

REPORT OF THE MEETING:

SECOND COORDINATION MEETING OF THE HOMSIR PROJECT

Held: IMBC (Institute of Marine Biology of Crete), Iraklio (Heraklion), Crete, Greece.

Dates: 16 - 18 November 2000.

List of Participants:

Abaunza, Pablo : (IEO, Spain)

García Santamaría, M^a Teresa: (IEO, Spain)

Murta, Alberto: (IPIMAR, Portugal)

Ramos, Paula: (IPIMAR, Portugal)

Quinta, Ricardo: (IPIMAR, Portugal)

Pereira, Ana L. (IPIMAR, Portugal)

Molloy, John: (FRC, MI, Ireland)

Ungaro, Andrea: (DISA-UNITUS, Italy)

Mattiucci, Simonetta: (DISA-UNITUS // UNIVERSITY OF ROME, Italy)

Magoulas, Andonis: (IMBC, Greece)

Kotoulas, Giorgos: (IMBC, Greece). Part time.

Vasso, Terzoglou: (IMBC, Greece)

Stelios, Darivianakis (IMBC, Greece)

Massimiliano Gili (IMBC, Greece)

Sanjuan, Andrés: (UVIGO, Spain)

Comesaña, Angel S.: (UVIGO, Spain)

MacKenzie, Ken: (UNIABDN, Scotland, UK)

Campbell, Neil: (UNIABDN, Scotland, UK)

Dahle, Geir: (IMR; Norway)

Zimmermann, Chris: (BFA Fi; Germany)

Stransky, Christoph: (BFA Fi; Germany)

Brief description and development of the meeting:

Objectives:

- Organization of the work to be developed within the first year of the homsir project: milestones and deliverables.
- Assessment of the current status of the project with special reference to the sampling workpackage. Tasks performed.
- Presentation of the work carried out by each partner and in each workpackage. First results.
- Identification of organizational, logistical and technical problems related to the work developed in each workpackage.
- Provision of solutions and alternatives to these problems. Proposal for the time table to finish the first year's work accordingly with the technical annex.
- Preparation of the first year progress report and cost estimation: requirements and deadlines.
- Unification of criteria for the web page
- Meeting of the different partners and tasks of the project. Exchange of experiences.

Development:

The meeting was held following a previously drawn-up agenda which was completed within the time available without difficulty. Working sub-groups were created to increase efficiency in the identification and resolution of problems as it was in the first coordination meeting. Two such sub-groups were formed: the sub-group of researchers related to genetic techniques; and the sub-group related to the remaining biological indicators (morphometry and parasites), physical tagging and life history traits (growth, reproduction and distribution). Later, the opinions and results of each sub-group were made commonly available by means of plenarios.

There were also short oral presentations on subjects of interest to the project, and first results. In a multidisciplinary project this seemed a good way for the project's participants to get an adequate knowledge of the techniques they were least familiar with. The following subjects were presented:

- Introduction to the stock concept in fisheries research (Aberto Murta)
- The application of shape analysis in fish otoliths for stock identification. First results within homsir project (Christoph Stransky).
- The use of parasites as biological tags in the horse mackerel. First results within homsir project (Dr. Ken MacKenzie).

- Genetics of Anisakids: the species of genus *Anisakis* and its use as biological tags to discriminate stocks. The case of european hake. (Dr. Simonetta Mattiucci).
- Applying the SSCP technique on nuclear DNA to discriminate horse mackerel populations. First results within homsir project (Ricardo Quinta).
- Revision of the knowledge on growth and reproductive biology of the horse mackerel along its entire area of distribution (Pablo Abaunza, M^a T. García Santamaría, Leonel Gordo).

RESULTS:

1.-WORKPACKAGE 01. SAMPLING (see table I and map).

The current state of sampling was checked for problematical or deficient areas with the aim of finding a solution to the sampling plan for the second year of the project.

1.1.-Sampling areas:

Samples have not been obtained from two of the twenty proposed areas (areas 11 and 18), although it is still possible that they might be obtained before the end of the year. In area 11 the fishing agreement between Morocco and the EC is paralysed and the possibilities of obtaining samples are diminished. An attempt is being made to get a sample from the Bank of Mauritania which is free of this problem. Owing to the logistical difficulties in obtaining a sample from area 18 (Algeria), the decision has been taken to move the area a little further north (south of Sardinia). In this way the sample can easily be obtained without the suitability of the sampling design suffering any significant change. Neither was area 04 sampled due to the seasonality of the fishing fleet. Instead, sample 06 was collected from a more northern location than that of the original design. In this way area 06 was relatively close to area 04. While this is a different area, it is also of interest to the project. To cover the area to the south of the new location of area 06, a new sampling location was designated called area 21. It is expected that next year the sample from area 04 will be obtained without difficulty.

1.2.-Collection de specimens:

Freezing: Emphasis was placed on the importance of freezing specimens as soon as possible once caught. Immediate freezing ensures the quality of the biological material to analyse using genetic techniques, parasitological and reproductive biology studies.

Length range: In several areas the length range of the sample obtained is very small, which means that representative biological data of the species will be limited. For

example, in several areas of the Mediterranean only small-sized juveniles were obtained. This problem must be put right in sampling in the second year of the project, to complete the length range obtained in the first year of sampling (adults in some areas and/or juveniles in others).

Sampling season: As previously specified, specimens must be sampled during their spawning season. In general, this takes place in the first half of the year (taking the characteristics of each area into account). Area 01 is the only one which is outside this objective because the presence there of horse mackerel is seasonal (feeding migration) and not during its spawning season.

Species mixing: Species of the genus *Trachurus* are difficult to identify. In some areas, such as the Mediterranean, obtaining specimens is complicated by the abundance of other species of the same genus. This is the case of area 14, for example. It may be that these areas require an additional effort to obtain specimens of *Trachurus trachurus*.

Sampling in 2001: Several fishing surveys will be carried out in the ICES area in 2001. These surveys are aimed at estimating the abundance of mackerel and horse mackerel eggs in the sea and thus indirectly obtaining the size of the spawning population. Adults of these species will also be collected from the area during the spawning season, and this is a magnificent opportunity to collect specimens for the project.

1.3.-Coding:

The coding system should be checked once the sample is finished to avoid repetition of the code number.

Experience during the project showed that it is not necessary to include two labels with the code on each specimen, one on the tail and another on the head. A single label (and, of course, the code on the bag where the specimen is kept) is sufficient.

1.4.-Collection of biological information:

Total weight of each specimen. Due to the difference in between total fresh weight and total frozen weight, the use of a conversion factor between the two weights is recommended in order to homogenise data.

Gutted weight: For the calculation of gutted weight, the weight of tissue extracted for the genetic analysis is also required (gutting takes place in the period following the extraction of muscular tissue for the genetic analysis).

Total length. In some samples the ends of the caudal fin are broken, making it impossible to measure total length. A conversion factor of total length – fork length is needed to remedy this problem, as fork length can indeed be measured.

On the statistical sheet of biological information it is recommended that two new information columns be incorporated:

One in which to write the date of collection of each specimen. In some areas specimens were collected with long time separations between them. It would be interesting to know the dates in order to explain possible differences between them. This is important for analysing the genetic data when it concerns pooling of data. Another which collects information on the state of conservation of the specimen. For example, if it was frozen immediately or a day later...etc.

1.5.-Tissue sampling for genetic analysis:

Only that tissue which is necessary should be collected. An excess of muscle extracted sometimes leads to counterproductive results. For example, in test tubes containing tissue preserved in alcohol for mtDNA analysis, msDNA analysis and SSCP analysis, the quantity of alcohol is sometimes insufficient to guarantee the preservation of the size of tissue collected. For the collection of muscle, only test tubes of 2 or 2.2 ml with a screw-on top are recommended.

A summary of extractions made to date can be seen in Table I.

1.6.-Shipment of samples:

In the case that fewer than 100 specimens are collected from a sampling area in a year, the first 50 individuals must be shipped to Aberdeen, and the following 50 (or however many) to Lisbon.

It was decided that some of the partners should buy special transport boxes, usually called “dry shippers” (for use of liquid nitrogen) to ship muscle tissues and nematodes for allozyme analysis. In this way some of the losses we have suffered due to breakage of the frozen link would be avoided, as well as the risks inherent in using substances such as dry ice.

DNA can be shipped at room temperature if stored in TE buffer.

For sending whole specimens, door-to-door delivery services in isothermal containers are recommended (Partner 01 can provide these containers to whoever needs them). The delivery of specimens to Aberdeen (Partner 07) or to Lisbon (Partner 09) must always be made at the beginning of the week to avoid problems of transport and collection during the weekend.

Sometimes a very long time elapsed between sample collection and sample shipment to Lisbon. The preservation of the gonads in alcohol for 2 to 4 months did not make for good histological sections. Therefore, fecundity estimates became quite impossible to obtain. The time period between sample collection and sample shipment must therefore be shortened.

2.-WORKPACKAGE 02: GENETIC STOCK ASSESSMENT:

Work is in progress and continues normally. A summary of the activities carried out to date can be seen in Table I.

Comments:

It is important to remark that the genetic analysis is a priority on the first 50 (xx-xx-001__xx-xx-050) individuals.

The DNA isolation protocol: It was agreed that we might have to use some local adaptations in the isolation procedure, but everybody should use phenol / chloroform extraction method.

The first results with SSCP on nuclear DNA have led to our obtaining a primer on finding significant differences between the populations of the eastern Mediterranean and those of the Portuguese coast.

3.-WORKPACKAGE 03: PARASITES AS BIOLOGICAL TAGS:

Work is in progress and continues normally. A summary of the activities carried out to date can be seen in Table I.

Comments:

The parasitological analysis co-ordinated by Partner 07 is being conducted in two additional research centres (Partner 02 and Partner 04). A decision was taken to share the samples which remain to be analysed in the following way: Partner 07: areas 01-03-20-21-15-16; Partner 04: 13-14-18-19, and all the anisakid nematodes; Partner 02: area 17.

The first results of the specimens analysed show interesting differences (and in some specimens similarities) between the North Sea and the west of the Irish coast. A characteristic parasite fauna was also observed on the coast of Portugal.

4.-WORKPACKAGE 04: MORPHOMETRICS//OTOLITH SHAPE ANALYSIS.

Work is in progress and continues normally. A summary of the activities carried out to date can be seen in Table I.

Comments:

It is recommended that a digital camera be purchased for photographing specimens.

Work will proceed more easily, speedily and efficiently in obtaining the photographs on which to carry out the morphometric analysis.

The photographs will preferably be taken of the right-hand side of the fish.

It is also recommended that Partner 02 and Partner 04 be co-ordinated to standardise the method of photographing horse mackerel specimens.

The first results of the otolith shape analysis after applying multivariate techniques show clear differences between the Mediterranean and the Atlantic and a clear trend on the north-south axis in the samples from the Northeast Atlantic.

5.-WORKPACKAGE 05: PHYSICAL TAGGING:

Work is in progress. Difficulties have been found in experiments carried out in the following aspects:

Capture of specimens: Specimens have been collected using longline gears. This technique does not seem suitable, since specimens suffer considerable damage which may affect their later survival.

Maintenance in aquariums: Most of the specimens taken live to the aquarium to observe their viability for tagging died after only a few days. In general they were large-sized specimens which had suffered external damage (capture and transport) leading to the outbreak of massive infections by fungi and bacteria.

It has been agreed to continue the experiments, but this time trying to obtain juvenile or smaller specimens and to catch them with a gear less harmful to this species. A kind of purse seine will be tried. The fishing area will also be different.

The preliminary conclusion is that horse mackerel is a delicate species susceptible to catching massive infections on having the least injury to its scales or external skin.

6.-WORKPACKAGE 06: LIFE HISTORY TRAITS ANALYSIS

Work is in progress and continues normally. A summary of the activities carried out to date can be seen in Table I.

Comments:

In the study of reproductive biology problems exist in the estimation of fecundity parameters etc. owing to specimens being juveniles, the small number of females and the sample not being in the spawning or post-spawning season. The first problem can be solved by next year's sampling. A greater number of females can be obtained by increasing sampling. This has already been designed to be performed in 6 specific areas (see results of the first meeting, in Lisbon). The last point is somewhat more difficult to solve. Some of the parameters are expected to be obtained only in some areas. The maturity ogive will be estimated in all areas.

Sometimes, a very long time elapsed between sample collection and sample shipment to Lisbon. The preservation of the gonads in alcohol for 2 to 4 months did not make for good histological sections. Therefore, the fecundity estimates became quite impossible to obtain. The time period between sample collection and sample shipment must therefore be shortened.

There is hardly any information on the reproductive biology of horse mackerel in most of the Mediterranean Sea.

Regarding growth, sampling will also be increased in the 6 areas cited above to obtain more complete length-age keys.

There is hardly any information on the growth of horse mackerel in most of the Mediterranean Sea.

The horse mackerel distribution maps are based on data of catches and catch per unit effort. Other projects are underway which also deal with this last point. It is recommended that efforts be shared and co-ordinated between projects.

7.-WORKPACKAGE 07: COMPARISON AND POOLING OF DATA.....

This activity will be carried out as the first results of the different techniques used appear and develop.

8.- WEB PAGE:

The first design of the web page for the HOMSIR project has been presented and has gained the approval by all of its participants. For the next meeting a decision will be taken on the incorporation of the project databases into the web site with restricted entry. The initial address will be: www.homsir.com.

In the future it is expected to change the extension: www.homsir.net.

9.- DEADLINES FOR MILESTONES AND DELIVERABLES

It was agreed to send to the co-ordinator the deliverables referenced for this month in the last week of November. In the case of December's deliverables, the 15 of December was put forward as the date of sending to avoid the difficulties of contact which always arise over the Christmas period

10.- PROGRESS REPORT & COST STATEMENT.

In the preparation of the progress report the instructions defined by the Commission must be followed, which were presented and discussed during the meeting. The middle of January was proposed as the date to deliver the individual progress report, so that the co-ordinator has time to put the information together. The same criteria will be applied to the cost statement.

11.- NEXT MEETING:

The group agreed to hold the next meeting in Dublin, to be organised by Partner 03, The Fisheries Research Centre of the Marine Institute. Dates are yet to be fixed, but it will take place sometime between April and May 2001.

Partner 04 (Tuscia University) has proposed to host the fourth meeting in October-November 2001, in Civitavecchia. This place is on the sea, not far from Rome and Viterbo. The group agreed and welcome this proposal.

The possibility of holding the final meeting in 2002 in the oceanographic centre of the IEO (Partner 01) in the Canary Islands was also mentioned.