

ICES SGGOOS Report 2005

ICES Oceanography Committee

ICES CM 2005/C:09

REF. ACE, ACME

Report of the ICES/IOC Steering Group on GOOS (SGGOOS)

10–11 June 2005

Brest, France



International Council for the Exploration of the Sea
Conseil International pour l'Exploration de la Mer

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Recommended format for purposes of citation:

ICES. 2005. Report of the ICES/IOC Steering Group on GOOS (SGGOOS), 10–11 June 2005, Brest, France. CM 2005/C:09. 31 pp.

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Executive summary

Membership

- SGGOOS membership stands at 20 (17 national members and 3 representing GOOS, ICES, and the IBTS Working Group);
- 14 members attending the 2005 meeting.
- Antonio Bode (Spain) is the incoming ICES Co-Chair;
- David Mountain (USA) is the incoming IOC Co-Chair.

Regional/international ICES and GOOS activities

- Update on EuroGOOS activities:
 - Success in drawing in over 1 billion Euros from EU Framework Programmes funding (e.g., MERSEA, Networks of Excellence – EUR-OCEANS);
 - Progress in regional task team development (e.g., NOOS, BOOS, IBEROOS, BSGOOS, MedGOOS);
 - Highly successful 4th EuroGOOS Conference in Brest, 6–9 June; > 200 presentations.
- Update on international GOOS activities:
 - 8th GSC meeting endorsed the new COOP-GOOS Strategic Implementation plan and urged maintaining strong GOOS Regional Alliances (GRAs); the latter will be critical in implementing Coastal GOOS. GOOS outreach activities should be strengthened – next meeting will be back-to-back with a major event, World Maritime Technology Conference in London in 2006, to raise GOOS's profile;
 - 7th I-GOOS meeting discussed strategies for integration of GOOS into GEOSS (Group on Earth Observations System of Systems), the GRAND project to improve regional operational oceanography and the proposal for a GOOS Regional Council (GRC) to coordinate regional GOOS activities on the global scale.
- New action points:
 - SGGOOS will review the COOP-GOOS Strategic Implementation Plan and provide recommendations on how the SG can assist in its implementation, including helping to define ICES's role.

Regional and global linkages between ICES and GOOS

- Action points from the 2004 SGGOOS meeting were reviewed:
 - SGGOOS provided a EuroGOOS/GOOS display at the 2004 ASC in Vigo but was unsuccessful in recruiting plenary speakers for the 2004 and 2005 ASCs to address progress in the development and implementation of GOOS;
 - SGGOOS has organized a Theme Session for the 2005 ASC on ecosystem assessment strategies, pilot projects and monitoring tools: a full day of presentations (13 oral, 2 poster) has been scheduled;
 - SGGOOS recommends that the HAB Working Group structure and ToRs should be reviewed with the view of adjusting the WG's mandate to include more plankton dynamics;

- SGGOOS recommends that the regular data products of the HAB WG be considered for the GOOS Initial Observing System;
- SGGOOS recommends that the Planning Group on the North Sea Pilot Project (PGNSP) be changed to a Working Group since it appears planning is almost complete and the implementation phase will begin soon;
- SGGOOS currently promotes ICES in the GOOS community through member participation in EuroGOOS, GSC, I-GOOS and JCOMM.
- New action points:
 - SGGOOS will try to organize a GOOS plenary lecture for the 2006 ASC and offer another EuroGOOS/GOOS display.

ICES components/activities that contribute to GOOS

- The ICES Annual Ocean Climate Status Summary (IAOCSS) was reviewed; a poster was presented at the 4th EuroGOOS Conference;
- The role of SGGOOS in developing ecosystem indicators and data integration methodology was discussed – these developments are being addressed in other ICES experts groups (e.g., PGNSP, HELCOM);
- ICES CTD/VOS system real-time environmental data delivery difficulties and solutions were discussed. SGGOOS recommends the following ToR for ICES Expert Groups on data management (WGMDM, SGMID): *Identify existing technology available to submit data in real-time to the GTS system. Develop practical guidelines to assist institutes who are not currently submitting their data in this. Including a description of the equipment required and the procedures for data quality control.*
- New action points:
 - SGGOOS will provide IAOCSS poster for September, 2005 JCOMM Technical Conference in Halifax;
 - SGGOOS will review ICES Data Center user survey results and identify data products of relevance to GOOS.

ICES-GOOS pilot projects and regional observation programs

- The following projects/activities were reviewed:
 - The North Sea Pilot Project – an inventory of ocean observing activities in the North Sea is being compiled, planning for the North Sea Pilot is almost complete and an implementation plan will follow, the Planning Group (PGNSP) now has an ICES Co-Chair;
 - GoMA-GOOS – planning is continuing, an Ecosystem-Based Fisheries Management (EBFM) framework has been developed and application template produced, ecosystem objectives and associated performance indicators are being defined for the Gulf of Maine region;
 - The Bay of Biscay Project – the four-year Phase 1 has been completed, Phase 2 is being developed and will focus on (1) fisheries-environment and (2) fisheries-economics interactions;
 - Present and future technology developments of *in situ* ocean monitoring;
 - Long-term (>15 yrs) ecosystem monitoring program off the NW coast of Spain;

- PICES VOS and other Pacific monitoring activities – the PICES MONITOR Technical Committee will address GOOS-related issues and will be the contact point for SGGOOS;
- The EU-funded Ferry-Box Project – success story with insights into what works (best practices) and what does not in developing an operational observing system.
- New action points:
 - SGGOOS is exploring ways to forge stronger links with PICES and considering representation at their annual meetings.

Outreach

- SGGOOS will review and update its IOC website;
- SGGOOS will update its ICES-GOOS flyer to make it more relevant and give it a more polished, professional look.
- New action items:
 - SGGOOS members to provide input for new ICES-GOOS flyer and seek funding sources.

1 Welcome/Introduction

Glen Harrison, the outgoing IOC Co-Chair of SGGOOS, opened the 2005 proceedings, welcomed participants and expressed thanks to the local host, Philippe Marchand, for his efforts to provide the SG with a marvellous venue for the two-day meeting. The Chair noted the record high attendance for this meeting, 14 participants (Appendix 2), and attributed this largely to the scheduling of the meeting back-to-back with the 2005 EuroGOOS Conference. Attendance for the last few years, when the SGGOOS meeting was not associated with a concurrent meeting, has been low (less than half of the membership and only 7 in 2004). Lack of travel funding has been identified by most of our members as a major (and recurring) determinant of the low attendance.

The Chair noted some significant changes in SGGOOS membership in the last year or so, including: the recent departure of Bill Turrell (UK member and ICES Co-Chair since 2001) and his replacement by Sarah Hughes (UK member) and Antonio Bode (new ICES Co-Chair and new member for Spain). Bill was acknowledged for his excellent leadership during his tenure as ICES Co-Chair. Changes in the IOC Co-Chair will occur in 2006: Glen Harrison is stepping down after three years and will be ably replaced by David Mountain, new IOC Co-Chair and member from the USA. IOC was acknowledged for generously funding Glen Harrison's SGGOOS and ICES ASC travel costs over his three-year tenure as Co-Chair. Other SGGOOS membership changes include Philippe Marchand joining SGGOOS as member from France, replacing Benjamin Planque. Jean-Claude Mahé has replaced Andrew Newton as the new chair of IBTS-WG (unfortunately Jean-Claude Mahé could not attend this meeting) and Skip McKinnell has replaced Phil Mundy as SGGOOS representative from PICES. SGGOOS had a new, Portuguese, member for a short time but he withdrew for some unexplained reason. SGGOOS's parent bodies (ICES and GOOS) have also seen some changes recently, i.e., the new Head of the ICES Science Programme is Adi Kellermann and the GOOS Project Office has a new director, Keith Alverson. Unfortunately, Keith was unable to attend our meeting but was well represented by our EuroGOOS (Hans Dahlin) and GOOS GSC (Franciscus Colijn) contacts and SGGOOS members. The SG also welcomed a visiting IFREMER scientist, Pascal Lorence, who provided an overview of the Bay of Biscay project.

Local logistics (transport, health breaks, etc.) were discussed and the Chair explained the structure for the two-day meeting, noting that the report is due in ICES on 1 July and that the Co-chairs will need presentation summaries from members as soon as possible after the meeting in order to meet the report deadline.

2 Review of SGGOOS implementation plan, 2004 report, membership and 2005 agenda

The mandate of SGGOOS and the four streams of the SG's implementation plan: (1) to develop regional/global linkages between ICES and GOOS, (2) to identify and develop ICES activities that can contribute to GOOS, (3) to develop ICES and GOOS pilot projects and (4) to develop appropriate outreach activities, were briefly reviewed.

The 2004 SGGOOS report, based on the meeting in Tenerife in April, was briefly reviewed. Highlights included: (1) review of the developing pilot projects and regional (Spanish) observing programmes, (2) review of new developments in EuroGOOS and international GOOS, (3) initial evaluation of the SGGOOS implementation plan with discussion on progress to date, (4) the SG's promotional activities for ICES and GOOS with focus of the 2004 and 2005 ICES ASCs, (5) review of the international policy driver paper produced by the SG's outgoing ICES Co-Chair, Bill Turrell, (6) review of current research on ecosystem indicators and data integration methods, and (7) PICES activities relevant to GOOS.

The membership of SGGOOS, as of 1 June 2005, stands at 20, including representatives from ICES headquarters (Adi Kellermann, Head of Science Programme), the GOOS Project Office (Keith Alverson, Director GPO) and representatives from the ICES Oceanography Committee (Einar Svendsen, Chair OCC) and Chair of the International Bottom Trawl Survey (IBTS) working group, Jean-Claude Mahé (Appendix 3). The Steering Group is well represented by oceanography (physical and biological) /meteorology disciplines but still lacks representation from the fisheries disciplines, a deficiency that has been noted over the past several years.

The agenda for the 2005 meeting was quickly reviewed and requests for changes/additions made. Some adjustments in the order of presentations were made and one additional presentation was added. The final revised agenda is attached as Annex 1.

2.1 General discussion

Prior to the formal start of the meeting (i.e., the agenda) and following the brief review of the SGGOOS implementation plan, there was some preliminary discussion centered on the continuing challenges for the SGGOOS to steer the development of effective linkages between ICES and GOOS. It was acknowledged that currently there is little presence of ICES at GOOS meetings despite the fact that ICES has a lot to offer GOOS. Moreover, up to now SGGOOS efforts have been largely directed at providing GOOS awareness at ICES fora (e.g., ASCs). It was felt that SGGOOS has a clear role in articulating: (1) how ICES can benefit from GOOS; (2) how GOOS can benefit from ICES; and (3) and in getting the word out to both bodies. SGGOOS needs to clarify its role in related outreach.

It was acknowledged that the ICES Action Plan has clearly identified enhanced collaboration with other major international scientific bodies, such as GOOS, as a means by which it can meet its long-term strategic goals; SGGOOS is a major player here. One aspect of the implementation of the ICES Action Plan is a review of its Expert Groups, including SGGOOS. As a consequence, SGGOOS was made aware of the fact that it needs to take a critical look at its implementation plan, it needs to have well-defined, understandable and relevant ToRs (deliverables) and it needs to produce reports that clearly show, "up front", its accomplishments. The five-year ICES Action Plan ends in 2007 and that was considered an appropriate time for SGGOOS to complete an assessment of its accomplishments against its goals.

3 Presentations

3.1 Regional/international ICES and GOOS Activities

3.1.1 Update on GOOS Steering Committee Meeting, Melbourne (Franciscus Colijn)

Summary: IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System (GOOS)

The meeting of the GSC took place from 21–23 February 2005 in Melbourne, Australia (taken from the draft GOOS Report 144, in prep). The 8th session of the GOOS Steering Committee, meeting in Melbourne, Australia, from 21–23 February 2005 addressed GOOS developments, progress with the design activities of the Ocean Observations Panel for Climate (OOPC) and the Coastal Ocean Observations Panel (COOP), and progress in implementing GOOS through the Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM). More attention needs to be given in future to the practical implementation of GOOS and to GOOS outreach and communications efforts. Expected financial and staff resources, provided as a regular budget allocation from UNESCO in 2006–2007 and extra-budgetary contributions from additional sponsors, are far below the amount required to carry out the planned GOOS Program. A new director for the GOOS office, Keith Alverson, was hired beginning August 2004 and a new Chair of the GSC, John Field, began duties beginning March 2005.

Specific comments (GOOS Perspectives)

- There is a need to consolidate activities within GOOS maintaining strong JCOMM and GOOS Regional Alliances. Further a need to improve outreach and communications of the GOOS Project Office in Paris.
- The general strategy of GOOS was discussed concluding that it will be difficult to get more support from UNESCO for GOOS.
- The COOP Strategic Implementation Plan has been endorsed and tabled at the I-GOOS meeting. The GOOS Regional forum should implement the COOP Strategy. JCOMM could help to implement physical measurements in coastal areas.
- The committee discussed whether chlorophyll *a* might be a prime target for global biological measurement that JCOMM could be tasked with making operationally. This would be an excellent pilot project for operational biological measurements following model pioneered by GODAE and ARGO.
- OOPC: status of the OOPC was discussed after a presentation by Ed Harrison.
- The status of JCOMM was presented which is an international coordination mechanism for operational oceanography and marine meteorology.
- I-GOOS and regional coordination were discussed during the meeting on the basis of a presentation by Sylvana Vallerga. The GRC (GOOS Regional Council) terms of reference will be presented to the IOC Assembly. The GRC should be an organ of GRA's reporting to I-GOOS.
- GOOS Regional Offices: apart from the already existing regional offices in Perth (Indian Ocean), Paris (Africa) and Rio (South Atlantic), the formation of arctic and southern ocean regional alliances tied to the International Polar Year (IPY) was discussed. The committee endorsed this development.

- To increase the outreach of the GOOS activities it was suggested to have the next meeting back to back with a major event in London 6–10 March 2006 (the World Maritime Technology Conference). For more details see report on the GOOS website: <http://ioc.unesco.org/goos>.

Discussion

Concern was raised about the limited range of biological variables in COOP-GOOS core variables list. It was noted that additional variables can be added depending on regional requirements. It was also noted that an European initiative for COOP (ECOOP) is already underway. The point was made that there appears to exist a gap between the coastal and climate modules of GOOS and that coastal information is needed on the global scale. Where do they link? The general point was made that GOOS needs national backing (political pressure) to sustain its momentum. In order to raise the profile of GOOS, for example, there is an effort underway to get Tony Blair to open the 2006 World Maritime Technology Conference and to say a few words about GOOS. The question was posed, “How can SGGOOS help?” With regard to ICES role in GOOS, it was suggested that the most fruitful approach would be through regional bodies rather than international GOOS directly. There was a strong voice among a number of the SGGOOS members that zooplankton are a critical component of the ecosystem that ICES should promote as a contribution to GOOS; the view being that zooplankton represent an obvious interface between ICES (fisheries management/assessment) and GOOS (principally oceanography).

3.1.2 Update on EuroGOOS, GOOS Regional Alliances and I-GOOS (Hans Dahlin)

Summary

As a follow-on to the earlier presentation on the 2005 GSC meeting, highlights of the recent I-GOOS meeting (I-GOOS-VII) were provided. Points of interest to SGGOOS include:

- Discussion/recommendations on the integration of GOOS activities in GEOSS (Global Earth Observation System of Systems)
- Reductions in GPO operating funds and its impact on travel and participation in the various GOOS regional activities.
- Discussion on strategies for the implementation of coastal GOOS (COOP-GOOS).
- Discussion on the GRAND Project (abstract in 2005 EURO-GOOS Conference guide, by S. Vallerga): explaining the connection of regional programmes to global systems; transfer of ideas and technology from developed to less developed countries and data inventory issues.
- Discussion of the proposal of a GOOS Regional Council for the coordination of regional activities on the global scale.
- Progress in the development of EuroGOOS over the last nine years has been remarkable. Among the notable successes and other points of interest to SGGOOS are:
 - EuroGOOS has been successful in drawing funding by EU Framework Programmes (FP): ca. 100 million euro (e.g., V FP: 12–43 Meuro in various projects; VI FP: 43 Meuro for MERSEA plus participation in Networks of Excellence as EUR-OCEANS). There are also possibilities of continuing participation in forthcoming calls through product demonstration.
 - There has been considerable progress in the development of regional task teams covering all European waters:

- NOOS (North Sea);
 - BOOS (Baltic Sea);
 - IBEROOS (Iberia, Bay of Biscay, Ireland);
 - BSGOOS (Black Sea);
 - MedGOOS (Mediterranean).
- The structure of EuroGOOS/GOOS projects contributing to the development of operational oceanography has been summarised:

Present structure of Operational Oceanography development

	Development Project	Implementation project	Sustained system	Contribution to
Global	GODAE	MERSEA	European forecasting centre	GEOS, JCOMM
European	Ocean Forecasting Cluster projects + MAST and FP6	SEPRISE + FP6/4 th call + FP7	Sustained European Infrastructure	GMES, Coastal GOOS
Regional	OF Cluster Proj.+ MAST and FP6 + National projects.	MAMA, PAPA, ARENA, MFSTEP, NORSEPP	BOOS, NOOS, MFS/MOON, BSFS, IBIROOS Regional centres	Regional and national systems

Figure 3.1.2.1: Present structure of Operational Oceanography development.

Discussion

SGGOOS members commented that strong I-GOOS leadership is considered a critical factor in fulfilling its role as the GOOS decision-making body, noting that the election of new chair(s) is scheduled for 20 June 2005 at IOC headquarters. The point was also made that it is a continuing challenge to sustain developed and developing countries’ interest and commitment to GOOS.

EuroGOOS was commended on its impressive list of accomplishments regionally and recognised for the important role it plays in the international GOOS community. There are still regional challenges; a need for better real-time data exchange, for example. EuroGOOS has provided strong support for SGGOOS and has played an important role in raising the profile GOOS in the ICES community, e.g., by providing materials for and manning the GOOS display at the 2004 ASC.

3.1.3 Update on the Regional Ecosystem Study Group for the North Sea, REGNS and the North Sea Pilot Project, NORSEPP (Sarah Hughes)

Summary

The REGNS Group held a ‘Proof of Concept’ Workshop in Copenhagen in May 2005. A full report of the workshop is available in the ICES REGNS report. The aim of the workshop was to seek agreement on the methodological approach required to undertake and Integrated Ecosystem Assessment of the North Sea, and indeed to determine if such an assessment was possible with the aim of delivering a pilot Integrated Assessment (IA) of the North Sea Ecosystem by 2006.

The REGNS group issued ToR's to 19 ICES Working Groups (WG) asking them to summarize data for the period 2000–2004 and any trends of recent decades. WGs were requested to compile data and present at the scale of ICES rectangle for the North Sea and submit to REGNS web site.

Despite difficulties of compiling large and varied datasets with a huge range in temporal and spatial coverage, the preliminary results are extremely promising, using a traffic light system for presenting normalized data has highlighted the marked changes (regime shift) that occurred in the North Sea during 1987–1988. The work will continue with an intersessional correspondence group who will prepare a draft IA that will be submitted to the ICES ASC in September 2005, within the SGGOOS theme session on 'pilot projects'.

Discussion

A number of questions were posed about data integration (statistical) methodology and whether the analyses are underpinned by scientific hypotheses. It was noted that the “normalized anomaly” approach for time-series data provides a “common currency” allowing the comparison of status and trends of a broad range of disparate variables. However, concern was expressed that a further step is required, i.e., to identify and use only those variables that are relevant to the advice (scientific, management or assessment) sought. There followed some discussion on the limitations of the REGNS “bottom-up” approach and the need at some stage for “top-down” input, i.e., a management approach (WGECO). Both approaches must be considered in the future. The critical role of data in this process and its accessibility was stressed; including identifying data sets not accessible through the ICES WGs. There was some discussion about the approach REGNS took of “imposing” specific ToRs on the various ICES WGs and why some WGs were reluctant to cooperate (workload, motivation, capability, etc.). The upcoming ICES review of Expert Groups should help clarify responsibility of WGs when they receive external ToRs.

3.1.4 ICES Oceanography Committee (OCC) activities relevant to SGGOOS (Einar Svendsen)

Summary

An approach towards ecosystem based research and management means (with respect to science): “to consider the most important driving forces on and the processes within the ecosystems”. Due to the huge variability (in time and space), this demands a much broader knowledge of the state and dynamics of marine systems than generally available from measurements alone. Therefore extensive use of “bottom up” numerical biophysical models are needed in combination with observations and “top down” population dynamics models and statistical tools.

The main driving forces on many systems are climate/physics and the fishers or fisheries management. In some ocean areas also fertilization, pollution, introduction of new species and habitat disturbance may be important drivers of the systems.

The physics has a direct impact on all trophic levels, but also indirectly “bottom up” through the food chain via primary and secondary production. Therefore it is of utmost importance that the physics being used as input to biochemical models are of a high quality and with a resolution relevant for the biochemical processes.

With the aim of giving advice to management, outputs from new integrated ecosystem-based systems need to be operational and deliver products in time and formats as required by the users (hindcast, nowcast, and forecast).

Discussion

It was emphasized that the working process described must be made clear, i.e., data > models > products, and that all involved agents (users, data producers, modellers, etc.) must be aware of the process and of benefits in order to foster participation. It was also suggested the ICES Oceanography Committee would be a good forum for discussions among WGs on operationalizing the ecosystem approach, however, it was also recognized very little time is available for such discussion (and for coming to a consensus on deliverables) during the annual OCC meeting, i.e., the agenda is always full. In this regard, it was pointed out that the role of ICES committees should be reviewed in a similar way to the Expert Groups review that is planned. With regard to ICES role in GOOS, it was reiterated that ICES can make a strong contribution through the development of operational oceanography, emphasizing the biological components.

3.2 GOOS Pilot Projects and other Regional Observation Programs

3.2.1 Update on the ICES Annual Ocean Climate Status Summary, IAOCSS (Sarah Hughes)

Summary

The ICES Annual Ocean Climate Status Summary is prepared each year by the ICES Working Group on Oceanic Hydrography. Ocean climate data from 15 regions around the North Atlantic are brought together by WGOH members and summarised in the IAOCSS report. The IAOCSS has developed in the seven years since its first publication, and is now published as an ICES Cooperative Research Report. The number of time-series included in the report has grown as interest and awareness of the product has developed.

The report is intended for use by managers and decision makers as well as scientists from other disciplines. For this reason, summary maps and tables have been added to the report for the last two years. In 2004, the WGOH also added maps of gridded sea surface temperature data from the NOAA OISSTv2 dataset. The WGOH will continue to develop the IAOCSS and are planning to re-organize the report in future, grouping together areas linked by circulation and/or common atmospheric forcing.

SGGOOS recognizes that the IAOCSS is an ICES contribution to GOOS, bringing together a large and complex dataset in a timely manner and in an accessible format.

WGOH has promoted the IAOCSS in the GOOS arena by submitting a poster to the 4th EuroGOOS conference, June 2005. On the recommendation from SGGOOS, the poster will also be submitted to the JCOMM meeting in Halifax, September 2005. It was noted that the IAOCSS could be more accessible if it was published in html format on the ICES website and request that ICES give the report a clear link from the ICES homepage.

Discussion

There was some discussion about means by which the IAOCSS could be made more accessible on the ICES website – the suggestion was made to include the “News Flash” link. It was suggested that a dynamic server would be better for data/products access using HDF rather than PFD file formats. It was noted that the IAOCSS poster has been useful in promoting the Climate Status Summary at the recent EuroGOOS Conference and will be displayed at the fall JCOMM Technical Meeting in Halifax. There were some important data sets identified that have not been included in the IAOCSS (e.g., Bay of Biscay data available through the Coriolis project website).

3.2.2 Update on the Canada-USA GoMA-GOOS Pilot Project (David Mountain)

Summary

The purpose of the GoMA-GOOS project is to demonstrate the usefulness of an integrated ocean observing system in support of ecosystem-based fisheries management (EBFM). The proposed project has four layers: observations, data management/communication, interpretation and modeling, and application in the management process. A substantial observation network already exists within the Gulf of Maine region. Progress has been made for the other three layers. To promote the integration of the data from the existing observation programs, the Gulf of Maine Ocean Data Partnership has been formed. The partners represent the major data collectors in the region and through the Partnership agree to make their data openly accessible. Access will be accomplished through a number of standard internet-based data access protocols (e.g., OPeNDAP and DiGIR). The Partnership is helping partners to implement the infrastructure required to serve data such that it is discoverable and accessible to the community at large. Analysis of the historical physical and biological data from the region is continuing to aid in the development of ecosystem models that could be implemented as part of the interpretation and modelling layer. Finally, for application within EBFM a template for defining ecosystem objectives and their associated performance indicators has been developed. Specifying the specific objectives and performance measures is continuing.

Discussion

SGGOOS strongly supports the continued development of this regional pilot project and recognizes its value for ICES and GOOS in providing a framework for and operational data products in support of ecosystem-based management. There was some debate about whether GoMA-GOOS should follow the formal process to gain recognition as a GOOS pilot at this stage. The feeling was that the project should continue on its current path of development and address formal recognition at a later date, when the project is operational.

3.2.3 Update on PICES VOS and other Pacific monitoring activities (Skip McKinnell)

Summary

PICES is an international, intergovernmental organization of six member countries (Canada, China, Japan, Korea, Russia, and the United States) that is responsible for promoting and coordinating marine scientific research among its member nations. In 2005, PICES established a permanent MONITOR Technical Committee (Chairman: Dr. J.J. Napp, Alaska Fishery Science Center, Seattle) whose responsibilities include, among others, GOOS activities within PICES. The complete terms of reference are listed below. MONITOR's first workshop and meeting will be held at PICES XIV in Vladivostok, October 2005 and participation by IOC/ICES is encouraged. Ocean/ecosystem monitoring on frequencies greater than annual are rather rare in the PICES region, particularly in the offshore. Japan and Canada have maintained some of the longest time-series of the open ocean observations in the North Pacific. Station P/Line P is celebrating its 50th anniversary with a symposium in Victoria, Canada in early July 2006. A PICES/CPR project was initiated in 1997 and is continuing with north/south transects in the Gulf of Alaska and an east/west trans-Pacific transect that includes the Bering Sea. New monitoring (and/or plans for new monitoring) is largely due to U.S. efforts, although this may be due to the limited response from Japan, Korea and China to requests for material for this presentation. With respect to U.S.-GOOS, various associations have been (are being) established in the North Pacific. These include AOOS (Alaska), PaCOOS (Pacific/NOAA), NANOOS (Washington/Oregon), CENCOOS (Central California), SCCOOS (Southern California); most of their activities to date have been administra-

tive/organizational, without significant infusions of new funds. PICES is prepared to play a role in international coordination of these monitoring activities, should the need arise. Canadian new monitoring efforts include support for Project Argo and efforts are being expended to maintain existing observation systems. The University of Victoria is installing an undersea cable network for monitoring and research under the auspices of projects Venus and Neptune. The latter is a joint effort with the United States, but the latter remains unfunded. NEAR-GOOS (NorthEast Asian Regional GOOS) is an IOC initiative to foster data sharing among the participating countries (Japan, Korea, China, Russia). Phase I (developing a common database) has been completed and phase II (initiating a pilot project on SST) is beginning. The current NEARGOOS Coordinating Committee chairman, Vyacheslav Lobanov (Russia) is also a member of the PICES Physical Oceanography and Climate Committee (POC). PICES is also co-sponsoring a pilot project on East Asian Seas Time-series (EAST) for the Japan/East Sea. The first workshop on this topic was held in Seoul, Korea in the spring of 2005.

MONITOR Technical Committee Terms of References:

- Identify principal monitoring needs of the PICES region;
- Develop approaches to meet these needs, including training and capacity building;
- Serve as a forum for coordination and development of the PICES components of the Global Ocean Observing System, GOOS, including possible method development and inter-comparison workshops to facilitate calibration, standardisation and harmonisation of data sets;
- Serve as the senior editorial board of the North Pacific Ecosystem Status Report (NPESR), reporting to Science Board;
- Recommend interim meetings to address monitoring needs, PICES-GOOS activities, and development of the NPESR;
- Provide Annual Reports to Science Board and the PICES Secretariat on monitoring activities in relation to PICES;
- Interact with TCODE on management issues of monitoring data.



Figure 3.2.3.1: Simplified PICES Structure.

Discussion

A point was raised and caution suggested regarding the legal implications (e.g., UN policy documents) of the broad use of the term "VOS". The question was posed how SGGOOS can

help promote the new PICES Pilot Project and, more generally, how the SG can help enhance collaboration between ICES and PICES and work together to raise the profile of GOOS.

3.2.4 The Bay of Biscay Project, 4 years after (Pascal Lorence)

Summary

Activities undertaken in French waters of the Bay of Biscay by the IFREMER-funded programme were reviewed. Major changes in environmental, biological and economic indicators/variables on the fisheries and the ecosystem were examined. Among the primary forcing factors considered were: (1) climate change (atmospheric temperature, etc.) and (2) anthropogenic impacts (land-use, eutrophication, etc.). Major results were highlighted (different periods were compared but generally 1960–1970s to 2000) and included:

- Increase in surface temperature (up to +0.6 °C / 10 y) in some areas;
- Changes in sediments: more homogeneous and sandy;
- Changes in benthic species (since 1960s): increase in opportunistic and mobile species (decrease in fixed and specialist species);
- Changes in fish communities: e.g., increase in warm-water species;
- Changes in resources use: (fishing activities, decreasing fish-landings and fish-landed value).

Examples of applications for the data were discussed, including:

- Temperature and anchovy recruitment (positive effect of coastal upwelling on recruitment and negative effect of temperature at the shelf break);
- Relationships of biomass of sole, river runoff and HAB formation.

Plans for the future rounded out the presentation. The focus for further research will be principally on: (1) interactions environment-fish and (2) fishery – economy interactions. Work will continue on the collection of data in support of the development of environment, ecosystem and economic indicators.

Discussion

The continuation of the Bay of Biscay project, phase 2, was confirmed. Phase 2 will focus on: (1) environment and fisheries and (2) fisheries economics, looking specifically at status and trends in environmental properties, ecological communities (principally benthic), fisheries statistics and associated economics variables. It was suggested that this next phase should come under the IBERGOOS project that is presently under development. Coordination with Spain's Bay of Biscay monitoring activities (and wealth of valuable data) was identified as an issue that needs resolving. Fish data are apparently integrated among countries but not environmental data. The point was made about the critical role of data integration for characterization of the spatial scale of trends in environmental and ecosystem data, e.g., the mid-1980s regime-shift in the NE Atlantic. Is there something that SGGOOS could do in this regard? There was a question about accessibility of Bay of Biscay project environmental data and it was explained that the data are freely available through either the EuroGOOS or Coriolis websites. A comment was made about the encouraging trends in web-based data access, which is moving from "push" to "pull" technology.

3.2.5 *In situ* monitoring of the ocean: present and future technologies available operational oceanography (Philippe Marchand)

Summary

The presentation reviewed both present and future technologies available for the *in situ* component of operational oceanography, in the fields of global ocean, coastal, fisheries and geohazards monitoring. The global observing system for climate, made of composite existing networks is under completion and related technology is mature. The question is more to increase the global coverage with proven technologies. Nevertheless technological improvements are possible to improve the quality of data and decrease their cost, especially for Argo floats and gliders. The coastal observation module of GOOS is still in infancy with many objectives, many stakeholders, a diversity of regions of interest, and many parameters including bio-geo-chemical ones. If the Ferry-box technology is mature, large technical progress in platforms and sensors are expected such as coastal profilers, gliders, and autonomous sensors able to provide good data during months in the biological rich coastal waters. The fishery monitoring is classically made by research vessels during repeated surveys, such as IBTS of ICES. New acoustical equipment for RV's are under development to improve both the productivity and the precision of biomass stock assessments; other innovative ways to monitor the fish biomass are considered. The monitoring of geohazards looks mature for tsunami or seismicity but a lot of technical developments have to be done on scientific packages, nodes and transmission.

Discussion

SGGOOS strongly supports the development of new technologies in ocean ship-based and *in situ* instrumentation and recognizes the role this technology will play in operationalizing environmental and ecosystem monitoring. In the ICES and GOOS context, instrumentation of trawls, for example, is considered a priority activity that will provide systematic environmental data on the same temporal and spatial scales as fisheries data and will enhance efforts to provide an ecosystem context for understanding fisheries dynamics – one aspect of the ecosystem approach. It was noted that some of the major efforts currently underway for broad-scale instrumentation of the oceans, e.g., ARGO project, may pose certain environmental effects issues that must be considered under new UN policies/restrictions.

3.2.6 Trends in fertilization and phytoplankton biomass in the coastal upwelling ecosystems off A Coruña, NW Spain (Antonio Bode)

Summary

Changes in water-mass and plankton properties were studied at coastal stations off A Coruña (NW Spain) to reveal trends in fertilization and plankton bloom production at interannual scales. Observations of temperature, salinity, dissolved nitrate and phytoplankton biomass (chlorophyll *a*) were collected at various frequencies (daily, weekly, monthly, seasonal) between 1989 and 2004 in the framework of the Spanish national monitoring programme 'RADIALES'. When considering monthly frequencies, temperature values of surface water increased through the study period, particularly during summer. Also, water-column integrated chlorophyll increased in summer but decreased in spring and autumn. Bottom waters showed a discontinuity in the water-masses circa 1996, although nitrate concentrations did not show significant trends. Seasonal analysis revealed the absence of significant trends in all variables, except the decrease in mean salinity of winter waters. Phytoplankton biomass trends were not significant at seasonal scales, while the analysis of weekly frequencies revealed a large variability in the production of blooms near the coast, with alternating years of high summer biomass (e.g., 2000) and years of short and frequent blooms in spring and autumn (2001–2003). These results suggest a complex response of phytoplankton biomass to changes in physical

factors, as those produced by global or regional climate changes. High frequency sampling (daily, weekly) would allow the understanding and eventual prediction of the phytoplankton response.

Discussion

SGGOOS recognizes the value of this >15-year time-series of environmental data, acknowledges its GOOS-relevance and strongly encourages its continuation. The importance of regional, multi-nation cooperation on data analysis and synthesis was reiterated, emphasizing its value in providing a more complete description for understanding of large-scale phenomena such as regime-shifts.

3.2.7 Update on the Ferry-Box Project (Franciscus Colijn)

Summary

An overview was presented of the EU-funded FerryBox Project, which will finish in October 2005. This project uses ships-of-opportunity (Ferries) in different European waters to measure a suite of parameters of which four (salinity, temperature, fluorescence, turbidity) were standard and other parameters were voluntary depending on local user and interests. Concurrently in the project nine ferries are used to make regular measurements along the transects which are covered in 20 minutes (Dutch Wadden Sea) up to 2–3 days (Baltic Sea, Bay of Biscay). One objective is to show that operational real time measurements can be made with these systems. Data quality and the intercomparability between the different systems belong to the difficulties encountered. The maintenance and biofouling of such systems also poses a problem that could be solved in most occasions by having institutes close to the harbours where the ferries leave and by flushing the system with diluted acid during every harbour stay over. A cost benefit of the system is one of the tasks that still need to be done, but it should give insight in the running costs and investments needed. The benefits will probably depend on the acceptance of the system by operational services and the type of problems that need to be solved (eutrophication, water transport, model data, environmental quality, etc.).

Successes so far of the project are: requests for data from the Ferries, now mainly available from individual websites; positioning of several new FerryBoxes at research institutes, on ships of other new ferry lines. Especially the Norwegians have been successful in dissemination of the project results. Currently it might be expected that most of partners will continue their measurements after the end of the project on the basis of institutional funding. To make the data operational a few more steps have to be made, such as data access, and incorporation in regular monitoring activities. For details see: www.ferrybox.org.

Discussion

SGGOOS recognizes the Ferry-Box Project as a good example of the pilot project approach promoted by GOOS for implementing regional observation programs. Its successes (useful for defining “best practices”) and shortcomings were highlighted as well as the process required for operationalization. There was some difficulty in adequately quantifying cost-benefit although maintenance appears to be cheaper, with comparable instrumentation, than buoys. There were also some questions about the challenges of data management and if any of the data are currently being assimilated into regional models (no data assimilation at this point). It was suggested that a statement about GOOS relevance and a clear definition of “products for assessment” would be desirable to broaden client base.

3.3 General discussion (day 1)

Following the last presentation of Day 1 there was some more general discussion about the relationship between ICES and GOOS and how SGGOOS might strengthen those links. The

point was made again that ICES is basically a data collector and GOOS can be viewed as one of its clients. In addition, ICES has expertise in resource management techniques and assessments – attributes that are of interest to GOOS in the broad sense. It was suggested that GOOS might be promoted in ICES from the socio-economic standpoint; however, it was acknowledged that there are numerous examples of this approach already being used. Clearly, the synergy of combining resources for common goals has a more favourable cost-benefit ratio than going it alone. In a related way, reference was made to Bill Turrell's presentation at the 2004 SGGOOS meeting in which he did a financial analysis of the investment that ICES puts into fisheries monitoring/assessment as compared with its investment in environmental monitoring/assessment. The ratio stands at about 50:1 (fisheries: environment) – a compelling argument for more investment in environmental monitoring if ecosystem-based management is to be an achievable goal! The discussion was concluded with the point that SGGOOS should consider many of these points in revising its ICES-GOOS flyer (discussed in more detail below).

4 ToR (a) Develop global and regional linkages between ICES and GOOS bodies

4.1 Collate national/regional reports on GOOS activities within ICES and IOC members

It was agreed among members present that “collating national reports” was not part of the mandate of SGGOOS as a steering group. That information is made available by other means such as EuroGOOS (plus other regional GOOS bodies) and international GOOS websites. The suggestion was made that perhaps SGGOOS could highlight contributions from these various reports that are relevant to ICES (notably those related to the ecosystem approach) and post on its IOC website. This was concluded to be a very large task and the decision was made not to pursue for the time being. The issue of data-flow from ICES was again raised but it is considered primarily a national problem and there is not much that ICES can do. Nonetheless, ongoing changes in ICES databases and procedures should largely correct these problems. A presentation on the status of ICES databases made at the last WGOH was encouraging, indicating that progress is being made on data-flow problems.

4.2 Review progress with 2004 ICES/IOC SGGOOS Action Points, and prepare 2005/2006 Actions

Most of the list of Action Points drafted at the 2004 SGGOOS meeting (26 Pts.) was addressed intersessionally. A few were put forward for further action. A principal focus of the action points was promoting GOOS in the ICES community. Among these, a display of EuroGOOS/GOOS was manned at the 2004 ASC in Vigo. The SG had also planned to organise a plenary lecture on GOOS for the 2004 or 2005 Conferences highlighting recent developments in the implementation of Coastal GOOS (and a follow-up to Tom Malone's Plenary lecture at the 2002 Centenary ASC), however, an appropriate speaker was not found in time. One of the action points for 2006 will be to try once again to organise a plenary lecture for the 2006 ASC on the GOOS theme. The SG was successful in organising a theme session for the 2005 ASC on ecosystem assessment strategies, pilot projects and monitoring tools. This is a follow up to a similar theme session on operational oceanography organized for the 2002 ASC. Fourteen abstracts were submitted and accepted; this promises to be an informative and well-attended session!

One of the 2004 Action Points that was not addressed concerned the SG's recommendation that the HAB working group structure and ToRs be reviewed with the view of putting more emphasis on the dynamics (e.g., underlying causes of initiation and cessation) of blooms. The SG also thinks the regular data products of the HAB WG would be an excellent candidate for

the GOOS Initial Observing System. The former will be covered in ICES's Expert Group Review and the latter has been identified as a SGGOOS Action Point for 2006. SGGOOS also recommends that a change in the status of the Planning Group for the North Sea Pilot Project (PGNSP) be considered (including review of its mandate and scope), i.e., from Planning Group to Working Group. Planning for the pilot appears to be about completed and the implementation phase should begin soon. It was noted that PGNSP is still lacking in solid fisheries scientist representation. The question was raised to what extent does SGGOOS promote ICES in the GOOS community, considering the effort put into making the ICES community aware of GOOS? It was noted that SGGOOS members are active participants in GOOS meetings/committees both regionally and internationally, e.g., Hans is Director of EuroGOOS, SGGOOS members are represented on the GOOS Steering Committee, I-GOOS and JCOMM as well.

5 ToR (b) Identify and/or develop components and activities by ICES that may contribute to the Global Ocean Observing System

5.1 Review, through presentations, relevant national/regional observations, monitoring or modelling programmes relevant to ICES and GOOS

National/regional observations, monitoring and/or modelling programmes relevant to ICES and GOOS were discussed during presentations. All levels of project integration – local, sub-regional, regional – were also covered.

5.2 Review ecosystem indicators currently under development (IOC, COOP-GOOS, ICES Status Reports, and previous reports of WGECCO), and current methods for ecosystem indicator integration and their use in GOOS pilot projects

Ecosystem indicators and their use in GOOS pilot projects were reviewed and discussed during presentations. It was commented that the analysis of indicators and data integration methods should not be a task for SGGOOS since they are being addressed in other ICES groups (e.g., REGNS, HELCOM). This point was noted, in fact, in the 2004 SGGOOS report. It was recommended, nonetheless, that SGGOOS should continue to keep abreast of and review when appropriate the development of new ecosystem indicators and data integration methods. The SG was made aware of the forthcoming symposium on Marine Environmental Indicators (ICES-IOC-OSPAR) in 2007.

5.3 Discuss feasibility of an ICES CTD/VOS system which may provide real-time or near-real time delivery of environmental data from ICES co-ordinated research vessel surveys

ICES hydrographic data can contribute to GOOS climate observations; some of this data is already collated in a delayed mode in the IAOCSS. However these data would also be an extremely valuable input to forecasting models and data assimilation products, i.e., FOAM Model, North Sea SST maps (BSH) and OISST dataset (formerly known as Reynolds dataset).

The system to report data in real time (via GTS) is already in place and being used by a number of institutes already (BSH, IFREMER and more). It is possible to report data from XBT's, CTD's and underway systems (TSR's). There is also already an obligation on nations to report such data (JCOMM). Despite this it appears that many institutes undertaking scientific cruises in the ICES area do not report any data through this system.

Reporting of data in this way would clearly be a valuable ICES contribution to GOOS. As such SGGOOS strongly recommends ICES to encourage more participation. In particular SGGOOS suggests the following ToR for appropriate ICES science working groups, i.e., working groups involved in data management (WGMDM or SGMD):

ToR: Identify existing technology available to submit data in real-time to the GTS system. Develop practical guidelines to assist institutes who are not currently submitting their data in this. Including a description of the equipment required and the procedures for data quality control.

Comprehensive guidelines are already available on the JCOMM website – perhaps they could be summarized.

As the system is currently mainly for physical data, WGOH should be asked to survey members, determine how many are already using this system, and obtain feedback as to the ease of use, pitfalls etc. WGOH should promote the implementation of this on all oceanographic cruises.

SGGOOS therefore strongly recommends, to the operator of ICES-coordinated research vessels, transmission in real-time physical data they collect during routine surveys – such as T, S (and fluorescence) underway data and profile data. Established procedures of coding and transmission for insertion into the GTS are available through JCOMM. Currently, several operators are transmitting underway data in real-time. Such is the case of French research vessels (from IFREMER such as R/V Thalassa) which are transmitting their underway data to the Coriolis Centre. All data are then freely accessible on the Coriolis website.

6 ToR (c) Develop regional ICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context

6.1 Review, through presentations, progress in developing and implementing NORSEPP

Unfortunately, there was no one present that could give a detailed update on the proceedings of the most recent PGNSP/NORSEPP meeting, PGNSP is completing an inventory (through IDEOS) of existing observation programs in the North Sea and interacting closely with REGNS that is developing the ecosystem assessment framework. The initial NORSEPP submission for EU funding was turned down – the reason stated by its academic reviewers was “lack of scope”. The project was among 30 others that passed the initial review threshold, however, only 10 of the 30 were funded. The proposal will be revised and resubmitted. The SG is optimistic that developments for the North Sea Pilot should move rapidly now that PGNSP has an ICES Co-Chair, Hein Rune Skjoldal.

6.2 Review, through presentations, progress in developing and implementing other regional pilot projects, including GoMA-GOOS, PICES, etc.

The Bay of Biscay project, the NW Atlantic GoMA-GOOS pilot project, the coastal monitoring programs off A Coruña (NW Spain) and GOOS-related monitoring activities in the Pacific were reviewed and discussed through presentations. SGGOOS acknowledged the accomplishments and value of the Bay of Biscay program and the progress made in developing the GoMA-GOOS pilot in the western North Atlantic and strongly supports both projects. The SG encourages Phase 2 planners of the Bay of Biscay project to sustain its operational observations, continue to support the development and application of *in situ* monitoring and improve data integration through enhance ecosystem modelling. It was noted that external reviewers

have characterized the Bay of Biscay project as the only pre-operational observation system of such breadth on the planet! Much as the case for NORSEPP, funding for GoMA-GOOS is uncertain at present but is considered an important pilot project because of its focus on ecosystem-based fisheries management. It was also noted that GoMA-GOOS is taking a similar approach to NORSEPP and operational programs such as BOOS and NOOS. SGGOOS strongly supports these projects as good examples of trans-national collaboration, which may be useful models for future developing programs such as IBEROOS.

7 ToR (d) Develop appropriate outreach activities to disseminate information about the programme

7.1 Review progress with ICES – PICES co-ordination of GOOS activities

SGGOOS members acknowledged the benefit of having PICES representation on the steering group for the last few years. Briefings on GOOS-related activities and particularly the development of pilot projects, common ecosystem indicators, data integration methods, etc. within both organizations were considered particularly valuable. It was noted that the PICES MONITOR Technical Committee will be the component of PICES that SGGOOS will most closely link with. The information exchange has largely been one way thus far (i.e., PICES participation in SGGOOS meetings ICES, ASC, etc., however, and there was some discussion about how SGGOOS might get more tangibly connected with PICES activities. The interim PICES representation on SGGOOS (Skip McKinnell) agreed to inquire within PICES, particularly with the chair of the MONITOR Task Team, about interest in having SGGOOS participating in their annual meetings. There was some discussion about participating in the fall 2005 PICES meeting but the timing (just after the ICES ASC) made participation this year unlikely. Perhaps an SGGOOS participant at the 2006 meeting would be more feasible? S. McKinnell was also asked to provide SGGOOS with some suggestions on topics of discussion of ICES-GOOS activities that might be of interest to PICES.

7.2 Update the ICES-GOOS flyer

The Chair briefed the members on the history and purpose of the ICES-GOOS flyer and relayed some preliminary feedback received from ICES (A. Kellermann) and the GPO (K. Alverson) regarding if and how the flyer should be updated. It was agreed by all SGGOOS members present that the flyer is a useful document but needs some major rework. A simple update could be done rather easily but there was consensus that in order to make it a useful document it would need a much more professional/polished look. There was some discussion that the target audience should be broader than the original flyer – which was designed primarily to introduce GOOS to the ICES community. Some important elements of the updated flyer were also proposed in the initial discussion, i.e., the flyer should:

- Be more balanced, targeting ICES and GOOS audiences;
- Emphasize strengths of each organization and stress synergy (common goals);
- Be a gate for information on ICES and GOOS activities-possibilities;
- Have a polished, professional look;
- Economize on text and make good use of graphics/maps;
- Eliminate reference to dates, specific (pilot) projects;
- Lifetime: 3–5 years.

G. Harrison and F. Colijn agreed to draft a “strawman” outline of the form and structure of the flyer and distribute to SGGOOS members (and ICES and GOOS secretariats) for input. There will be a financial cost associated with this endeavor and the possibility of sponsors was dis-

cussed. Both ICES and EuroGOOS members suggested the possibility of some funding support. G. Harrison will contact the GPO as well about support. The goal is to have a completed draft of the flyer available for review and acceptance at the next SGGOOS meeting in April 2006.

8 AOB

None.

9 Next meeting of SGGOOS

Scheduling of the 2005 SGGOOS meeting back-to-back with the EuroGOOS Conference was considered an ideal arrangement since it provided for maximum SGGOOS member participation. The possibility of a similar arrangement for 2006 was considered. A back-to-back meeting with the WGOH (in Galway in April) was suggested but there was not much support for the venue, due principally to travel difficulties getting to Galway. A North American (Halifax or Washington) venue was also suggested but deferred until 2007 or later. ICES HQ (Copenhagen) was suggested as another possibility and all members present agreed that this would be the best choice for 2006. The 2005 meeting was held too late in the year to make the report available for the relevant ICES committees during the same cycle. Members, therefore, decided to go back to the historical meeting time of April; the dates settled on were 24–25 April.

10 Action points for SGGOOS members in 2006

All members – Review COOP-GOOS Strategic Implementation Plan and (1) suggest ways in which SGGOOS can assist in its implementation, (2) provide recommendations for the role ICES can play in COOP-GOOS implementation. Provide comments to Franciscus Colijn for discussion at OCC Meeting in September.

All members – Review the SGGOOS implementation plan and suggest revisions based on ICES review of Expert Groups and new requirements for concrete, tangible and relevant deliverables.

All members – Review ICES Data Center user survey results and evaluate improved data products for GOOS relevance. Recommend additional data products if warranted.

All members – Review and make recommendations for changes to improve SGGOOS website.

All members – Contribute ideas, graphics, text for a more polished/professional ICES-GOOS flyer

All members – Contribute ideas, materials for a GOOS display at the 2006 ICES ASC.

All members – Support (by participation) ASC 2005 Theme Session “P”, Regional ecosystem pilot projects, ecosystem forecasting and operational oceanography: Comparing and contrasting scientific tools, strategies, outputs and applications.

Bode/Marchand/McKinnell/others – Provide advice on how SGGOOS can help promote/support regional sustained ecosystem observation programs and developing Pilot Projects.

Colijn/Harrison – Request agenda item for COOP-GOOS Implementation Plan discussion at September OCC meeting. Lead discussion.

Colijn/Harrison – Inform key ICES (Svendsen, Kellermann) and GOOS (Dahlin, Alverson, Malone) leadership about SGGOOS intent to review COOP-GOOS Implementation Plan to explore ways to promote in the ICES community.

Colijn/Harrison – Prepare draft outline of ICES-GOOS flyer and distribute to SGGOOS members. Present proposal to key ICES (Kellerman) and GOOS (Dahlin, Alverson) leadership to gain support. Explore funding options (ICES, EuroGOOS, GPO).

Hughes – Distribute ICES Data Center User survey results to SGGOOS members (or provide through Julie Gillin).

Hughes – Provide IAOCSS poster to Ross Hendry, BIO, for display at the JCOMM Technical meeting in Halifax, September 2005.

Hughes/Harrison – Make informal SGGOOS request to Ross Hendry, BIO, to display IAOCSS poster and give overview of the Climate Status Summary at the JCOMM Technical meeting in Halifax, September 2005.

Kellermann – Inform SGGOS members of relevant aspects of ICES Expert Group review.

Kellermann – Follow up on SGGOOS 2004 report and 2005 Action Point to review ICES HAB WG structure and advise on the mechanism (in consultation with GOOS) to nominate WG report as GOOS Initial Observing System.

McKinnell – Contact PICES MONITOR Technical Committee Chair (J. Napp) to determine need for ICES –IOC representation at the fall 2005 (or future) PICES meetings. Provide SGGOOS with ideas on ICES-GOOS activities that might be of interest to PICES.

Annex 1: Agenda of the 2005 ICES-IOC SGGOOS Meeting

IFREMER, Technopole de Brest-Iroise, BP 70, 29280 Plouzane, 10–11 June 2005

Agenda – Day 1 (Friday 10 June)

09:30	Welcome and Introductions
10:00	Coffee
10:30 – 11:00	Update on GOOS Steering Committee Meeting, Melbourne (Franciscus Colijn)
11:00 – 11:30	Update on the Regional Ecosystem Study Group for the North Sea, REGNS and the North Sea Pilot Project, NORSEPP (Sarah Hughes)
11:30 – 12:00	ICES-Oceanographic Committee (OCC) activities relevant to SGGOOS (Einar Svendsen) Pilot Projects and Other Observation Programs
12:15 – 12:35	Update on the ICES Annual Ocean Climate Status Summary, IAOCSS (Sarah Hughes)
12:35 – 13:00	Update on the Canada-USA GoMA-GOOS Pilot Project (David Mountain)
13:00 – 14:00	Lunch
14:00 – 14:20	Update on PICES VOS and other Pacific monitoring activities (Skip McKinnell)
14:20 – 14:40	The Bay of Biscay Project, 4 years after (Pascal Lorence)
14:40 – 15:00	<i>In situ</i> monitoring of the ocean: present and future technologies available operational oceanography (Philippe Marchand)
15:00	Coffee
15:30 – 16:00	Trends in fertilization and phytoplankton biomass in the coastal upwelling ecosystems off A Coruna, NW Spain (Antonio Bode)
16:00 – 16:30	Update on the Ferry-Box Project (Franciscus Coljin)
16:30 – 18:00	ToR (c) Develop regional ICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context: <ul style="list-style-type: none"> (i) review, through presentations, progress in developing and implementing NORSEPP (ii) review, through presentations, progress in developing and implementing other regional pilot projects, including GoMA-GOOS, PICES, etc. (iii) review and steer progress towards the 2005 Theme Session “Comparing and contrasting the scientific strategies and output of regional ecosystem pilot projects and operational oceanography”
18:00	Close

Agenda – Day 2 (Saturday 11 June)

Regional/International ICES and GOOS Activities

- 09:30 – 10:00 Update on EuroGOOS, GOOS Regional Alliances and I-GOOS (Hans Dahlin)
- 10:00 – 10:30 ToR (d) Develop appropriate outreach activities to disseminate information about the programme:
- (i) review progress with ICES – PICES co-ordination of GOOS activities,
 - (ii) update the ICES GOOS flyer.
- 10:30 Coffee
- 11:00 – 13:00 ToR (b) Identify and/or develop components and activities by ICES that may contribute to the Global Ocean Observing System:
- (i) review, through presentations, relevant national/regional observations, monitoring or modelling programmes relevant to ICES and GOOS,
 - (ii) review ecosystem indicators currently under development (IOC, COOP-GOOS, ICES Status Reports, and previous reports of WGECO), and current methods for ecosystem indicator integration and their use in GOOS pilot projects,
 - (iii) discuss feasibility of an ICES CTD/VOS system which may provide real-time or near-real time delivery of environmental data from ICES co-ordinated research vessel surveys;
- 13:00 – 14:00 Lunch
- 14:00 – 15:00 ToR (a) Develop global and regional linkages between ICES and GOOS bodies:
- (i) collate national/regional reports on GOOS activities within ICES and IOC members,
 - (ii) review progress with 2004 ICES/IOC SGGOOS Action Points, and prepare 2005/2006 Actions;
- 15:00 – 16:00 Other business
- (i) ToRs for 2006 meeting,
 - (ii) Dates/venue for 2006 meeting,
- 16:00 Close

Annex 2: List of participants

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Annex 3: ICES/IOC SGGOOS membership

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Annex 4: 2004 Terms of Reference

2C09 The ICES-IOC Steering Group on GOOS [SGGOOS] (Co-Chairs: Antonio Bode, ICES and Glen Harrison, IOC) will meet in Brest, France, from 10–11 June 2005 to:

- a) develop global and regional linkages between ICES and GOOS bodies:
 - i) collate national/regional reports on GOOS activities within ICES and IOC members,
 - ii) review progress with 2004 ICES/IOC SGGOOS Action Points, and prepare 2005/2006 Actions;
- b) identify and/or develop components and activities by ICES that may contribute to the Global Ocean Observing System:
 - i) review, through presentations, relevant national/regional observations, monitoring or modeling programmes relevant to ICES and GOOS,
 - ii) review ecosystem indicators currently under development (IOC, COOP-GOOS, ICES Status Reports, and previous reports of WGECO), and current methods for ecosystem indicator integration and their use in GOOS pilot projects,
 - iii) discuss feasibility of an ICES CTD/VOS system which may provide real-time or near-real time delivery of environmental data from ICES coordinated research vessel surveys;
- c) develop regional ICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context:
 - i) review, through presentations, progress in developing and implementing NORSEPP,
 - ii) review, through presentations, progress in developing and implementing other regional pilot projects, including GoMA-GOOS, PICES, etc.,
 - iii) review and steer progress towards the 2005 Theme Session “Comparing and contrasting the scientific strategies and output of regional ecosystem pilot projects and operational oceanography”;
- d) Develop appropriate outreach activities to disseminate information about the programme:
 - i) review progress with ICES – PICES co-ordination of GOOS activities,
 - ii) update the ICES GOOS flyer.

SGGOOS will report by 1 July 2005 for the attention of the Oceanography Committee, ACME, and ACE.

Supporting Information

Priority:	For ICES to participate as an active regional partner in GOOS the activities of this IOC/ICES Steering Group must be considered essential.
Scientific Justification and relation to Action Plan:	a) Action Plan 1.7, 5.13, 5.13.1a (i) To provides annual summaries of GOOS activities to inform both the ICES and IOC communities and provide the ability to recognize potential areas for collaboration.a (ii) This steer progress towards implementing GOOS activities within ICES, and promoting ICES activities to GOOS communities.b)Action Plan 1.7, 5.13, 5.13.1b (i) SGGOOS meetings focus on locations where operational ocean observations activities are underway or are developing. As regional GOOS

	<p>activities are being sought for the central east Atlantic region, the Group will take the opportunity to learn about existing and planned activities, and also encourage greater involvement. b (ii) A great deal of work is going on within ICES, especially with regard to the development of ecosystem indicators, including indicators for operational use. The Group will try to summaries where we are with this, with a view to selecting some for use in the pilot projects, including NORSEPP.c) Action Plan 1.7, 5.13, 5.13.1c (i) NORSEPP is a major ICES pilot project designed to test capabilities for ecosystem monitoring in an operational context. This project was an initiative arising from this Steering Group;c (ii) The Group routinely reviews GOOS-relevant pilot projects in the ICES area in order to facilitate information transfer and improve awareness;c (iii) This Theme Session will review pilot projects in the ICES/PICES region, and provide comparative studies. d) Action Plan 5.10d (i) driven by the 2004 action pointsd (ii) the flyer is needed to advertise GOOS activities within ICES, and alert GOOS communities about the activities of ICES. It is widely distributed at many venues, and will be updated every 5 years.</p>
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 Groups and IBTSWG under LRC.
Linkages to other Organisations:	IOC, EuroGOOS, PICES
Secretariat Marginal Cost Share:	ICES:100%

Annex 5: Draft 2005 Terms of Reference

2C10 The **ICES-IOC Steering Group on GOOS [SGGOOS]** (Co-Chairs: Antonio Bode, ICES and David Mountain, IOC) will meet in Copenhagen, Denmark from 24–25 April 2006 to:

- ToR (a) Identify and steer the development of global and regional linkages between ICES and GOOS bodies:
 - i) Review (intersessional) and make recommendations on how SGGOOS can assist in the implementation of COOP-GOOS
 - ii) Review (intersessional) and make recommendations on the role ICES can play in the implementation of COOP-GOOS
 - iii) Review (intersessional), evaluate and revise SGGOOS Implementation Plan; address any recommendations coming out of the ICES Expert Groups review and evaluation.
- ToR (b) Identify and steer the development of components and activities of ICES that may contribute to the Global Ocean Observing System:
 - i) Review (intersessional) ICES data centre user survey list of improved data products and identify those relevant to GOOS; identify and make recommendations on additional GOOS-relevant data products.
 - ii) Report on status and make recommendations on ICES CTD/VOS system to provide real-time or near-real time delivery of environmental data from ICES co-ordinated research vessel surveys.
- ToR (c) Identify and steer the development of regional ICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context:
 - i) review, through presentations, highlight best practices and make recommendations to further develop and implement regional pilot projects, including NORSEPP, GoMA-GOOS, PICES, etc.
- ToR (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) update (intersessional) and review SGGOOS website
 - ii) update (intersessional), review and agree on final form and content of ICES-GOOS flyer
 - iii) make recommendations for GOOS plenary lecture and display for 2006 ICES ASC

SGGOOS will report by 1 June 2006 for the attention of the Oceanography Committee (OCC), ACME, and ACE.

Supporting Information

Priority:	For ICES to participate as an active regional partner in GOOS the activities of this IOC/ICES Steering Group must be considered essential.
Scientific Justification and relation to Action Plan:	a) Action Plan 1.7, 5.13, 5.13.1a (i & ii) This will steer progress towards implementing GOOS activities within ICES, and promoting ICES activities to GOOS communities.a (iii) This will provide a mid-term evaluation of the progress this Steering Group is making towards meeting it's long-term objectives and will address ICES goals of

	<p>generating more concrete, understandable and relevant deliverables from its Expert Groups.b)Action Plan 1.7, 5.13, 5.13.1b (i) A great deal of work is going on within ICES, especially with regard to the development of ecosystem indicators and custom data products, including indicators/ data products for operational use. The Group will try to summarize where ICES is with this, with a view to identifying ones relevant to GOOS.b (ii) SGGOOS meetings focus on locations where operational ocean observations activities are underway or are developing. As regional GOOS activities are being sought for the North Atlantic region, the Group will take the opportunity to learn about existing and planned activities, and also encourage greater involvement in GOOS. c) Action Plan 1.7, 5.13, 5.13.1c (i) NORSEPP and GoMA-GOOS are major proposed regional pilot projects designed to test capabilities for ecosystem monitoring in an operational context. These projects were initiatives arising from or strongly supported this Steering Group;d (i & iii) driven by the 2005 action points. The SGGOOS website and displays at the ICES ASC are considered effective means of providing valuable information on the benefits of ICES and GOOS collaboration.d (ii) the flyer is needed to advertise GOOS activities within ICES, and alert GOOS communities about the activities of ICES. It is widely distributed at many venues, and will be updated every 5 years.</p>
Resource Requirements:	N/A
Participants:	GOOS, EuroGOOS, and other relevant GOOS bodies are free to contribute to the Group. ICES membership of this Group has improved over the last few years but Delegates are asked to continue to ensure good representation of all ICES disciplines in this Group; fisheries disciplines remain lacking in this SG. Ideal participants are those already connected with GOOS activities in member countries and those with interest in the ecosystem approach to resource management.
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 and Planning Groups are many of the Oceanography Committee's Groups and IBTSWG under LRC.
Linkages to other Organisations:	IOC, EuroGOOS, PICES
Secretariat Marginal Cost Share:	ICES:100%

Annex 6: Action Plan Progress Review

Year	Committee Acronym	Committee name	Expert Group	Reference to other committees	Expert Group report (ICES Code)	Resolution No.		
2004/2005	OCC	Oceanography	SGGOOS	ACME, ACE	2005:C09	2009		
Action Plan No.	Action Required	ToR's	ToR Statistics	Progress	No Progress	Progress	Output (link to relevant)	Comments (e.g., delays, problems, other types of progress, needs, etc.)
	Text	Text	Ref. (a, b, e)	S	0	U	Report code and section	Text
1.7, 5.13, 5.13.1	Please see Action Plan items below.	a) develop global and regional linkages between ICES and GOOS bodies: i) collate national/regional reports on GOOS activities within ICES and IOC members, ii) review progress with 2004 ICES/IOC SGGOOS Action Points, and prepare 2005/2006 Actions;	a) (i-ii)	S (ii)	0 (i)			(i) National reports must be available from web sites. (ii) Proposals for increasing participation and data flow.
1.7, 5.13, 5.13.1	Please see Action Plan items below.	Identify and/or develop components and activities by ICES that may contribute to the Global Ocean Observing System: i) review, through presentations, relevant national/regional observations, monitoring or modelling programmes relevant to ICES and GOOS, ii) review ecosystem indicators currently under development (IOC, COOP-GOOS, ICES Status Reports, and previous reports of WGECCO), and current methods for ecosystem indicator integration and their use in GOOS pilot projects, iii) discuss feasibility of an ICES CTD/VOS system which may provide real-time or near-real time delivery of environmental data from ICES co-ordinated research vessel surveys;	b) (i-iii)	S (i) (ii) (iii)				(i) Support for continuation of regional projects. (ii) and (iii) Recommendations for continuing the review of new indicators and disseminating existing data input procedures.
1.7, 5.13, 5.13.1	Please see Action Plan items below.	Develop regional ICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context: i) review, through presentations, progress in developing and implementing NORSEPP, ii) review, through presentations, progress in developing and implementing other regional pilot projects, including GoMA-GOOS, PICES, etc., iii) review and steer progress towards the 2005 Theme Session "Comparing and contrasting the scientific strategies and output of regional ecosystem pilot projects and operational oceanography"	c) (i-iii)	S (ii) (iii)		U (i)		(i) No funds for NORSEPP at this stage. New proposal in progress. (ii) Plans for continuing support to regional programs. (iii) Good response to the Theme Session.
1.7, 5.13, 5.13.1	Please see Action Plan items below.	a) Develop appropriate outreach activities to disseminate information about the programme: i) review progress with ICES - PICES co-ordination of GOOS activities, ii) update the ICES GOOS flyer.	d (i, ii)	S (i)		U (ii)		(i) Annual Climate Status Summary identified as an ICES contribution to GOOS. (ii) Funding is a critical issue. Review in progress.

1.7	Play an active role in the design, implementation, and execution of global and regional research and monitoring programmes, in collaborations between the ICES and other international oceanographic research or monitoring programmes such as GOOS and GLOBEC. [OCC/LRC/MHC/BCC/DFC]
5.13	Develop and maintain joint activities with IOC in support of the ICES/IOC Memorandum of Understanding, including the following:
5.13.1	Assist and participate in the implementation of GOOS and regional GOOS components (in particular EuroGOOS).