

OCEANOGRAPHY COMMITTEE (C)

2C01 The **Study Group on Incorporation of Process Information into Stock Recruitment Models** [SGPRISM] (Chair: C. O'Brien ,UK) will meet in Lowestoft, UK from 14–18 January 2002 to:

- a) further consider the two case studies (North Sea cod and Bay of Biscay anchovy);
- b) further develop the modelling and testing of process and recruitment relationships for incorporation into management procedures;
- c) identify the sources of data necessary for the determination of the reproductive potential of fish stocks and specify a protocol for their collection within existing co-ordinated surveys;

SGPRISM will report by 31 January 2001 for the attention of the Oceanography and Resource Management Committees. The report will be brought to the attention of the Working Group on Recruitment Processes.

Supporting Information

Priority:	Because the relationship between spawning stock and recruitment is fundamental to the scientific approach to fisheries management, the work of this group should be considered of high priority to ICES.
Scientific Justification:	<p>Considerations of environmental factors can make quite a big difference to how one might manage a stock. Simulation models can play an important role in helping identify whether and where benefits to management are most likely to accrue and therefore where it would be best to focus attention in terms of other (e.g. process) studies. Results from simulation studies should be used to guide biological studies. Short-term focused studies aimed at identifying likely mechanisms are also crucial, but results from such studies can only be put to full use with information from longer-term observations. There is also benefit in long-term studies of the environment and underlying processes so that one is prepared if something unexpected happens. For example, if a process study reveals a strong relationship with some environmental variable, then it would be possible to incorporate this immediately if historic data are already available.</p> <p>The STEREO project (STock Effects on REcruitment relationships, EU FAIR CT98–4122) is investigating the extent to which variations in dispersal and the spatial configuration of spawning affect the proportion of the total carrying capacity that can be occupied at different levels of stock abundance, and these results will be reported at the next meeting of the WGRP. However it was also felt that the type of information considered in that project should be provided to the SGPRISM as an example case study which should be used to develop approaches for incorporation of process studies into stock-recruitment projections and advice. An initial investigation of incorporating STEREO output into medium-term projections of North Sea cod was instigated at the second meeting of SGPRISM but there is a need to further develop these early analyses.</p>
Relation to Strategic Plan:	The activities of this group are intimately related to a number of elements of the Strategic Plan, especially those elements dealing with the improvement of stock assessment procedures, and the incorporation of environmental parameters.
Resource Requirements:	Very small as the activity is closely related to ongoing work in the host institute. This is a Core Activity
Participants:	The first and second meetings of this group attracted 15 participants at each meeting, about 30% from the host institute. There is a healthy level of interest in its work, and there is no reason to expect anything but a maintenance or expansion of the participation.
Secretariat Facilities:	None
Financial:	None
Linkages To Advisory Committees:	Very closely linked to the Advisory Mechanism, which should provide much of the basic scientific input to the debate on integrated advice.
Linkages To other Committees or Groups:	The work of the Group closely overlaps with the interests of the Resource Management Committee to whom this group refers.
Linkages to other Organisations:	None
Cost Share	ICES:100%

2C02 An **ICES-EuroGOOS Planning Group on the North Sea Pilot Project** [PGNSP] (Chair: H. Loeng, Norway) will be established and will meet in Bergen, Norway from 27 February– 1 March 2002 to:

- a) consider the basic concepts for integrating oceanographic and fish stock information;
- a) develop implementation plans for The North Sea Pilot Project.

PGNSP will report by 31 March 2002 for the attention of the Oceanography, Living Resources, Resource Management, Marine Habitat and Advisory Committees. It will also make its report available to SGGOOS.

.Supporting Information

Priority:	This initiates an important initiative for ICES to actively engage itself in GOOS activities. Thus priority is high.
Scientific Justification:	The ICES/IOC Steering Group for the Global Ocean Observing System (SGGOOS) organized a workshop <i>Towards a North Sea ecosystem component of GOOS for assessment and management</i> in Bergen 5-7 September 2001 as a follow-up activity of its Implementation Plan. This Workshop produced an agreed IOC/EUROGOOS/ICES/OSPAR/NSC Statement of Conclusions which will be submitted to the 5 th NSC in March 2002. This proposes <i>iter alia</i> that the national agencies responsible for the monitoring of the North Sea, should be invited to: 1) Establish a coordinated mechanism that could add value to existing activities by integrating data from various sources (physical, chemical, biological) to aid development of an ecosystem approach, 2) Collaborate by means of a pilot project sponsored by ICES and EuroGOOS to demonstrate the usefulness of this approach by integrating data on oceanography and fisheries.
Relation to Strategic Plan:	The general area of operational oceanography, environmental/fish interactions and ICES collaboration with other international/regional organisations is a fundamental component of ICES future strategy.
Resource Requirements:	Only costs of running a meeting at the host institute
Participants:	Both representing the physical oceanography community and fish surveys and stock assessment communities are invited. EuroGOOS will also nominate participants. Participants from institutes participating in North Sea/OSPAR monitoring programmes will be essential
Secretariat Facilities:	None, but relevant Secretariat staff should be directly involved in the Group
Financial:	None
Linkages To Advisory Committees:	Very close to ACE objectives but highly relevant to the interests of ACFM and ACME too.
Linkages To other Committees or Groups:	LRC, MHC are closely linked. Group us an offspring of SGGOOS
Linkages to other Organisations	EuroGOOS, IOC-GOOS, OSPAR, NSC
Cost Share	ICES:100%

2C03 The **ICES-IOC Working Group on Harmful Algal Bloom Dynamics** [WGHABD] (Chair: K. Kononen, Finland) will meet in Bermuda from 6–10 March 2002 to:

- a) collate and assess national reports and update the decadal mapping of harmful algal events for the IOC-ICES harmful algal event database, HAE-DAT, on a regional, temporal and species basis, and specifically examine the 15 years time series for possible temporal trends or regional distributional patterns;
- b) review GEOHAB implementation in the ICES area;
- c) review existing data on the identification, distribution and toxicological significance of new and emerging phycotoxins and the causative organisms, in terms of human health significance, HAB population dynamics and effects on marine food webs;
- d) continue examining the ways of analyzing historical data;
- e) review progress in the organization of a workshop on real-time observation systems in coastal ecosystems for studies of harmful algal blooms;
- f) evaluate progress in the application of molecular probe technologies to: i) taxonomic and genetic studies, ii) the detection and enumeration of HAB species; and c) investigation of their physiological condition;
- g) report and discuss new findings;
- h) prepare a summary report listing relevant marine bio-ecological variables and indicators suitable for operational use.

WGHABD will report by 31 March 2002 for the attention of the Oceanography Committee and ACME.

Supporting Information

Priority:	Work essential to the development of understanding of the effects of climate and man-induced variability and change in relation to the health of the ecosystem.
Scientific justification:	<p>a) The work of collating the national HAE reports and building up HAEDAT and the associated maps is an activity which is unique to the WGHABD. HAE-DAT is not yet established enough to stand alone. A critical step forward is to make HAE-DAT operational with input from regions/countries outside the ICES areas as originally envisaged. In 2001-03 the aim is to include PICES and possibly South America (via IOC/FANSA) in HAE-DAT. It should be endeavoured to include HAE-DAT and the associated decadal maps as a contribution to GOOS, thereby embedding these activities in a permanent setting and securing continuity.</p> <p>b) The work of the WGHABD has provided a major contribution to the development and establishment of GEOHAB as an international research programme. The broad interdisciplinary participation in the WGHABD and the experience and focus on GEOHAB issues makes the WGHABD a platform appreciated by the scientific community to review issues emerging from GEOHAB, advise on the implementation of GEOHAB in and outside the ICES area (via the IOC co-sponsorship), and as a nursery for new GEOHAB initiatives. At the moment there is no alternative forum or mechanism for these tasks.</p> <p>c) Technological advances in analytical and assay methods for marine phycotoxins, and their application in scientific survey and monitoring programs, have led to the recent discovery of new groups of toxins and more analogues of known toxins. Many challenges remain in correlating the ecological and toxicological significance of these new and emerging toxin problems. In some cases, the causative organisms of particular toxin syndromes are unknown or perhaps incorrectly attributed. There has been no comprehensive review of the distribution, biogeographical variation, and potential effects on marine fauna and human health of these new toxins. An integration of relevant biological, chemical, and oceanographic knowledge with toxin measurement techniques for <i>in situ</i> natural populations and consideration of the implications for monitoring programs and seafood quality regulations is required.</p> <p>d) Studies show that all phytoplankton populations, including HABs, have great interannual variations in bloom intensities. Analyses of total community structure for trends and patterns as well as physical and chemical parameters are necessary to advance the current knowledge of HABs. As longer data sets become available it is becoming possible to determine impacts of occurrences,</p>

	<p>distributions and amplitudes of HABs. It was therefore felt that that the dynamics of HABs required different analyses approaches to data from long term studies.</p> <p>e) Many approaches are useful for the optical assessment of HABs and relevant aspects of coastal ecosystems. These include remote sensing of ocean colour from satellites or aircraft, as well as <i>in situ</i> measurements of ocean colour using moorings, drifters, portable radiometer buoys and other new technologies. Progress has been rapid, and exchange of information is thus needed to bring these technologies to the application stage in HAB research and monitoring. A workshop is thus needed to foster communication among developers of these technologies, and to advance application of these approaches in natural waters. The overall goal of the workshop would be to review real-time and near real-time sensing systems applicable for observation, modelling, and prediction of HABs.</p> <p>f) There has been considerable progress in the development of molecular techniques that can be used to investigate and monitor HABs. In particular, probes are now available that allow rapid and accurate detection and enumeration of individual HAB species within a mixed plankton assemblage. Likewise, indicators or markers are being identified which can be used to assess a species' nutritional or physiological status, and some of these can be quantified using molecular techniques. The challenge has been to move these technologies from the laboratory to the field. Several laboratories are making this transition, and their experiences will be of great use in guiding others conducting HAB research or monitoring programs.</p> <p>g) The forum for presenting new findings has been an excellent tool for promoting discussions about topics of general interest. There are obvious reasons to continue with this topic as a Term of Reference.</p> <p>h) Recent developments in the field of sensor instrumentation offers new chances for improvements and cost-efficient monitoring strategies which could be adopted in new monitoring programmes or replace current methodologies or offer possibilities not available until now. A series of new developments have been listed in the EuroGOOS Publication No. 15. Apart from compiling these new developments the WGs should evaluate their potential use for operational oceanography. This should strengthen the incorporation of ICES activities in future GOOS relevant studies. the Section on the EuroGOOS/ICES Workshop on bioecological Observations in Operational Oceanography (Den Haag, April 2000) that the WGs* under the ICES Science Committees (Oceanography, Living Marine Resources, Marine Habitat) prepare a summary report listing all relevant marine bio-ecological variables and indicators suggested for operational use. The Working Groups should compile such a list taking into account the EuroGOOS Publication No. 15 (http://www.eurogoos.org/Activities/ActivitiesFrameSet.html), past work of LMR, Coastal and HOTO GOOS-Modules and other relevant GOOS and EuroGOOS documents and workshop results. This term of reference has been given to various Working Groups (WGSE, WGZE, WGOH, WGHABD, WGPE, WGCC, SGEAM, WGBEAM)</p>
Relation to strategic plan	This work is relevant in quantifying the human impact on the marine ecosystem.
Resource requirements:	none specific
Participants:	The 2001 meeting attracted 33 participants from ICES and IOC, demonstrating the continued interest and need for the group.
Secretariat facilities:	None
Financial:	None
Linkages to Advisory Committees	ACME
Linkages to other Committees or Groups	SGPBI, SGGIB
Linkage to other	The work of this group is undertaken in close cooperation with the IOC HAB

organizations:	Programme. IOC should be consulted regarding ToR or discontinuation of the WG prior to the ASC. Through interaction with the IOC-SCOR GEOHAB Programme relation to SCOR has also been established.
Cost Share	ICES:100%

2C04 The **Working Group on Seabird Ecology** [WGSE] (Chair: R. Furness, UK) will meet at ICES Headquarters from 8–11 March 2002 to:

- a) continue to compile a first model of food consumption by seabirds for the entire ICES area;
- b) compile population estimates for breeding seabirds in the ICES area, preferably divided by ICES fishing areas;
- c) provide further information to the review of status of and threats to seabirds in the North Sea;
- d) review methods for assessing seabird vulnerability to oil pollution;
- e) review the effects of wind farms on seabirds;
- f) work with the ICES Secretariat to provide summaries of seabird information via the ICES website;
- g) prepare a summary report listing relevant marine bio-ecological variables and indicators suitable for operational use.

WGSE will report by 16 April 2002 for the attention of the Oceanography, Marine Habitat and Mariculture Committees and ACME and ACE.

Supporting Information

Priority:	This is the only work being carried out by ICES in relation to marine birds. If ICES wishes to maintain its profile in this area of work, then the work of the Group must be regarded as of high priority.
Scientific Justification:	<ol style="list-style-type: none"> a) The Working Group has been modelling consumption for a number of years, with a view to developing a model of the whole ICES area in due course. The information should be of interest to other ICES Working Groups, as well as to OSPAR and HELCOM. The Group did not address this same term of reference at its 2001 Meeting. This was partly due to pressure of time generated by the OSPAR requests, and partly due to the absence of key members of the group who have been working on this area over a number of years. However, intersessional work by group members has led to the preparation of a manuscript to be submitted to an externally refereed journal on food consumption in Norwegian waters. b) The most recent agreed and published figures for breeding numbers in the ICES area derive from the mid 1980s. A compilation in 2002 will allow the results of major recent censuses to be incorporated. c) The review conducted in 2001 had to use some information on status that is more than ten years old. The Group is aware of further surveys and analysis that will be carried out in 2001. This new information should be incorporated in any status statement. A review of threats to seabirds in the North Sea was started at the 2001 meeting, but was not completed. It is proposed to work inter-sessionally to complete this review in time for agreement at its meeting. d) A number of methods exist to assess the sensitivity of birds to marine oil pollution; WGSE proposes to review these methods in order to help attempts to agree international standards. e) Proposals to develop marine sites for wind farms have grown very rapidly in recent years. Several studies of their effects on marine birds are under way, and now would be a very opportune moment to review these studies to see if any wider conclusions can be drawn. f) The group wishes its work to be better known within ICES and in the wider world. g) Recent developments in the field of sensor instrumentation offers new chances for improvements and cost-efficient monitoring strategies which could be adopted in new monitoring programmes or replace current methodologies or offer possibilities not available until now. A series of new developments have been listed in the EuroGOOS Publication No. 15. Apart from compiling these new developments the WGs should evaluate their potential use for operational oceanography. This should strengthen the incorporation of ICES activities in future GOOS relevant studies. the Section on the EuroGOOS/ICES Workshop on bioecological Observations in Operational Oceanography (Den Haag, April 2000) that the WGs* under the

	<p>ICES Science Committees (Oceanography, Living Marine Resources, Marine Habitat) prepare a summary report listing all relevant marine bio-ecological variables and indicators suggested for operational use.</p> <p>The Working Groups should compile such a list taking into account the EuroGOOS Publication No. 15, (http://www.eurogoos.org/Activities/ActivitiesFrameSet.html), past work of LMR, Coastal and HOTO GOOS-Modules and other relevant GOOS and EuroGOOS documents and workshop results.</p> <p>This term of reference has been given to various Working Groups (WGSE, WGZE, WGOH, WGHABD, WGPE, WGCC, SGEAM, WGBEAM)</p>
Relation to Strategic Plan	<p>The above will help achieve the following within the initial ICES strategic plan</p> <p>Goal 1. Develop a challenging core science programme to fulfil the ICES Mission.</p> <p>Goal 2. Provide sound, credible, timely, and understandable advice that is relevant to today's and future societal needs.</p> <p>Goal 5. Raise public understanding of marine ecosystems and their relevance to society.</p> <p>Objective 1. Understand the physical, chemical, and biological functioning of marine ecosystems.</p> <p>Objective 2. Understand and quantify human impacts on the marine environment, including living marine resources.</p> <p>Objective 3. Develop the scientific basis for sustainable use and protection of the marine environment, including living marine resources.</p> <p>Objective 4. Provide advice on the sustainable use and protection of the marine environment, including living marine resources.</p> <p>Objective 5. Co-ordinate and support interdisciplinary and international marine science programmes.</p> <p>Objective 6. Broaden the diversity of the scientists that participate in ICES activities.</p> <p>Objective 11. Make the scientific products of ICES more accessible to the public</p>
Resource Requirements:	<p>The ICES Headquarters is a good working environment. Since all active members of the group are at present funded outside core funding (some are privately funded) within the Member Countries, meeting over a weekend will minimise travel costs of members. If the meeting started on a Friday and finished on a Monday, beneficial interaction with the Secretariat would still be possible. This is a Core Activity.</p>
Participants:	<p>The present members of the Group should be able to achieve most of the above objectives, however some may not be able to attend through lack of funding. Funding for these members from Member Countries would be very welcome. In addition, Oceanography Committee (and ourselves) consider that the Group still has a very "northern" outlook, and we make the following suggestions for nominations to remedy this: David Gremillet (France), Mark Bolton (Portugal). We have lacked expertise on seaduck and shorebirds and we make the following suggestions of specialists to help here: Theunis Piersma (Netherlands), Herman Höttker (Germany). Olof Olsson (Sweden) would add valuable experience from Sweden and the Baltic.</p>
Secretariat Facilities:	<p>The usual excellent support from the Secretariat will be appreciated.</p>
Financial:	<p>No financial implications.</p>
Linkages to Advisory Committees:	<p>Both ACFM/ACME would find the consumption model of use, either in assessing the environmental needs of seabirds or in estimating effects of seabirds on fish stocks.</p>
Linkages to other Committees or Groups	<p>The Working Group is keen to continue the process of integration of seabird ecology into the workings of ICES. We look forward to possible concurrent working with sister Groups under the Oceanography Committee umbrella. WGSE thinks that a similar process would be productive for groups working under other Committees.</p>
Linkages to other Organisations	<p>The circumpolar seabird working group (CSWG) of CAFF is interested in the review of methods for assessing seabird vulnerability to oil.</p>
Cost Share :	<p>ICES 100%</p>

2C05 **A Workshop on New Perspectives in Understanding and Predicting Eutrophication** [WKNUPE] (Chair: T Smayda, USA, R.G. Jak, Netherlands and D Mills, UK) will be held in The Hague, Netherlands from 11–13 March 2002 to:

- a) identify the underlying mechanisms that limit understanding and hinder robust predictions of the ecosystem response to nutrient inputs;
- b) review the sources of anthropogenic nutrient inputs, their nature and characteristics of their mode of delivery;
- c) consider selected case studies from around the world to illustrate the range of responses exhibited by the pelagic community to nutrient inputs;
- d) evaluate the potential importance of cellular level mediated responses to nutrient input as opposed to population or community level responses;

WKNUPE will report by 15 April 2002 for the attention of the Oceanography Committee and ACME and ACE

Supporting information

Priority:	This will provide essential insight into the impact of nutrient enrichment and help to provide answers to questions being posed by regulatory Commissions.
Scientific Justification:	The workshop is required because there is a need for insight into the area specific responses of the planktonic ecosystem to nutrient inputs. Current limitations are highlighted against the background of a pressing need for an integrated ecosystem approach to environmental management combined with a need for scientifically justifiable indicators of ecosystem health. Despite much effort in monitoring inputs and the response of the planktonic communities identifying quantitative links has proved very difficult. WGPE recognised that much previous work took a mass balance approach to the understanding of ecosystem response. However, an increasing awareness of the potential importance of cellular level mediated responses to nutrient input as opposed to population or community level responses also requires further attention. Furthermore, where ecosystem changes occur it is very difficult to distinguish between natural, anthropogenic or climatic in origin causes. The lack of consensus inhibits agreement in such international forums as OSPAR and hinders the process of sound policy development. The aim of this workshop is to review current knowledge, identify limits to understanding that prevent robust predictions of response and aid the development of prognostic tools .
Relation to Strategic Plan:	The realisation of the workshop is relevant for the understanding of the response of the pelagic ecosystem to the impact of human activities
Resource Requirements:	None from Secretariat apart from report production
Participants:	Invited international participants and open invitation via delegates
Secretariat Facilities:	None
Financial:	The Netherlands RIKZ will host the proposed workshop with additional financial support provided by the UK CEFAS laboratory. Key speakers will be invited from around the world with some funding available for selected individuals. A possible publisher of the proceedings from the workshop will be sought.
Linkages to Advisory Committees:	ACE, ACME
Linkages to Other Committees or Groups	Topics discussed will be especially relevant to WGPE and HABD and a range of other working groups
Linkages to Other Organisations	Workshop will address scientific understanding of a topic central to the work of OSPAR and also EC directives including the Water Framework Directive.
Cost Share	ICES 100%

2C06 The **Working Group on Phytoplankton Ecology** [WGPE] (Chair: L. Edler, Sweden) will meet in Middelburg, Netherlands from 14–15 March 2002 to:

- a) review the reports of the ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic and the ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements related to Eutrophication Effects;
- b) elaborate the outcome of the work of the Study Group on a ICES/IOC Checklist of Phytoplankton and other Protists;
- c) organise a specialised session for the 2003 meeting of the Working Group, on non-traditional and automated analysis techniques for phytoplankton field sample analysis with invited speakers;
- d) re-evaluate the proposed mesocosm experiment, dependant upon the outcome from the proposed Workshop on anthropogenic nutrient input (C.Res. 2001/2CWS)
- e) evaluate the mesocosm facilities at the RIKZ in Middleburg, The Netherlands;
- f) integrate the contributions on phytoplankton monitoring in the ICES area into the Summary Status Report on zooplankton monitoring results in the ICES area;
- g) provide the scientific merits and operational possibilities to include primary production measurements in environmental programmes as e.g. OSPAR /JAMP with full coverage of QA and standardisation;
- h) prepare a summary report listing relevant marine bio-ecological variables and indicators suitable for operational use;
- i) review studies underway in OSPAR on ecological quality objectives for the North Sea with regard to nutrients and eutrophication effects.

WGPE will report by 7 April 2002 for the attention of the Oceanography Committee and ACME and ACE

Supporting information

Priority:	The activities of this group are fundamental to the work of the Oceanography Committee. They are critical in understanding links between physics and Living Marine Resources and play an important role identifying environmental change. The work of this group is regarded as high priority.
Scientific Justification:	<ol style="list-style-type: none"> a) The work of SQGAB and SGQAE continues to be of relevance to WGPE. Feedback to and from these Steering Groups plays an important role in ensuring relevant expertise is available to the groups and that WGPE is kept informed of developments. b) SGPHYT was set up following a recommendation of WGPE. The work of SGPHYT in developing a Microplankton Protist List is of direct interest to the work of WGPE and benefits from its attention and feedback. c) The introduction of new techniques to supplement the traditional ship and shore-based approach has revealed even greater complexity in plankton distributions, cycles and processes than previously measured. Data are showing strong coupling between plankton composition, abundance, dynamics and ecophysiological diversity and long-term weather patterns. Growing evidence are showing the need to consider species level dynamics, rather than the traditional reliance on biomass only. These newer insights indicate that the classical working definition of needs to be revised. Given these newer insights, the WGPE concludes that there is need to address the emerging paradigm that the traditional conceptual and methodological approaches applied to quantify phytoplankton dynamics in the sea require modification. The WGPE proposes, as a term of reference, to initiate a series of evaluations of the prospective value of emergent, non-traditional approaches to sampling and analysis of phytoplankton communities. d) Eutrophication, its definition, detection and causes are subject to considerable debate particularly in Europe where EU legislative procedures may be invoked against member states over the eutrophication status of their coastal seas. Against this background a mesocosm experiment addressing questions related to nutrient enrichment and biotic responses of the microplankton community is desired by the WGPE. The occurrence of a proposed workshop on related matters together with a venue allowing a visit to potentially suitable mesocosm facilities will form an appropriate backdrop for the development of a detailed proposal for a mesocosm experiment at the next meeting of the WGPE in the Netherlands.

	<p>e) The Rijkswaterstaat mesocosm facilities at Middleburg in the Netherlands are a potential site for a mesocosm experiment. There is a unique opportunity for members of the WG to evaluate these facilities and enter discussion with users of the facility during the next meeting of the WGPE and it is proposed that one of the day sessions of the meeting be held in Middleburg to facilitate this.</p> <p>f) There is a need for disseminating information of the phytoplankton status in a timely manner. The material presented will be used to prepare the annual Summary Status Report on Phytoplankton in the ICES area. Reporting results must be supported by significant observations and trends based on time series sampling programmes. It continues to be of greatest interest to review the links between physical forcing, nutrient availability and the response of phytoplankton, especially with regard to the development of new physical-biological and ecosystem models and also to climate changes.</p> <p>g) a review of the implications and the added value of inclusion of additional measures on the status of marine communities in monitoring programmes is essential prior to offering firm recommendations. This was requested at last years meeting but there was no time to deal with this.</p> <p>h) Recent developments in the field of sensor instrumentation offers new chances for improvements and cost-efficient monitoring strategies which could be adopted in new monitoring programmes or replace current methodologies or offer possibilities not available until now. A series of new developments have been listed in the EuroGOOS Publication No. 15. Apart from compiling these new developments the WGs should evaluate their potential use for operational oceanography. This should strengthen the incorporation of ICES activities in future GOOS relevant studies. the Section on the EuroGOOS/ICES Workshop on bioecological Observations in Operational Oceanography (Den Haag, April 2000) that the WGs* under the ICES Science Committees (Oceanography, Living Marine Resources, Marine Habitat) prepare a summary report listing all relevant marine bio-ecological variables and indicators suggested for operational use.</p> <p>The Working Groups should compile such a list taking into account the EuroGOOS Publication No. 15, (http://www.eurogoos.org/Activities/ActivitiesFrameSet.html), past work of LMR, Coastal and HOTO GOOS-Modules and other relevant GOOS and EuroGOOS documents and workshop results.</p> <p>This term of reference has been given to various Working Groups (WGSE, WGZE, WGOH, WGHABD, WGPE, WGCC, SGEAM, WGBEAM)</p> <p>i) The Eutrophication Committee of OSPAR is currently undergoing a study on EcoQO's-eutro for nutrients and eutrophication effects via a report being prepared on the "Further Elaboration of Ecological Quality Objectives for the North Sea with regard to Nutrients and Eutrophication Effects" by Robert Jak under the co-lead of the Netherlands and Norway. This study on EcoQO's-eutro runs parallel with the harmonization assessment work by OSPAR of the eutrophication status of the OSPAR convention area ACME wishes the Working Group to comment on this work with a view to ascertaining whether its findings with respect to eutrophication indicators are in line with current thinking within ICES.</p>
Relation to Strategic Plan:	This working groups activities embrace all elements of the scientific objective of understanding the physical, chemical, and biological functioning of marine ecosystems.
Resource Requirements:	The Working Groups programme encompass the ongoing work of all its members, hence there are no additional resource requirements beyond those required for the meeting.
Participants:	WGPE continues to see the need to encourage wider participation and especially to draw in relevant experts in areas of specific interest as required.
Secretariat Facilities:	None required
Financial:	None
Linkages to Advisory Committees:	The Group reports to ACME, mainly for the provision of scientific information on phytoplankton and their role in ecosystem function.

Linkages to Other Committees or Groups	Members of the WGPE are active participants in range of other committees and groups including SGQAB, SGQAE and SGPHYT
Linkages to Other Organisations	OSPAR, HELCOM and EuroGOOS
Cost Share	ICES: 100%

2C07 The **Working Group on Zooplankton Ecology** [WGZE] (Chair: L. Valdés, Spain) will meet in Aberdeen, UK, from 18–20 March 2002 to:

- a) review results from Standards Sections and Stations from member countries, update them into the Summary status report on the zooplankton monitoring structure in the ICES area and analyse possible links with other data sets;
- b) analyse what are the consequences of ocean climate changes for zooplankton processes and community structure;
- c) search and evaluate possible biological indices of ecological significance for the fisheries and environmental assessment groups;
- d) review and evaluate the electronic version of the ICES leaflets;
- e) prepare activities for a second Workshop on zooplankton taxonomy in 2003;
- f) consider and review plans for a workshop on modelling phytoplankton-zooplankton interactions in 2003;
- g) review and evaluate the advances in the organisation of the ICES/PICES/GLOBEC Symposium;
- h) review future developments of Trans-Atlantic studies;
- i) provide the scientific merits and operational possibilities of incorporation of zooplankton as a monitoring goal in environmental programmes as e.g. the OSPAR/JAMP with inclusion of QA and standardisation procedures;
- j) prepare a summary report listing relevant marine bio-ecological variables and indicators suitable for operational use.

WGZE will report by 15 April 2002 for the attention of the Oceanography Committee and ACME, ACE.

Supporting Information

Priority:	The activities of this group are a fundamental element of the Oceanography Committee, they are fundamental to understanding the relation between the physical, chemical environment and Living Marine Resources. Thus the work of this group must be considered of very high priority.
Scientific Justification:	<ol style="list-style-type: none"> a) This is a repeating task established by the Working Group to monitor the zooplankton abundance in the ICES area. The material presented under this item will be utilised to prepare the annual Summary status report on zooplankton in the ICES area. Reporting results must be supported by significant observations and trends based on time series sampling programmes. Links with other data sets (phytoplankton) will be considered. b) Time series studies on zooplankton long-term trends and their relationships with climate index (NAO, Gulf Stream north wall index) and global warming, suggest that important changes may occur in zooplankton processes and community structure as a result of climate change. Their consequences on the ecosystem structure will be analysed and discussed. c) Incorporating environmental information for the fisheries and environmental assessment groups is an important task that the group has initiated in 1999. The discussion on the selection, interpretation and validation of indices needs to be continued. The list of indices produced during 2001 needs to be reviewed and refined. d) The WGZE recognises the opportunities that electronic media offers in terms of maximising distribution of information to the scientific community. The WGZE has planned the edition of the ICES identification leaflets in a CD-ROM. The group will work inter-sessionally on such an initiative. During its annual meeting the group wants to review and evaluate the contents and quality of such CD-ROM. The ultimate objective is that ICES could offer this product to a larger community of scientist.

	<p>e) The WGZE is concerned about the decline of expertise in zooplankton taxonomy. A workshop was auspiced by the WGZE in 2000 as a practical step towards strengthening taxonomic skills in the ICES area. Given the success of this workshop, the group felt that a further workshop should be considered to be held in two years.</p> <p>f) The difficulties in modelling the ecosystem functioning imposed by our limits to understand the phytoplankton-zooplankton interactions is recognised in recent literature. There is a need to communicate with modellers to review the advances in integrate ecosystem models. A modelling workshop auspiced by the WGPE and the WGZE was proposed during the 2001 discussions. The WGZE wants to be proactive in this practical initiative and prepare activities for this workshop programmed in 2003.</p> <p>g) The proposed ICES/PICES/GLOBEC Symposium will be a major event for the marine ecologist in general and planktologists in particular in 2003. The preparation of this event will be the responsibility of a Steering/Organising Committee, but the group as originator of this initiative wish to have up-dated information on the details and contribute when necessary to the good end of this stimulating challenge.</p> <p>h) GLOBEC is at its mid-life time and it is timely and valuable to evaluate further opportunities for practical Trans-Atlantic coordinated research.</p> <p>i) a review of the implications and the added value of inclusion of additional measures on the status of marine communities in monitoring programmes is essential prior to offering firm recommendations. This was requested at last years meeting but there was no time to deal with this.</p> <p>j) Recent developments in the field of sensor instrumentation offers new chances for improvements and cost-efficient monitoring strategies which could be adopted in new monitoring programmes or replace current methodologies or offer possibilities not available until now. A series of new developments have been listed in the EuroGOOS Publication No. 15. Apart from compiling these new developments the WGs should evaluate their potential use for operational oceanography. This should strengthen the incorporation of ICES activities in future GOOS relevant studies. the Section on the EuroGOOS/ICES Workshop on bioecological Observations in Operational Oceanography (Den Haag, April 2000) that the WGs* under the ICES Science Committees (Oceanography, Living Marine Resources, Marine Habitat) prepare a summary report listing all relevant marine bio-ecological variables and indicators suggested for operational use.</p> <p>The Working Groups should compile such a list taking into account the EuroGOOS Publication No. 15, (http://www.eurogoos.org/Activities/ActivitiesFrameSet.html), past work of LMR, Coastal and HOTO GOOS-Modules and other relevant GOOS and EuroGOOS documents and workshop results.</p> <p>This term of reference has been given to various Working Groups (WGSE, WGZE, WGOH, WGHABD, WGPE, WGCC, SGEAM, WGBEAM)</p> <p>In 2002 the present chair will have covered his 3 year period and the group nominate a new member to take this position.</p>
Relation to Strategic Plan:	This working groups activities embrace all elements of the scientific objective of understanding the physical, chemical, and biological functioning of marine ecosystems.
Resource Requirements:	The Working Groups programme encompass the ongoing work of all its members, hence there are no additional resource requirements beyond those required for the meeting.
Participants:	The group has a relatively small core membership, and needs to attract broader participation.
Secretariat Facilities:	None required
Financial:	None apart from the report's reproduction costs
Linkages to Advisory Committees:	The Group reports to ACME, mainly for the provision of scientific information on Ecosystems

2C08 The **Working Group on Oceanic Hydrography** [WGOH] (Chair: W. Turrell, UK) will meet in Halifax, Canada from 18–21 March 2002 to:

- a) update and review results from Standard Sections and Stations;

- b) consolidate inputs from Member Countries into the ICES Annual Ocean Climate Status Summary (IAOCSS);
- c) conclude the review of North Atlantic climatologies and their availability and usage, and additional data sources for the ICES Annual Ocean Climate Summary;
- d) review an evaluation of the interactive data summary product produced by the ICES Secretariat in order to enhance the ICES Annual Ocean Climate Status Summary;
- e) review the current methods and uses of environmental information in the fish assessment process;
- f) review progress on the publication of the proceedings of the ICES Symposium on Hydrobiological Variability in the ICES Area, 1990-1999;
- g) review progress towards producing educational publications;
- h) prepare a summary report listing relevant marine bio-ecological variables and indicators suitable for operational use.

WGOH will report by 30 April 2002 for the attention of the Oceanography Committee.

Supporting Information

Priority:	The activities of this group are fundamental to the terms of reference of the oceanography committee
Scientific Justification:	<p>a) This is a repeating task established by the Working Group to closely monitor the ocean conditions in the ICES area. The materials presented under this item will be utilised to prepare an overview of the state-of-the-environment in the North Atlantic for 2000.</p> <p>b) The Working Group recognises the need for disseminating climate information in a timely and appropriate manner. The Steering Group on ICES-GOOS has also identified the climate summary as an essential contribution from Working GroupOH. This agenda item will allow Working GroupOH members to prepare the document during the meeting, thus avoiding delays in the dissemination of the information.</p> <p>c) For the past two years the WGOH has considered other data sources and climatologies that are of potential use for the Working Group, and in particular the IAOCSS. A document will be produced as an Annex summarising this work, and drawing conclusions from it with respect to developing the IAOCSS.</p> <p>d) The ICES Secretariat has prepared an interactive method of accessing and displaying data it holds. The WGOH will review this product, and assess it by conducting case studies inter-sessionally. These will be reviewed by the Working Group, and an assessment made of the value of this product.</p> <p>e) Environmental observations and ocean climate variability indices are routinely collected and compiled by fisheries laboratories in many ICES member countries throughout the North Atlantic. The most direct use of these data, to date, has been to monitor environmental conditions and climate change in the North Atlantic. However, the fundamental reason why many of these data sets are collected in the first place, is to gain a greater understanding of ecosystem dynamics and oceanographic influences on fish production. To date, environmental information is still used in a very limited and indirect way in most, if not all countries. The WGOH will review how member countries currently incorporate environmental information, albeit in a limited way, into the regional assessment process and how this information is disseminated to scientists, managers and stakeholders in the fishing industry.</p> <p>f) The WGOH will review progress by the Scientific Steering Group and editorial Panel on the publication of the proceedings of the ICES Symposium on Hydrobiological Variability in the ICES Area, 1990-1999, in order to identify any potential problems, help rectify them and provide advice intended for the third Decadal Symposium.</p> <p>g) Following the production of the ICES Zooplankton Methodology Manual, the WGOH wishes to consider what publishable products it may generate in the future in order to enhance ICES dissemination of information to relevant stakeholders and the public.</p> <p>h) Recent developments in the field of sensor instrumentation offers new chances for improvements and cost-efficient monitoring strategies which could be adopted in new monitoring programmes or replace current methodologies or offer possibilities not available until now. A series of new developments have been listed in the EuroGOOS Publication No. 15. Apart from compiling these new developments the WGs should evaluate their potential use for operational oceanography. This should strengthen the incorporation of ICES activities in future GOOS relevant studies. the Section</p>

	<p>on the EuroGOOS/ICES Workshop on bioecological Observations in Operational Oceanography (Den Haag, April 2000) that the WGs* under the ICES Science Committees (Oceanography, Living Marine Resources, Marine Habitat) prepare a summary report listing all relevant marine bioecological variables and indicators suggested for operational use.</p> <p>The Working Groups should compile such a list taking into account the EuroGOOS Publication No. 15, (http://www.eurogoos.org/Activities/ActivitiesFrameSet.html), past work of LMR, Coastal and HOTO GOOS-Modules and other relevant GOOS and EuroGOOS documents and workshop results.</p> <p>This term of reference has been given to various Working Groups (WGSE, WGZE, WGOH, WGHABD, WGPE, WGCC, SGEAM, WGBEAM)</p>
Relation to Strategic Plan:	<p>a) Towards Scientific Objectives; 1a (Describe, understand and quantify the state and variability of the marine environment in terms of its physical chemical and biological processes.); 1b (Understand and quantify the role of climate variability and its implications for the dynamics of the marine ecosystems); 5c (Co-ordinate international, monitoring and data management programmes which underpin ongoing ICES core science.)</p> <p>b) Towards Scientific Objective 4c (To publicise the work of ICES and the contributions that ICES can make for its stakeholders, and for the wider public audience, regarding the understanding and the protection of the marine environment), and Institutional Objective 6 (Make ICES' scientific products more accessible to the public.)</p> <p>c) Towards Scientific Objectives; 1a (Describe, understand and quantify the state and variability of the marine environment in terms of its physical chemical and biological processes.); 5c (Co-ordinate international, monitoring and data management programmes which underpin ongoing ICES core science.)</p> <p>d) Towards Scientific Objectives; 1a (Describe, understand and quantify the state and variability of the marine environment in terms of its physical chemical and biological processes.); 5c (Co-ordinate international, monitoring and data management programmes which underpin ongoing ICES core science.)</p> <p>e) Towards Scientific Objectives; 1a (Describe, understand and quantify the state and variability of the marine environment in terms of its physical chemical and biological processes.); 5c (Co-ordinate international, monitoring and data management programmes which underpin ongoing ICES core science.)</p> <p>f) Towards Scientific Objectives; 1a (Describe, understand and quantify the state and variability of the marine environment in terms of its physical chemical and biological processes.); 5c (Co-ordinate international, monitoring and data management programmes which underpin ongoing ICES core science.)</p>
Resource Requirements:	<p>a) 1 day Working GroupOH meeting. Pre-prepared national reports from members.</p> <p>b) 5 days Chairman's time to edit. Agenda item discussion (2-3 hours Working GroupOH meeting)</p> <p>c) Pre-meeting preparation (Bacon, UK). Agenda item discussion (1-2 hours Working GroupOH meeting)</p> <p>d) 5 days ICES Oceanographer plus time for preparation and follow-up</p> <p>Total = 4 days meeting time</p>
Participants:	<p>a) All members</p> <p>b) Holliday (UK) lead. All members.</p> <p>c) Bacon (UK) lead. All members.</p> <p>d) Dooley (ICES), Rossby (USA), Turrell (UK)</p> <p>e) Dickson (UK)</p> <p>f) Turrell (UK) lead. All members</p>
Secretariat Facilities:	None
Financial:	None apart from b) Publication / reproduction costs
Linkages to Advisory Committees:	<p>b) ICES Annual Ocean Climate Status Summary available to ACFM and ACME</p> <p>c) Improve IAOCSS; ACME</p> <p>e) ACE</p>

Linkages to Other Committees or Groups	b) Publications Committee; Consultative Committee; SGGOOS c) SGGOOS
Linkages to Other Organisations:	b) IOC, JCOMM c) IOC, JCOMM

2C09 The **Study Group on Modelling of Physical/Biological Interactions** [SGPBI] (Chair: C. Hannah, Canada) will meet in Warnemuende, Germany from 3–5 April 2002 to:

- a) review existing observational methodologies and new developments to support modelling and understanding of physical/biological interactions;
- b) review the recent developments and results of 3-D physical/chemical/biological models;
- c) continue the creation of a strategy for continued model development for understanding and forecasting of physical/biological/chemical interactions;
- d) continue planning for the workshop on ‘Future Directions for Modelling Physical Biological Interactions’ in the summer/fall 2003.

SGPBI will report by 30 April 2002 for the attention of the Oceanography Committee.

Supporting Information

Priority:	The SG should be given high priority since it is concerned with the evaluation and development of the tools, monitoring and modelling, used to increase the understanding of the interaction between the living resources in the sea and its ambient physical and abiotic environment. This understanding is essential to any development of modelling and prediction of biodiversity salient features.
Scientific Justification:	<p>The goals of the Study Group are concerned with the evaluation and development of tools, methods, and models required to increase the understanding of the interaction between living resources in the sea and the physical environment. The report of the first meeting illustrates the enormous range of topics that this group must address. The discussions ranged from modelling the interactions of an individual planktonic organism with its environment to the need for comprehensive 3-d circulation models to provide the physical background for ecosystem models.</p> <ol style="list-style-type: none"> a) Observing methodologies and observing systems are crucial to improved modelling of physical/biological interactions. High quality observations provide validation data sets, suggest new processes that need to be modelled, and provide the data streams required for practical applications. A review of observational methodologies, part of the inaugural terms of reference, was not carried out in 2001 and needs to be done in 2002. b) Three dimensional physical/chemical/biological models (ecosystem models) have become powerful research tools and in some cases the model results have been used for practical application. A review of these models is needed in order to incorporate their development needs into the overall strategy for modelling physical/biological interactions. c) The inaugural terms of reference for SGPBI calls for a strategy for continued model development for understanding and forecasting of physical/biological/chemical interactions. The report of the 2001 meeting contains many of the elements of such a strategy. These elements need to be refined and new elements added to create such a strategy. d) The presentations and discussions at the 2001 meeting illustrated the complexity of many of the modelling issues that fall under the heading of modelling physical/biological interactions. Two common themes were the need to incorporate knowledge from many disciplines and the need for modelling technology from outside the oceanographic community. SGPBI needs to develop a suite of activities that will help researchers find the ideas and the expert knowledge they require and help bring the required modelling technology to the oceanographic community. Possible activities include a manual of ‘Best Practice in Modelling Physical/Biological Interactions’, case studies that use modelling technology from outside of oceanography to address specific issues, and workshops that introduce new modelling technology to the community. e) A workshop on ‘Future Directions for Modelling Physical Biological Interactions’ has been proposed for the summer/fall 2003. The SGPBI has proposed that research on modelling the plankton ecosystem should be based on a number of novel approaches, including primitive equations, biologically-Lagrangian integration, and explicit treatment of errors in all

	components. The workshop will provide an opportunity for leading biological oceanographers and modelers to assess those proposals in the context of practical problems, such as toxic algal blooms and fisheries recruitment. The workshop will identify critical tests to establish the potential and limitations of the proposed new methods".
Relation to Strategic Plan:	All proposed activities are essentially directed towards scientific objectives 1a, 2a and 2b
Resource Requirements:	None specific
Participants:	The present complement of 12 or 13 official ICES members is not sufficient to provide adequate coverage of the numerous scientific and technical issues that SGPBI needs to address. We have an urgent need for additional members with expertise in the following areas 1) A physical modeller working with a state-of-the-art ocean observing system. 2) A 3-d ecosystem modeller working in the context of an ocean observing system; 3) a larval fish modeller; 4) a second experimental plankton physiologist; 5) an observational planktologist; 6) 1 or 2 experts in modelling harmful algal blooms. 7) An expert in modelling eutrophication and/or water quality.
Secretariat Facilities:	None
Financial:	None
Linkages To Advisory Committees:	ACFM, ACE
Linkages To other Committees or Groups:	ICES-IOC Working Group on Harmful Algal Bloom Dynamics WGZE, WGRP
Linkages to other Organisations	GEOHAB (IOC/SCOR), GLOBEC (IOC/SCOR)

2C10 The **ICES-IOC Steering Group on GOOS [SGGOOS]** (Co-Chairs: W.R. Turrell, UK and W.G. Harrison, Canada & IOC) will meet in Halifax, Canada from 22–23 April 2002 to:

- a) develop further the Implementation Plan for ICES involvement in GOOS (C.M. 2001/C:01) including:
 - i) arrangement to enhance mutual awareness and collaboration with IOC and EuroGOOS,
 - ii) intersessionally work to promote the ICES Annual Ocean Climate Status summary within the GOOS/GCOS/JCOMM communities and to investigate how this product might be improved to enhance its use in operational aspects of the work of ICES,
 - iii) initiate, assist in the development of and provide oversight for the ICES/EuroGOOS North Sea Ecosystem Pilot Project as formulated in the SGGOOS workshop in Bergen 5-7 September 2001,
 - iv) develop and oversee the role of the North Sea IBTS quarterly surveys in the North Sea Ecosystem Pilot Project;
- b) advise and support the ICES Secretariat in GOOS related matters;
- c) define and promote the role of ICES in GOOS and EuroGOOS taking into account input from the ICES Committees;
- d) inform the Coastal Ocean Observation Panel (COOP) of GOOS on the development of the North Sea Ecosystem Pilot Project.

SGGOOS will report by 30 April 2002 for the attention of the Oceanography Committee and the Advisory Committees. The report will also be made available to GOOS and EuroGOOS.

Supporting information

Priority:	For ICES to be able to participate as an active regional partner in GOOS then the activities of this IOC/ICES Steering Group must be considered essential.
Scientific	GOOS is a global project with regional sub-components established in some parts of the

Justification:	<p>world. EuroGOOS is such a regional GOOS component and includes all the European adjacent seas, the northern Mediterranean, the eastern Atlantic and the adjacent Arctic. ICES has members from northern Europe and North America.. To get the best out of both the EuroGOOS Association of agencies with their primarily physical focus, and of ICES agencies with their primarily biological/fisheries focus, it is necessary for ICES and EuroGOOS to collaborate in northern European GOOS developments, to share data, and to exploit the potential for synergy between them, while each specialising in the kind of product generation in which they hold appropriate expertise.</p> <p>To meet the challenges facing ICES collaboration with GOOS agencies, and to increase the efficiency and effectiveness of the use of data products from current relevant national and international monitoring, the Steering Group is now overseeing a fresh initiative in the North Sea (North Sea Ecosystem Pilot Project), the role of which is very closely bound in the objectives of the ICES Science and Advisory Function. The Group will seek to:</p> <p>1) establish a coordinated mechanism that could add value to existing activities by integrating data from various sources (physical, chemical, biological) to aid development of an ecosystem approach,</p> <p>2) collaborate by means of a pilot project sponsored by ICES and the EuroGOOS to demonstrate the usefulness of this approach by integrating data on oceanography and fisheries.</p>
Relation to Strategic Plan:	This activity is implicit to many of the elements and goals of ICES strategy for the future.
Resource Requirements:	N/a
Participants:	GOOS, EuroGOOS, and other relevant GOOS bodies are free to contribute to the Group. ICES membership of this Group is sadly lacking and Delegates are asked to ensure good representation of all ICES disciplines in this Group. Ideal participants are those already connected with GOOS activities in member countries.
Secretariat Facilities:	None
Financial:	None
Linkages to Advisory Committees:	Marine monitoring activities are closely relevant to the interests of all ICES advisory committees
Linkages to Other Committees or Groups	All ICES Science Committees have an active interest in this Group. Amongst the closely aligned Working Groups are many of the Oceanography Committee's Group and IBTSWG under LRC.
Linkages to Other Organisations	IOC, EuroGOOS
Cost Share	ICES:100%

2C11 An ICES-IOC Study Group on the Development of Marine Data Exchange Systems using XML [SGXML] (Co-Chairs: R. Gelfeld, U.S.A. and A. Isenor, Canada) will be established and will meet in Helsinki, Finland on 15–16 April 2002 to:

- a) develop a framework and methodology for the use of XML in marine data exchange in close consultation with IOC and the Marine XML Consortium;
- b) develop a work plan that within 4 years will lead to published protocols for XML use in the marine community;
- c) explore how to best define XML tags and structures so that many ocean data types can be represented using a common set of tags and structures.
- d) test and refine these common tags and structures using designated case studies ie;
 - i) Point (physical/chemical) data (profile, underway, water sample),
 - ii) Metadata (cruise information, building from the ROSCOP/Cruise Summary Report),
 - iii) Marine Biology data (integrated tows (e.g., zooplankton-phytoplankton tows), demonstrate the use of taxonomy).

SGXML will report by 1 June 2002 for the attention of the Oceanography Committee and ACE.

Supporting Information

Priority:	The future of marine data management, processing and exchange in an interoperable environment lies in the use of virtual data systems and exploiting web technologies. If ICES does not participate in these developments its ability to receive, process and disseminate data in the form required by the user community will be negatively impacted.
Scientific Justification:	The eXtensible Markup Language (XML) was developed at the World Wide Web Consortium (W3C) (1998), in an attempt to improve on Hyper Text Markup Language (HTML) and create a simpler to use subset of Standard Generalized Markup Language (SGML). XML was defined as a formal specification in February 1998 and is currently being refined and modified. XML is a meta-language that allows users to create their own language, by creating domain specific tags within a defined hierarchy. This allows a data model description within the hierarchy, which means the structure of the data is transmitted with the data. Combining this with standard character sets (e.g. ASCII), one can produce a machine and human readable data file with inherent structure. The ability to create domain specific tags that incorporate natural data structures provides a potential mechanism for the marine data community to address issues related to the advancement of marine data services. Such advancements could include shared applications to manipulate the data structures or an integration of services to progress the Centres toward a virtual data service. At the client level, advancements are possible when considering the delivery of more complete metadata descriptions and client specific products.
Relation to Strategic Plan:	The Group is set up to provide members of the ICES scientific community, efficiently and effectively, with the support they need to meet the scientific goals. The ICES Vision goes far beyond the capacities of any single organization. Networking in partnership with Member Countries, other IGOs, and scientific NGOs will enable ICES to foster valuable cooperation, coordination and collaboration. By so doing, ICES will not duplicate activities already carried out by others. Rather, this will provide a new, value-added dimension. Enhanced interdisciplinary knowledge and networking will benefit the entire science community.
Resource Requirements:	No specific resource requirements beyond the need for members to prepare for and participate in the meeting.
Participants:	Participation in the XML Study Group is open to any individual or group, internal or external to ICES. The ICES Working Group on Marine Data Management (WGMDM) has recommended that the XML Study Group concentrate efforts in three related projects (see tors).
Secretariat Facilities:	None.
Financial:	None specific.
Linkages To Advisory Committees:	This is important to work on data integration which is of direct interest to ACE
Linkages To other Committees or	The ICES Working Group on Marine Data Management (WGMDM) first discussed XML at the Ottawa (1999) meeting. This was followed by a more rigorous discussion at the Hamburg (2000) meeting. Following the Hamburg meeting, independent inter-sessional work was conducted by both

Groups:	The Netherlands and Canada. At the Bidston (2001) meeting, the WGMDM devoted considerable time to discussing XML and its application to the marine community. The international efforts were reviewed as well as the efforts of the member countries. The discussion concluded with the general feeling that, although business and commerce use XML as a standard component of their activities, XML within the marine community is still in the investigation stage. It was also recognized that as a unit, WGMDM currently does not have enough expertise to contribute significantly to the international marine XML discussions. A recommendation was then put forth to form a study group.
Linkages to other Organisations	The newly formed WMO/IOC Joint Commission on Oceanography and Marine Meteorology (JCOMM) has also expressed an interest in XML. A Marine Consortium is currently being formed to address XML internationally (IODE, 2000). The Consortium's goal is to develop a free and open specification for a Marine XML that will be used in all exchanges of ocean data. ICES has been asked to become a Consortium member. Several ICES countries have joined or are about to join the Consortium (Belgium (Flanders), Netherlands, UK). In addition IOC/IODE is about to join and EuroGOOS is considering membership.
Cost Share	ICES 100%

2C12 The **Working Group on Marine Data Management** [WGMDM] (Chair: A. Isenor, Canada) will meet in Helsinki, Finland from 17–19 April 2002 to:

- a) quantitatively assess the last five years oceanographic data (1997-2001) sent to the ICES by each Member Country, identify problems and suggest solutions;
- b) continue to critically evaluate the guidelines for data management and exchange developed inter-sessionally for the following data types: water sample data, profiling floats and drifting buoys. Consider the extension of the guidelines into standards;
- c) report on the comparison of the BODC parameter dictionary with other similar dictionaries in use in ICES Member Countries (in particular those maintained by MEDS, Canada and SISMER, France);
- d) assess progress in the use of the Integrated Taxonomic Information System (ITIS) as a taxonomic authority, and examine developments in linking the taxonomic coding systems used in ICES Member Countries with ITIS;
- e) appraise progress on the development of marine XML pilot projects for the exchange of metadata, data and taxonomy and recommend future directions.

WGMDM will report by 30 April 2002 for the attention of the Oceanography Committee

Supporting Information

Priority:	This Group flies the flag for ICES in setting standards for global databases. It also provides an important interface for oceanographic and environmental data management in ICES.
Scientific Justification:	<ol style="list-style-type: none"> a) The amount of oceanographic data received by ICES continues to decrease. This item will provide the impetus to encourage an increased data flow to the ICES Oceanographic Data Center from Member Countries. This item will provide the impetus to encourage an increased data flow to the ICES Service Hydrographique from Member Countries; b) There is a need for simple guidelines for those processing, quality assuring and managing data. The existence of written guidelines has distinct advantages. It shows laboratories reporting data to the ICES Oceanographic Data Centre how important it is to apply quality control procedures on the data, and it will provide ICES with data sets which are easier to handle and have a properly documented quality control history behind them. This leads to an improved data set being available to the ICES community c) A number of parameter dictionaries for oceanographic data have been developed by the oceanographic community. The current ROSCOP system will be evaluated to see how these new metadata procedures can change and improve it with a view to recommending use with ICES, if appropriate; d) This should serve to increase co-ordination among scientists in ICES Member Countries and ITIS. A plan to involve the pooling of taxonomic specialists (resources) to speed the review of local biota for both the benefit of ITIS and the local institute will be considered. e) XML is fast becoming the method of transferring information for electronic business, and current developments suggest that it will become increasingly important in many other areas. The outcomes of pilot projects will be examined with a view to recommending the use of XML within ICES, if appropriate. In addition, development of internationally agreed standards, in

	collaboration with other Groups will be investigated.
Relation to Strategic Plan:	ICES scientific objectives of understanding marine ecosystems must be underpinned by good data management procedures
Resource Requirements:	None
Participants:	Core Group of members of national oceanographic data centres ensure well attended meetings.
Secretariat Facilities:	None, apart from preparation of material by the Oceanographer
Financial:	The Oceanographer should attend this meeting
Linkages To Advisory Committees:	Group's report is seen by ACME
Linkages To other Committees or Groups:	None, but links should be encouraged to broaden the scope of the group to more generic data management issues
Linkages to other Organisations	IOC, especially its Working Committee on International Oceanographic and Information Exchange (IODE)

2C13 A **Workshop on the Transport of Cod Larvae [WKTCL]** (Co-Chairs: J. Quinlan, USA, B. Aadlandsvik, Norway and M. St. John, Germany) will be held in Hillerød, Denmark from 16–18 April 2002 to:

- a) couple circulation models with early life history models to determine the physical and biological processes responsible for the transport or retention of cod larvae;
- b) develop, if possible, interannual transport indices based on physical variables that reflect the magnitude of the larvae drift or retention;
- c) attempt to incorporate these indices into the cod assessment process;
- d) collate and synthesize existing direct and indirect observational information about egg and larval transport for all stocks and years;
- e) evaluate the effects of variations in transport during early life on subsequent recruitment

WKTCL will report by 15 May 2002 for the attention of the Oceanography Committee

Supporting Information

Priority:	This Group will carry out a fundamental component of the Cod and Climate Change strategic plan
Scientific Justification:	<p>The drift of cod larvae has significant implications in several regions of the North Atlantic. For example, Icelandic cod can drift as larvae towards West Greenland. Under certain environmental conditions off West Greenland, these cod thrive and subsequently return to Iceland to spawn. This can cause large uncertainties in the assessment of the Icelandic stocks. Transport of cod larvae has also been hypothesized to affect recruitment patterns in several other areas of the North Atlantic including in the Gulf of Maine, Davis Strait and the Faroes. The ICES Working Group on Cod and Climate Change (WGCCC) therefore decided to hold a workshop that will explore transport processes and their role in the life histories of the affected cod stocks. In particular, we hope to be able to use circulation models to explore the physical processes that lead to the variability in transport of larvae. Comparisons will be made between different regions and stocks. In addition, attempts will be made to determine if larval transport indices derived from model results can be used to improve assessment models.</p> <p>The workshop will deal with interannual variability in transport within a stock as well as transport across stock boundaries. Rapid advances in circulation models at a variety of scales have improved the prospect of developing scenarios for changes in circulation under different conditions of climate change. There are also improving prospects for operational now-casting and forecasting of circulation.</p> <p>In tor (d) direct information is egg and larvae surveys while indirect information includes unusual</p>

	distribution and migration in later life, elemental analysis of otoliths, genetic identification, and meristic characters.
Relation to Strategic Plan:	The workshop will contribute to Goals 1,4,5 and 8 of the Strategic Plan.
Resource Requirements:	Assistance from the ICES/GLOBEC Coordinator in maintaining the exchange of information via the web site, Newsletters, databases and workshop bulletin boards.
Participants:	Participation at workshops of the WGCCC is usually more than 25. Part of the reason for holding two Study Groups, the Recruitment Processes WG and the Workshop on Transport Processes at the same time and location is to encourage cross-participation. The workshop is expected to attract a number of scientists from outside the regular ICES scientific community.
Secretariat Facilities:	Dependent on availability of meeting rooms at ICES HQ
Financial:	None
Linkages to Advisory Committees:	Relevant to the work of the ACFM and ACE
Linkages to other Committees or Groups:	Living Resources, to whom the Group reports. Also links to SGNARO, RPWG, SGPRISM, SGMPI
Linkages to other Organisations:	GLOBEC is a co-sponsor of the group.
Cost Share	ICES:100%

2C14 The **Working Group on Recruitment Processes** [WGRP] (Co-Chairs: P. Pepin, Canada and R.D.M. Nash, UK) will meet in ICES Headquarters from 18–19 April 2002 to:

- a) review multidisciplinary projects dealing with recruitment research, with attention to providing a synthesis of the projects and highlight unresolved issues which deserve further consideration;
- b) consider the results of the SGPRISM's examination of the STEREO project, along with concurrent and subsequent investigations;
- c) evaluate an analysis of simulations exploring the effects of stock structural factors on the parameters of stock-recruitment relationships with a view to preparing a case for a Study Group on evaluating the impact of these factors on stock projections, and in the light of results from the Workshop on the Transport of Cod Larvae held immediately prior to the meeting;
- d) consider a synthesis of the 2000 Theme Session on "Spatial and Temporal Patterns in Recruitment Processes" to be prepared by the Session's Convenors as well as a synthesis of recruitment issues presented at the SAP symposium held in December 2000;
- e) identify areas in the study of recruitment processes where sufficient progress has been achieved with the objective of developing a workshop dealing with specific case studies;
- f) review the development of new approaches or techniques used in the study of factors and processes that influence the development and survival of fish eggs and larvae in relation to recruitment of the formation of year-class strength.

WGRP will report by 30 April 2002 for the attention of the Oceanography Committee and ACE

Supporting Information

Priority:	Because the relationship between spawning stock and recruitment is fundamental to the scientific approach to fisheries management, the work of this group should be considered of high priority to ICES.
Scientific Justification:	<p>a) There currently exists a large number of on-going and planned multidisciplinary and multinational studies which are investigating some of the fundamental processes which influence recruitment patterns and stock dynamics. Since many are not supported through ICES, it is essential that the WG keep abreast of developments, results and conclusions of such projects in order to inform ICES of the applicability and utility of these findings and identify potential avenues of research which should be pursued.</p> <p>b) The dynamic nature of research on recruitment processes requires that ICES be kept informed of new developments in approaches used in to study of various elements affecting recruitment</p>

	<p>processes.</p> <p>c) The current SGPRISM has been tasked with investigation how environmental effects on recruitment can be incorporated into the fisheries advice system, but one of the conclusions is that this may not necessarily reduce the uncertainty in forecasts because we are unable to forecast the environment with any precision. However, stock structural factors also affect recruitment dynamics.) M. Heath (UK), G. Martinsdottir (Iceland), B. MacKenzie (Denmark), T. Marshall (Norway) should present an analysis</p> <p>d) P. Pepin (Canada) and R. Nash (Isle of Man) are charged with providing a synthesis of recruitment issues presented at the SAP symposium to the next WGRP meeting</p> <p>e) SGPRISM concluded that considerable work still has to be done in order to effectively incorporate the results from process studies into population assessment and management schemes. The Working Group has decided to follow this up by identifying areas where sufficient progress has been achieved with the objective of developing a workshop dealing with specific case studies.</p> <p>f) There is a need to refine the present approach to incorporating stock structure and environmental information into assessment and projection procedures.</p>
Relation to Strategic Plan:	Activities are developed around the need to identify knowledge gaps as well as consider how to incorporate new knowledge in the provision of timely and accurate scientific advice. In light of the large number of significant and substantial multidisciplinary projects, the WG identified the need to develop methods to incorporate this new information into the assessment and projection of population abundance.
Resource Requirements:	The WG requires active participation from the members assigned by the Delegates. A complement of 15-20 active members is required to accomplish the work identified in the resolution.
Participants:	In addition to regular members, the WG feels there would be benefit from greater participation by quantitative individuals. We note that Nicolas Bez (Centre de geostatistiques des Mines de Paris, France), C.M. O'Brien (Lowestoft, UK) and T.J. Miller (Chesapeake Biological Lab, USA) would be welcome additions in this area where the WG is lacking expertise.
Secretariat Facilities:	None
Financial:	Only in producing the report.
Linkages To Advisory Committees:	The activities of the WG are developing to provide more accurate medium-term forecasts of stock projections
Linkages To other Committees or Groups:	The activities of the WG are designed to provide input of knowledge to various Assessment WGs. There is no potential overlap in activities because the latter do not have the resources to consider the nature of this new knowledge outside the scope of their current activities.
Linkages to other Organisations	

2C15 The **ICES/GLOBEC Working Group on Cod and Climate Change** [WGCCC] (Chair: K. Drinkwater, Canada) will meet in Hillerød, Denmark from 19 – 20 April 2002 to:

- a) continue with the review and evaluation of work carried out to date on Cod and Climate Change including results and possible follow-up work from the Workshop on Transport of Cod Larvae
- b) plan and prepare workshops over the next two years in order to:
 - v) coordinate the synthesis work and the preparation of material for the book
 - vi) continue the evaluation of studies on Long-Term Climate Change and Prediction;
- c) foster further cooperation and interaction with the Working Group on Recruitment Processes, the Study Groups on the Incorporation of Process Information into Stock-Recruitment Models and the Study Group on Modelling of Physical/Biological Interactions;
- d) determine the Working Group's contribution to the GLOBEC Open Science Meeting in China in October 2002.
- e) prepare a summary report listing relevant marine bio-ecological variables and indicators suitable for operational use.

WGCCC will report by 15 May 2002 for the attention of the Oceanography Committee

Supporting Information

Priority:	This Group is of fundamental importance to the future of the ICES Advisory Process.
Scientific Justification:	<p>During the 1998 annual meeting of the WGCCC formulated its five year plan for the Oceanography Committee and for the Implementation Plan of the International GLOBEC programme (The ICES/GLOBEC cod and climate change programme is the North Atlantic regional component of the International GLOBEC programme). The plan was extended during the 2000 annual meeting to include additional activities through to 2004–2005. The first three years have been successfully completed and plans for year four are progressing on schedule. Further preparations and planning are required during the coming year to continue the program through to completion. The meeting will be held in conjunction with the workshop on Transport of Cod Larvae.</p> <ul style="list-style-type: none"> a. The Workshop on Transport of Cod Larvae will immediately precede the WGCCC meeting. An evaluation of the success of the workshop in meeting its stated terms of reference will be carried out in order to determine what follow-up activities should be initiated and how best to carry them out. b. (i) To facilitate the synthesis activities and publication of the book a workshop of lead and contributing authors is required to ensure linkages between the selected chapters and to identify potential gaps. This will be essential to ensure proper synthesis of WGCCC program. (ii) During the 2000 meeting, the WGCCC felt there was a need for climate predictions for assessment purposes and also information on the response of cod to climate change scenarios. It was decided to propose a workshop on these two topics to be held in 2005. This decision will be reviewed and discussed. c. Members of the WGRP and the Study Groups have shown an interest in attending the Workshop on Transport of Cod Larvae. To facilitate their participation, all three as well as the WGCCC are planning their annual meetings immediately following the Workshop. This will provide an opportunity to discuss matters of mutual interest and to possibly hold a short joint session. d. The International GLOBEC Open Science Meeting scheduled for October 2002, in Qingdao, China has requested participation from the regional and national programs. This provides an opportunity to showcase some of the work of the ICES WGCCC. e. Recent developments in the field of sensor instrumentation offers new chances for improvements and cost-efficient monitoring strategies which could be adopted in new monitoring programmes or replace current methodologies or offer possibilities not available until now. A series of new developments have been listed in the EuroGOOS Publication No. 15. Apart from compiling these new developments the WGs should evaluate their potential use for operational oceanography. This should strengthen the incorporation of ICES activities in future GOOS relevant studies. the Section on the EuroGOOS/ICES Workshop on bioecological Observations in Operational Oceanography (Den Haag, April 2000) that the WGs* under the ICES Science Committees (Oceanography, Living Marine Resources, Marine Habitat) prepare a summary report listing all relevant marine bio-ecological variables and indicators suggested for operational use.

	<p>The Working Groups should compile such a list taking into account the EuroGOOS Publication No. 15, (http://www.eurogoos.org/Activities/ActivitiesFrameSet.html), past work of LMR, Coastal and HOTO GOOS-Modules and other relevant GOOS and EuroGOOS documents and workshop results.</p> <p>This term of reference has been given to various Working Groups (WGSE, WGZE, WGOH, WGHABD, WGPE, WGCC, SGEAM, WGBEAM)</p> <p>f.</p>
Relation to Strategic Plan:	The ICES/GLOBEC programme contributes to Goals 1,4,5 and 8 of the Strategic Plan.
Resource Requirements:	Assistance from the ICES/GLOBEC Coordinator in maintaining the exchange of information via the web site, Newsletters, databases and workshop bulletin boards.
Participants:	Participation at WGCCC is usually more than 25. Part of the reason for holding two Study Groups, the Recruitment Processes WG and the Workshop on Transport Processes at the same time and location is to encourage cross-participation
Secretariat Facilities:	Dependent on availability of meeting rooms at ICES HQ
Financial:	None
Linkages to Advisory Committees:	WGCC has close relevance to the work of the Advisory Committees
Linkages to other Committees or Groups:	Living Resources, to whom the Group reports. Also links to SGNARO, RPWG, SGPRISM, SGMPI
Linkages to other Organisations:	GLOBEC is a co-sponsor of the group.
Cost Share	ICES:100%

2C16 The **Study Group on an ICES/IOC Microplankton Protist List** [SGPHYT] will be renamed the **Study Group on an ICES/IOC Checklist of Phytoplankton and other Protists** [SGPHYT] (Chair: G. Hällfors, Finland) and will work by correspondence in 2002 to:

- a) continue compilation of a relational database of Phytoplankton and other Protists, on the basis of the regional checklists;
- b) continue to check that the species meet the criteria to be included in the database;
- c) consider the options for publication and distribution of the database;
- d) prepare for a meeting to evaluate the taxonomy of the species included in the database.

SGPHYT will report by 1 August 2002 for the attention of the Oceanography Committee and ACME.

Supporting Information

Priority:	Work essential to the development of international databases on phytoplankton, especially those dealing with the effects of man-induced variability and change
Scientific Justification:	The incoming results from phytoplanktologists with regard to their opinion of specific items of information to be included in the checklist are underway. It is anticipated that the criteria and format of the list will be ready this year. At that time the list of existing checklists will also be presented. From there on the compilation of the new complete list will start. The first step will be the control that the species a) meet the criteria to be included and b) are taxonomically sound. This work will initially be done by correspondence, but later activities might be expanded to include meetings, to review reports, to merge with other groups, to have workshops, where e.g. new techniques are discussed and to focus on special topics for certain periods of time.

Relation to Strategic Plan:	This work is relevant to the quantifying of human impacts on the marine ecosystem. Especially in terms of the evaluation of the ecosystem consequences of contaminants and eutrophication. A checklist of this kind will be a valuable tool in pelagic monitoring programmes.
Resource Requirements:	None specific, but publications and database maintenance might accrue.
Participants:	This relatively small group intends to initiate broader participation via its questionnaire.
Secretariat Facilities:	None
Financial:	None
Linkages To Advisory Committees:	ACME
Linkages To other Committees or Groups:	None
Linkages to other Organisations	The work of this group is undertaken in close collaboration with IOC's HAB programme. The resultant checklist will be known as an ICES/IOC Checklist on Phytoplankton and other Protists. ICES Secretariat databases.
Cost Share:	ICES 100%

2C17 The **Steering Group for the ICES/GLOBEC North Atlantic Programme and Regional Office** [SGNARO] (Co-Chairs: S. Parsons, Canada, K. Drinkwater, Canada and F. Köster, Germany) will work by correspondence in 2002, and meet as appropriate at national expense, to:

- a) review and advise on the further evolution of the North Atlantic Programme and the workplan of the ICES/GLOBEC office, taking into account:
 - i. the strategic goals for ICES/GLOBEC research and the strategic approach for the ICES/GLOBEC office as agreed by the Council,
 - ii. developments in the international GLOBEC programme; and
 - iii. available funding.

The Group will include the General Secretary, the GLOBEC Coordinator, the Chair of the Oceanography Committee and a representative of the international GLOBEC Scientific Steering Committee, and will be open to participants in the ICES/GLOBEC programme. Member countries not participating directly in the ICES/GLOBEC programme are also entitled to designate representatives to participate in the work of this group, should they so choose.

SGNARO will report by 31 May 2002 for the attention of the Bureau and the Oceanography Committee.

Supporting Information

Priority:	The continuing activity of the ICES/GLOBEC programme and of the Regional Office urgently requires an overseeing group, which will also advise on the preparation and submission of funding proposals
Scientific Justification:	The ICES/GLOBEC programme is the North Atlantic regional component of the International GLOBEC Implementation Plan. ICES has an MOU with IGBP, SCOR and IOC to support this programme and ICES can play a particularly valuable role in the development of GLOBEC internationally because of its long experience as an Application Oriented Organisation and its collective expertise in many aspects of marine ecosystem studies. The Steering Group is particularly needed in order to guide the work of the GLOBEC Regional Office at ICES, whose role is to a) further the aims to integrate fisheries and environmental information and advice, including the role of climatic variability and its implications for the dynamics of marine ecosystems and b) assist with the establishment of a regional and global operational monitoring system (GOOS). The proposals will

	consider the staffing implications for this work in relation to other existing and new Secretariat work commitments and priorities.
Relation to Strategic Plan:	The activities of this group are intimately related to a number of elements of the Strategic Plan, especially those dealing with the effects of the environment on fisheries and the marine ecosystem, climate change, development of long term monitoring and relations with international programmes..
Resource Requirements:	Very small as the activity is closely related to ongoing work in WGCCC. This is a Core Activity
Participants:	Working by correspondence, with a meeting during the Statutory Meeting.
Secretariat Facilities:	5 days per annum for ICES/GLOBEC coordinator
Financial:	Income from the proposals which this group will help to prepare will be used to pay for the ICES/GLOBEC office.
Linkages To Advisory Committees:	Closely linked to the Advisory Mechanism, in relation to effects of environmental change (including climate change) on fish stocks and the marine ecosystem, ecosystem based advice.
Linkages To other Committees or Groups:	Closely linked to WGCCC and its workshops
Linkages to other Organisations	IGBP, International GLOBEC, GOOS