

Copemed Meeting
on
Mediterranean Popdyn Analysis
Palermo (Italy). 20-23 October of 1998

Agenda

Tuesday, 19

15.00-15.30 Scope of the Meeting. Salvatore R. Coppola

15.30-16.00 Popdyn presentation. Salvatore R. Coppola

16.30-18.00 General discussion - Pere Oliver

Wednesday, 20

09.00-13.00 Popdyn analytical review I

1. Rapport on management and presentation of Popdyn in test areas

1.1. Western Mediterranean by Ignacio de Leiva

1.2. Black Sea by Giorgi Daskalov

1.3. North Pacific by Ramon Bonfil

2. Use of Popdyn Data by Kostas Stergiou and Rino Coppola and

Possibility of using Popdyn in connection with VIT presentation by
Jordi Leonard

15.00-18.00 Popdyn analytical review II

3. Popdyn analysis

3.1. Data already included, missing information, new items to be included (what is wrong, proposal of alternatives)

3.2. How to carry out a peer review of contents (possibility of establishing a scale of goodness)

Thursday, 21

09.00-13.00 Popdyn analytical review III

4. Periodical revisions. Actions needed to:

4.1. Make completely operative this database in the region

4.2. Manage in the future

15.00 – 17.00 Popdyn analytical review IV

5. Ideas and Plan of work to carry out 4.1 and 4.2

17.00-18.00 Presentation of the Encyclopedia of Living Marine Resources of the Mediterranean.

Rino Coppola and Pere Oliver

Friday, 22

09.00-12.30 Related activities in the Copemed area - Rafael Robles

09.00-09.45 Demo of the Mediterranean Bio-economic Model M5 for Windows.
Jordi Leonart

09.45-10.30 Preliminary results of the Mediterranean study to look at the environmental processes affecting fishery habitats using GIS software. Vera Agostini

11.00-11.45 Analysis of historical series of landings in the Mediterranean fisheries.

Ignacio de Leiva

11.45-12.30 General discussion

12.30-13.00 MEDITS project. Possible implications with Popdyn database.
Jacques Bertrand

15.00-18.00 Task assignment for immediate implementation

Meeting Report

The meeting was opened by S.Coppola, FAO Fisheries Officer, who explained in detail the purpose of the meeting. He introduced the POPDYN project, its objectives and its status and the expectations around it. He also briefly described the new version of POPDYN, re-designed and re-developed under WINDOWS-95, in Access 97, its structure and functionality. He emphasised that the meeting was not an information meeting, but more of a round table from which action and interventions were expected from all the participants. The leit motive had to be the follow-up of POPDYN, and this could best be done by answering the following:

- Is POPDYN Useful ? Yes, No
- If Yes: How should it be finalised in order to fulfil the requirements of Mediterranean Fishery, and yet maintain some globality.
- If the changes proposed be accepted, would you be ready to collaborate, use it and expand further the network?. Yes, No

The meeting was funded and organised by FAO-COPEMED and ICRAM. Mr. Rafael Robles, COPEMED Project Director and Mr Franco Andaloro from ICRAM, welcomed the participants and encouraged them to actively participate in the meeting.

After these presentations participants were asked to express their opinions, questions, doubts, etc. Some stressed the importance of collecting population dynamics data.

It was also pointed out that the actual database contained many data for the western Mediterranean but only few data for the eastern part. It was explained that the western Mediterranean data was being input under the other project, ITAFISH, and this was the reason why most part of the parameters were from this part.

All the participants agreed on the importance of POPDYN as a source of population dynamics parameters mainly gathered from the grey literature. The definition of the term "grey literature" was long discussed at length, and finally a consensus was adopted that any paper, report, internal document, etc., not published through the normal channels could also fit in the POPDYN database. It was also stressed that it was important to specify how this grey

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literature could be consulted. The meeting expressed the opinion that a whole document could be scanned and included in POPDYN if there were no copyright problems.

The objective of POPDYN and its use as a bibliographic database or as a tool to analyse population dynamics data was also discussed. In the first discussions the participants decided that the inclusion of raw data, or length-age or weight-length keys in POPDYN was too ambitious and could even be counter-productive. Possible interactions among different assessment tools, especially VIT and POPDYN, were discussed after VIT's presentation by one of its co-authors; this subject will be discussed later in this report.

Concern was expressed by some of the participants that POPDYN might face financial problems in the near future if it were to become an omni-comprehensive database of fisheries population dynamics parameters all over the world and no commitment was made in this connection. However, COPEMED and FAO-FIRM expressed their intention to support POPDYN activities in the Mediterranean, while for the rest of the world the participants could not make any commitment.

Very important and long-discussed issues were the quality and filtering of the data entered into POPDYN and who should have access to input the data. Several opinions were given. Review of the data by a working group of experts in population dynamics, with this group giving a ranking depending on the soundness of the parameters, or deciding which data should be excluded or maintained, was one of the options. Another option discussed was the inclusion in the database of all parameters available in the literature, regardless the quality. Participants favourable to this option considered that all the parameters were a source of incalculable value, while other expressed their concern at including wrong or bad quality data. Another possibility mentioned was the use of some statistical parameters to measure the accuracy of the data, as the variance, standard deviation, coefficient of variation, etc.

It is worth mentioning here, that the new structure of POPDYN as it stands foresees three levels of use and access:

The Users Level This is the software given to the public for their own use and input.

The Workgroup Level: This is the version used by technical consultations on stock assessment or by any other meeting whose task it is to collect, discuss, and validate dynamic parameters and issue a set of "certified data" that would be the results of the meeting and have a scientific strength (this set of data should be published by FAO, included in the Encyclopaedia, etc.)

The Manager Level. This version to be used only by FAO HQ, Rome, and to include all data reported and certified from anywhere.

Ramón Bonfil, who had been invited as a recent POPDYN user who produced good results with useful comments (Pacific area), remarked on the advantage of and the improvement made to the new POPDYN Windows version compared to the old DOS version. He proposed several changes for improving the Windows version that will be discussed in depth later. He also remarked on the difficulty of getting parameters for certain stocks, while for other stocks a lot of information was available. In his opinion, the best approach to the input was to hire a scientist with a good knowledge of fisheries in the area for which data input should be done.

Kostas Stergiou, also invited by the organiser, who is at moment studying (with Coppola and Caddy) the best analytical approach to be given to POPDYN, made a presentation of the analysis he had undertaken so far of the parameters included in the POPDYN Mediterranean database (presentation included as an annex). He stated that the need to compile all information available in population dynamics was very important, and that POPDYN was a very useful tool to keep and save this information. He made a very comprehensive review of the data both from a qualitative and a quantitative point of view. He commented that in his country information was available for many stocks, and this could be entered in POPDYN.

After these two presentations the format of the Windows POPDYN screens were discussed thoroughly. Proposed changes were examined in depth, and if found coherent and possible, it was agreed to accept them. The changes agreed by the meeting are reported in the Appendix I to this document.

All these transformations and improvements (classified as ordinary changes) of the POPDYN database will be made as soon as possible at FAO Headquarters. The manual will be revised accordingly giving clear definitions of all parameters and fields included in the database. These definitions, as stated earlier, would be incorporated as a "help" tool in the new version.

As far as a follow-up was concerned, the participants decided to start with inputting into POPDYN all the information included in FAO documents, CIESM documents, CIHEAM, etc., for which no copyright problems were expected. The information collected would be from 1975 onwards. Also, it was decided to include some records from national publications to test the feasibility of the input. J. Camiñas would do this work for the western part of the Mediterranean and Kostas Stergiou for the eastern part. The meeting agreed to discuss again, which other information should be input into POPDYN after these first tasks, had been completed.

It was also agreed to prepare an in depth summary of POPDYN, with data, analysis and results to be presented at the first Scientific Advisory Committee of the GFCM, planned for March next year in order to propose the Commission to evaluate the option of taking POPDYN in charge as the regional DataBase on population dynamics.

Jordi Lleonart (chairman of DYNPOP group) presented the FAO computerized

information series paper titled "VIT: Software for fishery analysis". This program was designed to analyse exploited marine populations based on catch data, structured by ages or sizes, using one or several gears. After the presentation the possibilities of linking POPDYN to VIT were discussed. The possible importation of parameters and data from POPDYN to VIT, in order to run analyses, was considered very interesting by the meeting. However, this possibility should be investigated more carefully and some studies should be undertaken on how both softwares could interact.

The role of the CIESM DYNPOP working group and its interaction with POPDYN was discussed. The representative of this working group (J. Leonard) stated that the main role of DYNPOP should be in the methodology used for the assessments, while he agreed that the role of POPDYN should be that of a Regional Database. He presented some ideas for the assessment screen that were favourably welcomed by the meeting. These proposals would be taken into account when decisions on the contents of the different assessment models were being decided.

As a final statement the FAO representative (POPDYN) said that FAO could no longer support passive databases. There were no funds, no resources and not even the wish to do so. He said that we should move to a dynamic approach system that was also useful to the user. He also stated that similar databases did not exist and POPDYN could be a very good channel to publish some grey literature that was not available in the scientific journals. FAO was not asking for raw data, but for the results of the assessments.

Pere Oliver presented a preliminary version of the Encyclopaedia of the Living Marine Resources of the Mediterranean funded by COPEMED. It has been produced in CD-Rom. but it will be also available through internet. The Encyclopaedia was very well received. Several aspects were discussed and useful comments were made. A new version incorporating changes discussed will be presented at the regional COPEMED meeting to be held in Malaga in December.

Four presentations were made:

- The Medits Program by Jacques Bertrand.
- M5 Bioeconomic Model by Jordi Lleonart.

- A Mediterranean basin scale study to look at physical and biological processes affecting fish distribution and habitat geographies – preliminary results by Vera Agostini (Annex 1).
- Tropicalisation of the Mediterranean Sea by Franco Andaloro.

After the presentation by Jacques Bertrand, MEDITS Programme Co-ordinator, there was an interesting discussion on how the results of these assessments could be integrated into POPDYN. The co-ordinator thought that it would be very interesting to input some of the information produced by the MEDITS trawl surveys, such as biomass, recruitment indices, length frequency, etc., into a database such as POPDYN. He commented on the difficulties of inserting this data because the data produced by MEDITS had to be considered as time series and not as a point, and that the longer the time series the better the assessments could be done. The officer responsible for POPDYN stated that its software architecture could support these major changes. However, in order to get involved in this exercise, an agreement between POPDYN and MEDITS was needed, otherwise there was no reason to make the changes at this first stage. For this reason, a commitment from MEDITS to give the data to POPDYN (possibly in automatic) should be made. In the meantime, whatever was published by MEDITS could be summarised and condensed in a way that could fit into POPDYN.

Appendix 1- Changes agreed to on POPDYN for the Mediterranean

Select by screen

Grouping by zoological groups (crustaceans, fishes, molluscs, etc.) should be included in the "select by" screen.

General screen

- The reference year in this screen would refer to the last year for which the bibliographic reference had fisheries information.
- The status table should be expanded to include growth over-fishing and recruitment over-fishing. The terms included in the sub-menu should be

clearly defined.

- If there is one bibliographic reference for two or more different species, POPDYN should have two or more entries, one for each species.
- The units of the biomass should be included.
- Latitude and longitude should be deleted.
- If possible, the bibliographic reference should be scanned and included.
- The fishery, management options, recommendations and notes field should be width free.
- A clear definition of each field should be included as "help", so that when you click on any field, the help information comes up.

Popdyn Fishery screen

- Inside the field locality the area distribution of the stock where the study was implemented should be defined clearly. For this reason this field should be expanded to 250 characters.
- Units for Y
- Instead of space for two fishing gears, there should be space for three.
- A field describing the characteristics of each fishing gear should be included (mesh size, number of hooks, etc.).
- In addition to L_{50} , " L_{25} " and " L_{75} " should be included for each gear.
- The selectivity field should be dropped.
- Instead of **length at recruitment to fishing grounds and age at recruitment to fishing grounds**, "**length at first capture**" and "**age at first capture**" should be included.
- The note field should be width free.

Popdyn Growth screen

- Add an automatic routine to calculate W_{00}

- Instead of method used for K rename it as method used to fit Von Bertalanffy parameters.
- Add method for ageing.
- Include a field that indicates how many samples were used ("number of samples").
- Include two new fields: "minimum length" and "maximum length".
- Redefine a and b in the length-weight equation ($W=a L^b$). State clearly that the coefficient a is not the log a or ln a.

Popdyn Life History screen

- This screen should be renamed as Mortality and Reproduction.
- A list of mortality methods should be included as a submenu.
- Drop mortality pattern and maturity pattern.
- Add "age at first maturity".
- Add a field to include the "total mortality" (Z).
- Include a new field with "methods used for calculating the total mortality Z".
- Add a field of "exploitation rate"

Popdyn Assessment screen

This screen will be transformed. The new assessment screen will have the following fields:

- Species.
- Locality.
- Stock name.

- Methods used for assessment:
 1. Global production models.
 2. Delay difference model.
 3. Yield per recruit model.
 4. VPA.
 5. Catch-at-age or catch-at-length type of models.
 6. Stock-recruitment models.

Models 1-5 should include the basic information produced by each model and the important assumptions (input parameters). This basic information is still to be defined by FAO fisheries officers in consultation with other dynamic-population experts.

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ANNEX I

A Mediterranean basin scale study to look at physical and biological processes affecting fish distribution and habitat geographies—preliminary results

SUMMARY

A framework of comparative climatology of reproductive habitats of pelagic fishes is extended to the Mediterranean Sea. Maritime weather reports are summarized to yield seasonal distributions of wind speed cubed, wind stress, Ekman transport, wind stress curl, sea surface temperature and air-sea temperature difference. These distributions are considered with other known aspects of oceanography and climatology of the region. Configurations of environmental processes affecting transport, water column stability and trophic enrichment ("triad concept") are discussed. Several potential favourable reproductive habitat areas in the Mediterranean are described. This study uses pattern recognition as a conceptual framework for the definition of environmental processes potentially impacting fish habitats and distribution geographies in the Mediterranean Sea.

OUTLINE OF PRESENTATION

1. Introduction

2. **Goals**

- Determine seasonal distributions of physical and biological processes in the Mediterranean
- Define their impact on fishery distributions and habitat geographies

3. **Approach**

- Whole basin study
- Processes not properties
- Time scale: average seasonal cycle to provide basis for time series analysis
- Field data with high resolution
- Triad concept/recruitment windows

4. **Methods**

- COADS=Comprehensive Ocean Atmosphere Data Set
Sea surface maritime ship observations
Resolution: 0.50 latitude x 0.50 longitude
Time period: 1946-1995
- CZCS=Coastal Zone Colour Scanner
- EASY=Environmental Analysis workstation (GIS)

5. **Maps produced**

- Seasonal distribution of:

Wind stress

Ekman transport

Ekman pumping (upwelling/downwelling)

Wind mixing

Sea surface temperature

Air-sea temperature difference

Surface chl-a

6. Potential triad configurations in the Mediterranean Sea