

SCOR WORKING GROUP 42 (WITH ICES)
STUDY OF POLLUTION OF THE BALTIC

Extracts from report of Meeting, Charlottenlund, 18-19 June 1975

(The full report will be published in ICES Cooperative Research Reports)

Participants

	Dr G. Kullenberg (Denmark) (Chairman)
Dr H. J. Brosin, Germany (GDR)	Mr O. Vagn Olsen, Denmark
Prof. Dr K. Grasshoff, Germany (FRG)	Dr W. Słaczka, Poland
Mr A. Haverinen, Finland	Mr E. Somer, Denmark
Prof. G. Hempel, Germany (FRG)	Mr A. Svansson, Sweden
Mr A. Nielsen, Denmark	Mr H. Tambs-Lyche, Denmark
Mr G. Okolotowicz, Poland	Dr A. Voipio, Finland

Information on International Activities related to pollution research in the Baltic

- (a) It was noted that SCOR had agreed to continue its participation in the Group's work, and that the last year's report had been favourably received both by SCOR and ICES.
- (b) A. Voipio informed the Group about recent developments concerning the Convention on the Protection of the Baltic Environment. There was a discussion about possible co-operation, but in the absence of formal contacts, no concrete recommendations were made.
- (c) G. Hempel reported on the Meeting of the Committee of Baltic Marine Biologists. The Group noted that although no formal co-operation agreement with that organization exists, there are effective contacts on specified tasks and satisfactory mutual information.
- (d) ICES has received the report on the ad hoc meeting of Experts on the Methodological Pilot Study of the Water Balance of the Baltic Sea, February 1975. The Group recognized its importance.
- (e) It was agreed to explore the possibilities for organizing meetings of the Task Team 2 (Physical Investigations) and Task Team 3 (The Baltic Circulation Study) in conjunction with the planned USSR/Swedish Meeting on Modelling, Tallin, 10-20 November 1975, with opportunities for participation of scientists from other countries.
- (f) The Group noted with satisfaction the development of the different activities now in progress in the Baltic, and felt that efficient working contacts exist between the Group and most of these activities. The hope was expressed that contacts with the Interim Commission for the Helsinki Convention may soon be formalised, in order to avoid double work. The Group also felt some concern that bilateral activities might in some cases create difficulties as other countries invited to join in such activities would not have had sufficient opportunity to participate in the planning. It was, therefore, hoped that bilateral undertakings could gradually develop into really multinational activities, or that when not practical, this concern would be taken into consideration.

Report on the Input Study by H. J. Brosin

The draft report on the replies to the questionnaire to determine sources of input to the Baltic Sea was received with appreciation.

In a general discussion it was agreed that even if the report showed that there is still a long way to go before one has a satisfactory picture of the total input of contaminating substances to the Baltic Sea, there could also in several cases (e.g. BOD) be noted significant progress since the former report was published in 1970. It was agreed that the report needs to be followed up by a listing of those tasks which should now have priority, in order that the picture can be more complete.

It was suggested that one way of following up this study and to combine its results with those from the baseline study as well as with the scientific tasks outlined earlier (Coop. Res. Rep. No. 42) could be to bring together those persons who have attempted to set up partial budgets for certain substances in the Baltic Sea, such as, for instance, phosphorus, with the aim of obtaining a progress report on such studies. The possibility is to be explored before next Meeting.

Studies of the air-borne input need to be considerably intensified. In this connection one should also study the transport of such pollutants which accumulate at the sea surface from sea to air through sea spray. The Group took note of the activities in different Committees of ICES and Working Groups of SCOR in order to intensify the studies of those processes in estuaries, river mouths and fjords which determine the proportion of river-borne, land-based pollution which reaches the sea itself.

The Commission for the Protection of the Baltic Sea Environment has as one of its main aims to bring the inputs of pollutants to the Baltic under control, irrespective of sources. The Working Group felt that, with this responsibility, and with the broad support the Convention on the Protection of the Baltic Sea Environment had achieved in all Baltic countries, the Commission may be in a good position both to stimulate the necessary investigations and to stimulate the reporting by national agencies.

The Working Group recommends that it - or ICES as such - should, for the time being, not take further steps to institute a yearly reporting system, or a monitoring of inputs. However, it does recommend that it shall continue and, if possible, intensify the co-ordination of analytical and methodological studies, the studies of the role of estuaries and of the "sieving" effects of island chains, exchange of pollutants between sea water and sediments, studies of water exchange between the North Sea and Baltic, and of the scientific tasks defined in earlier reports.

Report on the Progress of the Base-Line Study

The operational phase of the Baltic Base-Line Study was started in October 1974. The following countries had agreed to participate: Denmark (with a limited analytical programme), GDR, Sweden, Finland, USSR, Poland, and the Federal Republic of Germany.

All countries, except USSR, have reported the performance of the sampling programme according to a questionnaire distributed in May 1975 by the Convenor.

With respect to the Danish sampling programme, the Working Group was informed that samples of cod, herring and plaice have been taken in the areas off Aarhus, Copenhagen and Bornholm monthly during the period 1973/74 and analysed for heavy metals and organochlorine pesticides. This programme has been discontinued, but the Danish input to the Base-Line Study will be made from it.

Standard samples of fish oil and fish meal have been received from Dr Topping and were distributed to all participating laboratories which have been nominated for the analysis of the base-line samples. The standards for intercalibration are identical with those used in the North Sea study.

Results of the analysis of the biological material and the standards have been received from the Federal Republic of Germany and Finland.

The Working Group congratulated the Coordinator, Professor Grasshoff, on the considerable progress made since the previous meeting. It was agreed that it would be necessary to call a meeting of the analysts involved as soon as all analyses had been made. (Recommendation No. 1).

It was noted that preparations had been made by a sub-group under the Working Group for Monitoring and Base-Line Studies of Pollution in the Oslo Commission area and part of the ICNAF area, for an international base-line study of the level of "dissolved" heavy metals in sea water. It was agreed to review the progress of this work at the Group's next meeting.

Professor Grasshoff also informed the Group about methodological studies made in Kiel on the level of heavy metals in phytoplankton of the Baltic. The Group agreed to revert also to this subject at its next meeting.

The Basic Oceanographic Research Programme

(a) Physical Investigations (Task 2)

A report on the meeting of the Task Team Group on 28 September 1974 was available. The Task Team at its forthcoming meeting in Tallin, in November 1975, should aim at starting the experiment in the latter half of 1976.

(b) The Baltic Circulation Study (Task 3)

In the frame of the USSR-Swedish bilateral co-operation on environmental protection problems, a Workshop on physical, chemical and biological modelling will be held in Tallin on 10-20

November 1975. Its convenor Professor Aitsam, has welcomed a suggestion to organize also a Task 3 meeting in the same time period, with P. Svansson as Chairman.

The Working Group expressed the hope that it would be possible also to have a Task 2 meeting at that time, and further that the two Groups (2 and 3) could meet together for discussion of common topics, e. g. theoretical considerations to be taken into account in the Open Sea Programme, 1976-77.

The Working Group was given a brief report on the Federal Republic of Germany's "Baltic-75" expedition which might be considered a pilot project also for Task 3.

(c) The Open Sea, Multidisciplinary, Continuous Stations (Task 5)

Professor Hempel reported on the progress of Task 5.

A circular letter to national contacts was sent out by the international co-ordinator. Replies were as follows:

Finland : Positive, regarding ships' time. Reporting on detailed studies on bottom topography and sediments at a possible site off the Finnish coast. Major interest in measurements of primary production, sedimentation rate of organic matter and degradation processes in the sediment.

Sweden : Positive reactions by the Askö Laboratory and the Fishery Board, but no fixed schedule for RV ARGOS. Doubts concerning present ability to measure sedimentation rate by traps. Hope for increased activities in the field of microbiology through the University of Göteborg.

GDR : Hope for one ship for 2-3 periods of two weeks each: STD, optical measurements, current measurements (possibly with dye tracers for vertical transport in combination with Task 2).

O₂ (H₂S), PO₄, Nitrate, Nitrite, Ammonia, dissolved organic N and C, Silicate, heavy metals. Primary production (total and for groups of phytoplankton), photosynthetic pigments (Chlorophyll a and b, phaeophytin), particulate organic C in the water column. Qualitative measurements on phytoplankton and seston. Reference is made to the methodological recommendations of the Baltic Marine Biologists.

Denmark : So far, only plans for physical oceanography are at hand. Possibly a Danish vessel available for 1-2 weeks, but in addition interest in invitations to work on foreign vessels.

Optics, also in relation to studies in dye tracing, in and below the thermocline and halocline layers for measurement of horizontal and vertical mixing, in connection with biological work. Possibly observations of currents and particulate matter in the benthic boundary layer (by a Laser Doppler Anemometer).

FRG : Availability of ships' time depends largely upon whether and when in 1976 the new 160 ft research vessel of the Institute of Marine Science in Kiel will become operative, otherwise only relatively small vessels will be available in 1976. Discussions on scientific contents and execution was delayed in order to incorporate the experience of the "Baltic 1975" which contained elements similar to Task 5.

Poland : No commitments could be made at this time, but good hope for participation, particularly in seston studies and sediment analysis.

The Working Group welcomed the report and noted that it was likely that 3-4 vessels would be available for this task for two 2-week periods. It was agreed that the Task Team should meet in Kiel in September 1975. The Baltic Marine Biologists, meeting in Gdynia in October 1975, should be informed. It was agreed to locate the station of investigation close to the area of Task 2. The aim should be to start the fieldwork in August 1976 and then follow the time scale outlined earlier.

RECOMMENDATIONS

Recommendation No. 1

It was recommended that a meeting of the analysts who had taken part in the Base-Line Study of the level of pollutants in marine organisms in the Baltic should be held, at national expense, at

Charlottenlund in January or February 1976, as soon as the analytical work has been completed. The meeting should report to the ICES/SCOR Working Group on the Study of Pollution of the Baltic on the results of the Base-Line Study.

Recommendation No. 2

Since intercomparability of chemical data is a pre-requisite for all future international work with respect to the pollution and eutrophication of the Baltic and since intercomparability of results of analysis of dissolved substances containing nitrogen is unsatisfactory, it was recommended that ICES should organize an intercalibration exercise between laboratories of all Baltic countries concerning four parameters; viz.

(a) Nitrate (b) Ammonia (c) Total nitrogen and (d) Urea.

Recommendation No. 3

It was recommended that the ICES/SCOR Working Group on the Study of Pollution of the Baltic should meet again in Tallin at the invitation of the Estonian Academy of Science in April/May 1976.