

COOPERATIVE RESEARCH REPORT

No. 122

REPORT ON THE FOURTH DIALOGUE MEETING, 8 OCTOBER 1982

ISSN 2707-7144

ISBN 978-87-7482-500-5

International Council for the Exploration of the Sea
Palægade 2-4, 1261 Copenhagen K
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July 1983

<https://doi.org/10.17895/ices.pub.5502>

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DIALOGUE MEETING, 8 OCTOBER 1982, at ICES Headquarters, at 10.00 am

INTRODUCTION

1. The meeting was chaired by the President of the Council, Professor G Hempel. The General Secretary acted as Rapporteur.

As for the previous three meetings (Coop.Res.Rep., Nos. 106 and 113), the meeting was attended by scientists and administrators from member countries. There were also participants representing the fishing industry in some member countries. FAO, the International Baltic Sea Fishery Commission, and the Commission of the European Economic Communities were also represented. A List of Participants is given in Annex 1.

2. The Chairman welcomed the participants and briefly outlined, what had been achieved by the three previous meetings. What had started largely as an explanation by the biologists of their methods and working procedures, had gradually become a dialogue, which for each meeting had been more specific. The two groups of scientists and managers now had a better understanding of each others' "language" and the constraints under which they worked. This was one major achievement. The other was the effect of the meetings on the work and the reports of ACFM. One example is the grouping by ACFM of the fish stocks according to the possibility for carrying out assessments and formulating advice in the form of options (see Coop.Res.Rep., No.113, p.1-2)
3. The Chairman then proposed the Agenda for the present meeting, which is given in Annex 2, and the meeting agreed.

PRESENTATION OF STATEMENTS

4. The Acting Chairman of ACFM, Mr David de G Griffith, introduced the statement, which is given in Annex 3 ("Review of scientific advice on fisheries management, 1982").

He drew attention to the deterioration in the reporting of data, which had become worse during the last year, particularly in the following cases:

- the monitoring and reporting of North Sea and Division IIIa herring catches,
- the non-reporting of a large part of the catches from the Western mackerel stock,
- the total absence of data for the second half of 1981 from the country, which is the major exploiter of North Sea industrial fish.

Unless there is a drastic improvement in these cases, no meaningful assessment can be carried out on these stocks in the future.

He further drew attention to the need to improve the biological data and appealed to the administrators as controllers of the resources to see that any reduction in submission of such data is avoided, and that priorities within national administrations are re-examined, when needed. He said that although the advice from ACFM is necessarily given on the basis of biological considerations,

the Committee had a desire to formulate it in such a way, that it would be easier to evaluate by economists and managers, when they planned for actions. Contacts with economists and sociologists at an early stage in the process would be needed, and he raised the question as to how that could be organised.

In any case, there would be a need for ACFM to be informed about more specific management objectives, and that these objectives should be measurable.

5. The Council's Statistician, Mr K Hoydal, then presented his paper "From Normative to Exploratory Advice on Fishery Management and the General Framework of Advice"(Annex 4).

He referred to general planning theory, which operates with three groups of variables, and said that the lack of well defined Target Variables has important implications on the form of advice, which is possible at present. In reviewing the Decision Variables (e.g., fishing mortality) he said, that if one should give better advice to management, there is a need to break down the assessments, preferably to a "unit-fleet" basis. The main Uncontrolled Variable is the recruitment. Predictions cannot be given without at least some knowledge of that variable.

He defined Normative Advice as the specific advice, which implies that a target has been set. In earlier years, ACFM used to give such normative advice, based on specified or assumed targets. Exploratory Advice is used, when there is no clear target. It gives a range of options, and this is what ACFM has done in recent years. It is necessary in both cases that at least a minimum of data is available. Precautionary TACs are recommended, in order to introduce a safety factor.

6. Mr Th. J Tienstra then introduced the Dutch statement (see Annex 5). He drew attention to the undesirable side-effects of regulating the fisheries through TACs and catch quotas, such as misreporting and non-reporting of catches. He said that the Dutch administration had independently come to very similar conclusions as the two previous speakers. He said, however, that the contacts they sought would not be with sociologists and economists. The problems were really political ones. It is obvious that some limitations are needed, but the present ones are not good, since they cannot be controlled. He put forward specific questions to ACFM concerning possibilities for regulation by effort limitations.

Mr Tienstra's statement was supplemented by a representative of the Dutch fishing industry, who particularly drew attention to marketing problems caused by the present regulatory system.

7. The Norwegian statement was given by Mr F Bergesen Jr. (Annex 6). He complimented ICES for having taken the initiative to the Dialogue Meetings, and supported the suggestion that ACFM meetings should be restricted to two per year. He also raised the question about longer-term advice, e.g., for 2-3 years.
8. Dr A Lindquist, Director, Fisheries and Environment Division of the Fisheries Department of FAO, said that he wished to give some personal reflections on the various questions raised in the Dialogue Meetings. They did also, however, reflect discussions, which had taken place inside FAO. He said that biological advice per se is in principle easy to formulate, and referred to the ACFM groupings of

advice, which had been mentioned. For advice given on the basis of multispecies assessments, however, the difficulties had not yet been overcome, and he referred to the Baltic, where the situation is simple in that only three species are involved (cod, herring and sprat). Still, the multispecies methodics did not work.

He went on saying that management authorities do not usually follow the biological advice. They will always be under pressure from interest-groups, which, in fighting for their shares, will necessarily be in conflict with the restraints advised by the biologists. There is no mechanism to evaluate the claims from the interest-groups, and many of the intergovernmental negotiations, therefore, start on the basis of biological advice only. No models are available for an evaluation of the sociological factors, and an evaluation of non-biological components can, in any case, not be done under stress.

These, and other questions regarding fishery management, will be considered by an FAO Conference in May 1984, preceded by technical preparations and workshops, to which he drew attention.

DISCUSSION

9. In the discussion that followed the presentations, attention was first drawn to the meaning of the word "science", in the context of scientific advice provided by ICES. This should be taken to mean "natural science", as is the common usage in English and French languages. According to its Convention, ICES has no competence in other scientific fields, like sociology or economics.
10. This does not mean that ICES should not seek contact with economists, operational scientists, and sociologists, in order to be advised as to how the biological advice should be structured, so that others can more easily use it. This is normally the next step in the national use of the advice, but, so far, there is no machinery for an international evaluation of these aspects. Some participants doubted, if such international evaluation would be possible at all, since - as they said - it is really a question of politics. They said that at any rate the link between the biological and socio-economic aspects of fisheries can more fruitfully be achieved on a national than on an international level.

Attention was also drawn to the fact, that the whole process from sampling to implementation of management measures is a continuum, where the assessments and joint advice by biologists under the auspices of ICES is only one link. The same persons, who work in this phase under ICES auspices, will, in their national capacity, also take part in the evaluation of the advice, together with economists and managers.

11. It was said that when management formulates objectives and targets, this will be on the basis of social, economic and political considerations. In such cases, these factors are therefore brought into the system at an early date, and ACFM, in formulating advice in response to such objectives, will already have implied these non-biological considerations. To the extent this can be practised, it should therefore, at least to some extent, meet the needs for cooperation.

12. Some biologists still advocated that economists should be integrated into the ICES system in some form, either by taking part in the advisory meetings, or by a professional economist permanently attached to the ICES Secretariat. Most of the participants, and particularly many of the managers stressed, however, that it could only be the task of ICES to provide biological advice, a mixture of biological and economic advice would mean a "contamination", which the users would be unable to evaluate.
13. It was said, that when ACFM gives advice, they must, in one way or the other, assume management objectives, where these have not been specified. One should, therefore, distinguish clearly between advice and predictions, and some participants felt that ICES should restrict itself to making predictions.
- Others said that while they agreed in principle that ACFM reports should preferably give predictions and options, this is not always easy to practise. There would be an enormous range of possible options in many fisheries. Without some management targets, the advice would be confusing. It was also said that in many cases where TACs are set, this is already in response to management objectives agreed previously, and not changed later on.
- There was general agreement with the view that ACFM should not confine the contents of its report to answering specific questions. ACFM should also comment and/or advise on other matters which it might feel should be brought to the attention of managers.
14. Attention was drawn to the enormous over-capacity of the fishing fleet in the member countries, which, in some cases, still is increasing. Many of the difficulties with control of the present catch quotas stem from this, and some administrators said that they saw no real prospect for sound management before this over-capacity would be brought under control.
- In this connection, some doubt was expressed about the possibility of breaking down the assessment on a fleet basis. This could involve political considerations and might, therefore, not be possible to achieve on an international basis. It might, however, be possible at the national level.
- On the other hand, there may be possibilities for ACFM to take regional aspects into consideration more than at present.
15. The discussion led to a consensus that the reports of ACFM as they are at present are largely satisfactory and meet the needs of the managers. It was recognized that more precise advice and less uncertainties can only be achieved, when better data are available.
- Different views were expressed on the desirability of making the reports briefer and thereby speed up their production, but there seemed to be few, if any, such possibilities at present.

TIME-TABLE FOR FUTURE MEETINGS

16. The discussion then turned to the time-table for meetings of Working Groups and ACFM. There was a proposal from the Secretariat that one should aim at a main meeting of ACFM in the spring (end of April - beginning of May), and another, shorter, meeting at the beginning of November, with the meetings of Assessment Working Groups adjusted to this. That part of the proposal will be considered in detail during the forthcoming Statutory Meeting, and the discussion at the Dialogue Meeting was, therefore, concerned with the acceptability of such a scheme for managers.

From the management side there was no objection to the plan, particularly if the report of the spring meeting could be divided, so the advice on those stocks where there is urgency can be submitted in advance of the main report.

Attention was also drawn to the possibility that some Groups may not need to meet every year, and that this will make the situation easier.

There was general agreement that a third meeting of ACFM in a year should be avoided, if at all possible.

17. In this connection, there was also a discussion about the possibility to change the management year, so it would be different from the calendar year. It was said that this would, in principle, be possible, but would lead to some practical difficulties in a transitional period. There was also agreement between the managers, that different management years for different stocks would be unacceptable. There would, therefore, be few, if any, advantages to be gained from a change.
18. The Chairman then raised the question about when the next Dialogue Meeting should be held, and suggested that there would no longer be a need for annual meetings. He would, therefore, suggest to the Council that the next Dialogue Meeting be held in two years' time, immediately prior to the Statutory Meeting in Copenhagen. This was agreed.
19. The Chairman closed the meeting at 16.30 hrs, after thanking the participants for a very constructive exchange of views.

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ANNEX 1

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ANNEX 2

AGENDA FOR THE 4th DIALOGUE MEETING

1. Opening and Introduction.
2. Approval of the Agenda.
3. Introduction of the 1982 Report of ACFM by the Acting Chairman of ACFM.
4. Presentation of the paper: "From Normative to Exploratory Advice on Fishery Management and the General Framework of Advice", by the Council's Statistician.
5. Communications by management representatives:
 - (i) from the Netherlands,
 - (ii) from Norway,
 - (iii) from FAO.
6. Discussion of Items 3, 4 and 5.
7. Re-arrangement of the Time-Table for Meetings of Assessment Working Groups and ACFM.
8. Time and Place for the next Dialogue Meeting.

ANNEX 3

Review of scientific advice on fisheries management, 1982

David de G. Griffith
Acting Chairman, ACFM

1. Stock assessment problems

Table 1 represents a summary of the deficiencies specified by the various stock assessment Working Groups regarding the available data on catches, fishing effort and discards. Of the thirteen stocks or Working Groups mentioned in the Table, attention must be drawn here to two particularly serious situations.

Firstly, the standard of the monitoring and reporting of the North Sea and IIIa herring landings is so bad that no meaningful assessment can be carried out in future unless there is a drastic improvement. As stated in paragraph 7 of the Report of the April 1982 meeting of ACFM, "a continuation of the under- or non-reporting of catches taken in directed herring fisheries, and the apparent lack of will and/or capability of monitoring the catch composition in the industrial fisheries, reduces any attempt to make an assessment of the appropriate yield to be taken from the herring stocks to a theoretical exercise of little or no practical interest".

Secondly, a very large proportion of the total landings of Western area mackerel - over 22% - are unallocated. The evidence available to the Working Group is that in 1981 a total of 616 000 tonnes was landed, compared with an officially reported figure of 476 000 tonnes. The 140 000 tonnes of unreported landings may be seriously underestimated. Under these circumstances the ACFM cannot provide advice of the quality which the managers and the industry need.

As well as indicating deficiencies in the data on catch, fishing effort and discards the Working Groups also drew attention to shortcomings in the biological data made available to them. It is not so easy to summarise their comments in a tabular presentation such as Table 1 (see section with summary sheets on various stocks in the July 1982 ACFM Report, and the Reports of the Working Group themselves), but three general categories may be highlighted here.

The difficulty of forecasting recruitment levels with any degree of precision still restricts the confidence with which many stock biomass predictions and catch forecasts can be made, particularly for those fisheries in which the recruiting year classes make up a significant proportion of the catch. Thus, it is essential that there should be no reduction in expenditure on the young fish surveys which are currently yielding such information as is available to the assessment Working Groups. On the contrary, there are several areas in which such surveys need to be extended or initiated.

Since full information on the age structure of the catch is of central importance in stock assessment, the lack of catch-at-age data from countries which have a large share of the total catch makes a proper assessment difficult or impossible. In some cases the catches may actually have been sampled by the country concerned, but the age-readings have not been worked up and brought to the Working Group. The reasons for these shortcomings may lie in shortage of manpower in national laboratories, or in the sets of priorities being applied.

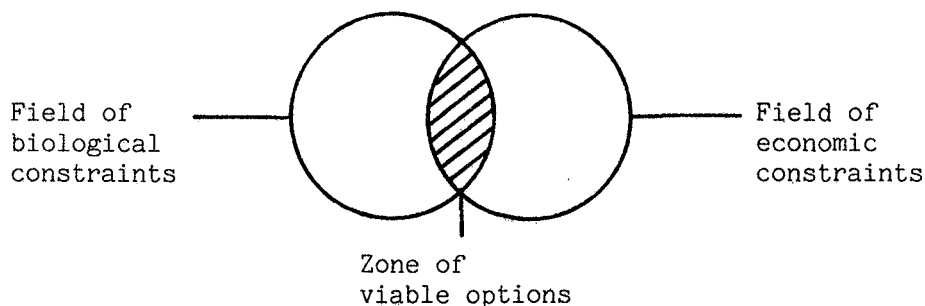
Thirdly, consideration needs to be given to attempts to resolve uncertainties concerning stock unity. Mackerel in the western area, North Sea sprat and Celtic Sea demersal species have been mentioned in this regard.

Although these are biological problems, I suggest that responsibility for their solution rests ultimately with the managers, both as overall financial controllers and as recipients of the advice which has had the stated shortcomings attached to its formulation.

2. Non-biological considerations in fisheries management

As well as the technical difficulties discussed above, the ACFM suggests in the Introduction to the July 1982 Report that the formulation of management advice needs to evolve from the present situation to one in which the biological basis is not considered entirely in isolation from economic aspects. Biological advice can really only establish one set of constraints within which management ought to be applied. Even with the increased flexibility now built into ACFM advice in order to provide the managers with a wider range of options, it would appear that a course of action recommended on biological grounds has little chance of being accepted (and probably no chance of being implemented or

enforced) unless it lies within that part of the biological 'field' which overlaps with the economic 'field':



Economic analyses would more clearly illustrate optimal management strategies within biological constraints, and ACFM would welcome advice from professional economic analysts on how to tailor its biological output to best suit the needs of economic analyses.

Such a dialogue could also assist the development of rational and effective economic incentive/disincentive schemes and the review of existing financial support systems for the catching end of the industry.

3. Other possible management approaches

The concepts used in analysing planning problems in the socio-economic sector could be adopted in fisheries management, as discussed in a paper by the ICES Statistician, Kjartan Hoydal, to be read at the joint session on stock assessments during the 1982 Statutory Meeting.¹⁾ This deals with the concepts of normative and exploratory advice - normative advice being that containing a firmly identified objective (F_{max} , for example, and the rate at which it ought to be approached), while exploratory advice is the more flexible type provided since 1981 by the ACFM (in those cases where the state of the stock allowed it). The type of planning system reviewed includes three types of variables, as given below with fisheries examples:

Target variables	- "the conservation of living resources and their rational exploitation".
Decision variables	- a TAC
Uncontrolled variables	- growth rates, recruitment levels, and other variables of a biological system.

1) See Annex 4 in this volume.

Both types of variables influence the achievement of the target. Under the present system by which ICES advice is formulated, the Working Groups are responsible for modelling the uncontrolled variables and the ACFM draws up a range of decision variables in the exploratory mode. It is important, as Hoydal points out, that managers should not only set more specifically defined targets than the example quoted above (taken from an intergovernmental convention) but that the management objectives drawn up should be measurable.

Regarding the actual methods used to regulate a fishery, perhaps the question of implementing this on the basis of fishing effort rather than catch should be examined again. A recent paper by Sissenwine and Kirkley (Marine Policy, Volume 6 No. 1, January 1982) discusses the advantages and disadvantages of such a system, including an evaluation of socioeconomic methods for influencing fishing effort. Their conclusions are that effort regulations are more robust scientifically and require less frequent amendment than catch regulations.

The concept of eumetric fishing, by which a given level of fishing effort has a corresponding optimal mesh size to give maximum yield, could also be taken into account, but in those fisheries in which there is a large by-catch (mixed species fisheries) it would be difficult to avoid the possible overfishing of one species at a level of fishing effort which would be optimal for another in the same fishery.

As the July 1982 ACFM Report points out, however, it will be necessary for management to improve both the quality and the detail of much of the information available to the ACFM and the ICES Working Groups, for any advance to be made on the present system of formulating scientific advice.

Table 1: Data inadequacies as specified by Working Groups¹⁾

WG or stock	Catch	Fishing effort	Discards
E. Greenland cod	Areas misreported	Cannot be broken down into directed and by-catch cod fisheries	No records of cod discarded in redfish fishery in accordance with 10% limit.
Redfish Region 1	Identification of species difficult, particularly in factory trawler catches, XIV.	Lack of data precludes analytical assessment of <u>S. marinus</u> I, IIa, <u>S. mentella</u> V, XIV.	No data for IIa, Va, XIV nor from shrimp fisheries I, II.
Greenland halibut			No data from shrimp fisheries I, II
Atlanto-Scandian herring (Norwegian spring spawners)	Considerable under-reporting		
Mackerel (western)	Severe under-reporting brings risk of serious errors in calculation of SSB and hence TAC		
Herring North Sea and Div. IIIa	Continuation of unacceptably bad reporting reduces assessment attempts to a theoretical exercise		
North Sea roundfish		Breakdown by gear types required	
North Sea industrial	Absence of one major country's data for 2nd half of 1981 made it impossible to meet terms of reference	Assessments require data by statistical rectangle and month, subdivided by fleet components	
Irish Sea and Bristol channel		No data from Ireland or Northern Ireland	Poor data on discards of whiting in Nephrops fishery

cont/.

WG or stock	Catch	Fishing effort	Discards
Hake	Considerable under-reporting, also inaccurate area allocation		Poor information on discards (both quantity and age distribution)
Baltic demersal	Flounder and plaice totals need to be reported by subdivisions. Estimates of cod total in 24 needs improvement	Data on cod needed from all subdivisions	Cod discard data needed from all fleets
Baltic pelagic	All catches should be reported by subdivisions. Species should be identified in all mixed fisheries	Complete data available only from some countries, none from some others.	
Baltic salmon (24-31)	Split required between wild and hatchery-reared salmon in commercial catches. Estimates needed of the non-reporting rate in the tagging programme.		

Note: The absence of an entry in any of these boxes does not necessarily mean that the situation is perfect, nor that it does not need improvement.

- 1) Roman figures refer to statistical Divisions.
Arabic figures refer to Baltic Sub-divisions.

ANNEX 4

FROM NORMATIVE TO EXPLORATORY ADVICE ON FISHERY MANAGEMENT AND
THE GENERAL FRAMEWORK OF ADVICE^{x)}

by
K Hoydal

1. ABSTRACT

This paper is a somewhat expanded version of a working document presented to the 1982 July meeting of the Advisory Committee on Fishery Management of ICES. Fishery management can be treated as a general planning problem as encountered in the socio-economic sciences.

A description of the changes in the form of the advice from ACFM is given. This has meant a change from normative to exploratory advice during the most recent years.

In order to make the management advice from ACFM more useful, it will be necessary to communicate with scientists in socio-economy. A first step towards this will be to break down the present assessment into entries, which are meaningful in an economic sense. Assessments on a fleet basis may be one way to do this, and for some stocks the data might already be available to test this.

2. THE GENERAL FRAMEWORK OF ADVICE

- 2.1 Fisheries management could be treated as a general planning problem as it is frequently encountered in socio-economic sciences.

A general way to describe such planning systems is as follows. (Anon., 1973):

We have a system, which includes 3 types of variables:

	<u>Symbol</u>
Target variables	T
Decision variables (controlled variables)	X
Uncontrolled variables	Y

Generally, $T = g(f(X, Y))$

which just outlines that both uncontrolled and controlled variables have an effect on the targets, without implying anything about the type of functions.

- 2.2 Applying this to planning in fisheries, the target variables are the management objectives set by managers, i.e., a Commission, a national State or group of States for the fishery. At present, this is done only in very general terms. This may be illustrated by the text from the IBSFC Convention, which is headed:

x) The views expressed in this document are those of the author and not necessarily those of ICES.

"The States Parties to this Convention

- bearing in mind that maximum and stable productivity of the living resources of the Baltic Sea and the Belts is of great importance to the States of the Baltic Sea basin,
- recognizing their joint responsibility for the conservation of the living resources and their rational exploitation,
- being convinced that the conservation of the living resources of the Baltic Sea and the Belts calls for closer and more expanded cooperation in this region".

Or, as another example, the formulation in the European Declaration on Fisheries:

European Declaration on Fisheries

1. Role of governments

1. When governments formulate the major goals for their fishing industry (including production, processing, distribution and marketing of fish), the following should be included:
 - creating the conditions for an efficient and profitable fisheries industry, providing those employed with job security and sufficient income - all of which can best be accomplished if fish stocks are kept large and fleets are adapted to the size of these stocks;
 - adjusting catches - within the limits posed by conservation measures - to market conditions in such a way as to allow stable and profitable sales and full employment in the coastal areas concerned;
 - improving fishing methods and the processing, distribution and marketing of fish in such a way that those employed may enjoy a standard of living comparable to that in other industries;
 - ensuring that consumers are offered a satisfactory product at reasonable prices.
2. Governments should draw up, in consultation with representatives of fishermen's organisations, spokesmen for the shipbuilding industry, experts on marine conservation and others:
 - continuous one-year plans to cater for short-term changes in catch opportunities and consumer demand;
 - a three to five-year plan, revised annually, taking into account long-term developments. This plan should aim at ensuring production at the lowest possible cost and at levels compatible with the maximum sustainable yield of stocks.

Where para. 1 of the above text only speaks of the resource, para. 2 tries to take into consideration also the socio-economic factors. Irrespective of an explicit statement or not, it is, however, obvious that for most of the fisheries, with which we deal in the ICES area, fisheries management is a complex of biological and socio-

economic considerations. The biological objectives are well stated (see Anon., 1977), while the lack of socio-economic target definitions bars the progress in management in major fisheries.

This lack of targets has bearing on the form of the advice (see Section 3.1).

2.3 Decision Variables

In the way in which advice is given, the decisive factor is the fishing mortality. The TAC or the range of catch options correspond to levels of fishing mortality. The advice given to managers is thus: the fishing mortality level should be brought in line with the biological reference point. The simple indication of one single value or array of fishing mortalities, describing the present situation, and another value or array describing a more optimal situation, can offer a very general impression of the situation, but does, however, not give much information as to how this should be translated into a more detailed planning of the fishery.

Managers and the fishing industry are not really interested in what happens to the stock, but in what happens to the different sectors of the industry and their economic results.

Reducing the fishing mortality, what will that mean in terms of reduced catches for a given fishing fleet, reduced landings to a certain land-based industry, in terms of employment, etc.? These are the kinds of considerations, stated or unstated, that lie behind every discussion on fishery management. If the well-defined biological decision variable fishing mortality is to be meaningful in socio-economic considerations, it has to be disaggregated, i.e., split on fishing fleets. A disaggregation of fishing mortality on a fleet level would probably facilitate the communication between biologists and economists considerably. It is much easier to foresee a meaningful collection of socio-economic data on a "unit-fleet" basis than on a unit stock.

The recent interest in ICES in using effort data acquires a double meaning in this context to the biologist as an index of fishing pressure on a stock, and to the economist as an index of fishing activity and hence the cost of operating.

From the report of the ad hoc Working Group on the Use of Effort Data in Assessments (Anon., 1981), it should be possible to select two or three areas, for which data are available or can be made available to test this.

2.4 Uncontrolled Variables

Uncontrolled variables are the variables of the biological system. These are in the models used at present:

growth (mean weight)

recruitment

biological interaction (from zero and upwards).

Only when, and if, we are able to model these variables with a precision, which allows as a first step projections*, and as a second, predictions* inside some probable limits, does the planning become meaningful. The biological interaction is, in effect, to change from a model with a constant M to a model, where a part of the M in one stock is correlated to the size of another stock.

* Projections here used for simple quantitative transcriptions in time and predictions, for projections involving an element of probability.

In general, the uncontrolled variables determine the potentials of the planning system (the limits it has to move inside), where the decision variables (or, as in most cases, no decision variables) determine the reality, which we observe.

The estimation of the present stock size and the modelling of the uncontrolled variables is the main task of the Working Groups, while the indication of decision variables, which can guide the system to some desired stage, is the main responsibility of ACFM.

3. NORMATIVE AND EXPLORATORY ADVICE

- 3.1 Due to the continuous dialogue with the main customers of ICES, considerable changes have been introduced into the form of the advice given by ACFM in recent years. The changes could also be an effect of the general lack of targets. A situation where the management objectives cannot be clearly set will favour what is termed exploratory advice, where well defined management would favour normative advice. Whatever the reason might be, the introduction of options and categorisation of advice has, especially in the indication of catch options, meant a step from "normative" advice to "exploratory" advice.

The only norms to be indicated being the norms introduced by the biological system itself (the uncontrolled variables) covered by the term "safe biological limits".

In the period of normative advice, ACFM took on the role of managers, with targets as F_{max} and $F_{0.1}$, and also deciding at what rate these long-term equilibria should be approached.

The final step from normative procedure was agreed upon at the 1981 November meeting of ACFM, where, in the cases where consideration of the state of the stock allowed it, the recommendation only indicated the direction of fishing mortality towards some reference point, but not the rate, or a preference for a rate (e.g., North Sea plaice).

But this development has not reached the group of "additional conservation measures".

There still remains the problem of dealing with the situations, where no analytical assessment is possible, and where unreliable data bases only allow very limited conclusions.

3.2 The "Additional Conservation Measures"

In this field, ACFM is still in a normative position, which seems quite inconsistent with the approach agreed for TACs. As an example, let us take the firm recommendation of mesh sizes:

Analogue to the biological reference point indicated on the yield curve, a reference point for a mesh size for different species could be indicated. However, these theoretical reference points have to be traded off against short-term losses.

Under these circumstances, the ACFM recommendations are not scientifically-based reference points, but a selection of steps, which the members find "practicable" according to implicit, but not described, considerations. These are to a large extent certain socio-economic considerations. Fishery biologists may by no means be the worst people to undertake this, but it would still be better to avoid statements by ACFM, which basically are not biological.

Further, in cases of conflicts between fisheries, the decision should definitely not be taken by ACFM, because the risk of getting fishery politics into the advice is too high.

To be consistent with the change in attitude to the TACs, indication of "additional conservation measures" should be exploratory and not normative, and the step from normative to exploratory advice should be even more obvious in this case.

3.3 The Precautionary TACs

Criticism has been expressed that ACFM has recommended precautionary TACs. This, however, is quite logical, following the term "safe biological limits", because in these cases ACFM is not able to indicate safe biological limits and is, therefore, due to biological considerations, forced to recommend a very cautious approach and use a safety factor.

This would also stress the fact that more research has to be done and more data collected, before it will be possible to produce an analytical assessment and get rid of the safety factor. This might be illustrated by the following example.

3.4 Analogy Example

A man wants to approach the edge of a steep cliff. He might be in two situations:

In the first, he is fully aware of the position of the edge and his distance from it, and this allows him to go close up to it. It might be safer not to do so, but due to his knowledge he will be able to assess the consequences.

In the second, our hero is not able to determine his distance from the edge. This might be due to natural factors such as fog, darkness, etc., or subjective factors, for example a general myopic condition. Regardless of which factor is of importance, he is not able to calculate the consequences of approaching the edge. It would seem natural then to apply a safety factor, and to recommend a cautious approach.

The analogy to advise on fishery management should be straightforward. There are two opposite attitudes:

1. When you have no firm assessment, you should not interfere; and
2. You should recommend a cautious approach, when you do not know anything.

These are analogous to the problem as to how to deal with toxic substances. One way is to allow the use of a chemical until its toxicity has been proved, the other to forbid the use of a chemical until its non-toxicity has been proved.

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ANNEX 5

STATEMENT BY THE DUTCH DELEGATION

We highly appreciate that also this year ICES has made it possible to hold a discussion between scientists and representatives of Governments and fisheries organisations.

We would also like to express our appreciation for the manner in which remarks made during the last Dialogue Meeting were incorporated in this year's ACFM reports. It has given the possibility to take into account in our management policy other factors than pure biological arguments, which might have a positive effect on the willingness to accept catch-limiting measures.

But of course the acceptance of these measures is not the goal: it is the effect on fish stocks that counts and in this respect the results of the measures taken are often disappointing. That is probably the reason why in past Dialogue Meetings TACs as regulatory instruments were criticized. The unfavourable side-effects like unreliable catch figures and a general deterioration of the data base of course also result from quota regulations.

In the last Dialogue Meeting, it was suggested to regulate fisheries as much as possible by technical conservation measures like closed areas, closed seasons, mesh-size regulations, etc. Though we do support this view, and we are sure that such measures can have positive effects, they do not really limit catches and thus are not completely adequate. This was already realized many years ago in NEAFC and consequently TACs and quota per country were introduced.

ACFM has stated repeatedly during the last Dialogue Meetings, that for a number of stocks a more direct and thus a more efficient management method would be a direct control of fishing effort.

We share this opinion, but we would like to make some remarks. First, we find it very difficult to deduct from the TAC advice the permitted fishing effort, mainly because of the mixed character of the fisheries. Apart from that we do not believe that the management objectives currently accepted by ACFM (maximize the catches of the separate stocks) are realisable. We think that other factors, e.g., food, will be limiting before a situation of optimal stocks is reached. According to us, this is confirmed by the fact that the total biomass production of the North Sea has been rather constant over a long range of years. Therefore management objectives should be set at a more realistic and general level:

1. to prevent a ban on the fishing of a certain species for a number of years;
2. to prevent an increase in low-value (industrial) species at the cost of species used for human consumption.

It is our opinion, that these objectives can be reached by stabilizing the current fishing effort through preventing an increase in the number of vessels. If necessary, the fleet could be divided into 3 or 4 length classes and conversion-factors between these classes could be established, enabling modernization of the fleet without a growth in capacity. As an additional measure, TACs could be set for really endangered species, e.g., in the exceptional case a stock/recruitment relation is anticipated.

We would like to ask ACFM the following questions:

- is such a simple approach considered useful?
- is it adequate to reach the objectives mentioned, or are more additional measures required, and, if so, which are these measures?
- for which areas would such an approach be applicable?

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ANNEX 6

STATEMENT BY THE NORWEGIAN DELEGATION

In taking upon itself to organize the present series of Dialogue Meetings, ICES should be credited for having helped to promote a better cross-section understanding amongst scientists, administrators and representatives of the fishing industry alike, of the pertinent issues relating to the provision of advice on fish stock management.

We have already seen tangible results of the discussions in the Dialogue forum: in particular, the way management advice is now presented in the reports of the ACFM has helped to demonstrate the consequences, both biological and socio-economic, of the different management options.

There is one question, which we should like this meeting to consider, and that concerns a possible re-structuring of the ACFM meeting-table. We note that this question has been raised by other Delegates well in advance of this meeting, and we should like to add our support to the proposal for regular meetings of ACFM to be held in April/May and October/November rather than as at present with meetings in July and October/November. We feel that a revised time-table along these lines will cater for the needs of fisheries authorities in implementing management decisions.

By such a time-table, there would no longer be any need for having an extraordinary meeting in spring, which was the situation in 1982, and which will probably also be the situation in 1983.

The stocks, which could be handled at the April/May meeting, would firstly be those for which it has not been possible to give management advice for the present year at an earlier stage (e.g., North Sea herring, at present). In addition, advice for the next calendar year could be given at the spring meeting for the stocks, where it is not expected that scientific information will become available later in the year. The rest of the stocks, which would probably be the bulk, could then be handled at the October/November meeting.

It should also be noted that such a system would allow revisions in April/May of already recommended TACs for the present year, when this seems imperative in the light of new information. With the present system this cannot be done before July, which is in most cases too late.

We would stress the importance of the new system being implemented as soon as possible.

In addition, we would like ICES to consider the possibility of providing more long-term assessments, including a system of TAC-indications for a period of 2-3 years, with minor adjustment for each year, if necessary. This has been raised before, but we would like to repeat it. This, we feel, would considerably facilitate the formulation of exploitation policies and would help in further clarifying the socio-economic aspects inherent in different management alternatives.

Indication of spine colours

Reports of the Advisory Committee on Fishery Management	Red
Reports of the Advisory Committee on Marine Pollution	Yellow
Fish Assessment Reports	Grey
Pollution Studies	Green
Others	Black

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