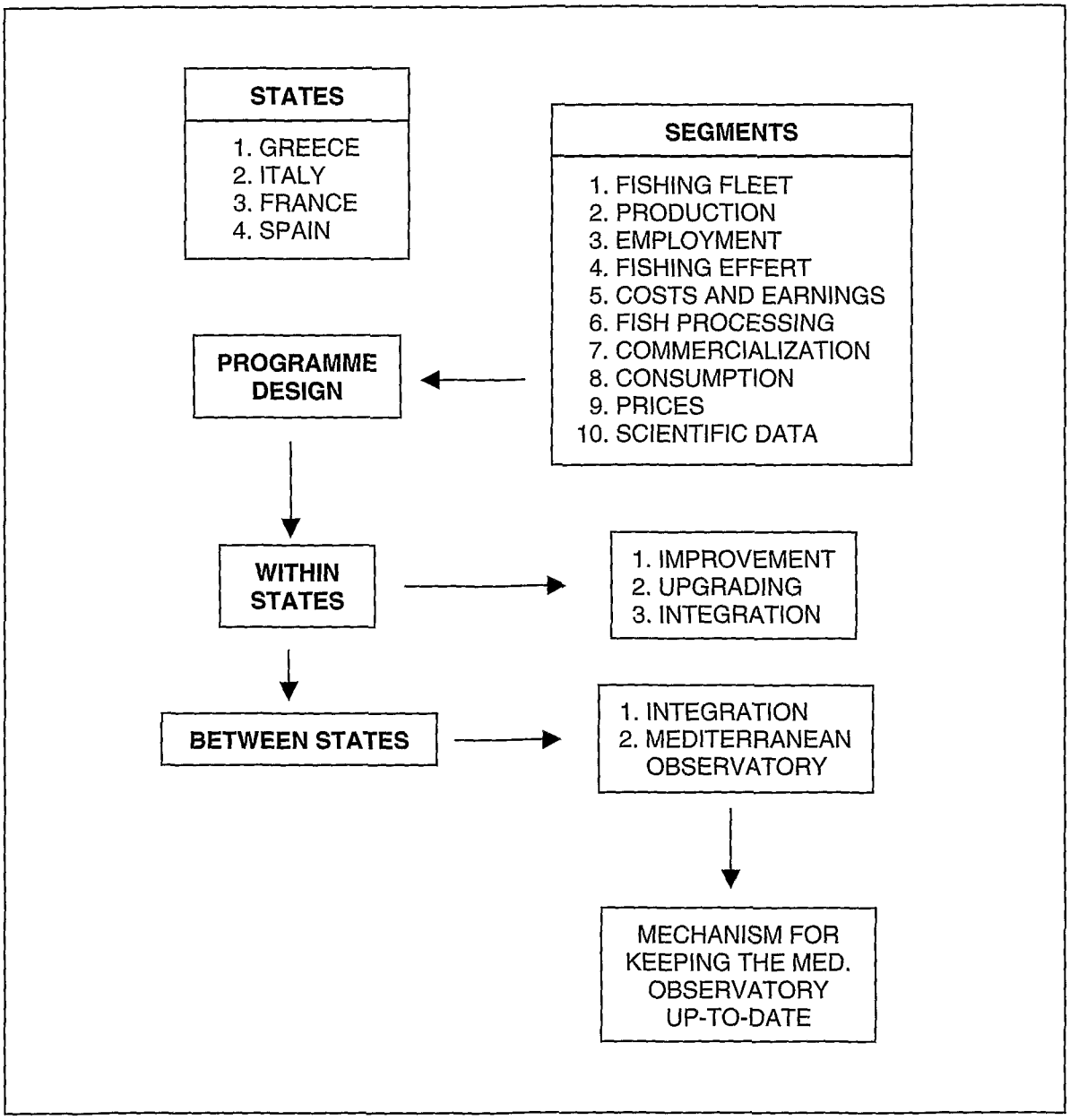

Fig. 1. Fisheries Information Systems for the Mediterranean. An integrated programme.

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