



REPORT OF THE  
**ICES/HELCOM STEERING GROUP ON QUALITY ASSURANCE  
OF BIOLOGICAL MEASUREMENTS IN THE BALTIC SEA**

ICES Headquarters  
17–20 February 1997

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## **1 OPENING OF THE MEETING**

The 1997 meeting of the ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea (SGQAB) was opened at ICES Headquarters by the Chairman, Mr Lars Hernroth, who welcomed the participants and invited them to introduce themselves. SGQAB expressed its concern that Russia was again not represented at the meeting despite all efforts to have them participate. A complete list of meeting participants is contained in Annex 1.

## **2 ADOPTION OF THE AGENDA**

The provisional agenda was adopted with minor changes and is attached as Annex 2. A joint session with the ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea (SGQAC) was planned for Tuesday afternoon. A joint session with the ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements related to Eutrophication Effects (SGQAE) was scheduled for Wednesday morning. It was agreed that agenda item 6 should be considered in two parts: Section 6.1 will address the report of the HELCOM Workshop on the Revision of Baltic Monitoring Programme (BMP) Guidelines and Section 6.2 will deal with the Evaluation of the Draft Guidelines from a Quality Assurance perspective.

## **3 APPOINTMENT OF A RAPPORTEUR**

Lars Edler (Sweden) was appointed as rapporteur for the meeting.

## **4 REPORT FROM THE 1996 ICES ANNUAL SCIENCE CONFERENCE**

The Chairman gave a report on the response of the ICES Council to the Steering Group activities and recommendations as presented in the report from the last meeting in Gdynia. In the resolutions from the Annual Science Conference there was a general feature of acknowledgement of the work being done by SGQAB.

The response from the ICES Council was positive and the recommendations and suggestions for three QA Training Courses (phytoplankton, microzooplankton and macrozoobenthos) were accepted. The terms of reference for SGQAB and the three training courses are given in Annex 3.

## **5 REPORT FROM THE HELCOM EC 7 MEETING**

The Chairman gave a report on the response of the seventh meeting of the HELCOM Environment Committee (EC 7) to the Steering Group activities and recommendations, as presented in the report from the last meeting held in Gdynia. The response from HELCOM was positive and the recommendations were accepted.

HELCOM EC 7 also agreed to support the three training courses, covering phytoplankton, protozooplankton and macrozoobenthos in 1997.

SGQAB emphasized that, as in previous cases, participation in the Training Courses is mandatory for all HELCOM Contracting Parties. SGQAB urged all HELCOM countries to send their discipline experts to these Training Courses.

HELCOM EC 7 also gave the participants in the QA Workshop in Warnemünde an opportunity to comment on several strategic questions related to the Baltic Monitoring Programme. These comments are included in the Workshop Report (ICES CM 1997/E:5).

The Chairman of the HELCOM Working Group on Monitoring and Assessment (EC MON) pointed out that a decision by HELCOM EC 7 was to ask all participating laboratories to store their data until a new data host has been contracted by HELCOM.

The discussion that followed these reports covered the following items: the statistical aspects, including detection limits; the precision of measurements; and the evaluation of results. It was considered necessary that these issues be clearly identified and dealt with. The Steering Group noted the importance of these matters and agreed to include them on the agenda in connection with discussions on the new Guidelines.

The ICES Environment Secretary, J. Pawlak, informed the Steering Group that there will be an e-mail conference later this year with the aim of outlining a common biological data reporting format. The Steering Group stressed that experts from all HELCOM Contracting Parties should participate in this work. The computerized counting and data reporting system which is presently used by the BMP phytoplanktologists should be tried for other biological parameters as well. Preferably, one should strive for systems that can be used by both the HELCOM and the OSPAR monitoring programmes. It is important that the conveners for the different HELCOM groups keep updated on developments within similar groups in OSPAR and ICES.

For several years there have been problems with the updating of species lists. This has been partially due to the shut-down of the RUBIN Code centre in Stockholm, Sweden. However, the Steering Group was of the opinion that the coding can now be simplified, as computers are not as memory-limited as they once were; thus, they can handle full scientific names. The Chairman reported that several resolutions from the 1996 ICES Annual Science Conference stressed the need to work towards a uniform species coding system within ICES (e.g., for phytoplankton, zooplankton and macrozoobenthos). As the question of a new host for the HELCOM data bank has not yet been resolved, the Steering Group agreed to postpone recommending a specific data reporting format/coding.

An urgent problem to solve is the updating of the species lists and more specifically an up-to-date list of synonyms. The importance that there is an annual updating of the lists was stressed, as was close cooperation with similar activities within other bodies such as OSPAR. It was agreed that the convener of each expert group should be responsible for the continuous updating of the species lists.

An important quality point is that of the degree of identification of organisms. The HELCOM Phytoplankton Expert Group has discussed the matter and it aims at providing information at the minimum requirement level for the determination of each species. This means that, in normal analysis, some species may only be identified to genus or even order. Further determination may need more specialized techniques, such as electron microscopy. Similar clarifications ought to be made for the other mandatory parameters.

## 6 HELCOM BMP

### 6.1 Report from the Second Workshop on Revision of the BMP

The Chairman informed the Steering Group that the official timetable for the revision of the BMP Guidelines is that suggestions for amendments should have reached the Chairmen of the two subgroups (eutrophication and contaminants) by 15 February 1997. The draft BMP Guidelines including the amendments will be sent for approval by HELCOM EC MON in May 1997. Only comments on QA can be accepted and the deadline for these is 10 April 1997. After the HELCOM EC MON meeting, the document will be sent to HELCOM EC 8 for final approval.

The Steering Group expressed its concern that several national representatives participating in the BMP Revision Workshop in December 1996 had not circulated the document from the Workshop to the experts. **The serious nature of this matter must be considered by HELCOM and the different expert groups must be allowed to comment on the document, despite the fact that it was past the deadline.**

The task for the participants at this SGQAB meeting was to comment on the QA issues in the BMP Revision Workshop document. It was therefore decided to work on the general QA chapters for the Guidelines and to ask the different Expert Groups to make the detailed QA amendments for their specific parameters. Those comments should, according to the decision of the Revision Workshop, be sent to Ms Hanne Kaas.

During the 1997 meeting of HELCOM EC MON, the integration of the Coastal Monitoring Programme into the BMP will be discussed and harmonized. SGQAB anticipates considerable QA work in connection with this integration since several new institutes will deliver data to HELCOM, institutes that have not previously participated in the joint ICES/HELCOM QA work.

The status of QA in the new Guidelines was also discussed. SGQAB was of the opinion that in the future Quality Assurance should not be an annex but a natural component of the next BMP. For the BMP laboratories, documented QA procedures, including intercalibrations and training of staff, must be a minimum requirement before any laboratory can deliver data to the joint data bank.

## 6.2 Evaluation of the Draft Guidelines

As a first general comment, the Steering Group suggests that the newly revised version shall be referred to as the **BMP Manual** as this is more in accordance with the intentions for the document.

A second general comment is that the document lacks clear definitions. When scrutinizing the text of the Draft Guidelines, it was obvious that the commitments by the different HELCOM Contracting Parties are, in several cases, ambiguous due to poor or inadequate definitions. The Steering Group reacted to the fact that, e.g., the expression 'high frequency sampling' was used extensively without ever being defined. It was agreed that this was unfortunate and instead one ought to use the expression 'frequency high enough to produce representative data'. It was also concluded that quantitatively such a number depends on the variable and the sampling area in question. Another term used in a similarly vague fashion is 'phytoplankton study'. HELCOM EC MON must ensure that all such terms are clearly defined and easy to interpret.

Concerning the draft of the General Part of the Manual for Quality Assurance within the BMP (Part B), the content was discussed paragraph by paragraph and where additions or comments were considered necessary, the task to add or re-write was divided among the participants. The responsibility for the final compilation of all contributions into the Manual was given to Mr Georg Martin of Estonia. All participants were asked to use e-mail as the main way of communicating with him.

Since this part of the Manual is supposed to be common for chemical and biological parameters, it was decided to give the Steering Group Chairman, Lars Hernroth, the task of coordinating the editing with the Chairman of SGQAC. The deadline for the final editing is 31 December 1997.

Regarding the Quality Assurance parts that will accompany each of the biological parameters in the new BMP, it was decided that before the next Steering Group meeting in February 1998 the following activities should be carried out:

- For chlorophyll *a* measurements, Mr Lars Edler will compile the current QA procedures at all BMP laboratories and, from this compilation, write a proposal for the new QA text for the Manual.
- For mesozooplankton, it will be the responsibility of Ms Anda Ikaunieca to compile the current QA procedures at all BMP laboratories and, from this compilation, write a proposal for the QA text for the Manual. She is asked to do this in close cooperation with the Chairperson of the BMB Zooplankton Working Group, Ms Gerda Behrends.
- For macrozoobenthos, it will be the task of the Chairman of the recent intercalibrations, Mr Heye Rumohr, to write the proposal for the QA text for the Manual.
- For phytoplankton, the Steering Group anticipates that HELCOM will accept the proposal from the Phytoplankton Expert Group to continue their Training Course activities and thus secure that the Group can take on the responsibility of writing the QA text for the Manual.
- For primary production measurements, it was decided that since a detailed manual for the primary production incubator measurement technique (Colijn *et al.*) is anticipated in the near future, it is premature to formulate the QA text for the Manual. It was furthermore decided that when the publication appears, the Steering Group will try to establish an *ad hoc* Expert Group that is willing to write the draft QA text for the new Manual. This Group should preferably be formed in time to be appointed by HELCOM EC MON in May 1997.

## 7 EVALUATION OF THE TWO QA WORKSHOPS HELD IN 1996

The draft report from the last QA Workshops on primary production and mesozooplankton methodology (draft of ICES CM 1997/E:5) was distributed and discussed. The Steering Group noted that, despite the progress made at the Workshops, there are still statements and recommendations that lack sufficient scientific documentation from the QA point of view.

- There is a need to have clear definitions of 'coastal' and 'open sea' stations. Presently, these terms have quite a different meaning from one country to another.
- Regarding sampling frequency (mainly concerning chlorophyll, phytoplankton, primary production and mesozooplankton), there are no references as to why a certain minimum frequency is recommended.

- The results from comparisons of the WP-2 net and the Danish plankton pump indicate large differences. It is very alarming that Denmark does not follow the Guidelines and continues to use the pump without additional WP-2 samplings. Their data are reported to HELCOM and used in the assessment without consideration of this deviation from the Guidelines.
- For mesozooplankton subsampling, it is mentioned that the Kott splitter has a better precision compared to the Stempel-pipette, but no values or references are given.
- For mesozooplankton biomass determinations (para. 2.2), the GF/C glass fibre filters should have a **diameter** of 47 mm, not **radius** as stated in the draft report.
- In Annex 10 (Manual for Primary Production Measurements), the Steering Group agreed to recommend a slight change in the first paragraph if it is to be included in the new Guidelines. The suggested text is:
 

*“Primary production is the only regular rate measurement in the Baltic Monitoring Programme. From these measurements it is possible to calculate the amount of organic material formed from light, carbon dioxide and nutrients. Primary production has important links to eutrophication and sedimentation and, consequently, to deep water oxygen concentrations.”*
- In Annex 11 (Improved zooplankton analysis and data reporting programme), the persons asked to make the proposal should be named. They are Mr Harri Kuosa of Finland and Mr Günter Breuel of Germany.

Finally, it was concluded that this report, together with the reports of the previous Workshops, have been of considerable importance during the BMP Guidelines Revision Workshop in December 1996.

## 8 STATUS REPORT ON THE DEVELOPMENT OF ‘IN-HOUSE QUALITY ASSURANCE MANUALS’

In June 1996, the Chairman visited BMP laboratories in Finland, Estonia, Latvia, Lithuania and Poland for the purpose of being informed about the state-of-the-art for ‘In-House Quality Assurance’ and assisting in the development. He informed the Steering Group about considerable progress in all of the laboratories visited. Some had come close to completion and all had outlined their manuals. When the Chairman now asked for the present status, it was obvious that the positive development had continued. Some had completed the work and were now accredited or seeking accreditation, while others were close to doing so. Most countries had also included sampling at sea in their QA routines. Only the representative of Estonia expressed serious concern over the development. National priorities have substantially reduced the resources for marine biological monitoring and this has halted further implementation of the QA routines in Estonia. The In-House QA Manual has been completed but not put into effect. In Germany accreditation was not a target, instead they have chosen to establish ‘within-laboratory quality control routines’.

Following the national presentations, the criteria for quality assurance at the laboratory level were discussed. It was the general opinion of the Steering Group to recommend to HELCOM that detailed quality assurance procedures within the laboratories must be an unquestionable prerequisite for delivering BMP data to HELCOM and that accreditation is so far the best guarantee that the laboratory can fulfill the expected quality. This opinion is supported by the statement in the next HELCOM BMP, Guidelines, Section B, Quality Assurance, which states: *“It has been recommended by the Environment Committee that all participating institutes/laboratories introduce a quality assurance system in their work with the medium-term goal of obtaining formal accreditation.”*

The Steering Group also pointed out that HELCOM Contracting Parties must take into consideration the value of accreditation and quality assurance procedures in the laboratories contracted for monitoring investigations. Frequent changes of contractors may have negative effects on data quality and their applicability for use in HELCOM assessments.

The present status by country is presented below.

### Finland

At the Finnish Institute of Marine Research (FIMR), one person is employed full-time as quality manager. The Institute has a general Quality Manual and the QA for the different methods is developed by the scientists. Most of the chemical and biological analyses which are carried out for the HELCOM BMP are now accredited. Sampling is included in the accreditation. ISO-GUIDE 25 and EN-45001 standards are followed. Presently, the physical analyses are going through this process.

The Regional Environmental Centers are responsible for QA in the coastal investigations. These centers have their own accreditation which, at the moment, covers very little biology. National and international intercalibrations are attended by the laboratories on a regular basis.

#### Estonia

Due to financial problems it has not been possible to apply for formal accreditation. The in-house Quality Assurance Manual has been completed and is being used, but it is not officially amended. The Steering Group expressed its concern that the quality work has been stopped in Estonia and urged that actions be taken to continue the important quality work.

#### Latvia

In Latvia they are now in the process of applying for accreditation of chemical variables. The methods follow QUASIMEME and the BMP Guidelines. Manuals for biological variables are now being produced and will be ready by the end of the year. They will follow the BMP Guidelines. Sampling procedures are included in these manuals. The importance of the Quality Assurance work being done is officially recognized. The Steering Group encouraged the continuation of these positive developments.

#### Lithuania

The Centre of Marine Research has achieved a national certificate for biological variables (except for primary production) as a first step towards general accreditation. Work is now progressing to establish QA procedures for the specific BMP variables. Sampling is included in these efforts, as is the Coastal Monitoring Programme.

The Steering Group also acknowledged that Lithuania has been able to invest in new equipment to improve the In-House QA.

#### Poland

In Poland the accreditation for biological parameters at the Institute of Environmental Protection has been achieved in consecutive stages. Documentation related to the accreditation rules in the country has been gathered, standard operating procedures for individual parameters (sampling and analysis) have been prepared and are in operation, special QA training courses are attended by the representatives of the laboratory staff, etc. However, some other costly steps in the accreditation procedure, which require substantial financing and are time-consuming (e.g., obligatory equipment for the laboratory, additional qualified personnel, duplicate samples, internal intercomparison exercises, auditing, etc.), have not been implemented due to the uncertainty within the authorities regarding the contracts for future monitoring investigations.

#### Germany

The German representative reported that In-House QA procedures are well under way in most institutes connected to monitoring activities. A few private chemical laboratories are accredited, but accreditation is not a primary target for governmental institutes. In-house manuals are ready for certain variables, but not for all. The Steering Group was also informed that in Germany a project is planned which will incorporate intercalibrations, ring tests and taxonomic workshops for benthos, phytoplankton and zooplankton.

#### Sweden

In Sweden accreditation is a prerequisite for the laboratories engaged in the BMP. Therefore, they all have, or will soon have, their accreditation and their In-House QA Manuals. The policy is to seek accreditation for the sampling procedures as well.

#### Denmark

At the Steering Group meeting, no information was available on the status of In-House QA Manuals at the Danish BMP laboratories.

## 9 REQUESTS FROM THE ORGANIZERS OF THE 1997 PHYTOPLANKTON TRAINING COURSE

The next training course will be held at Tvärminne, Finland, 14-16 August 1997, preceding the course run by the Intergovernmental Oceanographic Commission (IOC) on Taxonomy and Biology of Harmful Microalgae.

The terms of reference for this Training Course are given in Annex 3. In addition to those, the Chairman of the Phytoplankton Expert Group wishes to have time for estimating the power of phytoplankton as an environmental change signal and making calculations on the optimal sampling design in relation to sampling frequency.

A proposed cooperation with the Finnish Algaline project was also described. In short, the idea is to establish a Baltic phytoplankton page on Internet where news, results, questions, etc., can rapidly be exchanged among colleagues at low cost.

The problem of financing the Training Course (costs for a teacher, copies, etc.) was raised. Since the decision on the Project Proposal submitted by the Phytoplankton Expert Group to HELCOM last year was postponed, there is no possibility to finance this year's activities through HELCOM. The Chairman of the Phytoplankton Expert Group, together with the local hosts, were therefore advised to seek coverage of such costs from local funds.

## **10 REQUESTS FROM THE ORGANIZERS OF THE 1997 MICROZOOPLANKTON TRAINING COURSE**

The proposal for a Training Course on microzooplankton was welcomed by the Steering Group. As the Coastal Monitoring Programme gradually will become part of the BMP it is essential to prepare QA procedures. The Training Course will be held at Tvärminne, Finland, 8–14 September 1997. The terms of reference for the Training Course are given in Annex 3.

In addition to those, the Chairman, Mr Harri Kuosa, would like to find time to:

- a) identify the present state-of-the-art of protozooplankton and microzooplankton data in HELCOM data banks;
- b) recommend a procedure to choose and analyse the existing material for assessment purposes;
- c) decide on long-term plans and the necessary steps to be taken for the intercalibrations, quality assurance work and required species identification courses/manuals;
- d) establish a network of experts on protozooplankton and microzooplankton research.

## **11 REQUESTS FROM THE ORGANIZERS OF THE 1997 MACROZOOBENTHOS TRAINING COURSE**

The Training Course will be held at the Zoological Museum in Copenhagen, Denmark, 4–7 November 1997, under the Chairmanship of Mr J. Nørrevang-Jensen. The terms of reference for the Training Course are given in Annex 3.

Previous intercomparisons have shown that laboratories differed in their identification of certain taxonomic groups and several genera seem to be difficult to identify to species level even for experts. Geographically the course will be regional and will cover only the Belt Sea area and the southern Kattegat.

The main purposes of the Training Course are:

- to improve the taxonomic training of personnel at the laboratories in the region;
- to ensure a correct and uniform identification of species at the laboratories in the region;
- to discuss the optimization of sorting of samples;
- to distribute knowledge of the most recent taxonomic literature.

## **12 PROVISIONAL PROGRAMMES FOR THE THREE TRAINING COURSES**

The Steering Group agreed on the proposals from the three Chairmen of the Training Courses, with the following comments:

The Phytoplankton Training Course should not, at this stage, add new topics to the agenda but should concentrate on completing the checklist and biomass determinations for the revised Guidelines. The Chairman of the Expert Group should, at the earliest possible occasion, update last year's application to HELCOM and submit a new version. The Steering Group suggests that the priorities in that application should be in the order (c), (a), and (b).

The Steering Group stressed the importance of having the national representatives in the Steering Group promoting the participation of their colleagues in the training courses and stressing to colleagues at higher levels that participation is



mandatory for those laboratories delivering data to HELCOM. It is of utmost importance that the Contracting Parties recognize that these activities are regular components of the QA procedures. As the Coastal Monitoring Programme becomes part of BMP, it is vital that those laboratories are incorporated in these activities as well. All information about training courses should, in the future, also be distributed to the QA Steering Group within OSPAR.

### **13 ADDITIONAL STEERING GROUP ACTIVITIES**

The Steering Group decided that its intersessional activities should be fully devoted to the compilation of the quality assurance text for the Revised BMP Guidelines, as outlined in Section 6.2 of this report. The details of the responsibilities for the individual Steering Group members will be distributed by the Steering Group Chairman.

### **14 ANY OTHER BUSINESS**

An application for a phytoplankton QA project to HELCOM from the Chairman of the Phytoplankton Expert Group had been submitted to SGQAB for comments. The content of the application can briefly be described as a continuation of the highly successful Phytoplankton Training Courses that the Group has conducted over the past five years. As HELCOM decided two years ago to dissolve its working groups and instead support projects with a defined life-time and clear terms of reference, the former Phytoplankton Working Group has responded to that through this application.

The Steering Group decided to strongly support the application and recommended that HELCOM finance it. Since the application was written last year, the Steering Group suggests that it should be updated (covering not 1997–1999 but 1998–2000), where 1998 is devoted to incorporating detailed Quality Assurance sections to the new BMP Guidelines and the analysis of green algae and nanoflagellates is moved to 1999. The Steering Group also requests that the revised application consider the report from this meeting with regard to priorities in the QA development.

During the afternoon of Tuesday, 18 February, there was a joint session with the ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea. For two hours the participants engaged in a very fruitful discussion on matters of joint interest such as QA aims and strategy, financing activities, results from assessments, incorporation of new parameters, and QA recommendations when biological and chemical samples are taken from the same gear.

The session also encompassed a presentation of a follow-up to QUASIMEME, the QUASH project, which is highly relevant to both Groups since it concentrates on sampling.

During the afternoon of Wednesday, 19 February, there was an informal joint session together with the newly formed ICES/OSPAR SGQAE. Both Groups presented their tasks and planned activities during a very stimulating session which resulted in an agreement to exchange all information of potential interest to the two Groups and to work towards close cooperation for the benefit and advancement of biological QA and avoidance of duplicate work.

### **15 DATE AND VENUE OF THE NEXT STEERING GROUP MEETING**

It was decided to recommend that the Steering Group should meet for three days in the latter part of February 1998 at ICES Headquarters in Copenhagen.

### **16 ADOPTION OF THE DRAFT REPORT OF THE MEETING**

The Chairman presented a draft report and, after some corrections and amendments, it was accepted. The recommendations to the ICES Council and to HELCOM are presented in Annex 4.

### **17 CLOSING OF THE MEETING**

At lunch-time Thursday, 20 February, the Chairman closed the meeting. He thanked the participants for their contributions to the meeting and invited all to return again next year for the 1998 meeting in Copenhagen.

## ANNEX 1

## LIST OF PARTICIPANTS

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## ANNEX 2

### ICES/HELCOM STEERING GROUP ON QUALITY ASSURANCE OF BIOLOGICAL MEASUREMENTS IN THE BALTIC SEA (ICES/HELCOM SGQAB)

17-20 February 1997

#### AGENDA

- 1) Opening of the Meeting
- 2) Adoption of the Agenda
- 3) Appointment of a Rapporteur
- 4) Report from ICES Annual Science Conference
- 5) Report from HELCOM EC 7
- 6) Report from the meeting of HELCOM Revision of BMP Guidelines
- 7) Evaluation of the two QA Workshops in 1995
- 8) Status report on the development of In-House Quality Assurance Manuals
- 9) Requests from the organizers of the 1997 Phytoplankton Training Course
- 10) Requests from the organizers of the 1997 Microzooplankton Training Course
- 11) Requests from the organizers of the 1997 Macrozoobenthos Training Course
- 12) Outlining a provisional programme for the three Training Courses
- 13) Additional Steering Group Activities
- 14) Any other business
- 15) Date and venue of the next Steering Group Meeting
- 16) Adoption of a Draft Report of the Meeting
- 17) Closing of the Meeting

N.B. There will be two half-day joint sessions, one with the ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea (SGQAC) and one with the ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements related to Eutrophication Effects (SGQAE).

## ANNEX 3

### TERMS OF REFERENCE

ICES C.Res.1996/3:8

The **ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea [SGQAB]** (Chairman: Dr L. Hernroth, Sweden) will meet at ICES Headquarters from 17–20 February 1997 to:

- a) review the outcome of the Workshop on Quality Assurance of Pelagic Biological Measurements in the Baltic Sea, held in October 1996, and prepare recommendations on QA procedures for zooplankton and primary production measurements [HELCOM 1996/3];
- b) report on and evaluate the development of “in-house QA manuals”;
- c) prepare detailed plans for three QA training courses to be held in autumn 1997;
- d) prepare recommendations, based on the results of the series of QA Workshops, for the revision of the Baltic Monitoring Programme [HELCOM 1996/3];
- e) hold a joint session with SGQAC to discuss matters of common concern;
- f) hold a joint session with the ICES/OSPAR SGQAE to develop mechanisms for the transfer of information and coordination of activities.

The Steering Group will report to ACME at its June 1997 meeting and to the MEQC at the 1997 Annual Science Conference.

ICES C.Res. 1996/3:2

An **ICES/HELCOM Workshop and Training Course on Phytoplankton [WKPHYT]** will be held under the co-chairmanship of Ms A. Andersson (Sweden) and Ms M. Huttunen (Finland) at Tvärminne, Finland from 17–19 August 1997 to:

- a) continue the development of the computerised phytoplankton counting programme;
- b) continue the updating of the Phytoplankton Biomass Estimation;
- c) continue the updating of the Phytoplankton Checklist.

ICES C.Res. 1996/3:3

An **ICES/HELCOM Workshop and Training Course on Protozooplankton and Microzooplankton [WKCPM]** will be held under the chairmanship of Mr H. Kuosa (Finland) at Tvärminne, Finland from 8–14 September 1997 to:

- a) identify and coordinate the boundaries of sampling and analysis of Baltic protozooplankton and microzooplankton in relation to those of phytoplankton and mesozooplankton;
- b) recommend a strategy and sampling and analytical procedures for a protozooplankton and microzooplankton programme for the revised Baltic Monitoring Programme;
- c) practice microscopic analysis for qualitative and quantitative identification of protozooplankton and microzooplankton.

ICES C.Res. 1996/3:4

An **ICES/HELCOM Benthos Taxonomic Workshop [WKBT]** will be held under the chairmanship of Mr J. Nørrevang-Jensen (Denmark) at Roskilde, Denmark from 4–7 November, including participation of experts from the Zoological Institute of the University of Copenhagen, to:

- a) identify benthic invertebrate species over which there is taxonomic disagreement and find a common identification;
- b) review material brought together by researchers and research assistants that has created taxonomic problems and determine ways to obtain a correct identification;
- c) review the development of "in house quality assurance manuals" for benthos studies;
- d) prepare the materials resulting from this Workshop as a laboratory report for publication.

## ANNEX 4

### RECOMMENDATIONS TO ICES COUNCIL AND TO HELCOM

#### To ICES:

SGQAB recommends that the next meeting of the Steering Group be held for three days in February 1998 at ICES Headquarters to carry out the following:

- a) final editing of the general sections regarding Quality Assurance for the new BMP Guidelines;
- b) presentation and editing of the QA sections regarding sampling of biological parameters for the new BMP Guidelines;
- c) presentation and editing of the QA instructions for each of the biological parameters.

#### To HELCOM

- 1) SGQAB recommends that the next Steering Group meeting be held for three days in late February 1998 at ICES Headquarters.
- 2) SGQAB recommends that HELCOM accept the project proposal from the Phytoplankton Expert Group.
- 3) SGQAB recommends that HELCOM observe the need for an updating of the parameters that should be covered by the Steering Group activities, in particular as the Coastal Monitoring Programme becomes integrated into the present BMP.
- 4) SGQAB recommends that HELCOM accept the different parts of the new Guidelines as they become completed, instead of waiting until the whole document is complete and edited.
- 5) SGQAB recommends that HELCOM strongly emphasize the fact that the new phase of the BMP includes Quality Assurance as an integrated part of the Baltic Monitoring Programme and that it requires substantial input of manpower and finance. SGQAB urges HELCOM to deliver this message to the highest level possible during the process of adopting the new Programme by the Contracting Parties.