

## Resource Management Committee (D)

Chair: Carl M. O'Brien (UK)

Rapporteur: Dankert W. Skagen (Norway)

The Resource Management Committee met on Tuesday 23 September from 09:00 to 13:00 (30 in attendance), and on Saturday 27 September from 09:00 to 10:30 (15 in attendance).

### Opening

The Chair opened the meeting, welcomed the participants and the Rapporteur was appointed. The Chair outlined the agenda and timetable for the two sessions of Committee business. These were adopted but with a minor re-arrangement to the order of the presentations of the reports of Expert Groups. The Chair briefly explained the background to the inclusion of the agenda item dealing with open computing environments for fishery science and management.

Attention was drawn to the Joint Session on Surveys with the Living Resources Committee and the Baltic Committee. Members of the Resource Management Committee actively supported this science session and the Chair reminded the Committee that three of its Expert Groups presented reports during the survey session:

- International Bottom Trawl Survey Working Group [IBTSWG] (Doc. D:05);
- Planning Group on Surveys of Pelagic Fish in the Norwegian Sea [PGSFN] (Doc. D:10); and
- Planning Group on Redfish Stocks [PGRS] (Docs. D:02 and D:08).

The Chair introduced the Committee to this year's Annual Science Conference programme and mentioned the Theme Sessions U, V, X, and Y as being of particular relevance to the remit of the Committee.

### Committee business

#### Matters referred by the Consultative and the Advisory Committees

The Consultative Committee raised a number of items for consideration by the Resource Management Committee. The Chair asked Frans van Beek (The Netherlands) and Olle Hagström (European Commission) to update the Committee on preparations for the joint FAO-ICES symposium on the *Precautionary Approach to Fisheries Management: Lessons Learned and Future Directions*. This is scheduled for 2005 and a confirmation of location and venue is anticipated in the coming months. Peter Shelton (Canada) offered to provide a link between ICES and NAFO for this forthcoming joint FAO-ICES symposium.

The Chair reminded the Committee that its Action Plan provides a way of ensuring that its scientific work

remains relevant to the ICES Strategic Plan. Furthermore, the Consultative Committee has asked that the work of each Science Committee be aligned with each other. To this end, the Committee is requested to directly *map* the terms of reference of its Expert Groups into the ICES Action Plan and identify outputs for the last year 2002/2003. The Chair had completed this task during the past year and advised the Chairs of Expert Groups that future terms of reference would need to be supported by reference to the appropriate Action Number within the Action Plan.

### Speakers and theme sessions for ASC 2004 and 2005

Two proposals presented at last year's Committee meeting for theme sessions in 2004 were discussed. The first of these entitled: *Modelling Marine Ecosystems and their Exploitation* had been developed during the past year and unanimously recommended by the Committee for inclusion in the 2004 ASC programme without amendment. The Committee discussed last year's proposal on *Fishers' Perceptions and Responses in Management Implementation* and agreed that this should be postponed until the 2005 ASC when the results from a number of EU-funded projects should be available for presentation.

During this year's ASC meeting, a joint proposal from the Fisheries Technology Committee and this Committee entitled: *Technologies for Monitoring Fishing Activities and Observing Catches* was developed for inclusion in the 2005 ASC programme. The Chair agreed to identify a co-convenor to represent the interests of this Committee.

The Committee proposed that one of the invited plenary lectures at the 2005 ASC should be on the topic *Fisheries Management and Oceanography: the Spatial Dimension*. This would have a linked theme session. A joint proposal with the Marine Habitat Committee and this Committee entitled: *The Spatial Dimension of the Ecosystem Structure and Dynamics* was developed in support of this suggestion.

Numerous other suggestions were proposed for future theme sessions, but these all need to be developed further. The topics covered included:

- diagnostics in the evaluation of stock assessments
- model complexity and uncertainty evaluation
- bycatch of cetaceans
- risk evaluation and advice.

## **Presentation of, and adoption of, reports and draft resolutions**

### **Study Group on Multispecies Assessments in the North Sea [SGMSNS]**

This Workshop was co-chaired by Morten Vinther (Denmark) and John Pinnegar (UK). The former presented Doc. D:09. The SGMSNS had two major tasks:

- i) to evaluate the validity of reference points derived in a single-species framework when including multi-species interactions, and
- ii) to evaluate the current recovery proposal for North Sea cod in a multi-species framework.

In both cases, the SGMSNS found that the inferences made in the single-species framework were largely valid even when multi-species effects, such as predation mortality were included. Furthermore, progress on ECOPATH-type models for the North Sea was presented, but this work is still in a preliminary phase. The Committee discussed the problem that the inclusion of grey gurnards as a predator in the model results in unrealistic effects on the estimates of cod recruitment and 0-group mortality. During discussion, this raised the question of whether the current MSVPA framework is suitable for modelling the 0-group; namely, the age below recruitment to the fishery. A project is planned to approach this problem. Terms of reference for a meeting in early 2005 were discussed and agreed.

### **Study Group on Growth, Maturity and Condition in Stock Projections [SGGROMAT]**

The Group had its first meeting in December 2002 and was co-chaired by Coby Needle (UK) and Tara Marshall (Norway). Stuart Reeves (Denmark) presented the report of the meeting (Doc. D:01). This Group is a continuation and extension of a previous ICES group SGPRISM. The Group reported on progress in summarising available data, agreement of formats and assignment of coordinators for further intersessional work. Existing models for growth and maturity have been summarised and there is software under development. The Committee proposed that this group liaise with SGASAM in future. Concern was raised about the coordination of the databases being created and the Group should give thought to this.

### **Workshop on Fish Stock Assessment Techniques [WKCFAT]**

The Committee Chair provided a brief summary of Doc. D:04. The Committee discussed the future of this course. There is a need to extend and broaden courses in assessment methodology – both to incorporate recent developments in assessment methods, including the exploration and investigation of basic data, as well as the simulation approaches that are developing rapidly. It was suggested that this would require a series of courses at different levels, both elementary courses covering

standard methods as an introduction to the field for newcomers, and a more advanced course. A draft resolution for a course on modern approaches was proposed and developed during the ASC.

### **Working Group on Methods of Fish Stock Assessments [WGMG]**

The Chair of this Working Group, Carl O'Brien (UK), presented Doc. D:03. The Group had been developing approaches aimed at investigating the causes and sources of the retrospective problem in fish stock assessments. The use of simulation tools has been advocated by the Group in order to explore assumptions and test hypotheses. Two new terms of reference were proposed by ACFM for the group – i) to develop robust methods and software for the investigation of management procedures for stock recovery and the evaluation of harvest control rules; and ii) identify appropriate estimators of stock conservation limits and reference points relating to longer-term yield. The Committee discussed these and agreed that WGMG should address these as a priority at their next meeting.

### **Working Group on Fishery Systems [WGFS]**

The co-chair of this Working Group, Carl O'Brien (UK), presented Doc. D:06 by initially explaining that the Group was established to evaluate fishery system performance. Two case studies have been identified – North Sea cod and the Georges Bank mixed fishery – which will illuminate issues and problems. The linkages between the collection of knowledge, management systems, monitoring and control, and adaptations and responses by the fishermen were discussed. ACFM had proposed a new term of reference for the Group; namely, to review the use of decision support systems integrating quantitative simulations with qualitative process knowledge in a management decision context. The Committee agreed that the Group should address this at its next meeting and that Martin Pastoors (The Netherlands) should chair the group.

### **Study Group on Age-length Structured Assessment Models [SGASAM]**

Doc. D:07 was presented by Daniel Howell (Norway). Two model approaches were discussed – the Bormicon/Gadget model developed under the EU-funded DST<sup>2</sup> project and a model CALEN developed in New Zealand. This allowed a comparison between two independent approaches, which showed that each had faced similar problems and reached largely similar conclusions. Faced with these potentially very complex models, the Group had discussed criteria for levels of complexity, the artefacts introduced by discretisation of processes, diagnostics, and the problems associated with performance and optimisation of these computer-intensive models. In addition, the Group discussed the need for a more accessible user-interface both for input and output. Furthermore, the Group should explore the use of their models not only in data-rich situations, but also in situations where age data are missing or

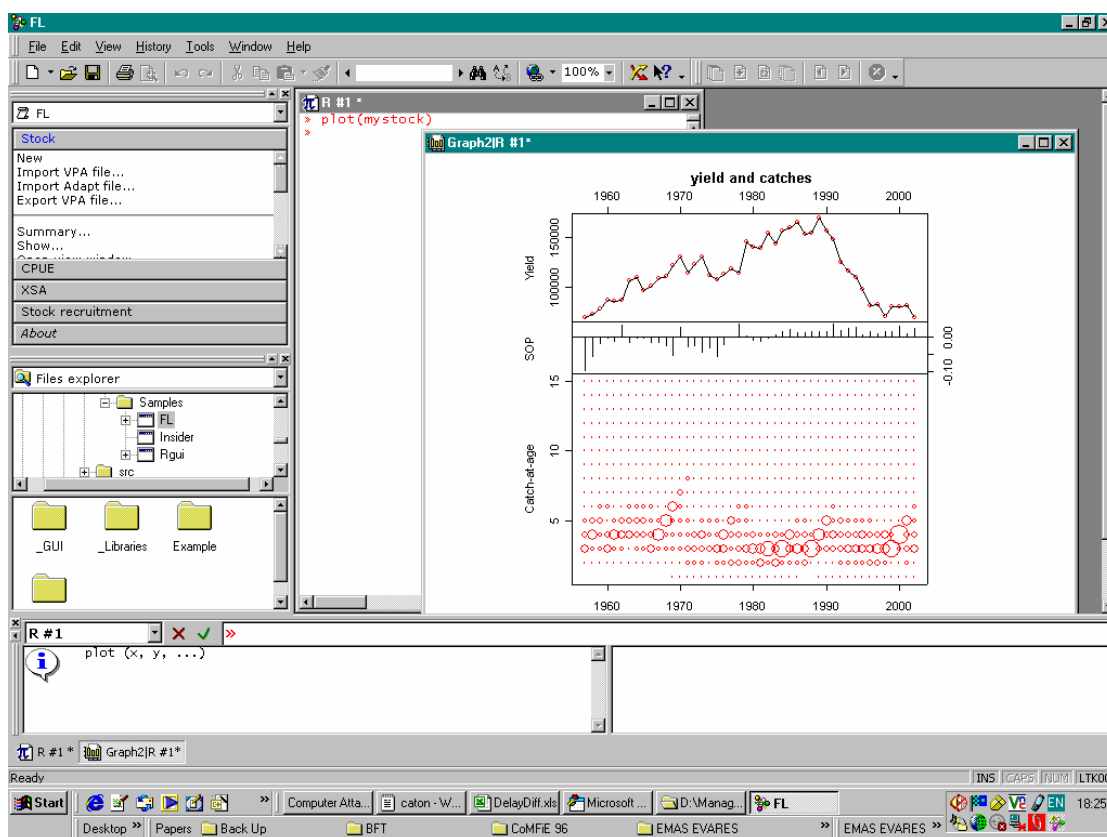


Figure D1– A screen dump from the demonstrated open environment.

unreliable. The Committee proposed specific stocks (anglerfish, hake, redfish, and sprat) for the Group to investigate at its next meeting. The future amalgamation of SGGROMAT with this group was discussed and considered desirable.

### Computing environments for fishery science and management

Laurence Kell (UK) presented a framework being developed under an EU-funded Framework V project (Q5RS-2002-01824 FEMS: Framework for the Evaluation of Management Systems) for the investigation of interacting fisheries and their management. One of the tasks of the FEMS project is to develop a computer-based simulation framework for the evaluation of management strategies. If the framework is to be used easily and flexibly by a range of users for a large variety of tasks then the interface must be both intuitive and able to incorporate tools for a variety of tasks. A demonstration was presented to the Committee of an interface based on R (<http://www.r-project.org>) – an integrated suite of software tools for data manipulation, exploration, analysis, and graphical display. This is essentially a front-end environment which calls assessment and simulation routines, like XSA, ensures transformation of data to fit these routines, and presents the results in a versatile way, creating graphs and tables that allow the analyst to scrutinise both input data and outputs (Figure D1). The Committee welcomed this development, and noted that R probably is a suitable language for producing such programs, being ‘open source’. R is increasingly being used in a number of ICES Expert

Groups (e.g. SGGROMAT, SGSBSA, SGMSNS, and SGPA). The EU through its own committee STECF has used R to develop software for multi-fleet investigations and analyses during the past year. This software has recently been reviewed by ICES and used within SGDF and WGNSSK. Poul Degnbol (ACFM Chair) indicated that ACFM foresees a development in the direction of the framework demonstrated if only to ease the review process within ACFM. In support of this, ACFM had requested that WGMG continue the development of methods and software in the direction of the framework presented for its next meeting (see Presentation of Reports). Some minor concerns were expressed about the future support of R, but nothing of a serious nature.

### Any other business

#### ASC

The Committee acknowledged the improvements both in the facilities and the organization of this year’s ASC. In addition, there was agreement that the quality of the presentations had again improved this year.

### Format of Science Committee meeting

As requested by the Committee at last year’s ASC, the Chair provided a short update at the beginning of the second meeting of the Committee on what had been decided at the first meeting and throughout the ASC. It was recognised that given the volatile nature of

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resolutions this is by no means an easy task, but the members of the Committee appreciated the Chair's effort.

The format of the Committee sessions was discussed. It was felt that two sessions were needed but that the first should concentrate on completing Committee business, whilst the second could involve presentations of reports and documents which are of more general interest to the wider ICES audience. The idea piloted by the Chair at this year's ASC of choosing a science topic for open discussion based around the work of the Expert Groups

of the Committee was accepted for inclusion at future ASC meetings.

Finally, before closing the Committee session at this ASC, the Chair reminded the Committee that his term of office will finish at the end of 2004 and that there will be an election at next year's ASC. Committee members were encouraged by the Chair to consider standing for election and the main duties of the post were briefly explained.