



Consideration of a Permanent Centre for Synoptic
Fishery Oceanography in the ICES Area

1. As a follow-up of the Bergen Pilot Project in Synoptic Fishery Oceanography 1966, the Council at its Statutory Meeting in the same year passed the following resolution (C.Res.1966/4:24):

"Appreciating the unique results of the Pilot Project on Synoptic Fishery Oceanography prepared by the Sub-Committee for Telegraphic Communication of Oceanographic Observations under the Chairmanship of Dr. J. Eggvin and successfully carried out from January 1st to March 31st 1966 by the Directorate of Fisheries, Institute of Marine Research, Bergen on behalf of ICES,

recognising the great possibilities of synoptic oceanography for predictions of changing oceanic conditions in general, and especially for the benefit of fisheries,

noting that the ICES area is better covered with observations than most other areas, and therefore exceptionally suitable for synoptic studies,

being convinced that a centre of synoptic fishery oceanography on a permanent basis would prove profitable to the fishing industries,

it was decided:

that ICES Secretariat should study how a permanent international (ICES) service centre of synoptic fishery oceanography could be established for the benefit of the ICES area,

that the Demersal and Pelagic Fish (Northern) and (Southern) Committees should be asked for advice as to the feasibility and utility of the plan, and

that the FAO, IOC and WMO should be consulted concerning the feasibility of the proposed permanent service centre of synoptic fishery oceanography and its usefulness to other activities".

2. Comments were available from WMO, IOC and FAO shortly before or during the Council's Statutory Meeting in 1967, and the four fish committees formulated brief comments as to the usefulness of the proposed service for fishery operations.

3. Based upon discussions during the Statutory Meeting in 1967, the Council passed the following resolution (C.Res.1967/4:3):

"Recognising the usefulness of a permanent centre for synoptic fishery oceanography, and taking into consideration the comments by the fish committees, the General Secretary as the representative of ICES to the forthcoming Meeting of IOC be asked to explain the interest of ICES in synoptic fishery oceanography, and
the item be reconsidered at the next Statutory Meeting".

4. The purpose of the present document is to report on the Secretariat's activities and views in relation to the two resolutions mentioned above.

Relation between a global synoptic system and regional services

5. Problems connected with the establishment of a global synoptic ocean data system were on the Agenda of the last IOC meeting (October 1967), and as requested through resolution C.Res.1967/4:3, the General Secretary reported on the Council's activities and asked if IOC would be in a position to offer advice as to the best way to proceed.

The discussions at the Commission's meeting followed, however, mainly lines indicated by an attempt to co-ordinate the work of the Commission's Working Groups on Oceanographic Data Exchange, Ocean Data Stations, Communications, Variability, and Ocean-Atmosphere Interaction, and led to these groups - so far as they were continued - being brought under the leadership of a permanent Working Committee for an Integrated Ocean Station System (IGOSS). While IGOS will be charged with responsibility for development of a global synoptic system, it was also made clear during the discussion that this by no means make regional services superfluous. Although no specific advice to ICES was formulated, there was considerable support for the view that regional services might, at least for the time being, be in a better position to meet the needs of fisheries. They could also be established by collecting data by conventional means from a sufficiently fine-meshed network and at comparatively low costs. This seems to be in full accordance with the conclusions to be drawn from the Bergen Pilot Project.

At the same time it was stressed, however, that the development of regional programmes should in case be fitted into the frames to be drawn up by IGOS, and the latter would in due course co-ordinate regional activities pursuing the same purpose.

It further appeared from the discussion that the global system which may in the first instance be realised through the activities of IGOS, might not be detailed enough for the immediate need of the fishing industry.

At the Commission's meeting no objection was raised as to the realisation of regional fishery oceanography projects, provided that later on they can be technically integrated with a world-wide system.

6. In this connection it may be appropriate to draw attention to the following paragraph in WMO's comments to the Council's activities:

After drawing attention to the necessity to avoid duplication of efforts and unnecessarily increased workload on the shipboard observation and communication personnel, WMO continues:

"The oceanographic codes developed by the Sub-Committee for Telegraphic Communication of Oceanographic Observations (of ICES) differ from meteorological codes in many of their common points, e.g. the reporting of the ships' position, ships' call sign, the combination of letters and figures in one group, the different meaning of similar symbols and the use of indicator figures. It is highly desirable that the construction of various codes used by non-coastal shipping be standardised for world-wide application".

The practical problems to which WMO here draws attention seem to be among those which must be solved in case the Council should decide to proceed with the development of a regional synoptic service centre. Any such service would certainly need the closest possible co-operation with meteorological services both in collecting the data and in communicating them to a regional centre.

References to other regional oceanographic synoptic systems

7. Information available up to 1967 is summarised in FAO Fisheries Reports No. 41, Suppl. 2, "Report of the ACMRR Working Party on Fishermen's Charts and Utilisation of Synoptic Data"; and will not be repeated here.

Attention should be drawn, however, to the fact that synoptic services for the benefit of fisheries have been developed on a national basis in Japan and USSR, and synoptic services, mainly for other purposes, have been established in USA.

A further national project, based upon infrared radiation temperature readings by aircraft, is reported in Australian Fisheries Newsletter (Vol. 27, No. 5, May 1968, pp. 23-29). It seems to have been successful and the estimated gain to tuna fisheries was significantly higher than the costs.

The above-mentioned national projects may be in a position to give valuable advice in case the Council decides to proceed with preparations for a regional centre for the ICES region.

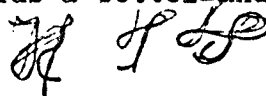
Feasibility of a regional synoptic service

8. The fact that such services have already been established on a national basis by some nations with important fisheries (in Japan since 1956) indicates that the fishing industry find them useful.

As mentioned above, the documents then available were presented to the four fish committees in 1967, and they commented briefly upon some aspects of an eventual permanent service.

The Demersal Fish Committees drew attention to the need for providing, if possible, information about bottom temperatures and salinity as well as about surface conditions.

One committee pointed out that the knowledge of the interrelationship between distribution of species like herring and surface temperature and salinity is not sufficiently developed to permit immediate interpretation of the charts for fishing tactics. It added, however, that the existence of regular synoptic charts would in itself contribute towards a better understanding of such interrelationship.



Related projects in the Council's area

9. At the Symposium on "The living resources of the African Atlantic Continental Shelf between the Straits of Gibraltar and Cape Verde" (Tenerife, March 1968) Professor Menéndez (Spain) presented a proposal for a project in south-west European and north-west African fishing areas, very similar to the Bergen Pilot Project. The proposal will presumably be presented to the 1968 Statutory Meeting as well.

10. At the 1967 meeting, the Hydrography Committee discussed the possibility to use for synoptic oceanographic purposes computer-made charts of surface temperature, made available by the USA Fleet Weather Central in Rota (Spain).

At the ICES Data Center Meeting in Copenhagen in March 1968 this was followed up by an offer to produce, in collaboration with the Council, routine copies of Sea-Surface Temperature Charts by computer; as a contribution towards establishment of a synoptic fishery oceanographic service. (See Document C.M.1968/C:5, p. 14 (Annex III)).

It appears from charts made available on an experimental basis, that with the data presently available, the computer-drawn charts would probably not be detailed enough for the need of the fishing industry.

Additional charts, together with comments, will be presented to the 1968 Statutory Meeting as document C.M.1968/C:11.

How a regional synoptic centre in the ICES area might be organised

11. Experience from the Bergen Pilot Project as well as comments from the fish committees indicate that synoptic fishery charts should give information on salinity as well as on temperature distribution, and that information on temperature and salinity in depth profiles and at the bottom should be incorporated, at least for selected points or areas.

A service for producing such charts would consist of the following activities:

- a) Collection of data at sea.
- b) Communication of the data to a centre.
- c) Combining the data to draft charts.
- d) Analysis and evaluation of the draft charts by fishery experts.
- e) Distribution of the charts with relevant comments.

- Ad a) The Bergen Pilot Project has shown that sufficient data can be made available from large and important areas of the North Atlantic.
- Ad b) The same Project has also shown that the data can be communicated to an analysis centre speedily enough to be used for charts with 10 days intervals. It is believed that co-operation with meteorological services as to such communication will be possible without any major technical difficulties. (Cp, however, para. 6 above).
- Ad c) There are two possibilities for combination of the data to draft charts; manually (as in the Bergen Project), or by computer (cf. the offer from the Fleet Weather Central, Rota).
It seems at present that manual operations will be the most practical ones, but the situation may change in some years' time.
- Ad d) and e) The Bergen Pilot Project was carried out by a national laboratory, although the data were made available from many countries. The charts were - with the Project leader's comments - made available to national laboratories in several countries.

If an international (regional) service should be established on a more permanent basis, there ought to be a clear division of tasks and responsibilities between national authorities and the regional centre, and it might be advantageous to divide the responsibility for analysis and distribution of the charts as follows:-

First Step: The draft charts, whether produced manually or by computer, will be preliminarily analysed, combined with all available data from other sources, and commented upon on a purely hydrographic basis. This could be undertaken in a regional centre.

Second Step: After these charts, with comments, had been transmitted to national laboratories, these laboratories will make them available to their national fishing industry with such comments and in such a way which they might find most suitable for their purposes and under their circumstances.

12. On the basis of the above analysis, a division of tasks and responsibilities between national authorities and the regional centre could be drafted as follows:-

- a) National agencies take care of:
- (i) Collection of data at sea.
 - (ii) Communication of data to a regional centre.
 - (iii) Distribution of the resulting information to the fishing industry.
- b) A regional centre takes care of:
- (i) Combination of the data into draft charts.
 - (ii) Hydrographic analysis and evaluation of the charts.
 - (iii) Distribution of these charts with comments to national offices or laboratories.

13. It is difficult to give at this stage any estimate of the cost of an eventual permanent service. However, if a regional centre should take care of the tasks mentioned under para. 12 b) above, the manpower required would probably be similar to what was needed for the Bergen Pilot Project, namely 2 hydrographers and 2 technical assistants (for plotting and drawing of charts). This is based upon the assumption that charts will be drawn manually. On the other hand it is possible that such a staff would be a minimum in any case, so there will not be much saving on the personnel account by using a computer.

14. There seem to be considerable advantages, if a regional centre is established for the ICES area, to combine it with the Service Hydrographique of the Council.

Service Hydrographique has already considerable experience as a data centre, and has easy access to more historical data from the North Atlantic than any other institution (except NODC in Washington).

A great deal of the data to be used for the synoptic charts will in any case be transmitted to Service Hydrographique in due course. If a regional synoptic centre was located outside Service Hydrographique, considerable double work will be unavoidable, both for national and international agencies.

The ongoing discussion on the future activities of Service Hydrographique indicates that it will in the future more than at present be a data analysis centre. This is an activity which is so closely related to those of a synoptic centre, that it seems desirable at least to have them under a common supervision. It also seems likely that a combination will make it possible to use more effectively the staff needed for both purposes.