

REPORT OF THE
Study Group on ACFM Working Procedures

ICES Headquarters
25 February–1 March 2002

'Let there more work be laid upon the men, that they may labour therein; and let them not regard vain words.' Exodus 5:9

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International Council for the Exploration of the Sea

Conseil International pour l'Exploration de la Mer

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1 INTRODUCTION

1.1 Participants

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Terry Smith	USA
Henrik Sparholt	ICES Secretariat

In addition to the participants from ICES member countries, Kenneth Patterson acted as an observer from the European Commission and the General Secretary of ICES contributed to the discussion.

1.2 Terms of Reference

The relevant council resolution establishing the study group states that:

A Study Group on ACFM Working Procedures [SGWP] (Chair: R.M. Cook, UK) will be established and will meet at ICES Headquarters from 25 February–1 March 2002 at national expense to:

- a) review the working procedures of ACFM and the assessment working groups to identify issues of efficiency, quality, human resources, and client requirements;
- b) develop proposals for cost-effective options to resolve the problems identified.

SGWP will report by 15 March 2002 for the attention of MCAP and ACFM.

2 RECOMMENDATIONS

The following list contains the principal recommendations emerging from the work of the Study Group. The relevant report section is identified for each item.

- 2.1 The implication of the European Commission ideas about alternative advisory structures external to ICES need to be carefully considered by ICES. These ideas may fundamentally affect ICES' advisory role. [section3.5]
- 2.2 ICES needs to introduce a more effective peer review system. It should co-operate with the North Sea Commission Fisheries Partnership in developing an independent peer review system for North sea stocks. ICES should use this project as a basis for developing its own programme of peer review which would apply more widely within the advisory process. Any changes should be introduced gradually. [section 4.4]
- 2.3 ACFM needs to develop a strategic direction for its work taking into account current and future needs for fishery advice. This will allow it to adapt to and identify the science required to improve advice. [section 5.1]
- 2.4 ACFM needs to dispense with work currently undertaken which is unproductive or could be done more effectively in other fora as outlined in 2.5 to 2.9. This will allow more time for strategic planning. [section 5.2]
- 2.5 ICES should embark on a programme of work to propose harvest control rules for as many stocks as possible to simplify the advisory process and improve consistency. Such work will require close dialogue with customers. [section5.4]
- 2.6 ICES should identify and apply simpler methods of assessment where possible to reduce the burden of assessment working groups. [section 5.4]

- 2.7 ACFM does not appear to have sufficient expertise to deal effectively with the advice on salmon, trout and eel. ICES should therefore investigate whether there are alternative approaches to making better use of the expertise on anadromous and catadromous fish biology in the ICES member countries, by giving advice on these groups from outside ACFM. This will bring more expertise into the process, improve quality and free up resources on ACFM. [section 5.5]
- 2.8 ICES should discuss the most appropriate way of providing advice on stocks exclusively managed by coastal states. At present advice on these stocks is provided in a standard ICES format but which may not be relevant to the management systems for these fisheries. [section 5.6]
- 2.9 ICES should enter into a dialogue with customers to identify stocks for which no advice can usefully be given on an annual basis. This includes stocks where management units do not match assessment units and stocks where no scientific data are available. [section 5.7]
- 2.10 ACFM in co-operation with the ICES Secretariat should develop software to expedite the production of standard tables and figures for reports from analytical input and output files. This will improve the efficiency of working groups and reduce errors. [section 5.8]
- 2.11 In order to address the problem of fast track response to *ad hoc* advisory requests it is recommended that as a matter of urgency, ICES, its clients and the member countries should negotiate a proper framework within which additional requests are managed to their mutual satisfaction. [section 6]
- 2.12 ICES should refrain from agreeing to respond to requests for advice when it has no commitment from member countries to provide the necessary resources. This will avoid unrealistic expectations of ICES by its customers. [section 6.3]
- 2.13 ICES needs to reconsider how a regional dimension can be accommodated in its advisory structure in order to bring greater integration and more relevant knowledge and expertise to bear in relation to differing geographical management systems and ecosystems. [section 6.3]

3 BACKGROUND

3.1 Introduction

The ICES advisory process has been the subject of concern and review for a number of years. A series of Bureau and Council working groups have considered various options for change. This resulted in a change to the ICES rules of procedure in 2000 which established the Management Committee on the Advisory Process (MCAP). An important feature of this change is that the rules allow the Council to establish a new advisory committee or dissolve an old one by Council resolution rather than through a change in the rules of procedure.

Any change to the advisory structure has always been controversial and the system adopted by the Council in October 2000 is no exception. There remain strong differences of opinion. In practice the agreed changes did not directly address most of the weaknesses of the advisory system. However, the new structure, with the establishment of MCAP provided a vehicle to address these underlying problems. The current challenge, therefore, is to use this opportunity to improve the present system so that ICES customers are better served.

Criticisms of the current system originate both from external customers and experts within ICES, notably those who have to make the present advisory process work. Customers have recently requested external reviews of a number of ICES stock assessments due to dissatisfaction with ICES advice. One major client has intimated that it is considering the establishment of its own advisory process to overcome the problems it considers exist with ICES advice (Annex 3). Since ICES is paid by customers for its advice and is clearly not perceived to be performing to a high enough standard there is an urgent need to make improvements.

In addition to the question of quality, a number of clients are clearly not satisfied with the responsiveness of the ICES system to their requests. Indeed at the 2001 Statutory meeting, the European Commission tabled a letter listing requests to ICES for which it had not received any response. Clients are often under pressure to act quickly, such as in the case of the North Sea cod during 2000/2001, and need advice from ICES on a timescale which demands more than the bi-annual meetings of ACFM can deliver. While ICES has made attempts to deal with such requests, the infrastructure currently in place is still not able to deal adequately with these problems. Section 6 addresses this issue.

Within ICES it is quite clear that the gap between available resources and work demand is widening. In 2001 this problem was severe enough to precipitate the disintegration of the southern shelf working group. It has generally proved increasingly difficult to find experts able or willing to chair working groups or even the ACFM. There is a need to take a strategic view on how this problem can be addressed. Section 5 examines aspects of the workload issue while section 7 considers strategic issues.

Publicly, ICES advice is increasingly called into question. This is almost inevitable in a climate of over-exploited fish stocks where scientific advice implies economic hardship. Whether or not ICES advice is of high quality, the present closed system appears secretive to stakeholders which generates an atmosphere of suspicion. The present ICES system does not have the confidence of stakeholders, partly because it is not transparent to those affected how the science was done, what quality procedures are in operation and how decisions are made. In the modern world where the public expects freedom of information, there is a responsibility on the part of ICES to be more open. Section 4 discusses issues of peer review and transparency.

The changes made to the advisory system with the creation of ACE recognised the need for ICES to re-orient its advice toward an ecosystem approach. Attempts had been made with the creation of ACME and the modifications to it made by CGADV, to address this issue but without success. It is questionable whether the creation of ACE will overcome the problem primarily because it institutionalises the division between traditional fisheries management advice and broader ecological advice. What is required is a coalescence of these approaches so that fishery management advice is placed in an ecosystem context. Section 7.2 gives further discussion of an ecosystem approach.

3.2 System attributes and inputs

In the light of the introductory remarks it is perhaps worth considering the main desirable attributes of the advisory system. These would represent basic principles to which we might like the advisory system to adhere. As an initial proposal these could be:

- Quality
- Responsiveness
- Transparency
- Ecosystem orientation

In order to achieve these attributes we need to consider the system inputs which affect them. The principal inputs which we might consider are:

- System structure
- Expertise
- Review (both scientific and public)
- Work load

System structure refers to the way ICES organises its committees, working groups and customer-client interactions. We can illustrate the effect of the inputs on the desired attributes in the following table:

	Quality	Responsiveness	Transparency	Ecosystem Orientation
Structure	*	**	**	**
Review	**		**	
Expertise	**			**
Work load	*	**		

*= important, **= very important

In this table, the rows indicate the importance of the inputs to the advisory system attributes. Thus “structure” has an impact on all the attributes, while workload is really only important for quality and responsiveness. By examining the values along each row it is possible to get an indication of which inputs have the greatest overall impact. Clearly structure emerges as the most important and suggests this should be one of the first priorities in trying to improve the system.

The columns give an indication of how the inputs contribute to each attribute. In this example it can be seen that improvements to quality require all the inputs to be improved suggesting that a lot of work needs to be done to get quality right.

The Study Group considered possible modifications to address some of the major issues associated with the present problems. Firstly, however, it is necessary to review briefly how the present system operates.

3.3 The present ICES-ACFM advisory process

The existing ICES-ACFM advisory process consists of three main elements. Firstly stock assessment working groups are convened to undertake the analyses on which the advice is based. Secondly, the Advisory Committee on Fishery Management, uses the results of working groups to formulate ICES advice which is sent to customers. The third element is the Management Committee for the Advisory Process (MCAP) which acts as a co-ordinating body to oversee the work of all three ICES advisory committees (these include ACE and ACME) and to act as an interface between the customers for ICES advice and the internal ICES machinery.

ICES produces advice because customers request it. The principal customers are the Commission of the European Union (DG-Fish), the Northeast Atlantic Fishery Commission (NEAFC), the International Baltic Sea Fisheries Commission (IBSFC) and the North Atlantic Salmon Conservation Organisation (NASCO). Each of these Commissions has entered into a Memorandum of Understanding with ICES in which the stocks and form of advice are specified. These customers also pay for the costs of the advice. The payment covers the ICES Secretariat expenses in running and supporting the advisory process, but not the scientific costs associated with data collection, scientific experts etc. which are primarily borne by national governments.

In response to the requests by customers, the ICES Council, with input from MCAP and the ICES Secretariat establishes working groups that perform the analyses necessary to provide the advice. Participation is decided by national delegates to ICES who nominate the experts that attend the working groups. This means that participation at meetings is restricted but a delegate can nominate any number of experts deemed appropriate.

Working groups meet for a period of about 10 days to perform the assessments specified in their terms of reference. Usually data are assembled and preliminary assessments performed before the meeting by small groups of scientists in national institutes. At the meeting, these assessments are finalised and discussed within the group. During the working group, assessments are reviewed by all members so that by the end of the meeting there is a final agreed report which represents the scientific consensus on the state of the stocks.

After the working group has completed its work, the report is considered by one of the bi-annual meetings of ACFM. Initially, ACFM undertakes a review of each report in sub-groups, spending perhaps a day on each report. During this review, any errors detected are corrected and, depending on the assessment, additional work may be undertaken. Once the review is complete, ACFM then agrees advice for the stocks in plenary sessions. Once the advice is agreed, the ACFM report is distributed to its customers (ie DG-Fish, NEAFC etc). Typically ACFM meetings last 8-10 days with about half of that time being devoted to reviews of reports. During the course of a year, ACFM deals with about 160 stocks, although about only half of these involve analytical assessments.

3.4 Weaknesses in the present system

There are perhaps four main weaknesses with the present arrangements. These are:

- a) excessive workload for both working groups and ACFM
- b) insufficiently rigorous peer review of assessments
- c) inflexible structure
- d) shortage of appropriate expertise

All of these problems are inter-related and need to be considered when trying to devise an improved system. The following discussion tries to characterise the problems before proposing potential solutions.

3.4.1 Work load

There is an increasing mismatch between the work required from the advisory process and the amount of expertise available to support it. There are probably many reasons for this. Undoubtedly the quantity of work has increased while the human resource base has remained static or even declined. In any event, the shortage of adequate expertise means that quality may be compromised.

Over the years more stocks have been drawn into management regimes and the decline in many stocks has demanded an ever increasing quantity of advice. As a result assessment reports, which may have numbered perhaps 100 pages in the

past, now extend to over 1000 pages. The workload on assessment working groups has increased substantially while the human resource available has remained static or declined. Some working groups are now not able to complete the required assessments with the Southern Shelf working group the most obvious example. The principal consequence of this is that working groups can do little more than follow a routine procedure. The pressure of work makes the analysis error prone and militates against adequate review of assessments.

A similar problem affects ACFM. Now that more and longer assessments are dealt with there is insufficient time for ACFM to review reports and devote adequate time to the formulation of advice. The pressing need to deliver advice to managers means that ACFM is not able to think strategically as it sacrifices all the time available to delivery of advice. Not only does this make the process error prone, but it means inadequate thought can be given to improving the basis and nature of advice within an ecosystem context.

3.4.2 Peer review

An essential element of the assessment-advisory process is quality control and maintenance of high scientific standards. This can only be achieved through proper peer review and following of good practice. There are two main points in the process where review takes place. These are during the working group and ACFM meetings. As indicated above, the pressure of work means that the review process tends to take second place to the need to complete the assessments and advice. In addition, the restricted time between the production of the assessment report and the advisory committee meeting prevents adequate review of documents. In recent years the quality of reviews has declined as a result, which makes the process open to criticism and undermines confidence. Clearly this is unsatisfactory.

3.4.3 Structure

ACFM is made up of national representatives, one from each ICES member country. It means that representation is limited by the expertise provided by each member country. It is not usually possible to assemble the best expertise available to ICES for stocks in a given region because of the restriction to one expert per ICES member country. The problem is most obvious when each stock is discussed in plenary. Usually, as might be expected, only those countries who have a share in the fishery participate. Typically only 3-5 people out of a total of 20 actively participate in any stock discussion. This is not adequate for proper review and scientific synthesis. Essentially, the national make up of ACFM is a barrier to assembling the necessary expertise. Furthermore, ACFM working procedures try to put every stock into the same framework without regard to differing management regimes, different ecosystems and different biology. These limitations and the restriction of ACFM meetings to two each year make the system highly unresponsive and insensitive to local needs.

3.4.4 Expertise

Given the limitations on available expertise, it is all the more important to make the best use of it. The structure of ACFM limits the availability of relevant expertise by forcing representation from all regions when more regional expertise is needed in preparing relevant advice. This is wasteful especially when the two meetings of ACFM deal with different regions which could allow differential representation to include more relevant expertise at each meeting. Moreover, the division of advice between ACFM and ACE divorces the fisheries and ecosystem expertise when they should be brought together. A broader ecosystem focus is needed when giving fisheries advice in order, for example, to adequately deal the question of safe biological limits.

3.5 Customer perceptions

Customer perceptions of ICES advice are illustrated by the European Commission (EC), a major customer for ICES advice, that has observer status on ACFM. The Commission represents the EU member countries on NEAFC, IBSFC and NASCO.

The EC Common Fisheries Policy (CFP) places growing reliance on scientific advice as the basis for conservation and management measures. The CFP is currently under review and as part of the review the EC is expected to propose measures aimed at improving the quality and timeliness of the scientific advice to fisheries managers. Reflecting this process, a presentation by the EC observer described some preliminary observations about the functioning of the current advisory system, and about desirable future changes. These are presented in full in Annex 3 and summarised briefly below.

The EC recognises that ICES is an institution of excellent credibility which has been at the forefront of fisheries science for many decades. Recent experience has been that the present advisory process using ICES has not been able to deliver

the advice which is needed by managers, and there is a real anxiety about the need for improvements. Specific comments were made in respect of both technical aspects of the current advice, and institutional issues.

In relation to the existing forms of advice, problems of inconsistency were highlighted. These arose in two areas, inconsistencies between advice presented as catch options, and the advice in the accompanying text, reflecting e.g. assessment bias; and inconsistencies between the advice for different species taken as part of the same mixed-species fishery. It was also noted that ICES does not seem to use expert judgement in cases where data are too incomplete or uncertain to provide advice in the 'standard' form.

In relation to institutional aspects of the advisory process the EC has expressed concern at the very slow response to inter-session requests for scientific advice. There is a need for a "fast-track" method for obtaining answers to urgent management questions. It is also felt that the separation of ecosystem and fisheries management committees is unhelpful to integrated advice. Ecosystem considerations should be built into fisheries advice from the scientific basis upwards, not provided as an appendix to the fisheries advice. Specifically, the Commission would prefer ecosystem impact considerations to be integrated fully into ACFM advice, rather than receive separate advice from ACE which could be different or conflicting. It was also noted that both ICES advice and the ICES system should be subject to peer review.

In view of the problems identified with obtaining advice, the EC has suggested possible solutions. These include some comments about possible restructuring of the ICES advisory system. It also identifies the balance between the demands on the system and the resources available to address these demands as a key area to be addressed. This would involve either reducing the demands on the system, or increasing resources. While some areas where demands on the system could be reduced are identified, overall this is unlikely to be effective as the overall need for scientific advice is likely to continue growing. This leaves an increase in resources as the more practical option. In the event that increased national support for scientific activities in fisheries is not forthcoming from Member States, then the EC would have to consider solutions involving further support from European Community funds. The way in which such resources could be deployed in order to augment and support existing structures is not, however, obvious. Some of the options under consideration by the EC include:

- a) Additional support to ICES. If agreement can be reached with other ICES clients, the ICES secretariat (or a part of it) might be expanded with specialist staff mandated to address particular classes of advisory questions, or delegated to perform pre-defined tasks.
- b) The [European] Commission might establish a collateral structure to provide itself with fast-track advice. This could include a long-term contract to a consultancy agency, increased in-house technical resources, or contracts with individuals having expertise on specific topics. Such structures could be developed in close linkage with existing fisheries institutes, and might be built upon or in close connection with STECF arrangements. This would in any case be necessary for the management of Community fisheries outside the ICES area (*e.g.* Mediterranean).
- c) Establishing Community research and advice relating to fish stock management, through the creation of a European Centre for Fisheries Research. Such an institution may or may not be a unitary structure, and one can envisage a range of options from a large central institution with a fleet of research vessels, to a regionalised structure which might have devolved responsibility for contracting research activities. In either case, close cooperation with existing national research institutions would be required.

4 PEER REVIEW AND TRANSPARENCY

4.1 Introduction

The previous chapter identified a number of weaknesses in the current ACFM process relating to workload, quality, and structure. Quality and workload issues are inextricably linked since quality suffers when there are insufficient resources (people, time or money) to get the mandated job done. Quality issues are not simply related to lack of time or manpower, however. Each step of the ACFM process — assessment development, peer review, and the preparation of advice — critically depends on quality. In fact, ICES as a whole is judged by the quality of its products and needs to ensure that its reputation is maintained.

In this regard, this section focuses on one part of the ACFM process — peer review. Here we examine that process from a quality perspective, and to some extent, a workload perspective, by exploring some alternative peer review processes.

The next part summarizes a recent and ongoing initiative within the North Sea Commission which proposes a more open and inclusive procedure for assessment review for a number of North Sea stocks in 2002. There follows an example of a peer review system comparable to that of the ACFM, known as the SAW and used in the northeast region of the USA to peer review assessments. The final part of this section suggests that ACFM consider alternative peer review protocols, and more specifically, adopt the North Sea Commission initiative as a pilot study for a potential more comprehensive peer review protocol for ACFM.

4.2 Outline of the North Sea Commission Fishery Partnership process

The North Sea Commission was founded in 1989 in order to encourage and develop partnerships between regions around the North Sea and to promote the North Sea Basin as a major economic entity within Europe. It is one of five geographic commissions under the umbrella of the Conference of Peripheral Maritime Regions (CPMR). The CPMR works to raise the profile of maritime and peripheral regions in Europe and to initiate a deeper understanding of the problems facing these regions and is especially active in the area of fisheries.

The NSC Fisheries Partnership is a forum in which representatives of the fishing industry and fishery scientists (including economists) from countries surrounding the North Sea are participating with as main objective to improve mutual understanding and co-operation. Discussions take place on subjects of mutual interest such as the state of the fish stocks and management measures which affect the fishery. Cook (2000) describes recent meetings and their results.

In previous meetings of the forum, considerable criticism was expressed on the way advice was produced by ICES. The quality of the data, used in some assessments, was questioned. Also it was suggested that the advice was difficult to understand for the industry and derived in a way which was not transparent. The representatives of the industry felt that there was a lot of information potentially available from fisherman, which has not been used in the assessment of the state of the stocks. It became clear that most of the criticism by the industry of the ICES advice is related mainly to two areas: a different perception of the state of the stock and the fact that the consequences of the ICES advice to the fishery had not been taken into account.

In the meetings of 2000 and 2001, the assessments of a number of North Sea stocks, carried out by the Working Group on the assessment of Demersal Fish in the North Sea and Skagerrak (WGNSSK) were presented by the fishery scientists to the forum before they were considered by ACFM. Considerable attention was given to issues such as uncertainty in the assessments, comparison with previous assessment, quality of data and bias. It was further explained how the assessments would be used by ACFM for formulating ICES advice. These presentations were appreciated by the industry and many helpful comments were given, which in a number of cases supported the results of the assessment.

The NSC Fishery Partnership further discussed, how the industry could be helpful to the scientists in a more structured way and have input in the advisory process.

It was felt that input by the industry would be most helpful at the assessment and review stage. Input at the advisory stage would be more controversial, since ICES is requested explicitly by its clients to provide biological, environmental and technical advice on the management of fish stocks but excluding social, economic or political influence.

As a first step, the NSC Fishery Partnership considered using the expertise of the fishing industry in the review of the assessments. To make this possible, the review presently carried out in ACFM subgroups should be separated from the ACFM meeting and done in public. This could be done by establishing review panels on a regional basis, which consists of stock assessment experts from outside the ICES environment and qualified experts representing the industry. These experts would bring in knowledge of the fish stocks, fisheries involved and management applicable to the region. The meetings would be open to the public. The proposed structure would have additional advantages. It would reduce the workload of ACFM, improve the quality of the review and therefore the basis of the ICES advice and it would increase transparency.

It was agreed that the proposed review structure should be implemented on an experimental basis for cod, saithe and plaice in the North Sea 2002 and evaluate the review procedure thereafter. The proposal was discussed with ICES and the European Commission. The European Commission welcomed the initiative if it would lead to an increase in the quality of the advice as long the independence of the ICES advice would not be affected. ICES was prepared to cooperate and proposed to hold the review meeting at ICES headquarters in Copenhagen in August.

The NSC Fisheries Partnership will organise the meeting. ICES will be requested to make the full assessments of the stocks concerned available as soon as possible after the meeting of the WGNSSK in June. The NSC Fisheries Partnership will select the reviewers. The chair of WGNSSK will be invited to present the assessment to the panel. The review will apply to all elements of the assessments including the short term and medium term predictions. The review

will be conducted according to instructions and guidelines to be provided by the NSC Fishery Partnership. The panel will report to ACFM and the NSC Fisheries Partnership.

4.3 An example: the Northeast Stock Assessment Workshop (USA)

The Northeast Regional (USA) Stock Assessment Workshop, or SAW, is a process comparable to that of the ACFM in that assessments are prepared by Working Groups, peer reviewed and, based on that review, advisory reports are prepared and delivered to fishery managers.

The fact that the SAW is similar to that used by the ACFM is hardly surprising, given that the SAW model was refined some years ago to reflect the prevailing ACFM model. The SAW model differs, however, with respect to the peer review part of the cycle. In particular, that part of the SAW consists of a week-long meeting of an independent panel of stock assessment experts. The panel, known as the Stock Assessment Review Committee, or SARC, is constituted for that meeting and is made up of 12-18 scientists who have no involvement in the preparation of the assessment.

Objectivity of the panel is enhanced by outside membership, where, characteristically, more than half the SARC members are assessment scientists from academic and other outside institutions. In recent years the SARC has further benefited from the support of the Center of Independent Experts (CIE, Univ. of Miami) which provides two panelists, one to act as chair.

Normal workload for the SARC involves review of 4-6 stock assessments, followed by the drafting of reports based on the conclusions of those reviews.

Management advice prepared by the SARC appears in an Advisory Report in a standard format, structured in a way that facilitates a presentation to regional fishery managers (known as the Public Review Workshop – the third part of the overall SAW cycle). A more detailed report of the agreed-upon assessments is contained in the Consensus Summary of Assessments.

Since the SAW is one example of a peer review/advisory process and the ACFM another, performance and quality control issues are similar. In particular, there is a constant struggle to deal with the tradeoff between peer review quality and workload. In that regard, the current model can only accommodate 8-12 stock assessments annually whereas the region's managers deal with 40+ separate stocks. Beyond the competition for space on the SAW agenda, however, there are issues of whether the level of detail delivered to managers is appropriate, or even, whether the advice offered is always relevant.

It was noted that the SAW deals with workload issues in two ways. The first is that scheduling of assessments (as well as all matters of policy) is decided by a Steering Committee consisting of the region's senior executives (Fishery Management Council and Commission executive directors and the two senior National Marine Fisheries Service officials in the region). Further, the Steering Committee has recognized a distinction between full assessment reviews, known as benchmark assessments, and assessment updates. Current policy is that, insofar as possible, update assessments will be done on an annual basis by making analytical and index-based assessments current, where the updates employ methodology agreed to at the last benchmark assessment. Benchmark reviews, which provide for a full review of existing methodology and exploration and adoption of new methodologies, are scheduled such that each stock is thoroughly reassessed every 2 – 5 years.

4.4 Proposed implementation of pilot peer review system

It is recognised that changes in the ACFM advice procedure should aim to reduce workload and increase the transparency of the advice formulation process. This can be achieved, in part, by adopting a different reviewing system. The Study Group notes that ICES assessments have already been the subject of *ad hoc* review in Northern and Southern areas (eg Icelandic cod, NE Arctic cod, Northern hake).

The Pilot Project as proposed by the NSC appears to be an attractive model. It aims at improving transparency and adds more expertise to the reviewing of the assessments. There are also potential savings in removing the burden of review from ACFM and to some degree from the working groups. The process is similar to the review mechanisms operated in the USA which are known to work well. It would be useful if ICES assisted in the North Sea commission project with a view to developing its own programme of reviews based on this experience. It should be possible in the longer term to extend the review process to other areas.

The study group recommends that MCAP monitors the development of the North sea Commission review project as a model for implementation of an ICES review programme as soon as practicable.

5 ACFM WORKING PRACTICES

5.1 Strategic direction to ACFM

The current ACFM working procedures are dominated by the need to review the numerous fish stock assessments that are undertaken each year and to formulate the appropriate advice for fishery managers. As discussed above, these activities are undertaken under severe constraints on both the time and expertise available to ACFM. In consequence, the Committee has virtually no time available to define or work towards the important strategic objectives that may enable it to respond more rapidly and appropriately to client agencies' requests for advice. By decoupling the current stock assessment review process from the Committee's advisory process (Section 4), and taking steps elsewhere directly to reduce the workload on ACFM, it should be possible to improve the quality of advice of a routine nature. It should also provide the Committee with sufficient time to address the strategic elements of its role.

The rationale for such a strategic approach is to enable ICES to set in motion the appropriate mechanisms to address issues that are clearly going to become important to its client agencies in the future. For example, by anticipating such issues an appropriate Study Group could be established and function sufficiently in advance of an anticipated client request. A direct result of this would be to reduce the interval between the request and ICES' response. This does not mean that highly specific requests could or should be anticipated, but that the general nature of future requests could be anticipated and prepared for. More concisely, the ICES advisory process would be enhanced if ACFM had the time and opportunity to develop and maintain a strategic plan to govern its advisory role.

Areas where ACFM needs to stimulate scientific activity to underpin its work are:

- Technical interactions
- Multi-annual harvest rules
- Simpler methods of stock assessment
- Species interactions
- Spatial aspects of management

5.2 Need for ACFM and assessment Working Groups to shed work

In almost all discussion of problems with the ICES advisory system, the question of workload arises. Most scientists, whether they are Working Group or ACFM members, feel that the quantity of work required to be done is excessive in relation to the time available. Participants consider that the pressure of work means that quality may be compromised.

It is undoubtedly true that the way the current system operates there is an unrealistic match between work, human resources and time. More resources would be an obvious improvement. However, the resources are not controlled by ICES and the influence of ICES on national priorities is limited. The time problem can be partly reduced by removing some of the activity from the intensive ACFM meetings to other times of the year. Available time is, however, linked to the resources, thus the only practical way of improving the situation substantially is to shed work. While marginal improvements can be made more radical changes are needed if the situation is to improve and time found to address strategic issues. This means that the less productive elements of ACFM's work need to be eliminated.

5.3 Proposed changes in ACFM procedures

Among the possible set of revisions to the ACFM protocol are measures that can be implemented fairly immediately via changes in the internal procedures used by ACFM, measures that would require some further development before implementation, and measures that may have merit but warrant further development and discussion. Of course, since the purpose of the ACFM is to provide timely and relevant advice to its managers, it is important that any of the medium or long term procedural changes suggested here are acceptable to ICES clients.

All of the revisions to current protocols offered in the next few pages are intended to reduce workload, and, as an adjunct, improve the quality of the ACFM advisory process. All are intended to effect improvements by reducing the time spent on the preparation of individual stock management advice, either by eliminating stocks or groups of stocks from full ACFM plenary consideration, or by providing advice on a multi-year basis.

5.4 Harvest Control Rules

Harvest Control Rules are agreements on a management strategy that usually includes an exploitation rate and actions to be taken if the stock falls below a pre-defined limit. Such HCRs exist for a few stocks and there are research projects looking at possible HCRs for other stocks. When a HCR is established on a sound analytical basis, the need for ICES advice on a TAC should be automatic. At present some management rules are, however, not specific on the action to be taken if the stock falls below the pre-defined level and in one case specifies only a range of fishing mortalities as the long-term strategy and thus still requires advice. They also require an annual update of the assessment. Thus, these rules are of some, but limited, help in reducing the workload. Properly evaluated rules would offer more substantial savings. Such rules will require a dialogue with managers.

There is clearly a potential for developing HCRs that will reduce the work needed for advice, and in some cases also the need for annual assessments. The HCRs require political agreement and will include other considerations than the biological, but the existing HCRs are nevertheless to a large extent based on the biology. Thus, even if ACFM cannot introduce HCRs in the advice, it can be pro-active in proposing HCRs to speed up this development.

5.5 Alternative procedures for salmon, trout and eel

ACFM prepares the advice on Atlantic salmon (NASCO), Baltic salmon and trout (IBSFC) and American and European eel (Canada, USA, EU Commission). Except for the Atlantic salmon, this is done through the usual ACFM procedures. Since 2000, the advice on Atlantic salmon has been produced in April by a small group (four people, including the ACFM chair and the WG chair), based on a draft from the WG. The advice is circulated by e-mail to ACFM-members for comments before it is released in early May. The reason for this practice is partly the need for NASCO, who meet in the first week of June, to receive the advice earlier and partly because this allows the May ACFM meeting to be scheduled later, thus giving more flexibility in the scheduling of WGs and more time for reviewing WG reports.

The type of advice required for ana- and catadromous fishes (salmon, trout and eel) differ from that given for marine fish, both because the biology is different and because they are subject to different management regimes. To provide the advice therefore requires expertise that is rarely available to ACFM.

Currently, ACFM is not the most appropriate forum for advice on salmon, trout and eel because it does not have sufficient expertise in these areas. Alternative structures which make more use of expertise in anadromous and catadromous fish biology within ICES member countries should be investigated. This will bring more expertise into the process, improve quality and free resources on ACFM for more strategic work.

5.6 Alternative procedures for stocks exclusively managed by a coastal state

In the ICES area there are important stocks that are managed entirely by coastal states under national regimes, and where ICES advice, as presently formulated may not be directly relevant. This applies for example to stocks around Iceland, the Faroe Islands and certain stocks within national responsibility. In these cases, ICES should start a dialogue with the relevant management authorities to see if ICES advice could be better tailored to their needs and save unnecessary work. If only a review of the assessment is required, this could be organised outside the ordinary ACFM meetings.

5.7 Stocks for which frequency of advice may be reduced

There are a number of stocks where both the advice and the assessment, if available, show virtually no change from one year to the next. This can be the case for stocks that have stable recruitment and that are subject to a sustainable exploitation rate. It can also be that the available data are insufficient for monitoring short-term changes in the stock. The extreme cases are stocks where the only new information is an update of landings and where ACFM does not have any real basis for providing advice.

Although advice formulation for such stocks normally does not require much discussion, the total amount of work involved in updating assessments or providing other information at Working Groups and formulating the advice at ACFM is considerable.

In a number of cases the TAC which covers a particular stock is made up mostly of 'precautionary TAC' values (i.e. average catches). Thus even if a catch forecast for one stock component within a larger management unit is for a large change, the TAC controlling it may not noticeably change. Another category is stocks where the advice is not used. This could occur, for example, if the management area does not correspond to the stock area.

Clearly, multi-annual assessment advice cannot or should not be used for all stocks. However, there are many important reasons why providing advice that spans several years may be preferable to the utilization of the full ACFM plenary for development of management advice, which, in all likelihood is identical to that offered the previous year.

Note also that it would be possible to provide for annual assessment updates via the assessment working groups but to only schedule such assessments for review by the ACFM if circumstances warrant or on a periodic basis.

ICES should negotiate with its customers a work saving way of dealing with these stocks. Before the clients are approached, the stocks should be categorised according to the need for frequency of advice.

5.8 Software to automate aspects of report production

Within assessment working group reports and ACFM reports, there are a large number of figures and tables that are standard, or could be standardised if the contents of working group report adhered to agreed guidelines. Commonly the production of such figures and tables requires working group members to reformat data outputs and/or to import them into spreadsheets for tabulation and presentation. This creates a plethora of personal styles within report production that can be confusing, but more importantly it is an inefficient and often error-prone process. Although ICES has taken steps to automate the production of a number of standard figures and tables within the ACFM report, there is scope for a much more automated production of them within working group reports.

Although there are examples of such programs in use by some working groups, eg., the “Aberdeen” utilities, their development has been *ad hoc* rather than planned, and they comprise a confusing assemblage of utilities rather than a coherent software suite.

ACFM in co-operation with the ICES Secretariat should develop software to expedite the production of standard tables and figures for reports from analytical input and output files. This will improve the efficiency of working groups and reduce errors. Such software should conform to the guidelines established by the Study Group on Future Requirements for Fisheries Assessment Data and Software (ICES 1999b).

6 DEVELOPMENT OF FAST TRACK PROCEDURES

6.1 The Ownership of Resources

Over the last few years there has been increasing concern about how effectively ICES responds to inter-sessional requests from fisheries clients for additional scientific work or advice, particularly when these require an urgent response that cuts across the normal annual cycle of working groups and advisory committee meetings.

The ICES response depends on three factors. Firstly, the internal management of the request by the Secretariat and MCAP, whereby it is evaluated, and routed to an appropriate part of the ICES system. Secondly, the timely availability of experts able to undertake the task. Thirdly, the availability and assembly of the necessary data. This section concentrates on the human resources question. Internal housekeeping is a Secretariat matter, although it should be noted that some customers cite instances where it appears that a request has been mislaid, or that no clear reply was received on how or when a request will be dealt with.

Although in principle the ICES community wishes to meet additional requests from its main clients, problems arise in practice because ICES does not actually control the necessary human resources. These reside outside the Secretariat in the member countries. There, the number of assessment scientists in national institutes is determined by national funding constraints, and their time is usually allocated in advance to programmes and contracts with cost constraints dictated by internal management targets. While ICES can facilitate access to resources and assist in co-ordination, it cannot commit national resources and therefore is not in a position to accept new work unless there is an explicit commitment from member countries to make resources available.

6.2 The Deployment of Human Resources

In the light of the above, national directors and programme managers can plan ahead to meet the commitments implicitly accepted when national Delegates approve the terms of reference of the main working groups and advisory committee meetings. Thereafter, it becomes more difficult to assimilate *ad hoc* requests. In recent times the problem has been intensified by a conflict between client requests to ICES, and requests direct from DG-Fish to national scientists for *ad hoc* meetings and workshops connected with pressing management issues, since usually the same scientists are required for both activities. Such conflicts may increase as more stocks become subject to crisis management under

rebuilding plans. The problem may be further intensified when negotiators refer scientific issues back to ICES for review and evaluation: the effect is to increase the demand on national scientific resources.

6.3 Addressing the problem

The scientific resources within the ICES area are finite and fully committed. That means any additional requests for work require resources to be diverted from other tasks. Implicitly this means that there needs to be a mechanism for deciding changed priorities unless new resources are found. Clearly ICES is not a consulting company and cannot take on the task of deciding priorities. It is therefore necessary for customers and national institutes in partnership with ICES to develop a framework within which such decisions can be made. The present ICES Secretariat/MCAP arrangements are not able to do this because ICES does not have ownership of the resources needed for the request.

It is particularly important that customers who seek advice via ICES understand that such advice will require resources for which the customers themselves are often directly responsible. When an ICES member country seeks advice directly, or via a management agency the work will usually have to be done to a large degree by scientists in the country from which the request originated. Hence in making such requests customer countries have an obligation to ensure they will make appropriate resources available.

The present dissatisfaction with the response to *ad hoc* requests arises because of the lack of clarity of responsibility. ICES should not indicate that a response will be made to a request when there is no commitment from national authorities to provide resources. Equally, customers should not seek advice unless they are prepared to commit resources either by finding additional funds or diverting resources from their own national institutes.

The proposed way forward is that, as a matter of urgency, ICES, its clients and the member countries should negotiate a proper framework within which additional requests are notified, evaluated, and appropriate decisions made about the availability of data and national resources, and the timetable of any response. This negotiation should also take into account the question of quality assurance for any new work, and its 'ownership'. For example, in the case of 'fast track' requests for additional assessments or management advice, how would this output be reviewed, and what role would ACFM play in this process? Finally, discussion should include the questions of cost recovery from the customers, and the development of a mutually acceptable solution to requests that may ultimately be decided are beyond the resources that can be made available to ICES.

It could help considerably if ICES and its customers think ahead and anticipate events, since it is predictable that requests will arise from the autumn meetings of NEAFC, the EU council meetings in December, and that there will be additional requests arising from recovery plan meetings between January and June. It may be possible to assimilate some of these into the annual work programme of ICES, reducing the number of requests that would have to be dealt with by any so-called 'fast track' system.

7 STRATEGIC ISSUES

7.1 Introduction

While section 5.1 does deal with strategy, the discussion is predicated on the existing advisory committee structure. There are however, legitimate reasons to consider possible changes to this structure in the light of developing needs of customers and improvements in efficiency. For example, the introduction of peer review with an element of public accountability and the need to develop more ecosystem orientation may necessitate alternative advisory structures. This section discusses some of these issues.

7.2 Development of ecosystem orientated advice

Section 3.2 outlines some desirable attributes of the advisory system, including a move towards more ecosystem-orientated advice. Ecosystem considerations in relation to fisheries management involve two basic dimensions: (i) ecosystem impacts on the dynamics of fish populations (Annex 4), and (ii) the direct and indirect effects of fisheries on the ecosystem. Both dimensions have relevance to managers. Sufficient knowledge of the former can be used to gauge the relative importance of wider environmental impacts on fish stock fluctuations compared to the direct or indirect effects of fishing. However, since fish stocks are major ecosystem components and since fisheries have potentially a wide range of direct and indirect effects on marine ecosystems, it is the frequently the latter on which managers require advice.

From the perspective of managers, the sorts of issue that commonly arise and on which advice is required are listed below:

- o Trophic interactions between fish species. For example does the exploitation of forage species impact adversely on the growth or abundance of target species in other fisheries?;
- o Trophic interactions between fish and non-fish predators. The foodweb interactions between fish species and non-fish predators such as seabirds, seal and cetaceans can be separated into the impacts of fisheries on predator populations, either adverse (direct competition for food) or beneficial (provision of offal or discards as food items), and the impacts of predator populations on fisheries;
- o Direct effects of fisheries on non-target species. This can include a number of issues, commonly including fishery by-catches of seabirds, cetaceans and vulnerable non-target fish species, for example some elasmobranch species;
- o Collateral effects of fishing operations, for example benthic disturbance due to fishing gears or the continuing operation of lost fishing gears (“ghost” fishing).

Although this list is not exhaustive, it is illustrative of the broad range of issues on which managers are increasingly requiring advice. It is also illustrative of the demand for multidisciplinary expertise in the provision of ICES advice. The question therefore arises as to how can ICES best utilise the expertise available to it in the provision of such advice. Although it currently addresses many issues from the above list, it does so through three advisory committees, ACFM, ACME and ACE. From an operational perspective, this immediately fragments the expertise available to ICES despite its desire to do otherwise. Importantly, such fragmentation of expertise does nothing to promote better integration between the scientists.

An additional but important consequence of a more ecosystem-orientated approach to the advisory process, is the recognition that ecosystem considerations may alter the perception of ICES’ current precautionary approach (PA) reference points for fish stocks. To date, these have been defined exclusively on a single species basis. Consideration of wider ecosystem perspectives may well require the adoption of more conservative reference points.

An option would be to establish an advisory structure that promotes a less fragmented approach with regard to multidisciplinary expertise. In the first instance, this could be used to promote inclusion of the appropriate and integrated multidisciplinary expertise in the current ICES system. However, it is possible to envisage this also as a precursor to inclusiveness of a more general kind, orientated towards greater openness and transparency for stakeholders. It is difficult to envisage how this could be achieved within the current structure of advisory meetings. Such an approach would almost certainly require ICES to move to the more regionalised advisory structure that is discussed in below and in annex 1.

7.3 Regional Structure

SGWP recognises that ICES has previously rejected a regional model (ICES 2000). However, the advisory model ultimately adopted did not actually address the operational weaknesses of the system, but instead created a vehicle for change in the form of MCAP. Given the need for MCAP to keep the advisory process under review and make necessary changes, it is pertinent to reconsider structural issues at operating level. There are strong reasons for a regional dimension as follows

- i) ICES assessment working groups are reconfigured on a regional basis, with the aim of improving the coherence of the advice at least at the fishery level. It was hoped that the working groups would pay more attention to the regional character of fish stocks and the fishing fleets, and would develop assessments and advice that take more account of regional technical and biological interactions. Introducing some form of regionalisation in the advisory process could re-establish the original aims of promoting more coherent fisheries advice.
- ii) Section 4 has identified that benefits should accrue by implementing a stronger peer review process, with the enhanced participation of stakeholders, and it is being proposed that this should be introduced gradually and on a regional basis, starting with the North Sea area. For practical reasons it is difficult to envisage a public peer review system which was not regionally based.
- iii) As discussed in Section 7.2, there is an increasing desire to integrate ecosystem considerations into ICES advice. Ecosystems are geographical in nature as are the management challenges associated with them. Since the relevant expertise is also regional, ICES advice could best be achieved in a regional context.

Arguments against a regional model relate to cost, mobilisation of expertise and a worry that ICES will fragment. None of these risks is insurmountable and the problems have to be weighed against the growing perception that ICES

articulates the aspiration of integrated holistic fisheries advice while in reality perpetuates the traditional single species approach.

SGWP does not necessarily advocate separate regional advisory committees but there are good reasons for ICES to reconsider some form of regionalisation in the advisory process, albeit in a gradual way along the lines being suggested for the pilot changes to the peer review process.

The particular regional configuration that might be most appropriate will depend among other things on the regional nature of fish stock assemblages, the degree of common environmental character, and the distribution of fishing fleets and management units. For certain widely distributed stocks, such as mackerel, blue whiting and hake, it would be possible to have a body covering the whole ICES area. Discussion with the stakeholders and the clients for advice would therefore be essential.

8 WORKING DOCUMENTS REVIEWED

WD1: Improving the ICES advisory process: Ideas for discussion. R. Cook.

WD2: ACFM working procedures. T Jakobsen, H Lassen and H Sparholt.

WD3: Meeting the growing need for scientific advice on fisheries. EC Commission non-paper

WD4: Some workload issues. R. Cook

WD5: Northeast Regional Stock Assessment Workshops. Northeast Fisheries Science Center, Woods Hole, Massachusetts, USA, November 2001.

WD6: Model 2: Annex to the report of the ICES Co-ordinating Group on ICES advice, 1998.

WD7: Initial considerations of a scientific framework for ICES ecosystem advice including an ecosystem approach for the sustainable use and protection of the marine environment. Annex 3 of the ACE minutes, 2001.

WD8: Short term forecast: defining status quo F versus TAC constraint F advice versus SSB advice. Jakobsen T, and Sparholt, H.

WD9: Quality of ACFM advice: How good have forecasts been since 1988? H. Sparholt. Working paper to Methods Working Group, 2001.

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ICES 2000. Report of the Bureau working group on the advisory process. ICES CM 2000/Del:10.

ICES 1999a. Report of the study group on multi-annual assessment procedures. ICES CM 1999/ACFM:11

ICES 1999b. Report of the study group on future requirements for fisheries assessment data. ICES CM1999/ACFM:9, ICES CM1999/ACFM:25.

ANNEX 1

IMPROVING THE ICES ADVISORY PROCESS: IDEAS FOR DISCUSSION

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1 Introduction

The ICES advisory process has been the subject of concern and review for a number of years. A series of Bureau and Council working groups have considered various options for change. This resulted in a change to the ICES rules of procedure in 2000 which established the Management Committee on the Advisory Process (MCAP) and the creation of a new Advisory Committee on Ecosystems (ACE). An important feature of this change is that the rules allow the Council to establish a new advisory committee or dissolve an old one by Council resolution rather than through a change in the rules of procedure.

Any change to the advisory structure has always been controversial and the system adopted by the council in October 2000 is no exception. There remain strong differences of opinion. In practice the agreed changes did not directly address most of the weaknesses of the former system. However, the new structure, with the establishment of MCAP provided a vehicle to address these underlying problems. The current challenge, therefore, is to use this opportunity to improve the present system so that ICES customers are better served.

Criticisms of the current system originate both from external customers and experts within ICES, notably those who have to make the present advisory process work. Customers have recently requested external reviews of a number of ICES stock assessments due to dissatisfaction with ICES advice. One major client has intimated that it is considering the establishment of its own advisory process to overcome the problems it considers exist with ICES advice. Since ICES is paid by customers for its advice and is clearly not perceived to be performing to a high enough standard there is an urgent need to make improvements.

In addition to the question of quality, a number of clients are clearly not satisfied with the responsiveness of the ICES system to their requests. Indeed at the 2001 Statutory meeting, the European Commission tabled a letter listing requests to ICES for which it had not received any response. Clients are often under pressure to act quickly, such as in the case of the North Sea cod during 2000/2001, and need advice from ICES on a timescale which demands more than the bi-annual meetings of ACFM can deliver. While ICES has made attempts to deal with such requests, the infrastructure currently in place is still not able to deal adequately with these problems.

Internally, it is quite clear that the gap between available resources and work demand is widening. In 2001 this problem was severe enough to precipitate the disintegration of the southern shelf working group. It has generally proved increasingly difficult to find experts able or willing to chair working groups or even the ACFM. There is a need to take a strategic view on how this problem can be addressed.

Publicly, ICES advice is increasingly called into question. This is almost inevitable in a climate of over-exploited fish stocks where scientific advice implies economic hardship. Whether or not ICES advice is of high quality, the present closed system appears secretive to stakeholders which generates an atmosphere of suspicion. The present ICES system does not have the confidence of stakeholders, partly because it is not transparent to those affected how the science was done, what quality procedures are in operation and how decisions are made. In the modern world where the public expects freedom of information, there is a responsibility on the part of ICES to be more open.

The changes made to the advisory system with the creation of ACE recognised the need for ICES to re-orient its advice toward an ecosystem approach. Attempts had been made with the creation of ACME and the modifications to it made by CGADV, to address this issue but without success. It is questionable whether the creation of ACE really does overcome the problem primarily because it institutionalises the division between traditional fisheries management advice and broader ecological advice. What is required is a coalescence of these approaches so that fishery management advice is placed in an ecosystem context. The present structure militates against this and encourages disparate advice

2 System attributes and inputs

In the light of the introductory remarks it is perhaps worth considering the main desirable attributes of the advisory system. These would represent basic principles to which we might like the advisory system to adhere. As an initial proposal these could be:

- Quality
- Responsiveness
- Transparency
- Ecosystem orientation

In order to achieve these attributes we need to consider the system inputs which affect them. The principal inputs which we might consider are:

- System structure
- Expertise
- Review (both scientific and public)
- Work load

System structure refers to the way ICES organises its committees, working groups and customer-client interactions. We can summarise the effect of the inputs on the desired attributes in the following table:

	Quality	Responsiveness	Transparency	Ecosystem Orientation	Score
STRUCTURE	1	2	2	2	7
Review	2	0	2	0	4
Expertise	2	0	0	2	4
Work load	1	2	0	0	3
Score	7	6	4	4	

0= not important, 1= important, 2= very important

In this table, the rows indicate the importance of the inputs to the advisory system attributes. Thus “structure” has an impact on all the attributes, while human resources is really only important for quality and responsiveness. By summing the values along each row it is possible to get an indication of which inputs have the greatest overall impact. Clearly structure emerges as the most important and suggests this should be one of the first priorities in trying to improve the system.

The column scores give an indication of how the inputs contribute to each attribute. In this example it can be seen that improvements to quality require all the inputs to be improved suggesting that a lot of work needs to be done to get quality right.

The paper proposes possible modifications to address some of the major issues associated with the present problems. Firstly, however, it is necessary to review briefly how the present system operates.

3 The present ICES advisory process

The existing ICES advisory process consists of three main elements. Firstly stock assessment working groups are convened which undertake the analyses on which the advice is based. Secondly, the Advisory Committee on Fishery Management, uses the results of working groups to formulate ICES advice which is sent to customers. The third element is the Management Committee for the Advisory Process (MCAP) which acts as a co-ordinating body to oversee the work of all three ICES advisory committees (these include ACE and ACME) and to act as an interface between the customers for ICES advice and the internal ICES machinery.

ICES produces advice because customers request it. The principal customers are the Commission of the European Union (DG-Fish), the Northeast Atlantic Fishery Commission (NEAFC), the International Baltic Sea Fisheries Commission (IBSFC) and the North Atlantic Salmon Conservation Organisation (NASCO). Each of these Commissions has entered into a Memorandum of Understanding with ICES in which the stocks and form of advice are specified. These customers also pay for the costs of the advice. The payment covers the ICES Secretariat expenses in running and supporting the advisory process not the scientific costs associated with data collection, scientific experts etc. which are primarily borne by national governments.

In response to the requests by customers, the ICES Council, with input from MCAP and the ICES Secretariat, arranges for working groups to be convened in order to perform the analyses necessary to provide the advice. These working groups are generally multinational because most fish stocks are shared resources. Participation is decided by national delegates to ICES who nominate the experts that attend the working groups. This means that participation at meetings is restricted but a delegate can nominate any number of experts deemed appropriate.

Working groups meet for a period of about 10 days to perform the assessments specified in their terms of reference. Usually data are assembled and preliminary assessments performed before the meeting by small groups of scientists in national institutes. At the meeting, these assessments are finalised and discussed within the group. During the working group, assessments are reviewed by all members so that by the end of the meeting there is a final agreed report which represents the scientific consensus of the state of the stocks.

After the working group has completed its work, the report is considered by one of the bi-annual meetings of ACFM. Initially, ACFM undertakes a review of each report in sub-groups, spending perhaps a day on each report. During this review, any errors detected are corrected and, depending on the assessment, additional work may be undertaken. Once the review is complete, ACFM then agrees advice for the stocks in plenary sessions. Once the advice is agreed, the ACFM report is distributed to its customers (ie DG-Fish, NEAFC etc). Typically ACFM meetings last 8-10 days with about half of that time being devoted to reviews of reports. During the course of a year, ACFM deals with about 160 stocks, although about only half of these involve analytical assessments.

4 Weaknesses in the present system - Inputs

There are perhaps four main weaknesses with the present arrangements. These are:

- e) excessive workload for both working groups and ACFM,
- f) insufficiently rigorous peer review of assessments,
- g) structure
- h) shortage of appropriate expertise

All of these problems are inter-related and need to be considered when trying to devise an improved system. The following discussion tries to characterise the problems before proposing potential solutions.

4.1 Work load

Increasingly there is a mismatch between the work required from the advisory process and the amount of expertise available to support it. There are probably many reasons for this. Undoubtedly the quantity of work has increased while the human resource base has remained static or even declined. In any event, the shortage of adequate expertise means that quality may be compromised.

Over the years an increasing number of stocks have been drawn into management regimes and the decline in many stocks has demanded an ever increasing quantity of advice. As a result assessment reports, which may have numbered perhaps 100 pages in the past, now extend to over 1000 pages. The workload on assessment working groups has increased substantially while the human resource available has remained static or declined. Some working groups are now not able to complete the required assessments with the Southern Shelf working group the most obvious example. The principal consequence of this is that working groups can do little more than follow a routine procedure. The pressure of work makes the analysis error prone and militates against adequate review of assessments.

A similar problem affects ACFM. Now that more and longer assessments are dealt with there is insufficient time for ACFM to review reports and devote adequate time to the formulation of advice. The pressing need to deliver advice to managers means that ACFM is not able to think strategically as it sacrifices all the time available to delivery of advice. Not only does this make the process error prone, but it means inadequate thought can be given to improving the basis and nature of advice within an ecosystem context.

4.2 Peer review

An essential element of the assessment-advisory process is quality control and maintenance of high scientific standards. This can only be achieved through proper peer review and following of good practice. There are two main points in the process where review takes place. These are during the working group and ACFM meetings. As indicated above, the pressure of work means that the review process tends to take second place to the need to complete the assessments and advice. In recent years the standard of reviews has declined as a result, which makes the process open to criticism and undermines confidence. Clearly this is unsatisfactory.

4.3 Structure

ACFM is made up of national representatives, one from each ICES member country. It means that representation is limited by the expertise provided by each member country. It is not necessarily possible to assemble the best expertise

available to ICES for stocks or region because of need to maintain national representation. The problem is most obvious when each stock is discussed in plenary. Usually, as might be expected, only those countries who have a share in the fishery participate. Typically only 3-5 people out of a total of 20 actively participate in any stock discussion. This is not adequate for proper review and scientific synthesis. Essentially, the national make up of ACFM is a barrier to assembling the necessary expertise. Furthermore, ACFM working procedures try to put every stock into the same framework without regard to differing management regimes, different ecosystems and different biology. These limitations and the restriction of ACFM meetings to two each year make the system highly unresponsive and insensitive to local needs.

4.4 Expertise

Given the limitations on available expertise, it is all the more important to make the best use of it. As indicated in 3.4.3 the structure of ACFM limits the availability of relevant expertise by forcing representation from all regions when more regional expertise is needed in preparing relevant advice. This is wasteful especially when the two meetings of ACFM deal with different regions which could allow differential representation to include more relevant expertise at each meeting. Moreover, the division of advice between ACFM and ACE divorces the fisheries and ecosystem expertise when they should be brought together. A broader ecosystem focus is needed when giving fisheries advice in order, for example, to adequately deal the question of safe biological limits.

5 Outline of a new advisory system

Clearly any new process needs to address the four main weaknesses discussed in section 3.4 while satisfying the desired attributes in 3.2. This section outlines a possible new structure for ICES advisory system.

The present functioning of assessment working groups follows the same model which has been in operation for more than 30 years. Improvements in efficiency have been achieved by assembling data and conducting assessments prior to the meeting. However, the disparity between human resources and workload at meetings has grown. At the same time it is noticeable that the underlying ideal within ICES, to have all working group members participate in all assessments, no longer operates because of the sheer volume of work. In effect, small groups of individuals carry out each assessment separately so that all the assessments can be processed in parallel. Thus what tends to happen in the North sea demersal working group is that Scottish experts assess haddock, Dutch and Belgian scientists assess the flatfish, Norwegian and French scientists assess saithe and so on. Given that this mode of working has arisen through necessity one may question the value of having all the work being done in the same room on the same dates. Clearly there are advantages to working in close proximity but the rigidity it imposes may outweigh the benefits. Suppose then that in recognition of what is already occurring, assessments are assigned to small teams that work from their home institutes. Each stock assessment team might comprise 3-4 experts from those countries most involved in the relevant fishery. These experts could communicate using electronic media and perhaps have informal meetings if and when appropriate. These teams would produce an assessment report to be considered by a review group. The principal advantage of working in this way would be that work need not be compressed into a very short period and it would be possible to involve other experts as required. This would mean that more expertise could be used if necessary.

Next consider the review process since this is a key element in both quality and transparency. At present, review occurs at two stages, one during the assessment working group and the other at the start of the ACFM meeting. Neither exercise works well because the time for review competes with the over-riding need to complete the essential primary work of the meetings. Furthermore, the reviews are entirely internal and to some degree the reviewers are reviewing their own work. This cannot be considered satisfactory. A major element of a new system should be to establish a separate stage which includes an element of external independent review. Such a review should take place after assessments have been done and before advice is prepared. This would ensure that advice was based on properly reviewed assessments. Making reviews open to the public would also provide an opportunity to ensure transparency and build confidence.

The preceding discussion outlines a procedure for the assessments and review. It is more difficult of conceive a solution to the advisory step which satisfies ICES desire for national representation and its aversion to regional committees. Logistics alone would dictate that review meetings would have to be regional in nature and this may be sufficient to deal with a regional dimension. However, common sense would also suggest that advice should be crafted by a regional committee so that sufficient expertise and knowledge of the fisheries could be utilised. An initial position might therefore be to establish regional advisory committees which allowed greater regional participation (perhaps two experts per coastal state) but allowed other ICES countries to participate if they wished. This would allow more relevant and broader expertise to be deployed and would mean that there is no need for a separate ACFM and ACE.

6 How the new process would operate

The preliminary stages of the ICES process would be similar to current practice. The Secretariat and ICES Council would prepare terms of reference for working groups. The chair of the working group would then identify small groups of national experts to undertake assessments on specific stocks based at a stock co-ordinators institute. The small teams would decide how best to complete the work and prepare a report by a specific deadline. The stock assessment reports would then be circulated to a review panel which would consist of experts not involved in the assessments and would include at least one independent external expert. A review meeting, open to the public would then take place where the stock co-ordinator presented the assessment to the panel. The review panel would then produce a report on the scientific quality of the assessment and identify any additional work which should be done to finalise the assessment. The stock assessment teams would then finalise their report which would go to the regional advisory committee.

The advisory committee would not need to review to the assessments and could concentrate on preparing advice. Being regional, it could focus more on ecosystems and fisheries. It would be desirable in the long term for the meetings of advisory committees to be public. Initially, though, in order to make the change more acceptable it may be preferable for these meetings to be closed until sufficient confidence had been built at the review meetings.

7 How are the weaknesses addressed?

7.1 Work load

By freeing up the format of the assessment process it is possible to engage more expertise since the limits on travel and meeting space are avoided. It is also possible to work over a longer elapsed time thus avoiding the compression of work into a limited period. However, this is only a partial solution. Additional changes would have to be made to the nature of assessments in order to match them more realistically to the value of the output. This is a topic for another forum.

7.2 Structure

The proposed structure does not itself guarantee an improved system. However, by being more flexible, it facilitates better use of scarce resources at the working group and advisory committee stage and introduces an explicit review stage to encourage greater quality and transparency. By regionalising the advisory committees it is possible to make advice more relevant to the regional management agency and incorporate a broader range of expertise. It potentially improves the ability to respond more quickly because fewer countries need to be mobilised and timing can be better suited to management meetings.

7.3 Transparency

Formalising the review stage and bringing in external reviewers offers scope for better quality. Making the review open to the public should help build confidence and defuse disagreements arising from mis-understanding. Bringing in outside reviewers may be costly but is unavoidable if public confidence in the assessments is to be improved.

The principal gain in transparency occurs during the review stage. It is at this point that stakeholders have a direct input and it is possible to incorporate more rigorous external review. There is also no reason why stakeholders should not be involved in the assessment teams if this is desired and relevant expertise can be included. There may be advantages in making advisory meetings public but this should be a longer term objective.

7.4 Expertise

As indicated earlier, increasing the flexibility of the assessment stage offers the opportunity to incorporate a wider range and quantity of expertise since participation is less rigid. There are also potentially important advantages in having regional advisory committees. Since these committees would deal with a more restricted geographical area, it would be possible to establish a membership comprising more experts with relevant expertise. It should also be possible to include a broader range of skills to deal with ecosystem orientated advice.

8 Implementation

The structure outlined above would clearly represent a radical change from the present arrangements. Making a wholesale change in one step could be very damaging. It would be preferable to introduce a new system more gradually.

In the past two years the North Sea Commission has begun a process which in part parallels some of the proposals described here. It has held mid year meetings at which North Sea demersal stock assessments have been reviewed both by scientists and representatives from the fishing industries of the North Sea coastal states. These have been successful in demonstrating that assessments can be done adequately outside working groups and that constructive dialogue can be held between scientists and industry. It has also shown that industry input can assist in the assessment-review process. While limited in scope this process indicates that it should be possible to apply such a scheme more thoroughly. As a first stage therefore it may be useful for ICES to develop a system based on the North Sea Commission experience for the North Sea stocks as a pilot with a view to broader implementation later.

ANNEX 2

**Non-Paper to the
ICES Study Group on ACFM Working Procedures, Copenhagen, 25th. February to 1st.
March 2002**

Meeting the Growing Need for Scientific Advice on Fisheries

Preliminary Reflections from the services of the European Commission

1 Introduction

Over the last ten years of the development of the Common Fisheries Policy (CFP), growing reliance has been placed on scientific advice as the basis for conservation and management measures. This is partly because the advice and the underlying science has been growing in credibility and reliability. But it is also because conservation policy has not been successful and many stocks have decreased in size to the extent that questions of sustainability and biological risk are now the most important considerations in fisheries management.

The growing sense of crisis in European fisheries management has resulted in a substantial increase in demand for up-to-date scientific assessments and advice. Because the conservation measures which are needed are now urgent – and therefore need to be implemented quickly - there is a need for scientific advice which is not only more comprehensive and detailed but can also respond quickly to management questions.

Recent experience has been that the present advisory process using ICES is not able to deliver the advice which is needed by managers, and there is real anxiety about the need for improvements. Reform of the advisory process is therefore a key part of the CFP reform. The Commission firmly believes it is necessary for all the parties concerned to identify the causes of shortcomings in the present system and to take action to address them. Part of the solution may relate to resources, part may relate to improvements in organisation and a greater commitment by Member States to the collection of fisheries data and work on scientific advice.

In the context of the Green Paper and the review of the CFP, the Commission is expected to propose measures aimed at improving the quality and timeliness of scientific advice to fisheries managers and providing the necessary financial support. These would include:

- improved support for scientific work in scientific advisory bodies, and implementation of appropriate validation and peer-review processes;
- reinforcement of Community structures for scientific advice, in particular the Scientific, Technical and Economic Committee for Fisheries (STECF);
- the development of a European Centre for Fisheries Research and Management, bringing together scientific expertise within a permanent framework at Community level.

Commission staff are presently preparing a communication on this subject. This document reflects their initial considerations and is without prejudice to the eventual Communication.

2 Basic Principles

2.1 The Commission desires to obtain from ICES scientific advice about fisheries that :

- a) is in accord with the most recent accepted scientific principles,
- b) respects the precision of the available analyses (*ie.*, is robust to and takes account of uncertainty);
- c) includes technical measures and ecosystem impacts;
- d) provides early warning of high-risk situations;
- e) is timely;
- f) is easily accessible.

2.2 Such advice should in principle be normative, and may be based on formal analysis, on expert opinion or a combination of the two. However, the advice should be transparent in that it should be clear what are the rôles of expert opinion and what is the rôle of numerical analysis.

2.3 Although the advice should be normative, it should be accompanied by statements about the impact and risks of alternative options.

2.4 The issues of main interest to managers are short, medium and long-term forecasts of

- yield
- biological risk
- stability
- environmental impact
- effects of technical measures, taking into account the behaviours and practices of fishing fleets

- 2.5 Within the constraints of good scientific practice, advice should also be practical, in that it can be implemented with a minimum of subsequent interpretation or evaluation.
- 2.6 The Commission is seeking biological, environmental and technical advice from ICES, not at present social or economic advice. Unless specifically requested to do so, ICES should not attempt to include social and economic considerations in its advice to the Commission, nor to initiate political dialogues. These issues are important, but they will be addressed in other fora. Specifically, STECF is the forum for socio-economic considerations, and the Commission intends to establish a number of regional committees to facilitate dialogues between scientists, fishermen and managers.
- 2.7 Within the constraints of the above, the Commission believes ICES should retain its freedom to make its internal arrangements as required.

3 Technical Issues

3.1 Problems with existing forms of advice

The following are a list of problems of substance recently noted by Commission services in ICES advice. These concerns are listed in order of priority:

- 3.1.1 It is problematic for managers when ICES advice appears to contain internal contradictions. In some cases, ICES has provided advice about an appropriate level of catches, and then in supplementary text has added remarks to the effect that managers should adopt a catch level different to that which is advised. It would be much preferred that ICES should review all relevant circumstances and then provide its advice after having taken these factors into account. Two particular cases - due to mixed fishery situations and to assessment bias - are detailed further below.
- 3.1.2 Fisheries advice prepared by ICES is mostly on a stock-by-stock basis. This is problematic when several stocks are caught together in mixed fisheries and the advice for the different species which are caught together is contradictory. The Commission is starting a process to develop data and analysis to address this problem ("Mixed Fishery" meeting on 14th March). Typical examples include the cod/haddock mixed fishery in the North Sea; the whiting/cod/haddock/Nephrops fishery in the Irish Sea, and the plaice and sole fishery in the southern North Sea.
- 3.1.3 Bias or uncertainty can also lead ICES to provide advice with internal contradictions. For example, for North Sea plaice advice in 2001 proposed a particular catch level, but supplementary statements indicated that because the assessment is biased a lower catch would be appropriate. For mackerel, incomplete analysis of available information led ICES to advise an increase in the TAC whilst supplementary text indicated that the increase probably was not appropriate. The advice should not be uncertain, but it should take account of uncertainties.
- 3.1.4 ICES does not seem to use scope for expert judgement in the provision of advice. In cases where data are too incomplete or uncertain to provide a standard form of advice (such as a stock assessment, catch option table and reference points) ICES fails to provide information which nevertheless could be useful. It is also the case that ICES can fail to take into account relevant pertinent information if it does not fit into the standard recipe for the provision of advice (*vid.* mackerel).

3.2 Development of Advice

This section outlines some thoughts about how ICES advice could be extended, made more complete and more reliable. As above these are in priority order.

- 3.2.1 In general terms, the Commission is open to receiving advice in a broader form than the "standard" advice VPA+Catch option table, as appropriate to particular conditions, as long as :
 - there is a sound scientific basis;
 - similar cases are afforded consistent treatment.

- 3.2.2 Where perceptions of the state of the stock in absolute terms are very uncertain due to uncertainty about catches or any other effect, ICES often gives no advice. In cases where absolute estimates of stock size or catch forecasts are too uncertain to be used, ICES could give advice in relative terms, such as advising that catches should be reduced by a particular percentage. This could be a useful formulation where misreporting has serious effects on VPA-type assessments.
- 3.2.3 Commission intends to seek advice on technical measures, including issues such as the selection pattern of gears, the effectiveness of technical measures in conservation terms. Such advice has traditionally been sought in-house by ad-hoc meetings, but a more formal approach to a scientific body is being considered.
- 3.2.4 It would add value to ICES advice if most recent information about fishing practices and technical use of fishing gear can be included in the fundamental considerations. To that end, improved means to seek information about current practices might be sought.
- 3.2.5 The Commission would welcome initiatives from ICES in providing advice about immediate or outstanding problems relating to the environment, ecosystem or particular stocks or species. One example of the above is that ICES has provided no advice on the extirpation of skate in the Irish Sea, Celtic Sea and central and Southern North Sea although these are well documented in science and are important for management in the biodiversity and ecosystem context.
- 3.2.6 The Commission expects analyses to be based on scientifically validated information. Analyses based on official statistics should be used only if such data are carefully validated on a scientific basis and adjusted as appropriate.

4 Institutional Issues

4.1 ICES Issues

- 4.1.1 Customers are becoming concerned at the very slow response to requests for scientific advice. It may take two or even three years to get a response to a question simply because of the timing of internal ICES committees. There is a need for a "fast-track" method for obtaining answers to urgent management questions. Such a method might include the rapid constitution of ad-hoc groups to address specific problems - with additional funding if required. Recent models organised by Commission services include the technical meetings relating to cod and hake recovery, and the special meeting on Rockall haddock arranged by ICES. Commission would be looking for a mechanism which would provide preliminary responses to requests within two to three weeks, subject to more complete evaluation by the relevant formal ICES committees. Obtaining such fast-track advice is a priority for the Commission.
- 4.1.2 The institutional form of ICES advice- as separate ecosystem and fisheries management- is seen as unhelpful. Ecosystem considerations should be built into fisheries advice from the scientific basis upwards, not provided as a coda to the fisheries advice. Specifically, the Commission would prefer ecosystem impact considerations to be integrated fully into ACFM advice, rather than receive a separate advice from ACE which could be different or conflicting. The Commission would distinguish between impacts related to fishing (including habitat disturbance, effects on non-target species etc.) which could be written as advice specific to particular fleets, areas, or fisheries, and non-fishing impacts (pollution and non-fisheries effects) which would be reported on in the ACME report.
- 4.1.3 From time to time an extension of ICES activities to include social and economic considerations in advice has been mooted. At present, the Commission seeks only biological, technical and environmental advice from ICES, which is its traditional field of expertise. The Commission has no immediate intention of asking for social and economic advice. The scientific advice provided by ICES should cover the interaction between fisheries, the resources and the ecosystem and should take account of biological, technical, and environmental factors.
- 4.1.4 Participation of fishing industry in the ICES advisory process has also been suggested. ICES advice is highly valued as being biologically and technically based and as being independent of political and economic considerations. While activities to gather information, to explain and to consult outside ICES are potentially beneficial, it is crucial that such activities do not detract from the perception of ICES as a provider of impartial biological and technical advice.

- 4.1.5 ICES advice should be subject to peer review scrutiny. The ICES system should also be reviewed in order to establish whether efficient, adequate and appropriate quality control procedures are in place. Although ICES has decided that such a process is needed, the Commission is not aware that implementation has begun.
- 4.1.6 High priority should be attached to the presentation of ICES advice at regional fishery organisations and other meetings. ICES should devote more resources to such activities, which may assist greatly when seeking acceptance for ICES advice.
- 4.1.7 In the longer term, the Commission foresees that for many stocks there will be a need to begin providing advice in the context of multiannual harvest rules and management plans. ICES is encouraged to follow these developments and to prepare for providing advice in this way.

4.2 Community Issues

- 4.2.1 The Community has competence and responsibility for fisheries management but to date it has not taken up its responsibility of leading and coordinating Member States' positions in ICES with respect to issues that impact directly on Community competence. In other regional organisations (such as FAO) Community positions - where they concern areas of Community competence - are coordinated by the Commission. The possibility that the Commission should take responsibility for the coordination of Community participation in ICES for relevant subjects is being considered.
- 4.2.2 The Commission is well aware of insufficient support to ICES from Community fisheries scientists. Member States are always not supporting appropriate activity in this field. This is an issue which will have to be addressed in the Community debate.

5 Remedial Measures

The Commission recognises that ICES is an institution of excellent credibility which has been at the forefront of fisheries science for many decades. Now, however, it appears to be suffering from an overcomplicated management structure and an imbalance between the resources available to it and the demands placed upon it.

5.1 Internal Organisation

The internal organisation of ICES is of course a matter for that institution to address. However, we have a few suggestions:

- a. The core providers of ICES advice are the assessment working groups. These have been extremely productive but both ICES and its member states appear to be reducing the resources made available to these groups (less time has been allocated to meetings and more junior staff are being assigned these tasks), in favour of activities of much smaller immediate management impact.
- b. ICES has a complex management structure with about four layers, such as:
 - i - Survey working groups
 - ii - Assessment working groups
 - iii the Advisory Committees on Fisheries Management (ACFM), Advisory Committee on Ecosystems (ACE) and the Advisory Committee for the Marine Environment (ACME).
 - iv the Management Committee for the Advisory Process (MCAP).

ICES may wish to consider whether:

- MCAP performs a useful function
- some fisheries advice could be provided directly by assessment working groups
- relevant ACE activities could be merged into ACFM.

- c. Suggestions have been made that a re-organisation of ICES into a regional structure could be helpful. While not discounting this possibility, we remark that it has been a great strength of ICES that it has been able to draw on scientists from a very broad range of geographical areas in order to solve specific problems and to ensure provision of balanced and impartial advice.

d. As mentioned earlier (Section 4.1) the creation of a "fast-track" mechanism for preliminary advice would be welcome.

5.2 Balance between resources and demands

Substantial additional resources have been directed by the Commission at fisheries research, firstly through the "CFP Studies" programme, and more recently through the "data collection" scheme. Commensurate improvements in the quality of scientific advice are expected.

The Commission is currently considering ways both to improve the resources available for provision of scientific advice and to reduce the demands placed upon it.

5.2.1 Reducing demands on the system

- a) For stocks where annual changes in stock size are difficult to measure, it might be appropriate to provide advice on a less frequent basis, as is done at present for Nephrops, or - as is current practice at NAFO - to provide full advice every second year and an interim or monitoring advice in other years. There may however be resistance in some quarters to reductions in frequency of advice.
- b) If the Community succeeds in establishing multiannual management plans, the scientific workload for annual assessments should in principle decrease after an intensive phase of work during which the plan is established.
- c) More use could be made of simplified procedures to provide advice (e.g. harvest rules based directly on survey abundance estimates).
- d) It is entirely consistent with precautionary criteria that more effort should be allocated to high-risk situations and less effort to low-risk situations, although biological risk is not the only factor determining the importance of biological problems.

Despite the possibilities for reducing some of the demands on the system, however, the Commission's perception is that the overall need for scientific advice is likely to continue growing, largely because the need to base management decisions on scientific advice is much more recognised than it was in the past. There is a move towards the inclusion of additional elements within scientific advice, such as ecosystem and fleet-based measures.

5.2.2 Increasing resources

A key problem is that ICES member states have not been supporting fisheries science to an extent commensurate with their expectations of such science. Despite substantial additional funding from the Community budget for studies and data collection activities, the present resources allocated to fisheries advisory functions are not adequate. A radical improvement in such resources is therefore urgently needed.

Ideally, Member States would provide increased national support for scientific activities in fisheries. This would be a preferred solution. Otherwise, solutions involving further support from Community funds would have to be considered. The way in which such resources could be deployed in a way that augments and supports existing structures is not, however, obvious. Some of the options under consideration include:

- a) Additional support to ICES. If agreement can be reached with other ICES clients, the ICES secretariat (or a part of it) might be expanded with specialist staff mandated to address particular classes of advisory questions, or delegated to perform pre-defined tasks.
- b) The Commission might establish a collateral structure to provide itself with fast-track advice. This could include a long-term contract to a consultancy agency, increased in-house technical resources, or contracts with individuals having expertise on specific topics. Such structures could be developed in close linkage with existing fisheries institutes, and might be built upon or in close connection with STECF arrangements. This would in any case be necessary for the management of Community fisheries outside the ICES area (e.g. Mediterranean).
- c) Establishing Community research and advice relating to fish stock management, through the creation of European Centre for Fisheries Research. Such an institution may or may not be a unitary structure, and one can envisage a range of options from a large central institution with a fleet of research vessels, to a regionalised

structure which might have devolved responsibility for contracting research activities. In either case, close cooperation with existing national research institutions would be required.

6 Conclusions

- 6.1 ICES is valued and respected as a provider of independent analysis and advice on fisheries management measures, stock conservation and related environmental measures. This is the role it should seek to retain and to strengthen.
- 6.2 However, the current situation is not sustainable. A more flexible approach to providing advice is needed so that resources can be directed to high-risk situations and to questions of urgent management concern.
- 6.3 An overall increase in the demand for scientific advice is foreseen, concomitant with growing needs for ecosystem information and the growing reliance that managers place on scientific advice. Despite reallocations of effort, this increase cannot be borne without increasing the scientific resource base.
- 6.4 The Commission services are still considering the extent of such additional support and the ways in which it might be implemented.

ANNEX 3

SGWP 25 February to 1 March 2002

SG DOC

ACFM working procedures

By Tore Jakobsen, Hans Lassen and Henrik Sparholt

INTRODUCTION

This document addresses a number of points concerning ACFM working procedures. Some deals with matters that may help reduce the workload. Others are more relevant to the quality and consistency of the advice. Unfortunately, improved quality of the advice and reduced workload are not always compatible, neither are the needs of the WGs, ACFM and the ICES secretariat.

The document does not directly address the more structural problems of the ICES advisory function, but most of the points raised will be relevant regardless of the advisory structure. The document is intended as a basis for discussion and does not draw conclusions, only indicating possible actions.

WORKING GROUPS

Lay-out of Working Group reports

WG reports increase in size year by year, at a rate of ~10%. Currently, the annual number of pages is about 8000-9000. Some of the increase is caused by the increasing number of stocks to be assessed, but there is also a tendency to include more information on each stock. There is a need to reverse this trend and to reduce the volume of the reports.

At the same time, the contents of the WG reports vary, even for stocks within the same WG. Some standardisation is needed.

Action: Part of the present contents will be available only on a CD and at the ICES web-site. The main part should contain only information needed for reviewing the assessment and formulating the advice.

Note: A letter from the ACFM chair to ACFM members and Working Group Chairs has just been circulated to get responses to this proposal.

1. Consistency requirements in WG reports

Assessments will change from year to year, often with considerable impact on the advice. The reasons for such changes needs to be communicated to the clients and the WGs are best equipped to explain changes in the assessment. This is already a TOR to WGs, but needs to be further developed.

Action: Standardise how WGs should deal with this TOR, including development of software for analysing changes and presenting conclusions.

2. Quality project – how to proceed?

Work is in progress developing a quality handbook and manual for assessment WGs.

The aim is to have this finalised during 2002 for implementation in 2003.

Action: Analyse the WG responses and evaluate the need for further comments from WGs and ACFM before the handbook and manual are prepared for use in 2003.

3. Working Group structure and timing?

The Southern Shelf Demersal WG was split last year because of the increasing number of stocks to be assessed. Similar splits may be proposed by other WGs.

The current timing of Working Groups is largely a compromise between when the data needed for assessment are available and the timing of the ACFM meetings that are scheduled to meet the demand for earliest possible advice. There are two types of problems, and in some cases there seems only to be a choice of one or the other:

1. Too little time between WGs and ACFM.
2. Important data become available between the WG and ACFM meetings.

Action: Consider expert groups to update assessments between the WG and ACFM meetings. (Presently, the problem is primarily related to WGNSSK)

4. Standardising of methods and software

Over the years new methods and software have been introduced in assessments, not always successfully. In such cases ACFM is often faced with a *fait accompli* due to the time constraints. Progression in certification of methods has been slow and there is opposition from some WG members to restrictions in their freedom in choice of methods.

Action: Consider the need for other mechanisms than using the Methods WG to deal with certification.

5. Preparations before WG meetings

Data, and some times preliminary assessments, are to a varying degree prepared before WG meetings start. Although most WGs try to prepare as much as possible in advance, there is little evidence that this has reduced the workload at the meetings. The possibility of pre-WG data-preparation is restricted by the time of availability of the data and by the opportunity for members to do the work.

Action: Try to improve data processing and working conditions prior to WG meetings.

THE ACFM REPORT

1. Manual for formulating the ACFM advice

The formulations in the ACFM advice is scrutinized by clients, e.g. to find support for political positions, and by scientists trying to explain the advice to authorities and stakeholders. Inconsistencies between stocks and between years exist and are frequently pointed out, and the text is not always clear. Standard usage of language may help reducing ambiguity and inconsistency in the advice.

Action: Develop a manual for formulating advice, addressing each of the standard sections and also the tables and figures.

2. Consistency in advice between stocks

Although there have been some thumb rules about how a given stock status should translate into advice, it has been difficult to avoid some inconsistency, partly because each stock is unique. Nevertheless, the aim is to give advice that is perceived as being consistent, both by ACFM and the clients.

An advice diagram (based on a table developed by the ICES secretariat) has been tested at the last two ACFM meetings and seems to work quite well, as long as it is used only as a guide and not as the only alternative.

Action: Further develop and test the Advice diagram with the aim of including it in the introduction on the ICES form of advice and in a manual for formulating advice.

3. Standardisation of recovery plans

ACFM has sometimes been criticised for not presenting specific recovery plans, when a recovery plan is recommended. Recovery plans in practice often include a number of management actions, e.g. area and seasonal closures, and it is not possible for ACFM to advice on these without input from the clients. However, some general formula for indicating the time-frame and cost (in terms of reduced catches) a recovery plan would imply, could possibly meet some of the immediate requirement of the clients.

Actions: Develop a standard advice on a recovery plan when these are recommended as alternatives to severe short-term cuts in catches.

Note: Advice on Recovery plans is part of the TORs of SGPA this year.

4. Overviews

The experience is that the present regional overviews in the ACFM advice are rarely read, possibly because they are not seen as part of the advice and, not without justification, are conceived as being virtually unchanged from year to year. With the present trend towards regional and fleet-based fishery management, and also the trend towards ecosystem-based management, such overviews should be more useful than they are at present, but clearly need substantial changes in contents and lay-out.

Action: Develop new regional overviews, both with respect to contents and lay-out, and indicate possible alternatives for how they should be published (as presently, as a separate report?). Neil Fletcher, ICES Information Officer, should be involved.

5. Quality diagrams

The Quality diagrams are aimed at the quality of the assessments, and do not reflect the (usually much larger) uncertainty in the projections that are the basis for the advice.

Action: Develop a Quality diagram taking projections into account.

ACFM WORKING PROCEDURES

1. Stocks not needed to be reviewed in Plenum

Some stocks, especially those for which there is no assessment, should not need to be considered in Plenum at the ACFM meeting. These could be dealt with by the sub-groups, with the ACFM chair as the last control instance.

Action: Define criteria for stocks that 1) are automatically excluded for Plenum and 2) may be excluded from Plenum after proposal from the sub-group and confirmation by the ACFM chair.

2. Stocks that do not require annual assessment/advice

The possibility of giving multiannual advice for some stocks has earlier been addressed by ACFM and a number of candidate stocks have been listed. Unfortunately, these are often stocks that do not take much time at WGs and ACFM, but the cumulative gain could nevertheless be large enough to make the idea worthwhile pursuing. If multiannual advice is given it must, however, be in understanding with the clients, and even then it may not give the expected benefit as an increasing number of intersessional requests indicate.

Action: Resume the work on identifying candidate stocks for multiannual advice and also identify in each case the need for WGs to annually check information that could indicate that the advice need to be revised.

3. Technical reviews

ACFM, with membership restrained by the national representation, has a limited number of experts that can undertake a thorough technical review of the assessments and there is concern about the quality of the reviews. The annual technical review of assessments could in principle be undertaken by experts that are not bound by the national representation, but it is unlikely that it could be done without extra costs. If consultants are employed the costs would be considerable. Nevertheless, the possibility of separating the technical review from the more biologically based evaluation of the assessment should be considered.

NB! This is a separate issue from bringing in external expertise *ad hoc* to look at special assessments or more general aspects of the advisory process.

4. Business sessions

The business sessions at ACFM traditionally include a number of items that generate little interest among the members and frequently have to be dropped or dealt with only briefly due to the time pressure. This includes e.g. a number of reports from Study Groups, etc. Ideally these items should be discussed at a time when the focus of the members is not on the advice.

Action: Assign members of ACFM to review reports and give feedback to the Chair in order to at least show that their work is appreciated by ACFM. Consider if other items of the business can be dropped.

5. Timing of the ACFM meeting

After pressure from clients to get the advice earlier, the ACFM meeting in autumn has been moved earlier and this has noticeably increased the strain on ACFM. This year the meeting will start immediately after the Annual Science meeting, giving some members a three-week spell in Copenhagen and the members in general a conflict between attending the Annual Science meeting and preparing for ACFM. It was only by coincidence that a similar situation was avoided for 2003. In addition, there is the problem already mentioned concerning WGNSSK.

Action: Consider the possibility of moving ACFM in autumn a week later and in the future avoid to short interval between the Annual Science meeting and ACFM.

Note: This problem has already been discussed at MCAP.

ANNEX 4

by

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DEVELOPMENT OF ECOSYSTEM ORIENTED ADVISE (OR ECOSYSTEM CONSIDERATIONS)

Ecosystem considerations in relation to fisheries management involve two basic dimensions:

1. The ecosystem influences the dynamics of fish populations.
2. Fisheries have direct and indirect effects on the ecosystem.

Commercial fish populations are important components of marine ecosystems, channelling a large part of the energy flow through higher trophic levels. Fish populations are also notoriously and intrinsically variable, with high amplitude variation, typically one order of magnitude in range, over a time span of a few decades. Fisheries advisors and managers are faced with the basic challenge to adjust the harvest of constantly changing fish populations.

Fish populations are influenced by the environment in the ecosystem in which they live. This is partly due to forcing from climatic and oceanographic variability, and partly from biological interactions involving trophic relations with prey and predator populations. In addition there are likely effects from changes in habitat quality. It is known from numerous examples that a fraction of the variance in time series of fish stocks (recruitment, size, condition, distribution) can be explained by one or a few environmental variables. It is therefore a potential to utilise updated information on the environmental driving forces to better interpret and estimate the recent status and trends in fish populations.

There are some basic requirements involved in progressing on this issue:

- Environmental information must be available in a reasonably short time interval.
- Environmental experts must be involved in the process of linking environmental information into the stock assessment process.
- The conceptual or theoretical basis for such linkage needs to be improved.

Establishment of the ICES/EuroGOOS Planning Group for a North Sea Pilot Project (on Oceanography and Fish Stocks) is an activity with an aim to contribute to this development. There is a large amount of hydrographical data collected from the North Sea, partly from fish surveys (e.g. IBTS), partly from environmental surveys, and partly from ad hoc research activities. There are also high frequency recordings from buoys and ships of opportunity. Such data can be used along with 3-D physical models to provide spatially and temporally resolved descriptions of currents and distributions and properties of water masses.

The other dimension is the impact of fisheries on the ecosystem. Effects of fishing can be broadly classified into:

- direct effects on targeted species,
- direct effects on targeted and non-targeted bycatch species,
- indirect effects on species through foodweb interactions,
- direct effects on bottom habitats.

Ecosystem considerations in fisheries management as part of an ecosystem approach (to management) require attention to effects on species and habitats. This is to a limited extent taken into account in current fisheries advice and management, and will therefore represent additional tasks to the present system for fisheries advice. This will require additional resources and a broader range of scientific expertise than presently involved in stock assessment work.

Assessment of ecosystem effects of fishing is one element in broader environmental assessments of the quality status of marine ecosystems. Such assessments are carried out at periodical intervals by international conventions (e.g. OSPAR, HELCOM, AMAP) and the EU through its EEA. There are two main parts to an environmental assessment as contained in a Quality Status Report (QSR):

1. A description of the current state and trends in the components of the ecosystem.
2. An evaluation of the degree of human impact or influence on the current state.

The purpose of the exercise is to provide a basis for evaluating whether existing policies and management measures are effective, or whether additional measures are required.

Since fish stocks are major ecosystem components and since fisheries have a wide range of direct and indirect effects on marine ecosystems, information on fish stocks and fisheries forms an important part of environmental assessments. A major challenge in environmental assessments is firstly to separate any influence of man from the large natural variability, and secondly to distinguish between effects from different human activities.

A few examples can illustrate this. In assessing effects of nutrient inputs (eutrophication) to the coastal areas of the North Sea, benthic communities could potentially be affected through a change towards greater dominance by small, opportunistic species. A similar effect could also be caused by bottom trawling and it may be difficult to separate between eutrophication and fishing as causative factors for observed changes, e.g. in the German Bight. Another example is input of contaminants which are taken up by organisms and transported through demersal and pelagic food chains where they for lipophilic and persistent substances, may exert their toxic effects particularly at higher trophic levels. It has been shown in laboratory experiments (Klungsoyr and Svardal, IMR) that alkylated phenols contained in the large discharges of produced water (300 million m³ per year) from oil platforms in the North Sea, cause changes in hormone levels and growth and reproduction in cod. It may however be very difficult to demonstrate any eventual effect at the population level against the background of large natural variability and strong influence of fishing on the state of the North Sea cod stock.

Environmental assessments form an essential basis for provision of scientific advice for management actions as part of an ecosystem approach to management. As is obvious, such assessments are scientifically very demanding both in terms of expertise and resources. Since the purpose is to form the basis to evaluate whether existing management measures are effective, there is an important requirement that they should be scientifically objective and not politically influenced.

The ICES system has access to the broadness of scientific expertise across the fields of fisheries and environmental sciences that is required to carry out an environmental assessment. Using the ICES machinery for this purpose will require an adjustment of the ICES structure to provide a clearer regional focus with WGs with the appropriate mixture of fisheries and environmental expertise.