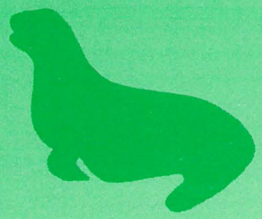
REPORT OF THE NORTH SEA TASK FORCE TO THE MINISTERIAL CONFERENCE OF THE OSLO AND PARIS COMMISSIONS

PARIS

21 – 22 September 1992



NORTH SEA TASK FORCE
OSLO AND PARIS COMMISSIONS
INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

REPORT OF
THE NORTH SEA TASK FORCE
TO
THE MINISTERIAL CONFERENCE OF
THE OSLO AND PARIS COMMISSIONS

PARIS

21 - 22 September 1992

NORTH SEA TASK FORCE

OSLO AND PARIS COMMISSIONS
INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

ISBN 1872349 05 6

CONTACT POINTS TO THE NORTH SEA TASK FORCE

DR KERSTIN ANDERS, Der Bunderminister für Umwelt Naturschutz und Reaktorsicherheit, Bonn, Germany

MR MARCEL CHAUSSEPIED, Institut Français de Recherche pour l'Exploitation de la Mer, Centre de Brest, Plouzané, France

DR JOHN DAVIES, Department of Agriculture and Fisheries for Scotland, Marine Laboratory, Aberdeen, United Kingdom

DR SVERKER EVANS, Swedish Environmental Protection Agency, Solna, Sweden

DR RONNY FERM, Swedish Environmental Protection Agency, Solna, Sweden (Chairman)

DR ANDREW FRANKLIN, Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Burnham-on-Crouch, United Kingdom

DR PETER HOOGWEG, Rijkswaterstaat, Dienst Getijdewateren, Den Haag, The Netherlands

MS LENA JACOBSSON, Swedish Environmental Protection Agency, Solna, Sweden

MR KJELD F JORGENSEN, National Agency of Environment Protection, Copenhagen, Denmark

MR HENNING KARUP, National Agency of Environmental Protection, Copenhagen, Denmark

MR V MANDL, Commission de la Communauté Européenne, Directorate General for the Environment Consumer Protection and Nuclear Safety, Brussels, Belgium

MR JEAN-MARIE MASSIN, Direction de l'Eau et de la Prévention des Pollutions et des Risques, Neuilly-sur-Seine, France

DR RAY OTTER, Department of the Environment, London, United Kingdom

DR JANET F PAWLAK, International Council for the Exploration of the Sea , Copenhagen, Denmark

DR GEORGES PICHOT, Ministry of the Environment, Management Unit of the North Sea and Scheldt Estuary Mathematical Models, Brussels, Belgium

DR JOHN PORTMANN, Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Burnham-on-Crouch, United Kingdom (Vice-Chairman)

DR CHRIS REID, Department of the Environment, London, United Kingdom

MR LARS OTTO REIERSEN, State Pollution Control Authority, Oslo, Norway

DR ROLAND SALCHOW, Bundesamt für Seeschiffahrt und Hydrographie, Hamburg, Germany

DR GRAHAM TOPPING, International Council for the Exploration of the Sea, SOAFD Marine Laboratory, Aberdeen, United Kingdom

MR JACQUES VACCAREZZA, Commission de la Communauté Européenne, Direction Environnement, DG XI/B/1, Brussels, Belgium

DR WILFRIED VYNCKE, Ministrie van Landbouw, Oostende, Belgium

IR BEN VAN DE WETERING, Rijkswaterstaat, Dienst Getijdewateren, Den Haag, The Netherlands

The present document was produced by the Secretariat of the North Sea Task Force under the responsibility of Dr JEAN-PAUL DUCROTOY, Secretary of the North Sea Task Force, London, United Kingdom.

ILLUSTRATIONS

TABLE OF CONTENTS

ANNEX G OF THE LONDON DECLARATION

1. In preparing the 1987 Quality Status Report, it emerged that, although a great deal is known about the North Sea, there are still shortcomings in the data for certain contaminants. This became particularly apparent when looking for trends in inputs, linking these to actual contaminant levels and trying to link those in turn to environmental changes.

2. A co-ordinated scientific programme needs to be developed in the North Sea to provide more consistent and dependable data and to permit links between inputs, concentrations and effects to be established with greater confidence. Such knowledge is needed not only as a basis for further decisions but also to show the effectiveness or otherwise of measures already taken or planned.

OBJECTIVES

3. To carry out work leading, in a reasonable time scale, to a dependable and comprehensive statement of circulation patterns, inputs and dispersion of contaminants, ecological conditions and effects of human activities in the North Sea.

ELEMENTS IN THE PROGRAMME

4. The following are the proposed elements in the proposed programme:

(1) Agreement on the substances and/or parameters to be measured; the methods to be used to measure or calculate these; the frequency and location of sampling and/or measurement;

(2) A properly designed and managed quality assurance programme covering sampling and analysis for monitoring and research purposes;

(3) More and better quality data to be collected in a harmonized manner specifically for the purpose of defining conditions in the North Sea;

(4) Special programmes in specific areas of higher risk, e.g., the Wadden Seas, Kattegat, British estuaries;

(5) The development of models for:

(a) assessment purposes which are able to make full use of the improved data base;

(b) as management tools to determine the effectiveness of existing or planned control strategies.

(6) Research to fill gaps in our knowledge of causal mechanisms needed for the interpretation of results from (1) to (5) above, and which will be of use to all North Sea states. The Quality Status Report identifies several such topics, e.g., impacts on marine ecosystems, indicators of biological change, fish diseases, nutrient enrichment, the development of techniques for assessing the dispersion of contaminants from sources, sediment movement.

Box 1: Extract of the London Declaration (1987) stipulating the remit for group planning an internatinoal study of the North Sea

PART ONE

PRESENTATION OF THE NORTH SEA TASK FORCE

THE NORTH SEA TASK FORCE

In 1987, the Ministerial Declaration of the Second International Conference on the Protection of the North Sea identified shortcomings in the scientific knowledge of the North Sea environment. It was agreed that a coordinated scientific research and assessment programme needed to be developed for the North Sea in order to provide more consistent and comparable data and to permit links between inputs, concentrations and effects of contaminants to be established with greater confidence. Such knowledge was seen to be necessary to allow **strategic decisions on environmental protection** and to assess the **effectiveness or otherwise of the measures already taken.**

THE INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

The International Council for the Exploration of the Sea (ICES) is the oldest intergovernmental organisation in the world concerned with marine and fishery science. Since its foundation in 1902, ICES has been the scientific forum for the exchange of information and ideas on the sea and its living resources and for the promotion and coordination of research undertaken by experts within its seventeen member countries on both sides of the Atlantic.

The work of the Council is designed to meet the needs not only of its member countries, but also of regulatory commissions concerned with the efficient utilisation of marine fish and shellfish resources in the North Atlantic including the North Sea and the Baltic Sea, and with the protection of the marine environment from the effects of pollution.

The Council is involved in all relevant aspects of oceanographic and marine biological research: the physical and chemical properties of the sea as the environment which supports marine life, the biology, ecology, and population dynamics of exploited fish and shellfish stocks, the contamination and quality of the marine environment, fish capture techniques, marine mammal studies, and mariculture; all of these subjects are covered at the Council's annual Statutory Meetings and in the extensive literature published by ICES.

Hundreds of scientists participate every year in meetings of ICES standing committees, working and study groups, special meetings and symposia. The scientific staffs of laboratories in member countries have a long tradition of working together at ICES. Therefore, the scientists who are involved know each other well, problems of mutual interest surface quickly, and a joint attack on them can be started without prolonged delay. The Council's activities are based on the premise that international cooperation in research is vital if aquatic resources are to be conserved and exploited rationally.

Box 2 Presentation of the International Council for the Exploration of the Sea (ICES)

In order to meet this need the **International Council for the Exploration of the Sea (ICES)** and the **Oslo and Paris Commissions (OSPARCOM)** established a special working group, the North Sea Task Force (NSTF). The The North Sea Task Force Secretariat is based at the offices of the Oslo and Paris Commissions, and works in close cooperation with the Secretariat of the International Council for the Exploration of the Sea in Copenhagen. Membership of the North Sea Task Force includes the eight North Sea States (Belgium, Denmark, France, Germany, the Netherlands, Norway, Sweden and the United Kingdom) as well as representatives of the Commission of European Communities.

WORKING METHODS

Much of the work relevant to the North Sea Task Force's objectives is carried out in the framework of groups established by ICES and OSPARCOM (see Annex 1). Where new initiatives have been necessary, the North Sea Task Force has used one or more of the following mechanisms:

(i) **expert groups** to address specific issues and to prepare advice for consideration by the North Sea Task Force;

(ii) **workshops** to resolve specific questions and to inform other scientists in North Sea countries of the state of progress of research;

(iii) **scientific seminars or conferences** to publicis+e the results of monitoring and research programmes;

(iv) inviting ICES and OSPARCOM to start **new projects** or to adjust existing **research programmes.**

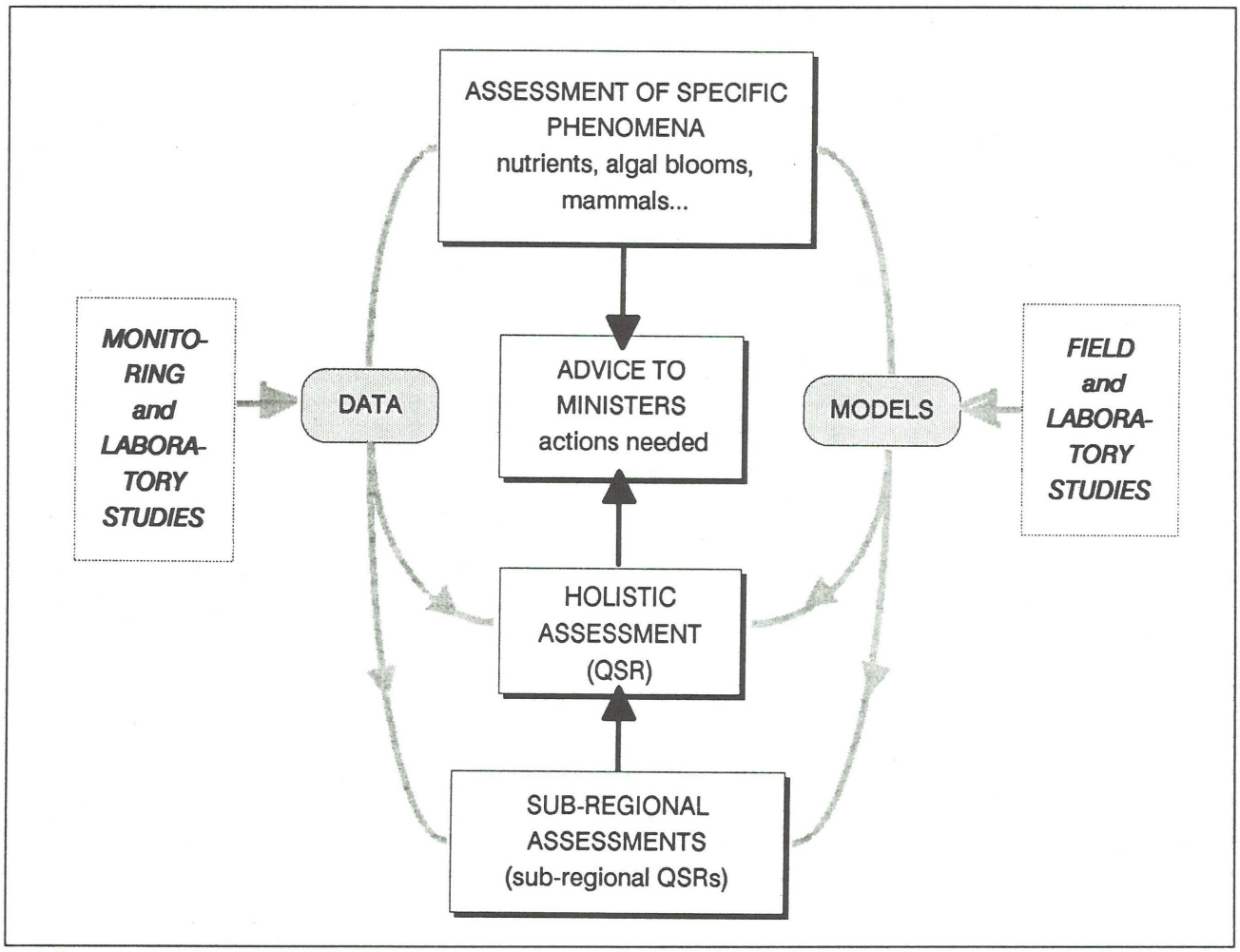


Figure 1: ***Flow of information through the North Sea Task Force organisation*** *(QSR = Quality Status Report)*

PART TWO

MONITORING AND ASSESSING THE QUALITY OF THE NORTH SEA

THE 1993 QUALITY STATUS REPORT OF THE NORTH SEA

One of the main responsibilities of the North Sea Task Force is to prepare an update of the 1987 and 1990 Quality Status Reports of the North Sea (QSR) by 1993.

In order to strengthen the scientific basis on which the updated assessment will rest, the North Sea Task Force has established a comprehensive monitoring programme and has initiatedintensive collaboration with the scientific community in each of its member countries. The North Sea Task Force has also established an efficient system for keeping policy-makers and administrators informed about important scientific developments. These three elements: **monitoring**, a **strong scientific basis**, and an **effective transfer of information** are part of a new dynamic approach to assessing the quality of the marine environment of the North Sea.

On the basis of the natural hydrographic variations found in the North Sea, ten sub-regions have been identified by the North Sea Task Force. For each of these a lead country, usually in association with one or two cooperating countries, is responsible for preparing a sub-regional quality status report. **The sub-regional reports** will form the basis of the holistic North Sea Quality Status Report to be published in late 1993.

The Quality Status Report will consist of **the following chapters**:

1. General Description of the North Sea;
2. Physical Characteristics and Conditions;
3. Marine Chemistry;
4. Marine Biology;
5. Man's Impact on Ecosystems;
6. Overall Scientific Assessment;
7. Conclusions and Outlook

It will be directed to ministers, policy makers and a well-educated public. It will be based upon sound scientific knowledge but will be as "reader-friendly" as possible. The idea is to provide three levels of reading:

- general text;
- illustrations and captions standing by themselves;

- more specialised explanations to appear in boxes.

The main text will be written in English but the main conclusions and captions of figure will appear also in French.

The sub-regional reports will follow the same format and have the same chapter sub-headings as the holistic QSR.

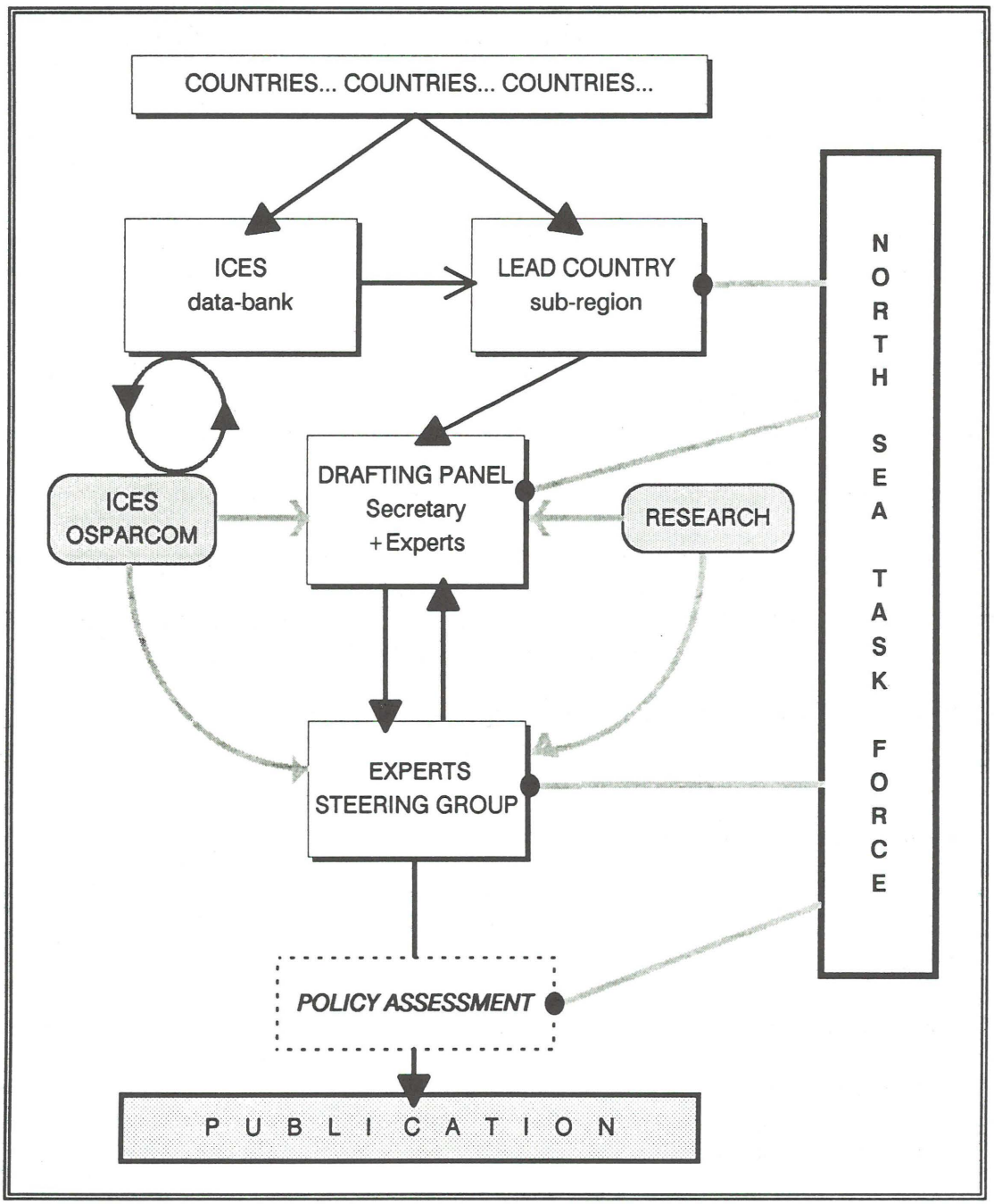


Figure 2 Methodology adopted by the North Sea Task Force to prepare the 1993 Quality Status Report of the North Sea

HOLISTIC CONTRIBUTIONS TO THE QSR

In parallel with the preparation of the sub-regional assessments of the quality of the North Sea, relevant ICES and OSPAR Groups will provide holistic reports on specific subjects.

The Experts Steering Group established a list of the holistic contributions as follows:

- assessment of data on contaminants in biota from the Joint Monitoring Group (JMG);
- assessment of data on contaminants in sediments from the ICES/NSTF/OSPARCOM sediment assessment group;
- contribution on benthos from the ICES Benthos Ecology Working Group;
- report on marine mammals by the ICES Study Group on Seals ans Small Cetaceans;
- report on ecosystem effects of fishing activities by the ICES Study Group on Ecosystem Effects of Fishing Activities;
- report on sea-birds at sea by the delegation of the United Kingdom;
- report on modelling by the Belgian delegation (information on relevant modelling results made available for each chapter);
- report on bathing water quality by the delegation of Belgium;
- report on eutrophication by the Paris Commission's Working Group on Nutrients (NUT);
- report on inputs from the atmosphere, rivers and directly to the sea and from the coast by OSPAR.

*Box 3: **List of contributions and reports to be prepared on a holistic level for the 1993 Quality Status Report***

THE MONITORING MASTER PLAN FOR THE NORTH SEA

The Monitoring Master Plan (MMP) was developed in order to expand that part of the Joint Monitoring Programme (JMP) of the Oslo and Paris Commissions which is concerned with the spatial distribution of contaminants, particularly in sediments, and to add the monitoring of the biological effects of contaminants..

The MMP:

(i) covers **all the areas of the North Sea** including the English Channel;

(ii) includes several **offshore** North Sea monitoring stations in all areas;

(iii) has sufficient breadth of coverage to provide a "snapshot" picture of the **spatial distribution** of contaminants across the whole of the area;

(iv) includes the contaminants of interest in the context of a **baseline survey**; and

(v) aims to coordinate biological and chemical monitoring over the whole North Sea.

SUB-REGION	INTERESTED COUNTRIES	LEAD COUNTRY	
Area 1	Norway, United Kingdom	Norway	N
Area 2	Norway, United Kingdom	United Kingdom	UK
Area 3	United Kingdom	United Kingdom	UK
Area 4	Belgium, France, Germany, Netherlands, United Kingdom,	Netherlands	NL
Area 5	Denmark, Germany, Netherlands, Norway, Sweden	Denmark	DK
Area 6	Norway	Norway	N
Area 7a	All North Sea States	Germany	D
Area 7b	All North Sea States	United Kingdom	UK
Area 8 Skagerrak, Kattegat	Denmark, Germany, Norway, Sweden	Norway	N
Area 9 English Channel	Belgium, France, Germany, United Kingdom	France, United Kingdom	F/UK
Area 10 Wadden Sea	Denmark, Germany, Netherlands	Common Wadden Sea Secretariat	CWSS

Table 1: Participating and Lead Countries to prepare the 1993 Quality Status Report of the North Sea

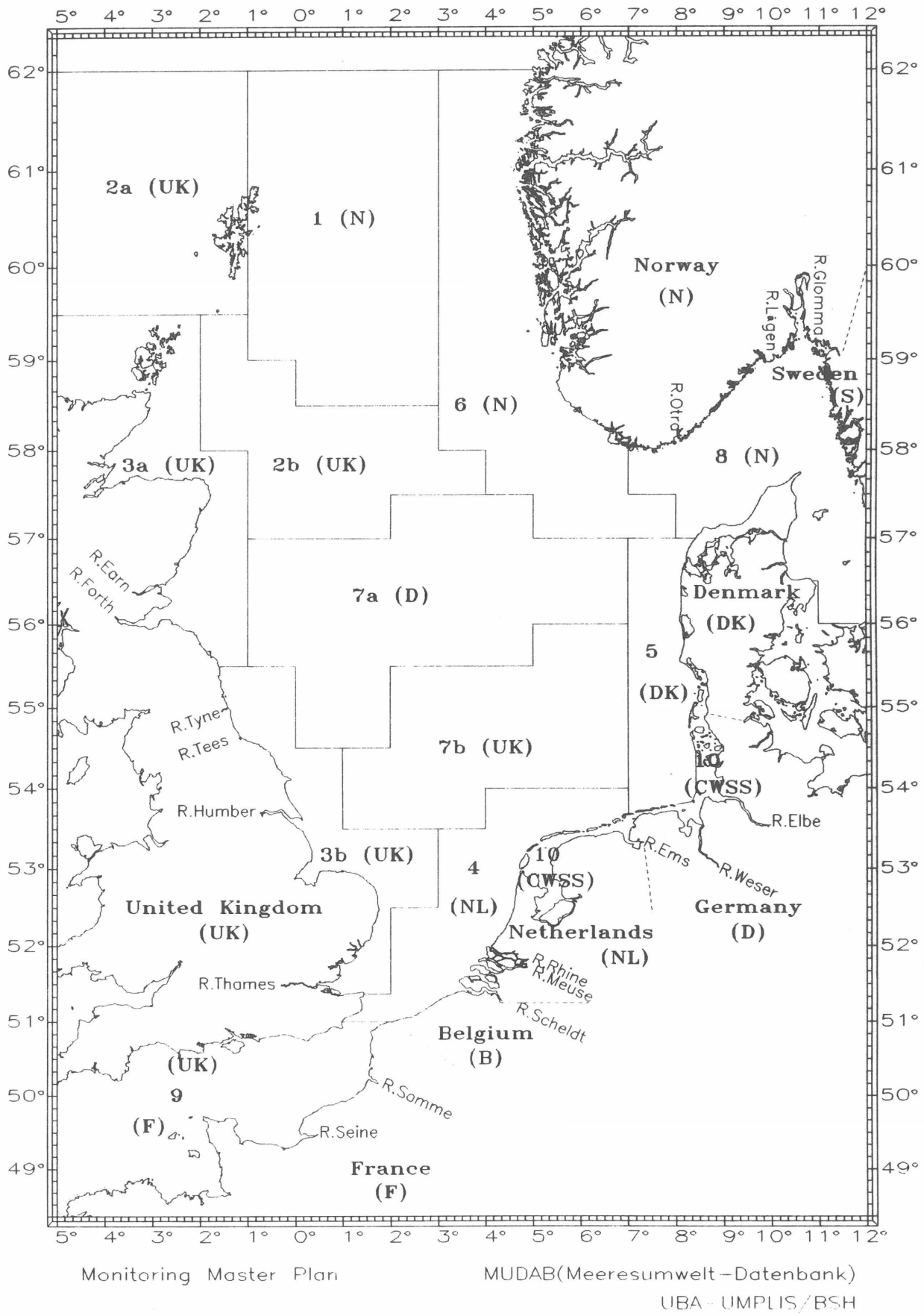


Figure 3: Sub-regions of the North Sea adopted by the North Sea Task Force based on the natural hydrographic variations of the North Sea

The measurement of **chemical contaminants** is part of a study of the spatial distribution of trace metals and a number of organic contaminants in surface sediments of the North Sea. This study represents the first baseline study of contaminants in sediments in the North Atlantic area.

The main aim of the **biological effects** component is to assess the biological health of the area. Considerable research has been devoted to the development of biological effects monitoring in recent years and several techniques were considered to be sufficiently well tested to permit their use in a coordinated biological effects monitoring programme.

The techniques that were incorporated into the MMP apply to the study of macrofaunal communities, oyster embryo bioassays, fish diseases and mixed function oxidase tests (an enzyme responsible for the detoxification of certain chemicals). Other techniques are at an advanced stage of development and validation but additional work on them is needed before they can be recommended for inclusion.

	CHEMICAL SUPPORT	STANDARD METHODS	LEAD COUNTRIES FOR QUALITY ASSURANCE
BENTHOS Macrofaunal community	NSTF Contaminants in sediments	ICES 1988: Cooperative Research Report N° 160; PARCOM 1989: Guide-lines for Monitoring in the Vicinity of Platforms; Rumohr H., 1990, Tech. Mar. Environ. Sci. N° 18 (In press).	NORWAY Intercalibration exercise (development)
BIOASSAY Oyster embryo in water	NSTF contaminants in water. Coordination with chemical programme including nutrient data and, where appropriate, indicators of algal bloom conditions such as chlorophyll-a	Thain, J. E. 1990 Oyster Embryo Bioassay, ICES Techniques in Marine Environmental Sciences N° 11	UNITED KINGDOM Interlaboratory ring tests and exchange of material
FISH DISEASE dab (*Limanda limanda*)	NSTF contaminants fish and sediments	ICES 1989: Cooperative Research Report N° 166	SWEDEN Provision of ICES Guidelines for the study of fish diseases and general advice on identification of particular abnormalities
EROD* dab (*Limanda limanda*)	Total PCBs and PAH in sediments	Galgani, F. 1991 ICES Techniques in Marine Environmental Sciences N° 13	FRANCE/NETHERLANDS Exchange of reference material between countries UNITED KINGDOM Laboratory intercomparison exercise

Table 2: ***Recommended biological effects monitoring techniques under the Monitoring Master Plan of the North Sea Task Force***

The **quality assurance** of the chemical and biological measurements has been an important part of the MMP. Intercomparison workshops or exercises have been conducted with regard to several, but not all, of the types of measurement covered.

In the short term the data collected in 1990/91 are being used as a source of information for the preparation of the 1993 Quality Status Report. The data are sent to ICES according to an agreed timetable. There they are entered on ICES database, processed and assessed; ICES issues data products in the form of compilation tables, maps, etc.

In order to meet the **monitoring requirements for the longer term**, the MMP will be modified, following evaluation of the results in 1993, with a view to determining which sites and which parameters (substances, effects) should be monitored in future, and with which frequency, in order to assess temporal trends and changes in spatial distributions. Meanwhile in 1992/93, the MMP and other programmes to assess temporal trends will continue under the JMP and ICES.

In the future studies it is suggested that, since most laboratories encounter difficulties in attaining the desired standard in the measurement of organic compounds, a lead laboratory analyse relevant samples collected by other laboratories. An alternative approach is the conduct of **large-scale surveys** by single countries. Germany, UK and Belgium have already indicated their willingness to act in this capacity. In the case of large-scale surveys the research vessel associated with a lead country's laboratory must have access to the territorial and even internal waters of other North Sea states. Accordingly the North Sea Task Force strongly recommends that in such cases its member states take the necessary steps to ensure that such rights of access are readily granted.

PART THREE

RESOLVING SPECIFIC QUESTIONS

MODELLING

The need to develop further computer-based mathematical models is considered to be necessary:

1. to promote better design of monitoring programmes;

2. to enhance **assessment capabilities;**

3. to enable their use as **management tools** to determine the effectiveness of existing or future strategies to control inputs.

In the short term, the North Sea Task Force's aim is to identify the questions for which mathematical models can be expected to provide further information, in particular about the various physical, chemical and biological processes in the North Sea environment.

To identify the types of mathematical models presently in use, an inventory of models relevant to the work of the North Sea Task Force has been prepared by the Belgian delegation.

The North Sea Task Force is also developing a strategy to identify the requirements for models and a common set of basic data needed to feed into the models. The future work of the North Sea Task Force in this area will be to develop sub-regional and regional modelling techniques including quality assurance exercises (coordination of model verification and validation) among North Sea states.

EUTROPHICATION

Exceptional algal blooms can cause problems for fisheries, aquaculture, tourism and recreational interests. Recently these events appear to have become more frequent and serious and, in many cases, appear to be associated with enhanced nutrient inputs. On the basis of advice from the PARCOM Working Group on Nutrients and ICES, the North Sea Task Force has recommended that:

1. further research should be carried out into the occurrence of **algal blooms**, and their implications for the dynamics of coastal ecosystems;

2. research should be initiated about the life cycle of **toxic algae**, and more particularly about the resting stage (cysts);

3. research should be conducted into the possible association between the presence of **fish farms** and localized exceptional algal blooms; and

4. monitoring of the proliferation of macroalgae should continue and research into **exceptional occurrences** should be carried out.

BIOLOGICAL MONITORING PROGRAMMES

There is clearly considerable benefit to be gained by harmonising the biological monitoring activities of North Sea states so that in future similar information is available, for the whole area, in relation to the topics included in the QSR.

To this end a **workshop on benthic monitoring and other aspects of biological monitoring** was organised in 1992 by the Benthos Ecology Working Group of ICES. Conclusions and recommendations of the workshop were not available at the time of printing.

ECOLOGICAL QUALITY OBJECTIVES

Although there are many similarities among the different approaches to defining ecological quality objectives, initiatives for harmonisation at the international level have been lacking and the North Sea Task Force organised a workshop to begin this process. The sub-group produced **an inventory of current and proposed techniques for establishing ecological quality objectives as well as a glossary of terms.** The sub-group concluded that the setting of Ecological Quality Objectives for the North Sea was possible in principle and would be a useful goal, but the tools required to properly define the variables to be included in the Ecological Quality Objectives were generally not yet available (see Annex 2).

The sub-group on Ecological Quality Objectives made three recommendations to the North Sea Task Force:

1. Ecological Quality Objectives for **smaller systems** such as estuaries and coastal zones should be developed as a first priority;

2. countries which were already developing Ecological Quality Objectives should work towards **harmonizing a methodology**; and

3. the North Sea Task Force should link any **future monitoring programmes** to Ecological Quality Objectives.

BACKGROUND CONCENTRATIONS

It is important that good data are made available on the **concentrations of chemical substances recognised as contaminants** and that these be assessed in relation to their **natural concentrations** (if any) in the marine environment. This information can be used in evaluating the impact of inputs resulting from human activity. To this end a workshop was organised defining scientifically acceptable background values of nutrients, metals and some organic contaminants for the North Sea and the rivers discharging into the North Sea.

The Workshop discussed the current definition of "background levels". Components of the different groups of natural compounds were selected. Several compotents were extracted, evaluated and discussed from the available literature and reports. A choice was made as to the compartments (water, particulate matter, sediments, etc.) which needed to be taken into account.

In spite of the large amount of available data it appeared rather difficult using the criteria put forward by ICES and JMG, to assess background concentrations of natural compounds.

In the final report recommendations will be made for future research, as well as on the need for a follow up to this international workshop.

IMPACT OF FISHING ACTIVITIES ON THE NORTH SEA ECOSYSTEM

Preliminary reviews of the impact of fishing activities in the North Sea have been discussed by the North Sea Task Force. It has been recognised that further work would be necessary and the North Sea Task Force agreed that ICES should utilise its expertise on fishing activities, fish resources and assessment, and should address the **scientific aspects** of these questions. The report of the study group established for this task will be available later in 1992.

In order to promote an experimental approach to the impact of fishing activities on the North Sea environment, the North Sea Task Force has endorsed the need to establish a **control area in the North Sea,** which would be free of human impact, including fishing. This undisturbed zone would be used for reference purposes. This view has been brought to the attention of the competent international organisations.

PROTECTION OF SPECIES AND HABITATS

MARINE MAMMALS

The North Sea Task Force has encouraged an extensive array of research projects in the wake of the **seal epidemic of 1988,** to establish its source and characteristics (role of contaminants in the immune response of seals to the Phocine Distemper Virus) as well as the creation of a blood and tissue bank. The ICES Study Group on Seals and Small Cetaceans in European Seas has assessed the current and future status of populations of seals and coastal dolphins in the North Sea; its report is now available.

The need for standardisation of protocols for reporting **strandings of marine mammals,** the conduct of and recording results of post-mortems on marine mammals has been recognised by the North Sea Task Force and the development of such protocols is under way.

BIRDS

A **database on sea and coastal birds** is being developed. Each country has been requested to make its own records available with a view to their compilation into a single document. A computerised version of the database will also be available as an interactive tool.

The North Sea Task Force is carrying out an investigation of ways **beached sea and coastal birds** can be used as an indicator to assess and compare the effectiveness of policy decisions made on the reduction of oil pollution.

SURVEYS OF MARINE SITES AND CATALOGUE OF COASTAL MARGINS

Activities are underway to improve the coordination of analyses of coastal margins, including the evaluation of the status of the coastal marine environment, particularly with **regard to conservation.** The North Sea Task Force has established a sub-group to compile the extensive documentation submitted to the North Sea Task Force during the last three years, with the intention to prepare an overview document to be included in the QSR.

ASSESSMENT OF EXISTING DAMAGE AND METHODS FOR RECONSTRUCTION

The Third International Conference on the Protection of the North Sea requested first proposals for possible methods for the reconstruction of already damaged ecosystems and for the protection of ecosystems still intact. This issue is being addressed as part of the review on **biological monitoring** and the study on **impact of fishing activities** above.

PART FOUR

COORDINATING NORTH SEA RESEARCH

NORTH SEA RESEARCH DATABASE AND BIBLIOGRAPHY

To enhance scientific knowledge and understanding of the North Sea environment the North Sea Task Force has compiled a database consisting of summaries of relevant research projects. The **computer based system** (developed by the United Kingdom) at present lists more than 600 projects from all the littoral states and the Commission for European Communities (CEC).

The UK also acts as coordinator for the compilation of a bibliographic listing of **recent publications relating to research and monitoring** in the North Sea area. At present the bibliography contains 7000 references and it is still being added to.

THE NORTH SEA RESEARCH DATABASE

A large-scale, integrated, PC-based system which provides information on individuals, organisations and projects concerned with the North Sea environment.

* OVER 600 PROJECTS LISTED (AS AT JUNE '91)
* A RANGE OF EASILY FOLLOWED MENUS
* TEXT HELP AVAILABLE ON SCREEN
* DISTRIBUTED FREE ON 3.5" AND 5.25" DISKETTES

AIMS OF THE DATABASE

- to improve communication between scientists and administrators
- to identify current research and any gaps or overlaps
- to avoid unnecessary duplication of effort and encourage use of common resources
- to define budgeting and research priorities and funding sources
- to improve access to bibliographic and research information

Box 4 : The main characteristics of the North Sea Research Database

MOORING OF AUTOMATED SCIENTIFIC INSTRUMENTS

Large navigation buoys have been moored in the framework of the **International North Sea Project (INP)** (on the Dogger Bank) to safeguard the scientific equipment. In addition to the moored instruments, nutrient and plankton measurements are made on a routine basis. CTD-profiles (temperature and salinity, oxygen and fluorescence) are also being taken on each visit.

HARMONISED NORTH SEA RESEARCH PROGRAMME

The North Sea Task Force is investigating the willingness of research institutes and scientists to cooperate in joint international North Sea research items or programmes, which would be of common and/or public interest.

Proposals have already been made and it has been suggested that such cooperative programmes could:

- focus on the **main issues** identified by the North Sea Task Force;
- maintain **flexibility** for the free development of individual/national programmes and other international cooperation; and
- take into account the way **results of scientific research** may be made available for the preparation of subsequent quality status reports by the North Sea Task Force.

OTHER INVESTIGATIONS

An illustration of the type of lively scientific debate that can occur through the North Sea Task Force is the discussion on the results of a study of **dissolved and particulate trace metals in surface waters over the Dogger Bank.** A considerable mobilisation of trace metals has been observed by some laboratories, but the processes underlying these observations are unclear and have stimulated considerable debate. On the basis of these observations, research work has been initiated by several countries.

A baseline survey of **tributyltin contamination of North Sea Coasts,** utilising dogwhelk (*Nucella lapilus*) imposex methodology has begun in 1991. The main objective of this programme is to assess the degree of contamination of coastal habitats by tributyltin through examination of changes in sex of the molluscs. The initial phase of the main field programme has been achieved in 1991/1992. Live dogwhelks and mussels, together with the necessary hardware, have been transplanted at several locations in North-Western Europe. A second period of fieldwork now includes recovery of transplants and sampling of wild populations. Attention has been given to identifying a monitoring organism that is present naturally in sandy (or muddy) substrates and which can be used in areas where dogwhelks are absent

PART FIVE

NORTH SEA TASK FORCE PUBLICATIONS

NORTH SEA ENVIRONMENT SERIES

To meet the needs of the general public, the scientific community and the policy makers, the North Sea Task Force regularly publishes **the North Sea Environment series** addresses policy makers interests. Important issues which have been recently addressed are:

- enhancing scientific understanding of the North Sea Environment;
- the Monitoring Master Plan;
- the preparation of the 1993 Quality Status Report.

THE NEWSLETTER

A Newsletter is issued twice a year and describes the recent progress of the North Sea Task Force work and highlights topical issues **for the benefit of the public and the scientific community.**

NORTH SEA TASK FORCE NEWS N° 2

CONTENTS

Box 5: ***Table of content of Issue No 2 of the Newsletter of the North Sea Task Force***
Titles and summaries are also given in French

EXISTING WORKING GROUPS THAT MAY PROVIDE INPUTS TO THE NSTF PROGRAMME

RELEVANT GROUPS OF THE OSLO AND PARIS COMMISSIONS

Standing Advisory Committee for Scientific Advice (SACSA)

Technical Working Group (TWG)

Joint Monitoring Group (JMG)

Working Group on Nutrients (NUT)

Working Group on Atmospheric Inputs

Working Group on Oil Pollution

Ad Hoc Working Group on Monitoring

RELEVANT ICES WORKING GROUPS

The following ICES Working Groups are concerned, in at least some of their work, with issues relevant to marine environmental conditions and the impact of contaminants:

Advisory Committee on Marine Pollution (ACMP)

Marine Environmental Quality Committee (MEQC)

Marine Chemistry Working Group (MCWG)

Working Group on the Baltic Marine Environment (WGBME)

Working Group on Marine Sediments in Relation to Pollution (WGMS)

Working Group on the Statistical Aspects of Trend Monitoring (WGSATM)

Working Group on Biological Effects of Contaminants (WGBEC)

Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)

Working Group on Environmental Assessments and Monitoring Strategies (WGEAMS)

Benthos Ecology Working Group (BEWG)

Working Group on Shelf Seas Oceanography

Working Group on the Effects of Extraction of Marine Sediments

Working Group on Environmental Impacts of Mariculture

Working Group on Harmful Effects of algal Blooms on Mariculture and Marine Fisheries

Phytoplankton Ecology Working Group

Study Group on the Toxicology of Acid Rain and its Effects on Salmon

Study Group on Patchiness Investigations in the Baltic

Study Group on Patchiness Investigations in the Skagerrak

Study Group on the Effects of Contaminants on Marine Mammals

Working Group on Oceanic Hydrography

Study Group for the Application of Aerospace Remote Sensing

Study Group on Ecosystem Effects of Fishing activities

CONCLUSIONS OF THE NORTH SEA TASK FORCE

ON ECOLOGICAL QUALITY OBJECTIVES

PRESENTATION OF ECOLOGICAL QUALITY OBJECTIVES

The North Sea Task Force had been requested by the Third International Conference on the Protection of the North Sea to:

> **"elaborate techniques for the development of ecological objectives for the North Sea and its coastal waters" (The Hague Declaration, 1990).**

Many contributions have been made by member countries at North Sea Task Force meetings and it is clear that, both at national and international levels, initiatives are underway to define ecological quality objectives for the marine ecosystems. Although there are many similarities among the different approaches, initiatives for harmonisation were lacking and the North Sea Task Force established a sub-group to deal with this matter.

A common **glossary of terms** was compiled by the sub-group and adopted by the North Sea Task Force.

GLOSSARY OF TERMS ON ECOLOGICAL QUALITY OBJECTIVES

ECOLOGICAL QUALITY

Ecological quality is an expression of the structure and function of the ecological system taking into account natural physiographic, geographic and climatic factors as well as biological, physical and chemical conditions including those resulting from human activities.

ECOLOGICAL QUALITY REFERENCE LEVEL

The level of ecological quality where the anthropogenic influence on the ecosystem is minimal.

ECOLOGICAL QUALITY OBJECTIVE

The Ecological Quality Objective is the desired level of ecological quality relative to the reference level.

(Note: The purpose of the Ecological Quality Objective is to ensure that the ecological quality is either maintained or improved).

ECOLOGICAL QUALITY STANDARD

The ecological quality standard is a quantifiable measure of the ecological quality objective.

(Note: This can be used to mean either a standard which consists of a number of parameters e.g. an index, or a single parameter value).

The sub-group also produced an **inventory of current and proposed techniques** for establishing Ecological Quality. This inventory may not be exhaustive.

INVENTORY OF CURRENT AND PROPOSED TECHNIQUES FOR ESTABLISHING ECOLOGICAL QUALITY OBJECTIVES

Netherlands - AMOEBA approach for marine and freshwaters

Netherlands- Environmental zoning for marine waters

Norway - Water quality criteria for freshwaters, fjord and coastal waters (in development)

USA - Mussel watch, monitoring mussel growth rates in contaminated waters

UK - Freshwater methods, to be transferred to saline waters

Germany - Methods for freshwaters are developed but freshwater criteria are regarded as not transferable to marine environments

National Rivers Authority (NRA) - Freshwater methods only

Large Marine Ecosystems - international interest

UK - Quality criteria for sewage sludge disposal sites

Methods for assessing damage caused by oil spills

Maps vulnerable coastal sites in Norway and the UK

Denmark - Elaboration of techniques for the development of Ecological Objectives (from Common Wadden Sea inventory

ECOLOGICAL QUALITY OF WATER DIRECTIVE

The ecological quality of water directive by the Commission of the European Community will be published later in 1992. Under this directive, member states will have to adopt measures to move towards a state of higher ecological quality for all surface waters. There will be a requirement to demonstrate the adoption of best environmental practice and of regular reporting of results to the Commission. There was a need for harmonisation although the difficulties in deriving systems suitable for the diverse habitats which exist in EEC member states were recognised. It is unlikely that implementation will take place as soon as the Directive is adopted.

APPLICABILITY OF ECOLOGICAL QUALITY OBJECTIVES TO THE NORTH SEA

Ecological Quality Objectives are needed as a warning system about the quality of the North Sea and should be kept as clear and precise as possible. The objectives should be easy to use and the relevant information should be made available to the public. Much work has already been completed in developing an methodology for defining Ecological Quality Objectives in a number of countries. Over the next few years, these may be better defined as more information is being collected. It seems possible to develop an index of quality which is built up from a number of other indices showing the quality of single variables, through the use of e.g. multivariate data processing techniques. The major problem at the moment is how to define the reference level. Should it relate to historical data or should it relate to current data from sites known to have minimal anthropogenic influence? Whilst there are substantial data for many of the coastal zones, it is still difficult to see an accurate picture for the offshore sites. There are plenty of good data for the higher trophic levels such as fish, and for soft bottom communities, but data for primary production are still limited. Perhaps the computer models currently being developed would enable Ecological Quality Objectives for offshore sites to be constructed in the foreseeable future.

CONCLUSIONS

The setting of Ecological Quality Objectives for the North Sea is possible in principle and would be a useful goal, but the tools required to properly define the variables to be included in the Ecological Quality Objectives are generally not yet available. The following recommendations can be made:

a. Ecological Quality Objectives for smaller systems such as estuaries and coastal zones should be developed as a first priority;

b. countries which are already developing Ecological Quality Objectives should work towards a harmonised methodology; and

c. the North Sea Task Force should link any future monitoring programmes to Ecological Quality Objectives.

For further information about the work of the North Sea Task Force, or to obtain additional copies of this report, please contact:

The Secretary
North Sea Task Force
New Court
48 Carey Street
LONDON WC2A 2JE

Tel: +44 71 404 0169
Fax: +44 71 430 2999
Telex: 21185 BOSPAR G

Price, including postage and packing: £5.00

ISBN 1872349 05 6