

Report of the
Study Group on Elasmobranch Fishes

By correspondence

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International Council for the Exploration of the Sea
Conseil International pour l'Exploration de la Mer

TABLE OF CONTENTS

Section	Page
1 INTRODUCTION	1
1.1 Terms of reference.....	1
1.2 Participants	1
1.3 Background	1
2 DEVELOPMENT AND PROGRESS IN THE STUDY AND ASSESSMENT OF ELASMOBRANCH FISHERIES AND STOCKS (TORS A AND B).....	2
2.1 The DELASS project reviewed progress towards developing stock assessment methods for elasmobranchs at its co-ordination meeting in May 2001. The work programme consists of five tasks, each with a co- ordinator;	2
2.2 Species identification and biological sampling	2
2.3 Stock discrimination / separation	2
2.4 Data compilation and exchange.....	3
2.5 Stock Assessment	3
2.5.1 Cuckoo ray in the Celtic Sea and Bay of Biscay	3
2.5.2 Thornback ray in the North Sea.....	3
2.5.3 Blue shark in the North Atlantic.....	3
2.5.4 Portuguese dogfish in the NE Atlantic	3
2.5.5 Black-mouthed dogfish in the NE Atlantic	3
2.5.6 Kitefin shark in the NE Atlantic.....	4
2.5.7 Spurdog in the NE Atlantic	4
2.5.8 Lesser spotted dogfish on the Spanish shelf.....	4
2.6 Conclusions	4
2.7 Future meetings	4
3 PARTICIPATION IN THE ICCAT MEETING ON PREPARATION OF DATA FOR ATLANTIC SHARK STOCK ASSESSMENTS IN NOVEMBER 2000;	4
4 PURSUE THE NAFO INITIATIVE TO ORGANISE A SYMPOSIUM IN 2002;	4
5 JOINT ICCAT/ICES WORKSHOP ON ASSESSMENT OF PELAGIC SHARKS IN THE NORTH ATLANTIC IN JUNE-JULY 2002	5
6 PLAN AN ASSESSMENT MEETING IN MAY 2002, IN CONJUNCTION WITH THE EU-FUNDED PROJECT DELASS	5

1 INTRODUCTION

1.1 Terms of reference

The Study Group on Elasmobranch Fishes [SGEF] (Chair: Dr P. Walker, Netherlands; Mike Pawson, CEFAS acting as stand-in since May 2001) will work by correspondence in 2001 to:

- a) report on the development and progress in the study and assessment of elasmobranch fisheries and stocks;
- b) initiate further studies towards assessment of elasmobranch fisheries and stocks;
- c) exchange information on pelagic sharks with ICCAT through making Council funds available to allow the Working Group chair to participate in the ICCAT shark meeting in November 2000;
- d) pursue the NAFO initiative to organise a Symposium in 2002;
- e) plan a joint ICCAT/ICES workshop on assessment of pelagic sharks in the North Atlantic in June-July 2002;
- f) plan an assessment meeting in May 2002, in conjunction with the EU-funded project DELASS.

SGEF will report by October 2001 for the attention of the Living Resources Committee and ACFM.

1.2 Participants

Dr Mike Pawson (CEFAS) acted as chair of SGEF in compiling this report to ACFM at its October meeting in 2001. The following have contributed to this report through their attendance at the second co-ordination meeting of the DELASS project at the Marine Biological Station (MNHN) in Concarneau from 23-25 April 2001.

Chavance Pablo	ENSAR Rennes
Clarke Maurice	MI, Dublin
Demaré Wim	DSF Oostende
Diez Gunman	AZTI Sukarrieta
Dubuit Marie Henriette	MNHN Concarneau
Ellis Jim	CEFAS Lowestoft
Gascuel Didier	ENSAR Rennes
Serrano Gordo Leonel	FFCUL Lisbon
Gordon John	SAMS Oban
Hartgers Elizabeth	RIKZ The Hague
Heessen Henk	RIVO Ijmuiden (co-ordinator)
Machado Pedro Bordello	IPIMAR Lisbon
Newton Andrew	Marlab Aberdeen
Olaso Ignacio	IEO Santander
Pastoors Martin	RIVO Ijmuiden
Pawson Mike	CEFAS Lowestoft
Pleven Beatric	MNHN Concarneau
Riemann Stefan	ISH Hamburg
Stehman Matthias	ISH Hamburg
Vinther Morten	DIFRES Charlottenlund

1.3 Background

SGEF has not met formally since March 1999, when a meeting (ICES 1999/G:11) was held concurrent with that of a Concerted Action (FAIR CT98-4156) to prepare a proposal for stock assessment of some elasmobranch fishes in European waters. The proposal arising from the concerted action resulted in a 3-year project "Development of Elasmobranch Assessments" (DELASS, CFP 99/055), bringing together scientists in Europe who are currently working on the biology and assessment of elasmobranch species. This SGEF report is chiefly informed by progress under the DELASS project.

2 DEVELOPMENT AND PROGRESS IN THE STUDY AND ASSESSMENT OF ELASMOBRANCH FISHERIES AND STOCKS (TORS A AND B).

2.1 The DELASS project reviewed progress towards developing stock assessment methods for elasmobranchs at its co-ordination meeting in May 2001. The work programme consists of five tasks, each with a co-ordinator:

- | | |
|---|-------------------|
| • Species identification and biological sampling | Matthias Stehmann |
| • Stock discrimination / separation | Mike Pawson |
| • Data compilation and exchange | Andrew Newton |
| • Data preparation, stock assessment, species vulnerability | Martin Pastoors |
| • Project co-ordination | Henk Heessen |

Each of the case studies has its own co-ordinator:

- | | |
|--------------------------|--|
| • Deepwater sharks | Pedro Machado and Mário Pinho (for <i>Dalatias licha</i>) |
| • Pelagic sharks | Maurice Clarke |
| • Thornback ray | Paddy Walker/Elizabeth Hartgers |
| • Cuckoo ray | Marie Henriette Dubuit |
| • Spurdog | Mike Pawson |
| • Lesser spotted dogfish | Ignácio Olaso and Paulino Lucio. |

2.2 Species identification and biological sampling

The chief new output from this task is a key for *Raja* species found on the European shelf, available as a poster and on a CD in the form of a brochure. Some institutes (CEFAS, AZTI, RIVO) are preparing guides and standard sampling protocols to help proper identification of local species. For example, CEFAS is involved in trials of identification keys and sampling protocols for rays around the coast of Wales, from which it is hoped to implement a national sampling scheme. It was recommended that the ICES Living Resources Committee should be encouraged to make such information more widely available.

There are problems in the identification of sharks that are landed de-skinned and headless, and an overview is being prepared, by country and by fishery, of how sharks and rays are being processed before being landed. It will be important to monitor the influence of the presently developed EU data collection programme on future sampling of elasmobranchs.

It was noted that a number of Rajidae have been given new scientific names, which have already been used by the EC. These will also be used in DELASS (and EFSG) reports.

2.3 Stock discrimination / separation

It was agreed that the essential information on stock identity should contain:

- A. biological characteristics and markers which indicate a unit stock;
- B. movements, migrations and life history patterns which show the geographical distribution of the stock;
- C. environmental parameters associated with the species' distribution;
- D. a description of fisheries exploiting the stock, including catches by size group or life stage.

A description of elasmobranch fisheries has already been prepared and circulated, which partners are updating for all countries.

It is intended that the information for the description of stock identity for the 9 case study species should be made available to the species co-ordinators this summer. Guidance has been provided on how to apply methods for identifying stocks, and a template for presentation of stock data has been circulated. On this basis, a decision will be taken on the stock areas for each species that can be used for assessments.

2.4 Data compilation and exchange

An overview of existing data has been prepared, based on the inventory put together in 2000. Depending on the assessment methods likely to be used for each case study, it is suggested that data to be used for the assessments be exchanged in the format developed for the Deep-water Fisheries project, which was derived from the IBTS-exchange format.

2.5 Stock Assessment

A preliminary overview has been made of the information which is likely to be available for assessments:

2.5.1 Cuckoo ray in the Celtic Sea and Bay of Biscay

Migration: no tagging data.

Morphometrics: length-weight relationships.

Life history: size at maturity; no data on fecundity.

Surveys: by Spain, UK (England), Ireland and France.

Fisheries data: French catch and effort data, discard estimates, length frequencies (by sex) from landings and discards. For other countries - only aggregated catches of 'rays' (by gear); some species composition.

2.5.2 Thornback ray in the North Sea

Migration: some tagging data, both conventional and data storage.

Morphometric data: available for several countries; length/weight relationships from surveys.

Surveys: annual survey data since 1970; quarterly data for 1991-1996.

Fisheries data: aggregated catches of 'rays'.

Assessment will be based on survey data, which might possibly be used to estimate fraction of *R. clavata* in the landings.

2.5.3 Blue shark in the North Atlantic

Some countries have landings data, but only the Azores have biological data and a series of survey data, and most data are kept by institutions (ICCAT, Spain, and USA -tagging data) outside this project.

Age and growth parameters are published from the 1970's (John Stevens).

ICCAT and the Spanish institutes have been approached through ICES for their blue shark data (see 5 below), and colleagues in the USA and Canada will be contacted.

2.5.4 Portuguese dogfish in the NE Atlantic

Most landings data from the ICES areas are from France, and IFREMER has landing data and CPUE series from reference fleets. Survey data are available, but international waters are not covered.

2.5.5 Black-mouthed dogfish in the NE Atlantic

Landings data are only available for Portugal and Ireland, and there are some survey data from ISH and CEFAS.

2.5.6 Kitefin shark in the NE Atlantic

Data only for the Azores.

2.5.7 Spurdog in the NE Atlantic

Migrations: Vince (1991) summarises what is known about movements and dispersion from tagging in the NE Atlantic. There has been no further tagging of spurdog.

Morphometric data: The UK (Scotland, England and Wales) and Norway have data on length-weight and size at maturity, by sex, including historic data for 1940-70. Some age data are available, but validation is doubtful.

Surveys: annual survey data since 1970; quarterly data for 1991-1996.

Fisheries data: An historical description of spurdog fisheries in the NE Atlantic has been prepared. Commercial landings may record spurdog as one species or with sharks/dogfish, and data indicating at least trends in catches are available. CPUE data are available from the IBTS and other surveys using otter trawls and lines, especially from Scotland, England, France and Portugal. Length frequency data are available for the UK and Norway, with discards only for Scotland and Ireland (recent).

Life History: Some knowledge of pupping/nursery areas. It is known that there is frequent segregation of sexes and juvenile and mature fish in schools and by area within the population range. Data on fecundity is mainly historic, but good at size.

2.5.8 Lesser spotted dogfish on the Spanish shelf

Survey data and tagging data are available from IEO.

2.6 Conclusions

The assessments will heavily rely on time series of survey data and biological parameters, but it is essential that updated summaries of exactly which data are available be made.

2.7 Future meetings

In order to guarantee the timely availability of data for the assessment meeting in May 2002 (see 6. below), a 2-day meeting of all species co-ordinators, plus the co-ordinator of task 4 (assessments), has been planned for end October 2001, possibly in Ijmuiden.

3 PARTICIPATION IN THE ICCAT MEETING ON PREPARATION OF DATA FOR ATLANTIC SHARK STOCK ASSESSMENTS IN NOVEMBER 2000;

ICES funds were made available to allow the Working Group chair to attend this meeting in November 2000, but the meeting was postponed and is now to be held 11-14 September 2001 in Dartmouth, Nova Scotia. Unfortunately, the new meeting clashes with other events (e.g. deep-water fishes meeting in Cuba), and it has not been possible to find an appropriate person to attend at Dartmouth. It is hoped that a meeting will be held towards the end of 2001 with ICCAT to discuss the availability of data on blue shark.

ICES was invited to send an observer (the chair of SGEF) to ICCAT meetings to be held in Brussels on May 17 & 18 (WG to develop integrated monitoring measures) and May 21-23 (*ad hoc* WG on allocation criteria), but it was agreed that these issues were not relevant to the TOR of SGEF. ICES was asked to formally convey our thanks to ICCAT, but to decline the invitation.

4 PURSUE THE NAFO INITIATIVE TO ORGANISE A SYMPOSIUM IN 2002;

According to the draft of the Report of Scientific Council Meeting, 31 May-14 June 2001, the NAFO Council noted that the Annual Meeting will be held during 11-20 September 2002 in Spain, at a site yet to be announced. The Scientific Council Special Session, the Symposium on "Elasmobranch Fisheries" (the exact title may change), will be held during 11-13 September 2002 at the same venue.

The organiser, David Kulka (Canada's designated expert for elasmobranchs) confirmed the participation of co-convenors Mike Pawson (for Paddy Walker, ICES), Jack Musick (VIMS, USA) and Terry Walker (MFRI, Australia). Further to input from the Scientific Council, the title for the Symposium (could be: The Foundations of Elasmobranchs Stock Recovery Plans, or Elasmobranchs - Biology and Exploitation) will be finalised shortly. The following (tentative) themes have been identified:

- a) stock identity (in relation to assessment and management) and structuring in populations of sharks, skates, rays and chimaeras,
- b) application of analytical models to assess the status of stocks in relation to sustainable exploitation
- c) methods for assessment, monitoring, and management of fisheries for sustainable and rational harvest, or methods for rapid assessment of by-catch species and for biodiversity conservation,
- d) species identification in relation to the collection of catch etc statistics from fisheries,
- e) vulnerability of "low reproductive" elasmobranch stocks to exploitation,
- f) status of elasmobranchs and their fisheries worldwide,
- g) biology of elasmobranchs,
- h) status of chondrichthyan fisheries of the world.

Since NAFO Symposia are held in conjunction with the Annual meetings of NAFO and are considered as Special Sessions of the Scientific Council meeting, they may be funded as part of the NAFO Annual meeting budget. This NAFO budget covers the costs of the meeting space, IT and other equipment, and includes preamble material such as announcements, flyers, communication with participants, and publication of Abstracts. Symposium reports are presented to the Scientific Council during the following week's Scientific Council Meeting. Post-symposium expenses relating to publications are usually accommodated within the NAFO budget, though more popular symposia (for example, "Deep-sea Fisheries" in 2001) may warrant additional financial support.

A significant budget item that is not covered by NAFO is the support for "invited", "keynote" or speakers from outside the NAFO participant circles. In recent years the Scientific Council has made special requests for such expenses, and has agreed to pursue a similar budget for the Elasmobranch Symposium. ICES has agreed to help fund a keynote speaker, as well as attendance at the Symposium of the EFSG chair (as co-convenor).

5 JOINT ICCAT/ICES WORKSHOP ON ASSESSMENT OF PELAGIC SHARKS IN THE NORTH ATLANTIC IN JUNE-JULY 2002

It was agreed at a meeting attended by Mr Hans Lassen and a DELASS representative at ICCAT headquarters in May 2000 that a joint meeting on the assessment of pelagic sharks will be scheduled for June 2002, complementing the DELASS/SGEF meeting in May 2002 mentioned at 6 below. The availability of blue shark data will be ascertained at the ICCAT meeting in Dartmouth NS in September (see 3 above), and discussed at the joint ICES/ICCAT meeting later this year.

6 PLAN AN ASSESSMENT MEETING IN MAY 2002, IN CONJUNCTION WITH THE EU-FUNDED PROJECT DELASS

It was agreed at the second DELASS co-ordinating meeting that an assessment meeting will be held in May 2002 (possibly 6-10 May), either at the ICES Secretariat in Copenhagen or at the Danish Institute for Fisheries Research (Charlottenlund). The Co-ordinator of DELASS (Henk Heessen) has written to the ICES Fishery Secretary proposing that this meeting would be part of a formal meeting of the ICES SGEF. The main TOR for this meeting are to carry out the assessments of the 9 case study species as identified under DELASS (bearing in mind the pelagic shark meeting, see 5 above), and a 5 full days is anticipated for the actual assessments. The TORs should also include consideration of reference points and sustainability for exploitation within the assessed stocks, and of the further development of the Precautionary Approach to Fishery Management within the context of fisheries taking elasmobranchs.

The various national institutes involved in DELASS will be approached to prepare preliminary assessments, well before the actual meeting in May 2002, the outcome of which will be reported verbally to the May meeting of AFCM. A full report of the SGEF meeting will be prepared for the Annual Science Conference in September 2002.

References

Vince, M.R. 1991. Stock identity in spurdog (*Squalus acanthias* L.) around the British Isles. *Fish. Research*, **12**: 341-354.