

OCC Resolutions 2007

2007/2/OCC01 The **Working Group on Oceanic Hydrography [WGOH]** (Co-Chairs: S. Bacon, UK, and P. Holliday, UK) will meet in Aberdeen, UK, from 3–5 March 2008 to:

- a) update and review results from Standard Sections and Stations;
- b) consolidate inputs from Member Countries to, and continue development of, the ICES Report on Ocean Climate (IROC), and align data source acknowledgements in IROC with ICES policy; archive data used to compile report;
- c) provide support to other Expert Groups requiring information on oceanic hydrography in support of their responses to the OSPAR request on 'An assessment of the changes in the distribution and abundance of marine species in the OSPAR maritime area in relation to changes in hydrodynamics and sea temperature. review and improve relations with international climate monitoring programmes;
- d) review and improve relations with international climate monitoring programmes;
- e) take action for strengthening the role of WGOH and physical oceanography within ICES;
- f) provide expert knowledge and guidance to ICES Data Centre (possibly via sub-group) on a continuous basis;
- g) take part in the intersessional work led by WKOOP in developing the mission and draft resolutions for a new Expert Group related to operational oceanographic products and services;

WGOH will report by 5 April 2008 for the attention of the Oceanography and Advisory Committees.

Supporting Information

PRIORITY:	The activities of this Group are fundamental to the fulfilment of the Oceanography Committee's Action Plan.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN	<p>Action Plan Nos. 1.2, 1.3, 1.6, 1.7, 1.10, 5.13.4, 5.14 and 6.3.</p> <ol style="list-style-type: none"> 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 2006. b) The Working Group recognises the need for disseminating climate information in a timely and appropriate manner. This agenda item will allow WGOH members to prepare the document during the meeting, thus avoiding delays in the dissemination of the information. We will review proposed new developments in IROC content. c) This is in support of a request from OSPAR. d) Links have been made with the CLIVAR programme; it would be of benefit both to ICES and the international programmes to enhance internal information exchange. e) To follow up on the ICES General Secretary's suggestions for increasing the visibility of WGOH within ICES. To improve communications between working groups under the ICES system. f) This is in compliance with a request from the ICES Data Centre g) The work of the proposed Expert Group will be relevant for WGOH.
RESOURCE REQUIREMENTS:	No extraordinary additional resources
PARTICIPANTS:	WGOH members; Chair of Oceanography Committee.
SECRETARIAT FACILITIES:	N/a

FINANCIAL:	Publication and reproduction costs for the IROC.
LINKAGES TO ADVISORY COMMITTEES:	Advisory Committees on Fishery Management, Marine Environment, and Ecosystem
LINKAGES TO OTHER COMMITTEES OR GROUPS	Publications Committee; Consultative Committee; ICES/IOC Steering Group on GOOS
LINKAGES TO OTHER ORGANISATIONS:	IOC, JCOMM, CLIVAR

2007/2/OCC02 The **ICES-IOC Steering Group on GOOS [SGGOOS]** (ICES-Chair: A. Bode, Spain) will meet at IOC Headquarters in Paris, France from 21-22 February 2008 to:

- a) identify and steer the development of global and regional linkages between ICES and GOOS bodies:
 - i) Review the outcome of the IGOOS-VIII meeting;
- b) identify and steer the development of components and activities of ICES contributing to the Global Ocean Observing System, as well as GOOS products relevant to ICES:
 - i) review ICES Data Centre user survey list of improved data products and identify those relevant to GOOS;
 - ii) report on progress of ICES CTD/VOS system to provide real-time or near-real time delivery of environmental data from ICES coordinated research vessel surveys;
- c) identify and steer the development of regional ICES, PICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context:
 - i) highlight best practices and make recommendations to further develop and implement regional pilot projects;
 - ii) review the plans for a demonstration workshop on operational oceanographic products;
- d) identify and steer the development of appropriate outreach activities to disseminate information about ICES and GOOS and to articulate the benefits of taking a GOOS approach in the ICES context:
 - i) make recommendations for a Special Session and Plenary Lecture on GOOS for ICES ASC.

SGGOOS will report by 1 April 2008 for to the attention of the Oceanography Committee.

Supporting information

PRIORITY:	The activities of this joint ICES-IOC Steering Group must be considered essential for the participation of ICES as an active regional partner in GOOS.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	<p>Term of Reference a) Action Plan 1.7, 5.13, 5.13.1 (i) To provide annual summaries of GOOS activities to inform both the ICES and IOC communities and to recognize potential areas for collaboration.</p> <p>Term of Reference b) Action Plan 1.7, 5.13, 5.13.1 (i) To foster collaboration on data exchange and use within ICES and to raise awareness on data products needed for GOOS-related work. (ii) To promote the use of real-time data.</p> <p>Term of Reference c) Action Plan 1.7, 5.13, 5.13.1 (i) To promote and extend the development of GOOS regional projects in the ICES area. (ii) The demonstration workshop was recommended by SGGOOS and PGNP as a first step in the process of initiation of a new working group on operational oceanographic products.</p> <p>Term of Reference d) Action Plan 5.10 (i) A Special Session and Plenary Lecture on GOOS was driven by the</p>

	action points and recommendations since 2004. The review of the SGGOOS Action Plan in 2006 and recent changes at both ICES and GOOS structure and plans justifies this action.
RESOURCE REQUIREMENTS:	N/A.
PARTICIPANTS:	GOOS, EuroGOOS, and other relevant GOOS bodies are free to contribute to the Group. 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:	No financial implications.
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 Groups and IBTSWG under LRC.
LINKAGES TO OTHER ORGANIZATIONS:	IOC, EUROGOOS, PICES.

2007/2/OCC03 The ICES–IOC Working Group on Harmful Algal Bloom Dynamics [WGHABD] (Chair J. Silke, Ireland) will meet in Galway, Ireland in 10–13 March 2008 to:

- a) review and discuss HAB events related to aerosolized toxins and the methodologies used to monitor them
- b) WGHABD to generate key questions for HAB models intersessionally, submit to the PBI group for their consideration with the potential for a ToR for the 2008 PBI meeting and a view to holding a joint meeting of both groups in 2009.
- c) discuss the requirements for and, if agreed, plan the preparation of a draft outline an ICES Cooperative research report on new findings and developments relating to the distribution of phycotoxins and metabolites and recent findings on the distribution of HABs and toxin producing phytoplankton species in the ICES area.
- d) review developments in knowledge pertaining to the development of *Verrucophora* and *Chattonella* blooms
- e) discuss new findings that pertain to harmful algal bloom dynamics. Bring new findings in phytoplankton population dynamics models to the attention of WGHABD for discussion.
- f) collate and assess National reports (Country Reps)
- g) review the progress on intersessional updating and inputting data in the IOC-ICES-PICES HAEDAT database and developments made towards developing an integrated system.
- h) review the structure and composition of the decadal HAE maps for the ICES region with special reference to the linkage between the decadal maps and the HAEDAT database and the need for new maps for specific algal species.
- i) review intersessional work to generate a website to electronically archive past reports of the WGHABD and to facilitate intersessional work carried out by the group.
- j) investigate and discuss the possibility of comparative studies that will use mesocosms to explore the dynamics of HABs subject to eutrophic pressures

WGHABD will report by 13 April 2008 for the attention of the Oceanography Committee and ACOM.

Supporting Information

PRIORITY	The activities of this group are fundamental to the work of the Oceanography Committee. The work is essential to the development and understanding of the effects of climate and man-induced variability and change in relation to the health of the ecosystem. The work of this ICES-/IOC WG is deemed high priority.
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<p>SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN</p>	<p>Action Plan No: 1.1, 1.2, 1.5, 1.7, 1.10, 1.11, 1.12, 2.3, 2.9, 3.2, 4.11, 5.10, 5.13, 5.16, 6.1, 6.2, 6.3, 6.4, 8.1, 8.2, 8.4.</p> <p>Term of Reference a) During recent years, there have been increasing reports of respiratory irritations affecting sun-bathers in coastal waters of Europe. The victims, sometimes in high numbers (up to 100), have required medical assistance. These events have been associated with toxic aerosols derived from epibenthic microalgae of the genus <i>Karenia</i> and <i>Ostreopsis</i>, that eventually colonize the water column. Current gaps in scientific knowledge are multiple, and concern: a) The hydrodynamic conditions that lead to the detachment of seaweeds and other substrates where the microalgae are attached leading to their resuspension in the water column; b) The seasonality of these microalgae and the environmental conditions promoting their numerical increase; c) The appropriate protocols to monitor epibenthic microalgae populations, whether attached or loose in the water column, and the toxic aerosols derived from them; d) The complex mechanisms underlying the passage of toxins from the whole cells to the irritatory aerosols. It would be beneficial to the group to compile the available information of these events, derived actions, and gain from the years-experience on respiratory irritation syndromes related with <i>Karenia brevis</i> events from the Florida coasts.</p> <p>Term of Reference b) Current knowledge on modelling HABs and HAB physical-biological processes is limited. Improved knowledge on the validation of these models and the status of coupled physical-biological process knowledge is essential to improve models for HAB dynamics. WGHABD wish to pursue this by interdisciplinary work with WGPBI and development of joint TORs and potential joint WG sessions in the coming years.</p> <p>Term of Reference c) In 1992, ICES published a Co-operative Research Report "Effects of harmful algal blooms on Mariculture and marine fisheries". At the time, this document has proved to be extremely useful for scientists, policy administrators and those involved in operational management programmes. Recent years have seen significant developments in the detection of toxins, their distribution and the occurrence of HAB and toxin producing phytoplankton species and events. The WG consider it timely to discuss the need for a new CRP on new findings and developments relating to the distribution of phycotoxins and metabolites and recent findings on the distribution of HABs and toxin producing phytoplankton species in the ICES area. To this end, at its next meeting of the WGHABD, the requirements for and content of a review will be discussed and if agreed a work programme will be prepared. As a first step, the WGHABD will review the biogeography of phycotoxins and associated causative organisms.</p> <p>Term of Reference d) Harmful blooms of <i>Chattonella</i> spp. are known from many locations around the world. The first harmful bloom in European waters occurred in 1998. The blooming species was then first identified to <i>Chattonella</i> aff. <i>verruculosa</i>, but after comprehensive morphological and genetic characterization of the species, it turned out to be a new genus, named <i>Verrucophora</i>. Since 1998 it has bloomed recurrently in European waters, and seems, that many of the species belonging to the genus <i>Chattonella</i>, to be able to out-compete diatoms. The recent years much new knowledge on <i>Chattonella</i> and <i>Verrucophora</i> spp. and their blooming dynamics has appeared, from blooms, morphological and genetic studies, cultivation experiments and modelling. Thus it is timely to review the state of the art with respect to our common knowledge related to the blooming and dynamics of these widespread species.</p> <p>Term of Reference e) The forum for presenting new findings has been an excellent tool for promoting the discussions about topics of general interest. There are obvious reasons to continue with this topic as a term of reference.</p> <p>Term of Reference f) National reports HAEDAT is an extremely valuable dataset that is only now becoming extensively utilised. There are developments on the technical end that allow users to mount their data and query it through the Internet. This system was demonstrated to WGHABD in 2006 in a near complete version. It is requested that the finished version be presented in 2007, and potential uses be identified.</p> <p>Term of Reference g) The WGHABD feels it is important that the decadal maps be tied directly to the IOC-HAEDAT reports. Currently the decadal maps are produced manually with limited consistency and quality control. HAEDAT has been improved in recent years and it would be desired that the maps be made more user friendly and adaptable. At the 2006 meeting it was requested that a joint project between institutes with active GIS departments be investigated to attract funding to allow the development of this functionality of the HAEDAT and HAE-MAPS be established.</p>
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	<p>Term of Reference h) The work of collating the national HAE reports and building up HAE-DAT 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. PICES, South America, HANA and Caribbean countries (via IOC/FANSA and IOC/ANCA) are now included in HAE-DAT. It should be endeavored 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>Term of Reference i) The ICES website maintains an archive the recent reports produced by this working group, and the OCC area of the ICES website publishes the resolutions agreed at ASC. It was noted however, that many of the earlier WG reports, cooperative research reports and other documents are not available in electronic format. It was decided to develop a WGHABD web presence to address this with links to the ICES publications where online and to archive other reports that have not been available. In addition this will facilitate the circulation of other material between group members intersessionally.</p> <p>Term of Reference i) WGHABD has both participated in and organised several successful workshops in the past with IOC and ICES sponsorship. The working group wish to explore the possibility of organising another workshop on the topic of HABs subject to eutrophic pressures. The relationship between nutrient (both inorganic and organic) loading and alteration in nutrient supply ratios and many HABs is now recognized, but much remains to be understood. The GEOHAB core project on HABs and Eutrophication has recognised that eutrophication may have a significant effect on HABs and the role of mesocosms would be an appropriate means to study these effects. The workshop approach would allow a number of different investigators to converge on the same site and use their analytical tools and approaches to fully document effects at different trophic levels. The workshop experiments may initiate others, with the ultimate goal to have other mesocosm experiments occur in several locations to study comparative aspects consistent with the GEOHAB approach.</p>
RESOURCE REQUIREMENTS	The research programmes which provide the main input to this group are already underway, and resources already committed. The additional resource required to undertake additional activities in the framework of this group is negligible.
PARTICIPANTS	The Group is normally attended by some 20–25 members and guests
SECRETARIAT FACILITIES	None
FINANCIAL	No financial implications
LINKAGES TO ADVISORY COMMITTEES	There are no obvious direct linkages with the advisory committees
LINKAGES TO OTHER COMMITTEES OR GROUPS	WGHABD interacts with WGZE, WGPE, SGGIB, SGBOSV, WGPBI.
LINKAGES TO OTHER ORGANISATIONS	The work of this group is undertaken in close collaboration with the IOC HAB Programme. IOC should be consulted regarding ToR or discontinuation of the WG prior to the ASC. There is a linkage to SCOR through the interactions of the IOC-SCOR GEOHAB Programme.

2007/2/OCC04 The **Working Group on Recruitment Processes [WGRP]** (Co-Chairs: R. D. M. Nash, Norway, and T. Miller, USA) will meet at ICES Headquarters in Copenhagen, Denmark from 31 March to 2 April 2008 to:

- a) complete the synthesis and review of the evidence for sources, patterns and consequences of selective processes in fish early life history and its relevance to our understanding of forecasts of year class strength. (carried over from 2007);
- b) based on the results of the review of selective processes in early life history, prepare an ICES Cooperative Research Report that identifies the challenges presented to sustainable fisheries management (capture and aquaculture) of selective processes in early life history ;
- c) summarize and analyse data relevant to multi-stage models of recruitment to determine whether patterns exist either within species or within ecosystems that may lead to generalisations regarding the nature of population regulation (carried over from 2007);

- d) evaluate the findings of SGRECVAP (2006 and 2007 meetings) and undertake work on the causes and dynamics of the serial poor recruitment in North Sea herring, and provide a report of the WGRP deliberations to the HAWG in 2008.

WGRP will report by 26 May 2008 for the attention of the Oceanography Committee, ACOM and HAWG.

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>ToR a and b) At present there is a general lack of information on the causes of mortality in young stages of fish. In particular predation mortality. It is only recently that new analytical tools are being developed (specifically genetics based) that will allow the levels and sources of predation to be identified. This information is fundamental to our understanding of the processes that affect recruitment levels.</p> <p>ToR c) The identification of where in the pre-recruit life history year class strength is determined is important for determining useful recruitment indices and forecast models for recruitment. There are a number of species that have been sampled regularly, both multiple sampling of a cohort over if young stages and over a number of years. A collation of these data will provide insight in to variability with a species across different environments and between species within an environment.</p> <p>ToR d) This is in reply to a recommendation from the Herring Assessment WG. This ToR will be dealt with by correspondence.</p>
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 individuals with quantitative skills in the area of biometry and population dynamics.
SECRETARIAT FACILITIES:	The Working Group will meet at ICES Headquarters in March 31- April 2, 2008, and will need meeting facilities for that meeting. Additional secretarial assistance will be required for an annual report.
FINANCIAL:	No financial implications
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. WGZE has close ties with the work of the Group. WGPBI also has close ties with WGRP – several people sit on both WGs. HAWG/ACOM.
LINKAGES TO OTHER ORGANISATIONS:	GOOS, GLOBEC and NAFO through its Working Group on Reproductive Potential.

2007/2/OCC05 The Working Group on Zooplankton Ecology [WGZE] (Chair: A. Gislason, Iceland) will meet in Montpellier, France, from 31 March–3 April 2008 to:

- a) Consider the reports of the Ad Hoc Groups on;
- i) Hydrographic Attributes
 - ii) Trend Analyses & Quantifying Relationships
 - iii) Formulating Hypotheses and Predictions about Mechanisms
 - iv) Selecting Species for More Intensive Investigations

and use their recommendations concerning (1) recommended time series, (2) analytical methods and suitable software, (3) hypotheses and guidance for their use, and (4) a suggested list of species for intensive study, to complete ‘the assessment of changes in the distribution and abundance of marine species in the OSPAR maritime area in relation to changes in hydrodynamics and sea temperature;

- b) update the ICES plankton status report and consider ways of incorporating biophysical modelling approaches in interpretation;
- c) prepare species lists from time series stations and/or areas in the ICES area;
- d) report on approaches for combining field and laboratory data together with biological-physical models to examine processes controlling zooplankton populations;
- e) compare and report on different nets and mesh sizes and their efficiency;
- f) compare and report on different measures for zooplankton biomass from regions within the ICES area;
- g) finalize preparations for the WGZE/CIESM Workshop;
- h) review the planning of a new working group related to phytoplankton and microbial ecology;
- i) produce an evidence based rationale for incorporating zooplankton monitoring into regulatory assessment frameworks;
- j) assess and report on the outcomes of the 4th ICES/PICES/GLOBEC International Zooplankton Production Symposium;
- k) provide expert knowledge and guidance to the ICES Data Centre (possibly via sub-group) on a continuous basis.

WGZE will report by 1 May 2008 for the attention of the Oceanography Committee, (with ToR a) reported to WGEKO as soon as possible after the meeting.

Supporting Information

PRIORITY:	The activities of this group are a basic element of the Oceanography Committee, fundamental to understanding the relation between the physical, chemical environment and living marine resources in an ecosystem context. Reflecting the central role of zooplankton in marine ecology, the group members bring a wide range of experienced expertise and enthusiasm to bear on questions central to ICES concerns. Thus the work of this group must be considered of very high priority and central to ecosystem approaches.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	<p>Action Plan No: 1.2 - 1.13; 2.2, 2.9, 2.10; 3.2, 3.3, 3.15; 4.2, 4.10, 4.11, 4.14, 4.15; 5.2 – 5.5, 5.9, 5.10, 5.13 – 5.17; 6.1; 8.1, 8.2, 8.4, 10.1, 10.3</p> <p>a) This is to meet an OSPAR request for advice</p> <p>b) This is a repeating task established by the Working Group in 2000 to monitor the plankton abundance in the ICES area. The material presented under this item updates and expands the annual Summary Plankton Status Report in the ICES area. Reported results are significant observations and trends based on a wide range of time series sampling programmes. Efforts are in hand to expand the report, to include phytoplankton and elementary physics from all locations, and to facilitate interpretation by including biophysical modelling approaches.</p> <p>bc The WGZE will work intersessionally towards collating a unified taxonomic list of the zooplankton for the time series areas. This will aid data exchange and integration. The “APHIA-ERMS” (the European Register of Marine Species) taxonomic system will be adopted as MarBEF is currently using the ERMS system for its metadatabase. This work will identify common species between the time-series facilitating future comparative studies. The importance of rare or low abundance species together with new or introduced species should not be overlooked particularly in a context of climate change. Comparison of the relative importance of each species in the communities represented by the time-series will be aided by the common taxonomic approach. There are known to be indicator species of particular water masses, and there are now species appearing that were not present 30 years ago. The indicator species for each region will be determined. Material presented under this item will be utilized to prepare the Annual Plankton Status Report.</p> <p>d) Zooplankton represent a key component of marine ecosystems by effecting middle-out control of food-web dynamics and mass/energy flow. By definition, zooplankton are ‘drifters’, and their abundance in time and space is determined by a combination of biological and physical processes. Building on the separate strengths of the WGZE and WGPBI, significant progress can be made in understanding zooplankton and ecosystem dynamics by combining knowledge, expertise, data, and models from these two WGs. The extensive data sets on zooplankton and environmental variables of the WGZE, together with the state-of-the-art biological-physical modeling techniques of the WGPBI, will be explored in a joint session to identify critical data and modeling needs, to gain insights into physical effects on zooplankton populations, and to formulate a plan for future collaborative research in these two important areas of biological oceanography.</p> <p>e) Plankton nets have been used in quantitative zooplankton work for well over 100 years</p>

	<p>and the realisation that they have limited efficiency is probably as old as the technique itself. With the advent of acoustic and optical technologies, new sampling systems without nets have been developed. However, net sampling systems are still used extensively in most zooplankton monitoring programmes and will likely continue to be used in the future. The efficiency of net sampling systems is dependent on a number of factors, most notably probably being avoidance of the sampler by the organisms, clogging of the net meshes and extrusion of animals through the meshes (escapement). With this ToR we seek to elucidate the effects of different nets and mesh sizes on their efficiency.</p> <p>f) The biomass of zooplankton may be measured or estimated in a number of ways (e.g. settled volume, displacement volume, wet weight, dry weight, ash-free dry weight, carbon weight). As with d), this ToR is an evaluation of methodology and new technology and will provide a basis for consistent monitoring.</p> <p>g) The Joint WGZE/CIESM Workshop to compare Zooplankton Ecology and Methodologies between the Mediterranean and the North Atlantic (WKZEM) proposed by WGZE and adopted by the ICES Council in 2006 will be held in the end of October 2008 in Heraklion (Crete) (Co-Chairs: A. Gislason*, Iceland, and G. Gorsky*, France). The Workshop is very welcome and timely. Many of the issues the WGZE is dealing with will benefit from a wider, collaborative approach. The development of working links between both groups has been mentioned frequently in the past and this is an excellent opportunity to tackle a well defined agenda of common interest. With this ToR the WGZE will organize and review the plans for the Workshop and thus contribute to its successful outcome.</p> <p>h) The WGZE recognizes the need for maintaining phytoplankton expertise within ICES, as processes within higher trophic levels cannot be understood isolated from those at the base of the food chain. It is not really possible for WGZE and many others in ICES and elsewhere to address adequately many of the important issues in marine ecology or marine system management and policy without reference to expertise in phytoplankton and microbial ecology. Therefore the WGZE strongly recommends that a new working group of phytoplankton and Microbial Ecology be formed by ICES and would like to follow the progress.</p> <p>i) The EU marine strategy document requires the inclusion of information on the typical phytoplankton and zooplankton communities in monitoring programmes, including key species, seasonal and geographical variability and estimates of primary and secondary productivity. However, several environmental agencies do not seem to recognise fully the importance of zooplankton as a key to the understanding the structure and functioning of ecosystems. Thus, zooplankton are only recently and briefly mentioned in the water or ecosystem monitoring documents and guidelines of OSPAR and HELCOM. This is unfortunate given the central ecosystem role of zooplankton and demonstrable links with climate change. With this ToR the WGZE seeks to produce an evidence based rationale for including zooplankton in present and future monitoring programmes. All environmental agencies should be encouraged to foster this request.</p> <p>j) The 4th ICES/PICES/GLOBEC International Zooplankton Production Symposium will be a major international event. Zooplankton production is widely studied and highly relevant topic in marine research and for marine ecosystem and population management. This 4th symposium looks to be as well attended and productive as the previous ones. The outcomes will be important to the future aims and plans for plankton research. As the originators of the symposium, the WGZE should assist in producing a review of the outputs and issues highlighted.</p> <p>k) This is in compliance with a request from the ICES Data Centre.</p>
RESOURCE REQUIREMENTS:	Resource required to undertake the activities of this group is negligible. However, ICES must be committed to provide some sponsorship and support for workshops, publication costs for the Plankton Status Report, and the 4th Zooplankton Symposium.
PARTICIPANTS:	The group has an enthusiastic core membership, and is successfully making efforts to attract broader participation both across ICES nations and across relevant skills The Group is normally attended by some 20-25 members and guests.
SECRETARIAT FACILITIES:	None beyond communication support.
FINANCIAL:	Publication costs for the Plankton Status Report, no other current financial implications.
LINKAGES TO ADVISORY COMMITTEES:	The Group reports to the Oceanographic Committee and ACOM. Mainly WGZE provides scientific information on plankton and ecosystems and welcomes input from other committees, working/ study groups etc.
LINKAGES TO OTHER COMMITTEES OR GROUPS:	Any and all working and study groups interested in marine ecosystem monitoring and assessments, modelling and/or plankton studies, including fish and shellfish life histories and recruitment studies.

LINKAGES TO OTHER ORGANIZATIONS:	Links with the WGMDM, WGRP, WGCCC, WGPE and WGHABD are intended and some contact is maintained. The WGZE input to REGNS is an ongoing effort. The Plankton Status Report is of interest and practical use to a range of interested groups within ICES, PICES, CIESM, GOOS and GLOBEC with other national and international research groups and agencies. Increasingly marine research, marine management and even marine institutes are re-aligning to take an ecosystem view. These linked and collaborative approaches between many working and study groups must be encouraged. IGBP, SCOR, ESF, COML/ CMarZ, and others have research activities meetings etc., of interest and relevant to the activities of the WGZE. Contacts are maintained through networking and collaborative activities.
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2007/2/OCC06 The **Working Group on Modelling Physical Biological Interactions** [WGPBI] (Co-Chair: C. Hannah, Canada and U. Thygesen, Denmark) will meet in Montpellier, France from 1–3 April 2008 to:

- a) present and discuss new results concerning physical-biological interactions;
- b) complete the publication of papers from WKAMF;
- c) complete the draft of the Manual of Recommended Practices for Modelling Physical-Biological Interactions in Fish Early-Life History and suggest future coordinated research actions;
- d) demonstrate potential effects of climate change on the lower trophic levels of marine ecosystems;
- e) develop a statement of requirements for monitoring data to be useful for development and validation of models of physical-biological interactions;
- f) report on lessons learned from application of holographic imagery to zooplankton-phytoplankton-turbulence interactions;
- g) document how PBI tools can be useful in estimating fish habitats potentials and survival windows and their variation in the context of climate change;
- h) review proposed approaches for coupling regional models of NPZD-type biogeochemistry with higher trophic levels;
- i) report on approaches for combining field and laboratory data together with biological-physical models to examine processes controlling zooplankton populations;
- j) discuss and report on how WGPBI fits into the new ICES structure.

WGPBI will report by 28 April 2008 for the attention of the Oceanography Committee.

Supporting Information

PRIORITY:	The WG should be given high priority, since it is concerned with the evaluation and development of the modelling tools 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 the successful development of predictive capability of the state and evolution of the ecosystem for issues such as harmful algal booms, eutrophication, marine protected areas, fish recruitment, and global change. This contributes directly to fulfilling the vision of ICES, “to improve the scientific capacity to give advice on the human impact on, and impacted by, marine ecosystems.”.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	<p>The work of WGPBI contributes to the following ICES Activities:</p> <p>Action Plan no. 1.5 (modelling biological-physical interactions in the sea), Action Plan no 1.1 (provide feedback about research needs), Action Plan no 1.2 (increase knowledge with respect to functioning of the ecosystem). Term of Reference a) Providing a forum for the presentation and discussion of new results is an important component of the Group’s mandate.</p> <p>Term of Reference b) The review process of the manuscripts from the workshop on ‘Advancements in Modelling Physical-Biological Interactions in Fish Early-Life History: Recommended Practices and Future Directions’ (WKAMF) is nearing completion. Publication in Marine Ecology Progress Series is expected in late 2007. Workshop co-chairs are serving as guest editors and will contribute an overview article.</p>

	<p>Term of Reference c) The participants at WKAMF have completed the first draft of the “Manual of Recommended Practices for Modelling Physical-Biological Interactions in Fish Early-Life History”. Mechanisms for publication, potentially as an ICES Cooperative Research Report, are being considered.</p> <p>Term of Reference d) Global circulation models predict significant warming throughout the globe under higher levels of greenhouse gas. Precipitation and wind fields are also predicted to change and these atmospheric changes will impact the ocean with effects on hydrographic properties, currents and ultimately marine ecosystems. Politicians, fisheries managers and increasingly the public are demanding answers from scientists on the most likely outcome from predicted climate change.</p> <p>Term of Reference e) The amount and availability of environmental monitoring data is increasing in the ICES area. As potential users of the data, the modellers need to make a statement about the requirements for the data to be useful for model development and application over the next 5–10 years. For example what are the modellers requirements for a minimum suite of observables, and for archival and assessibility?</p> <p>Term of Reference f) Holographic imagery is an emerging technology in marine science. A review of the lessons learned from the application of the technology to zooplankton-phytoplankton-turbulence interactions and the implications for robust parameterizing predator prey interactions will be an important contribution to the proposed joint work between WGPBI and WGZE (ToR i).</p> <p>Term of Reference g) The development of quantitative relationships between the physical environment and fish habitat is a field of growing interest and has been the subject of several ICES ASC theme sessions over the last few years. The goal here is to review the application of the modelling tools developed by the physical-biological interaction that are useful for describing fish habitat and propose operational products of potential interest for fisheries ecology users.</p> <p>Term of Reference h) Coupling numerical models for atmosphere, ocean, land and ice is a central issue in the climate research community but the coupling issue is in its infancy in the modelling of marine ecosystems. Couplers, i.e. the software interface between the different models, allows the realization of coupled simulations on different types of platforms at a minimal cost, the testing of different coupling algorithms (e.g. time strategy or interpolation methods), and an objective intercomparison of coupled models by changing some or all component models. A review of approaches employed in climate modelling as well as their potential utility in the modelling of trophic interactions between NPZD-biogeochemistry and higher trophic levels of (coastal) marine ecosystem model types will be presented.</p> <p>Term of Reference i) Zooplankton provides the link between primary production and the fisheries. Modelling zooplankton is important to both those who need zooplankton as prey for fish models and those who need zooplankton as a predator (a closure term) in primary production models. WGPBI and WGZE will have an overlapping meeting in 2008. This ToR represents our goals for joint work.</p> <p>Term of Reference j) The Oceanography Committee has requested that WGPBI discuss how it fits into the new ICES structure.</p>
RESOURCE REQUIREMENTS:	None
PARTICIPANTS:	The WG is normally attended by some 20–30 members and guests. The Working Group benefits from the participation of those outside of the modelling community. Observational and experimental scientists with an interest in physical-biological interactions are encouraged to attend.
SECRETARIAT FACILITIES:	None.
FINANCIAL:	No financial implications.
LINKAGES TO ADVISORY COMMITTEES:	ACOM

LINKAGES TO OTHER COMMITTEES OR GROUPS:	ICES-IOC Working Group on Harmful Algal Bloom Dynamics, WGRP, BSRP, WGLESP, WGZE, LRC
LINKAGES TO OTHER ORGANIZATIONS:	The work of this group is closely aligned with similar work in GEOHAB (IOC/SCOR), GLOBEC (IOC/SCOR), IMBER and PICES.

2007/2/OCC07 The **Workshop on Operational Oceanographic Products [WKOOP]** will be established (Co-Chairs: Hein Rune Skjoldal*, Norway, John Siddorn*, UK, Morten Skogen*, Norway, Mark Dickey-Collas*, the Netherlands), will meet at the ICES Headquarters, in Copenhagen, Denmark, from 8–9 April 2008, to:

- a) suggest ways of developing and/or improving the dialog between producers of operational products and users.
- b) review the use of NORSEPP products by other ICES WGs and propose ways to improve working relationships with relevant groups;
- c) demonstrate extended use of operational products to regional scales, in connection with GOOS Regional Alliances
- d) discuss format and timing of existing operational modelling products in relation to user needs
- e) summarise the experiences with producing the quarterly update reports on the North Sea for 2007 and their consolidation into a description of conditions in 2007 as a contribution to the ICES Ocean Climate Status Report.
- f) review the outcome of WGIAB, REGNS and NORSEPP and discuss how these experiences may be utilized by WGOOP.
- g) define initial oceanographic products (including format and timing) realistically to be regularly delivered to identified users.
- h) formulate a strategy and a work plan for a Working Group on Operational Oceanographic Products (WGOOP), including initial ToRs.
- i) identify the chairs of WGOOP and dates and place for its first meeting;

WKOOP will report by 1 May 2008 for the attention of the Oceanography Committee, LRC, and ACOM.

Supporting Information

PRIORITY:	There is an urgent need to set up an active group which should cover and incorporate the field of operational oceanographic products into ICES to be able to support fisheries research, assessment and management advice and other ecosystem approach related activities. The demonstration workshop should be an effective way to start a new working group with the appropriate interaction between producers and users of operational oceanography products.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	<p>a, b and c) The strategy of the new working group must reflect the strategy of ICES moving towards the ecosystem approach within research and management advice. Management is by its nature operational. This means that we must deliver high quality products and/or services more or less at fixed times (routinely) and usually in a format understandable and useful for the user/ client.</p> <p>This should be secured through close communication with WGPBI, SGGOOS, PGNSP, WGHABD, WGZE, WGOH, WGRP and the potential new WG related to microbial and phytoplankton ecology, and with relevant “client” groups. It is suggested that we make a transition from a “planning” to “production” by making the work of PGNSP becoming an integral part of WGOOP, including the quarterly NORSEPP reports. Linking the information of physics and lower trophic levels to the higher trophic levels, makes the connection to users/clients much easier. Demonstration of examples of success is important for making changes to traditional fisheries assessment.</p> <p>d) A suite of modelling products already exist, and the group should evaluate these in order not to “re-invent the wheel”. These should be assessed to determine the error in their products against satellite and in situ measures. User understanding of the efficacy of products is vital if they are to be used in fisheries, or other, management. Regular re-evaluation of products are needed together with continuous consideration of newly developed products and improvements.</p> <p>e and f) PGNSP have initiated the routine production of operational elements, which was a valuable experience that should be analysed to see what lessons we have learned and where are the weakness, to improve if possible from the basic goal of the quarterly reports. Other experiences from WGIAB, REGNS may be also utilized by WGOOP.</p> <p>g) Models produce information everywhere at any time. The challenge is then to simplify this into useful information. This often means smart integration in time and space, and calculating indirect variables from basic model state variables. The basic scientific challenges of producing several of these products are dealt with in WGPBI, and the challenge here is to add value to existing model results, define new products, and organize the necessary operational aspects.</p> <p>h) Different products are normally produced by individual institutes. These must be given/take the responsibility to deliver agreed products on a long term basis. A close communication with the needs of individual users (such as individual fisheries working groups) are required for successful implementation of the ecosystem approach. Due to the resources being investigated in operationality, we must have users/clients for the products and services, particularly within the ICES science and advisory system. One of the main products of the workshop must be an initial draft of the strategic plan for the new working group.</p> <p>i) The initiation of the new working group critically depends on the identification of the Chairs leading the group. Therefore, another key product of the workshop will be the nomination of the Chairs and proposed dates and place for the first meeting of the new working group on operational oceanography products.</p>
RESOURCE REQUIREMENTS:	No specific resource requirements beyond the need for members to prepare for and participate in the meeting, and preferably participation from ICES data centre
PARTICIPANTS:	The workshop should have participants from organizations dealing with operational services and/or development of operational techniques. Users/clients and producers of regular reports such as NORSEPP should also participate.
SECRETARIAT FACILITIES:	support and participation of the ICES Data Centre is encouraged
FINANCIAL:	None
LINKAGES TO ADVISORY COMMITTEES:	An obvious very close link with ACOM activities.
LINKAGES TO OTHER	There would be a strong interaction with other experts groups within OCC such

COMMITTEES OR GROUPS:	as WGZE, WGHABD, WGOH and WGRP, and modelling activities e.g. in WGPBI, PGNSP, NORSEPP, WGRES, REGNS. Later also with the ICES Advisory Program
LINKAGES TO OTHER ORGANIZATIONS:	The WK must interact with IOC/JCOMM/GOOS/EuroGOOS/ArcticGOOS/GMES/GEOSS

2007/2/OCC08 The **ICES/GLOBEC Working Group on Cod and Climate Change [WGCCC]** (Co-Chairs: G. Ottersen, Norway and K. Wieland, Denmark) will meet at ICES Headquarters, Copenhagen, Denmark, from 16–17 June (noon) 2008, in connection with the Workshop on Cod and Future Climate, to:

- a) review and evaluate the Workshop on the Integration of Environmental Information into Fisheries Management Strategies and Advice [WKEFA];
- b) review and evaluate the Workshop on the Decline and Recovery of Cod Stocks Throughout the North Atlantic including trophodynamic effects [WKDRCS];
- c) review and evaluate the progress on the publication of the WGCCC book;
- d) make final preparations for the a Workshop on Cod and Future Climate Change;
- e) continue planning for a WGCCC Synthesis Theme Session at ICES ASC 2009.

WGCCC will report by 20 July 2008 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 AND RELATION TO ACTION PLAN:	<p>The work will be carried out to review past activities and plan future Workshops and Theme Sessions.</p> <ol style="list-style-type: none"> a) WKEFA was held in June 2007. It dealt directly with item 1 in the WGCCC Action plan. The outcome of the workshop will be evaluated and it will be decided if the report should be published as a CRR. b) WKDRCS was held 9-12 May 2007 and a report has been published. The workshop deals with items 3 and 5 in the WGCCC Action plan. The outcome will be evaluated and it will be decided if the report should be published as a CRR. c) One of the major components of the synthesis planned by the WGCCC is the publication of a book on cod. A lot of good material has been written, but some missing chapters are still delaying the process. An update will be provided. d) The final preparations for the Workshop on Cod and Future Climate Change will be carried out. It deals directly with item 4 in the WGCCC Action plan. e) The planning of a final Synthesis Theme Session at ICES ASC 2009 will continue
RESOURCE REQUIREMENTS:	None.
PARTICIPANTS:	This WG meeting is expected to attract 15-20 participants.
SECRETARIAT FACILITIES:	None
FINANCIAL:	None
LINKAGES TO ADVISORY COMMITTEES:	Relevant to the work of ACOM.
LINKAGES TO OTHER COMMITTEES OR GROUPS:	Living Resources, WGZE, WGRP, WGBPI.
LINKAGES TO OTHER ORGANIZATIONS:	GLOBEC is a co-sponsor of WGCCC.

2007/2/OCC09 A Workshop on Cod and Future Climate Change [WKCFCC] (Co-Chairs: K. Drinkwater*, Norway, J. Dippner*, Germany, and, C. Schrum*, Norway) will meet at ICES Headquarters, Copenhagen, Denmark, from 17 June (noon) –20 June (noon) 2008 to:

In response to future climate change scenarios

- a) adopt 20–50-year probabilistic projections of future temperature and salinity as a basis for projections of fish population dynamics and distribution (also nutrients)
- b) develop methodologies and make projections of likely changes phytoplankton and zooplankton production and distribution, especially those species eaten by cod and their predators or prey during their life histories;
- c) develop methodologies and make projections of likely changes in prey and predators of cod including the forage fishes, such as capelin, herring, sprat and mackerel;
- d) develop methodologies and make projections of likely changes in cod production (growth, reproduction, mortality, recruitment) and distribution.

This will be carried out using a combination of retrospective data analyses and a variety of modelling approaches.

WKCFCC will report by 20 July 2008 for the attention of the OCC, LRC, and ACOM.

Supporting Information

PRIORITY:	This Workshop will contribute to the Cod and Climate Change strategic plan.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	<p>The Workshop will contribute to Goals 1, 4, 5 and 10 of the ICES Strategic Plan</p> <p>Many of the regions presently occupied by Atlantic cod are predicted to undergo significant warming in response to climate change and in recent years much of the North Atlantic has experienced such warming. Increasingly, managers, politicians and the general public have been asking what will be the impacts of future climate change. Such information for cod and the marine ecosystems have been limited. Indeed, the few published studies have usually considered the response of individual species to increased warming without considering other components of the marine ecosystem, such as their prey or predators. However, climate change is expected to impact both the structure and function of marine ecosystems and to develop more plausible impact scenarios we must consider the species as part of the ecosystem. Using our increased understanding gained through the ICES/GLOBEC Cod and Climate Change program, including past workshops, plus other research on the effects of climate variability on cod and its supporting ecosystem, the impact of future climate scenarios on the marine ecosystems of the North Atlantic and especially cod will be developed.</p>
RESOURCE REQUIREMENTS:	None.
PARTICIPANTS:	This Workshop is expected to attract 15-25 participants, most of who would contribute papers. The majority will be drawn from the ICES scientific community, although a number of scientists from outside ICES are also expected to contribute.
SECRETARIAT FACILITIES:	None
FINANCIAL:	None
LINKAGES TO ADVISORY COMMITTEES:	Relevant to the work of the ACOM.
LINKAGES TO OTHER COMMITTEES OR GROUPS:	Living Resources, WGZE, WGRP, WGBPI.
LINKAGES TO OTHER ORGANIZATIONS:	GLOBEC is a co-sponsor of the workshop.