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REPORT OF THE FIFTH MEETING OF THE JOINT ICES/ICNAF/IOC CO-ORDINATING GROUP FOR THE NORTH ATLANTIC

together with representatives of
international marine research projects in
the North Atlantic *

(Charlottenlund, Denmark, 23 September 1972)

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1. Acting in response to a resolution (VII-21) from the VII Session of the Intergovernmental Oceanographic Commission (Paris, 26 October - 5 November 1971), the Bureau of the International Council for the Exploration of the Sea offered to host a consultation meeting between representatives of international marine research projects in the North Atlantic, together with the Fifth Meeting of the Joint Group, in conjunction with its 60th Statutory Meeting (Copenhagen, 25 September - 4 October 1972).

2. Invitations were issued to the following:

   The International Coordinator for CICAR
   The International Coordinator for CINECA
   The International Coordinator for CIM
   The Executive Officer for MODE
   The Chairman of the IOC Working Committee for IGOSS
   The Chairman of the ICES Working Group for the "1973 Overflow Expedition"
   The Coordinator for the USSR POLEX Experiment
   The ex officio members of the IOC/ICES/ICNAF Intersecretariat Coordinating Group for the North Atlantic.

3. The meeting was held on 23 September 1972 in Charlottenlund Castle and was chaired by the Chairman of the IOC/ICES/ICNAF Intersecretariat Group, Professor O H S ø l e n. A list of participants is given in Annex I.

   Since the meeting was for mutual information and consultations, there was no specific agenda, but the representatives presented their respective international projects. Each presentation was followed by a lively discussion and exchange of views.

4. The CINECA Project was presented by Mr R L e t a c o n n o u x, who said:-

   "Started in 1970 by 13 participating countries, the CINECA programme was definitely adopted in 1971, comprising a descriptive survey of the area between the Straits of Gibraltar and Cape Verde Islands (Project 1) and processus studies of upwelling phenomena and of their biological consequences (Project 2) as the two major lines of research adopted by the Coordinating Group.

   At the same time an information bulletin "CINECA Newsletter" was published by ICES (4 numbers up till now) to give results of meetings and information relative to the Project. In September 1971, the Moroccan National Meteorological Service began the distribution of bi-monthly synoptic charts of surface temperature.

Collaboration with other projects was also discussed with IGOSS, the Synoptic Centre in Casablanca having been proposed as a Pilot Project, and with the GARP Tropical Expedition in 1974.

While a great interest was noted for Project 2, which is mostly based on the adoption of national programmes to the particular features of upwelling along the north-west African coast (8 research ships have undertaken 12 cruises in 1972), it appeared more difficult to convince countries to participate in the multi-ship surveys to be undertaken in February and August 1973.

The rigidity of the grid of oceanographic stations, the distribution between ships of the different parts of the area to be worked, the specialisation and the standardisation of the equipment needed, both for oceanographic and for acoustic fishing surveys, are among the main difficulties encountered. - But a certain lack of interest in general descriptive surveys is also noted among scientists, most of them being apparently more in favour of detailed studies of processes involved in upwelling phenomena than in the type of survey commonly needed by fisheries biologists in connection with assessment of living resources, their distribution and their fluctuations in time and space.

Such difficulties arising in cooperative investigations are not special to CINECA. They can be explained by mixing of different programmes in a general scheme, relative scarcity of boats available for distant waters, and priority generally being given to national programmes, in or outside the area of interest, in spite of the de facto acceptation given by the national coordinators to projects in the elaboration of which they have participated.

But for the success of CINECA it is important that national coordinators take the necessary steps to help ICES, firstly in the collection of data and results obtained during national cruises, secondly in the execution of the multi-ship surveys as planned and recommended by participating countries.

In such a region as the Saharian coast, where progress in oceanic research is strongly dependent upon the support given by new African countries, the successful achievement of CINECA is absolutely necessary not only for the understanding of upwelling but also for a better knowledge of the living resources of that particular area.

Direct collaboration with other projects in the Atlantic can be fruitfully discussed in meetings like this one, but IOC can bring its support to the different International Coordinators in furnishing regularly to them, as soon as issued, all available information on the planning and implementation of these projects".

5. The CICAR Project was presented by Admiral W L a n g e r a a r, as follows:

"The CICAR Project started with a Carribean Symposium, in November 1968, at Curacao, which was jointly sponsored by UNESCO, FAO and WMO. Though the idea of CICAR was already proposed by the Netherlands Government in 1967, the first meeting of the International Coordinating Group (ICG) took place at the end of the Symposium.

Area Gulf of Mexico, Carribean and north coast of South America to Equator (north of Amazon River).

Participation — USA, Mexico, Venezuela, Colombia, Brazil, Br. Honduras, Jamaica, Trinidad and Tobago, Puerto Rico, Netherlands Antilles, USSR, Federal Republic of Germany, UK, Netherlands and France.

Organisation — Every participating country has nominated a national coordinator. The national coordinators plus the international coordinator form the ICG. There are two Assistant International Coordinators:

a) for meteorology (Ostapoff)

b) for fisheries (Tapias).

Moreover, there are six Subject Leaders:

a) Tides (Zetler)

b) Circulation (Cochrane)

c) Marine biology (Wickstead)

d) Bathymetry and navigation aids (Langeraar)

e) Geology and Geophysics (Bott)

f) Lagoons and mariculture (Kensler).

Duration — The duration was originally planned to be from 1.1.1970 to 31.12.1972. However, as the Project took additional time to get organised, it only started around May 1970. During the 5th ICG meeting in Cuba 1972, it was decided to extend the field stage to 31.12.1973. Also discussions were held how to continue the coordinated work in the area started under CICAR, after the actual termination of the field work. A number of successful programmes have been singled out therefore, such as:

- circulation
- lagoons and mariculture
- shrimp workshops.

Coordination — To do this work well an international coordinator has a full-time job. This is hardly ever possible. For this reason the Netherlands Government assisted in establishing in Curaçao, an Operation Centre, with a man fully employed in the functions of Operations Coordinator. It was found necessary to increase substantially the Operations Coordinator's travel budget, so as to carry out his coordinating work by frequently visiting national coordinators and participating institutions.

Achievements — Two direct results of value for the CICAR area are:

a) establishment of the Mexican Biological Sorting Center established at the suggestion of the ICG, by the Mexican Government and assisted by UNESCO, which sorting center became operational on 1 June 1972.

b) the Barbados Meteorological Training Center for the CICAR area, established with the assistance of WMO.

Further, the concept of CICAR Survey Months (CSM) has been a success. During one month, prior to and following the hurricane season, all ships working in CICAR programmes, occupy oceanographic stations along standard sections internationally agreed upon.

The tides programme has also been a success and together with CSM's gives significant information on the circulation and upwelling.

Problems

A number of problems have arisen during the coordination activities, some of which have been solved, others not yet.

a) Coordination by correspondence is necessary, but not enough. Frequent visits to national coordinators, subject leaders and participating institutions is a must.

b) The drawing up of, and agreeing on, a comprehensive scientific programme requires much work. Too often it is still thought that an international programme is obtained by the summing up of all national programmes.

c) Publication and exchange of data, as well as of scientific publications based thereon must be subject to continuous vigilance. Publishing of atlases requires careful consideration, taking into account the high cost and expected usefulness.

d) Is a geographically restricted research area in which every conceivable type of research is carried out (often incompatible) still the best solution, or should missions oriented or problems oriented research (with regional concentrations when needed) be rather promoted with a prima facie geographical restriction?"

6. The ICES Overflow 1973 Expedition was presented by Professor G D i e t r i c h as follows:

"Scientific objective

Two ICES-sponsored international expeditions concerning the overflow have already been carried out: the IGY "Polar Front Survey" in 1958, dealing with the hydrography of the northern North Atlantic, and the "Overflow 1960" experiment, concentrating on the investigation of the overflow across the Iceland-Faroe Ridge.

From these investigations it is very well known that the overflow process is extremely intermittent with respect to space and time, but there is virtually no information on the causes and on the space and time scales of the fluctuations. Due to recent improvement in observation techniques, especially in obtaining time series of currents and temperatures from moored instrumentation it is feasible to initiate a new study of the overflow process to solve the following problems: what are the kinematics and dynamics of the water masses involved in the "overflow" process, i.e. what influences do atmospheric pressure fluctuations, advection, mixing processes and

internal tides have on the exchange of water masses across the Greenland-Scotland Ridge and therefore on the environment of the fishes in these regions?

Field programme

The observational efforts will be concentrated in the period 15 August to 15 September 1973, by participation of the following countries: Canada, Denmark, France, Federal Republic of Germany, Iceland, Norway, UK, USA and perhaps USSR.

There will be approximately 10 meteorological shore stations, 3 meteorological buoys, 10 coastal tide gauges, 4 deep sea tide gauges, 30 moored arrays consisting of 100 current meters and 100 thermographs and approximately 15 repeated sections with hydrographical, chemical and biological (Plankton, fishery) work."

7. The IGOSS Project was presented by Dr N J C a m p b e l l, as follows:

"The interests and support of IGOSS come from such a diversity of organisations and users that it is difficult to associate any particular aspect to ICES or ICNAF. There are, however, both contributors and users in ICES and ICNAF, hence the close association of IGOSS to these bodies.

IGOSS is conceived as a service to the entire community of ocean scientists, marine industries and commerce. The programme enhances the collection, transmission, retrieval and analyses of data in real and non-real time modes utilising natural resources. The framework of IGOSS is built on the recognition of the fact that integrated and coordinated efforts can achieve larger potential benefits than any single national programme. It therefore depends on the development of regional interests and programmes before it can be considered as a global system. One such study that is being aided by ICES and ICNAF is the definition and identification of environmental products and user needs, and another the development of some parts of a marine pollution monitoring service; recognizing the activities of ICES in the North Sea and the SCOR/ICES programme for the Baltic.

Programme designs will likely follow the pattern of the Bathy Pilot Project which is a test of collection capabilities of bathythermograph data, transmission and product reporting systems. By the end of the year, more than 20 countries will be participating with some already reporting an increase in the availability of this type of data.

Future plans are being formulated now by IGOSS groups of experts on marine pollution monitoring experiments and charts of surface currents."

8. The MODE Report was presented by Professor A R R o b i n s o n, as follows:

"Mid Ocean Dynamic Experiments (MODE) are concerned with the cooperative scientific investigation of the phenomenon of quasi-geostrophic, low-frequency mesoscale (100 km "eddy radius") currents, which are characteristically much more energetic than the mean oceanic flow. An understanding of the dynamics of these eddy

motions, their energy source and their effect back on the mean flow (Reynolds stress) is now of the utmost importance in progressing towards an understanding of the general circulation of the ocean. This understanding, in turn, provides the scientific basis for such important future endeavours as, for example, the rational design of ocean monitoring systems capable of documenting large-scale long-period fluctuations of ocean climate.

Existing data, notably from the USSR Polygon Experiment of 1970, as well as from MODE-1 pilot data, establish the qualitative character and general scales of the phenomenon. MODE-1 is designed to be a definitively synoptic, and kinematic experiment, which also explores local dynamics over one or two eddy space and time scales. It is a joint experimental, theoretical programme which involves the cooperation of scientists from over 15 universities and research institutions. The overall experiment is steered by a Scientific Council composed predominantly of the principal investigators of the participating subexperiments. The main field programme will take place for 4 months in the spring of 1973 in a circle of about 200 km radius centred at about 28°N, 69°30'W. A variety of moored instruments (current meters, temperature sensors, deep pressure gauges, em field sensors), free floating devices (SOFAR and intermediate scale floats), shipborne and air dropped instruments (STD's, acoustic and em vertical profilers, and drop sondes) will be employed and five ships (US and UK) involved. The theoretical programme involves international cooperation and is concerned with the analysis of underlying eddy processes and the development of a variety of high resolution open-sided numerical models for use in both experimental design and data interpretation, and studies of the problem of numerical prediction of the oceanic environment.

Recommendations for the next MODE experiment adopted at the Moscow meeting of SCOR Working Group 34 have been published in SCOR Proceedings Vol.8, No.1, p.4. This dynamical experiment must be large enough and of sufficient duration (greater than a year) to resolve interactions on the eddy scale. Thus the scale and scope of the experiment will require full international cooperation. A meeting for detailed scientific planning of MODE-2 is being scheduled for late 1973, when the final results from USSR Polygon as well as preliminary results of MODE-1 will be available. The field programme could start in late 1975 or in 1976."

9. During the discussion of the Projects, several problems of general nature and with relevance to some or all of the projects were raised. These included difficulties arising from insufficient knowledge of the bottom topography of the areas concerned, special problems arising for projects coordinated by more than one intergovernmental organisation, intergovernmental coordination compared with coordination by non-governmental scientific organisations, and regional surveys compared with problem-oriented projects.

There was much discussion on 'standard sections' and the information that may be gained from them. Most of the participants felt that a system of such sections may be useful for special purposes and are probably needed in order that physical oceanography can give adequate service to for instance fishery interests. In any case there is at present no clear alternative method. They also agreed, however, that such sections are from a scientific point of view not the best means for increasing the knowledge of processes and movements in the ocean. In this respect one must look forward to the results that may be available from MODE.

10. The participants noted that the projects that were presented (CICAR, CINECA, MODE, Overflow) are very different in aims, organization and methods, and also widely separated geographically. For this last reason, there seems to be little possibility for a close operational contact such as mentioned in the IOC Resolution. However, it was agreed that continuous contact should be kept, with mutual exchange of information on organization, methods and progress. The need for standardization and intercalibration of instruments and methods, both within and between projects, was stressed.

11. The participants felt that the consultations had been very useful and agreed that they should be repeated periodically, at least every second year, and if possible and convenient each year, and with participation from projects that were not represented at this first meeting. They expected IOC, ICES and ICNAF to consult with each other and the different projects about future arrangements.

The meeting was closed at 17.00 hrs.

List of Abbreviations

CICAR	Co-operative Investigations of the Caribbean and Adjacent Regions
CIM	Co-operative Investigations in the Mediterranean
CINECA	Co-operative Investigations of the Northern part of the Eastern Central Atlantic
GARP	Global Atmospheric Research Programme
ICES	International Council for the Exploration of the Sea
ICG	International Co-ordination Group
ICNAF	International Commission for the North-West Atlantic Fisheries
IGOSS (of IOC)	Integrated Global Ocean Station System
IGY	International Geophysical Year
MODE (USA)	Mid-Ocean Dynamics Experiment
POLEX (USSR)	Polar Experiment
SOFAR	Sound fixing and ranging
STD	Salinity, Temperature, Depth
WMO	World Meteorological Organization

ANNEX

List of Participants

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