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Report of the ICES/EuroGOOS Planning Group for the North Sea Pilot Project (PGNSP)

8-9 May 2006

ICES Headquarters, Denmark



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

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Executive summary

PGNSP produced three quarterly update reports on the North Sea in 2005, for the Q1, Q2, and Q3 and Q4 combined. These reports have included modelled fluxes across boundaries and sections in the North Sea, hydrographic properties from Q1 IBTS, monthly mean SST, and some model results and observations related to phytoplankton development. The reports have been posted and are available on the ICES Website.

The experience with producing the quarterly reports have been largely positive, and they have served the purpose of demonstrating the availability of observations and model results in a timely fashion to potential users. So far there has been little direct use of the reports by ICES stock assessment working groups but some members of such groups have expressed interest in them. There is a need to make the reports more known and promote their use both within and outside ICES.

The production of quarterly update reports will continue in 2006. The aim is to include observations from ICES coordinated surveys (Q1 IBTS, herring summer survey, Q3 IBTS). There is ongoing work on coupled physical-biological models and it is expected that more model results will be available for inclusion in the update reports as the model evaluations and validation progresses.

1 The meeting

The ICES/EuroGOOS Planning Group for the North Sea Pilot Project (PGNSP – NORSEPP) met at ICES Headquarters in Copenhagen 8–9 May 2006. The meeting was opened at 10:00 on 8 May and closed at 13:00 on 9 May and was jointly chaired by the EuroGOOS Co-Chair Martin Holt and the ICES Co-Chair Hein Rune Skjoldal.

The agenda for the meeting was structured according to the given Terms of Reference for the meeting (Annex 2). The meeting was attended by seven members from four countries (Belgium, Norway, Sweden, and the UK). The list of participants is included as Annex 1.

One part of the meeting was held as a joint session with the ICES Study Group on Management of Integrated Data (SGMID). This session was held in the afternoon on 8 May (16:00–17:30) and dealt with the observational data requirements for NORSEPP (PGNSP, ToR g).

2 Experiences with producing the quarterly update reports on the North Sea for 2005 (ToR a)

PGNSP decided to start the production of quarterly update reports on conditions in the North Sea in 2005. Three reports were prepared; for the first quarter, the second quarter, and the third and fourth quarters of 2005 combined. These reports are available from the ICES webpage: <http://www.ices.dk/marineworld/norsepp.asp>

The reports were prepared by Hein Rune Skjoldal as editor, based on input of model results and observational data from NORSEPP partners. These included modelled fluxes (monthly means) of water across sections of the North Sea, distributions of hydrographic properties from first quarter IBTS, monthly mean sea surface temperature distributions in the North Sea, detailed time series of temperature from selected sites (Southern Bight, German Bight and Skagerrak), observations on seasonal development of phytoplankton from coastal stations in Norway and ferry box and satellite data from the southern North Sea and the Channel, and some additional data on hydrography, nutrients and chlorophyll from parts of the North Sea area.

The first quarter update report was finished in mid June and posted on the ICES webpage in late June, announced as a news item. The report from the second quarter was finished and posted by ICES in late September. The combined third and fourth quarter report was finished in mid-March 2006 and posted as a news item by ICES in late March.

The editor spent a fair amount of effort putting together the first quarter 2005 report. This work included producing the “climatology” for the modelled fluxes of water generated by the NORWECOM model, as well as correspondence with NORSEPP partners for their contributions. Subsequent reports were simpler to produce as they followed a similar format.

The experience from producing the reports is overall good as it focus our attention to becoming more operational with physical information for biological applications. It also serve to demonstrate the types of results that can be made available from modelling and observations.

PGNSP agreed that the production of the quarterly reports should continue, providing updated information on North Sea conditions aimed at users both within and outside the ICES community. The reports could be further developed and improved, by including more products as they become available.

There is a clear need to improve the communication of the NORSEPP reports to potential users such as other ICES working groups. Apparently, few or none groups have actively used the reports in their work. One action could be to print the quarterly reports from 2005 possibly together with new reports produced in 2006. The NORSEPP reports should be advertised more strongly within ICES and the ASC in September 2006 is one occasion, which should be used to promote them. The ICES Communication Officer Neil Fletcher should be consulted for his help in this regard.

3 NORSEPP contribution to the ICES Ocean Climate Status Report (ToR a)

The ICES Working Group on Oceanic Hydrography (WGOH) met from 19–22 April 2006 and one item on their agenda was the preparation of the ICES Ocean Climate Status Report (OCSR) for 2005. A brief summary of the seasonal pattern of water fluxes and possibly other results from the NORSEPP quarterly reports for 2005 could be prepared as a contribution from NORSEPP to the OCSR. Hein Rune Skjoldal will check with WGOH whether there is an interest in having such a contribution included.

4 Plan the further production of quarterly update reports for 2006 (ToR b)

PGNSP will produce quarterly update reports for 2006. Hein Rune Skjoldal agreed to continue as editor for another year. He presented a draft report for the first quarter of 2006 that he aimed to finish by mid-May.

The production will follow the same format as in 2005 with contributions of model results and observations from NORSEPP partners.

5 Use of NORSEPP products by other ICES WGs (ToR c)

The ToR c) was to review the use of NORSEPP products by other ICES working groups and propose ways to improve working relationships with relevant groups. Relevant groups in this context are the working groups involved with assessment of the North Sea fish stocks. In the following text the groups are listed with the details of last meetings. For the groups that have not met yet in 2006, the dates for the coming meeting are presented:

The Herring Assessment Working Group for the area south of 62°N [HAWG] (Chair: Mark Dickey-Collas) met at ICES Headquarters from 13–23 March 2006.

The Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak [WGNSSK] (Chair: Coby Needle, UK) met in ICES Headquarters 6-15 September 2005. Will meet in ICES Headquarters 5–14 September 2006.

The Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy [WGMHSA] (Chair: Ciaran Kelly, Ireland) met in Vigo, Spain, from 6-15 September 2005. Will meet in Galway, Ireland, 5–14 September 2006.

The Pandalus Assessment Working Group [WGPAND] (Chair: S. Munch-Petersen, Denmark) met in Halifax, Canada, 26 October to 4 November 2005. Will meet in ICES Headquarters 25 October to 2 November 2006.

The International Bottom Trawl Survey Working Group [IBTSWG] (Chair: J.-C. Mahé, France) met in Lysekil, Sweden, from 27-31 March 2006. (The report was not available yet).

The Study Group on Multispecies Assessment in the North Sea [SGMSNS] (Co-chairs: M. Vinther, Denmark, and E.D. Bell, UK) met at ICES Headquarters 20–25 February 2006.

NORSEPP tracked the working group reports delivered since its 2005-meeting for references to the use of their products. It was obvious to the group that the products have to a little extent been used by the relevant WGs. Liam Fernand reported however that several of his colleagues at CEFAS that participate in stock assessment WGs, had expressed an interest in the NORSEPP quarterly reports.

NORSEPP discussed how to proceed and agreed on the importance of the following actions:

- To improve the communication with the chairs and their respective working groups;
- To improve the information about NORSEPP and its products, existing and potential;
- To encourage the use of operational oceanographic products into stock assessment considerations.

In practical terms this implies that NORSEPP will have to:

- present a poster to the 2006 ASC along with hard copies of the quarterly updated reports (co-chairs);
- prepare a presentation on NORSEPP, emphasising the existing and potential products (co-chairs);
- present NORSEPP to the relevant WGs in the coming months;
- establish a contact address to facilitate the communication with NORSEPP.

Kevin Ruddick presented a research proposal from MUMM (internal funding in collaboration with the Katholieke Universiteit Leuven) with the objective of modelling the influence of the physical and biological environment on recruitment of *Solea solea* fish larvae. This proposal aims to explain spatial variation in recruitment and genetic characteristics and interannual variation in recruitment in terms of the physical and biological environment. In the long term (2–4 years) this kind of science may provide link(s) between the NORSEPP quarterly status reports and the stock assessment working groups seen as users of these reports.

6 NORSEPP products for inputs to the work of REGNS (ToR d)

The present products from NORSEPP for the whole of the North Sea include, atmospheric pressure maps, temperature and circulation including volume fluxes across standard sections. It was felt that due to the importance ascribed in previous studies to the relation between certain fish stocks (e.g. Herring) and Atlantic inflow, the modelled volume flux section should be included. The Aberdeen–Hansthholm line and the Feie–Shetland line are most indicative of the overall North Sea exchange. At present temperature data beyond the diagrams is not available. If needed they could be made available and could include bottom temperature in addition to SST. However, clarification is required from the REGNS group as to whether they regard validated model output (good spatial, temporal coverage) as being acceptable or preferable to observational data (poor temporal coverage).

7 The North Sea ecosystem assessment undertaken by REGNS (ToR e)

The assessment was regarded as an interesting approach and provides a very powerful mechanism for demonstrating patterns and large-scale trends. Caution was expressed that the use of statistics can hide processes and that this should be used as a powerful tool to then aid investigation into the processes that lie behind the correlations that appear. It should only ever be an aid to understanding process and not a replacement to studying those activities. The specific review of the parameters was difficult to perform. It is perhaps better undertaken by looking at the correlations already performed, to determine the dominant forcing factors, e.g. salinity and depth may be the key physical variables. The statistical analysis for the physical parameters should be performed and comments sought from the group members via e-mail. The NAO index was one key parameter that was not included.

Regarding the robustness of existing parameters, additional information needs to be available on how each value is derived and from how many measurements, e.g. annual average temperature is it biased seasonally? This information can then be used to help assess if model data is more appropriate.

8 Future development of NORSEPP products (ToR f)

The present NORSEPP quarterly status report has been well received, but has not yet been used by the ICES Stock Assessment working groups.

The reporting cycle in 2005 seems to have met requirements, with a timely report following Q1, a later report on Q2, and a combined Q3-Q4 assessment published early in Q1 of the following year. These reports rely on data from the ICES Q1 IBTS cruise and could usefully include also data from the summer (June–July) herring survey and the Q3 IBTS survey coordinated by ICES.

Several specific areas for continued development were identified. These include:

- a) Inclusion of model-observation comparisons. This has always been the intention and depends on timely availability of data such as the IBTS cruise temperature data.
- b) Inclusion of information on seabed temperature distribution (monthly mean) as well as SST.
- c) Plots of modelled monthly mean for previous years can be included to provide comparison with the present year. These can later be updated with model-observation comparison when the observations become available.
- d) For those parameters that are poorly observed, a model intercomparison could provide useful information, particularly to identify where the various models agree, or where most agree and one or two differ. For modelled transports through sections this intercomparison could be established as a NOOS project activity (www.noos.cc)
- e) The material presented could be further extended to provide summary satellite maps of chlorophyll and/or timing of the spring algae bloom (as presented by MUMM based on MARCOAST project work). Timing of the spring bloom was also presented by IMR as a possible future NORSEPP product from model simulations. Satellite information could be used to validate the model products. The expansion of satellite-based information, currently presented only for the Southern North Sea, could be available for the Q2-2006 report if a MARCOAST Service Level Agreement is concluded with NORSEPP.

- f) REGNS also asks for information on nutrients, chlorophyll and oxygen. If this information is available from ICES, it could be formatted and included in the NORSEPP reports.
- g) In future years the material could be extended to include observed or modelled information on phytoplankton or zooplankton abundance. In a joint session with the Study Group on Management of Integrated Data (SGMID), the relevance of zooplankton information, currently not provided by NORSEPP, was stressed. Consideration of this could form one of the ToRs for PGNSP 2007.
- h) Existing planned national and EC project activity should provide in future long timeseries (multi-decadal) from coupled physical-biogeochemical models. These can be used, once validated, to provide a historical record of both physical and biological parameters, to put the present year into context.
- i) ECOOP: An activity planned for the integrated project ECOOP, in work package 9, should provide a little support for improving the model-observation comparison products available to NORSEPP. This work plans to develop a web-based presentation, if possible with direct access to the underpinning data. This will provide a means for extending the NORSEPP experience to all European Seas. ECOOP is about to start contract negotiation, with project kick-off anticipated for 2007 Q1.

9 Observational data available for NORSEPP products

A key requirement for timely production of the NORSEPP status reports is rapid receipt of the IBTS cruise hydrography data. Specifically, the temperature data from the IBTS Q1 cruise is needed by NORSEPP by mid-April and the temperature data from the Summer Herring Survey is needed by end-August. NORSEPP requests that ICES ensure that this data is indeed available in time. If necessary to achieve this deadline, NORSEPP could use data with a lower level of quality. The Baltic Sea network was mentioned as an example where preliminary CTD data is available from all Research Vessels within a day from onshore FTP servers.

For NORSEPP ecosystem model simulations the lack of access to near real time, or even recent (e.g. 1-3 months ago), river discharge and nutrient fluxes is a critical gap in the observational data. While river discharge fluxes are routinely processed in near real time, access to this data is still difficult to access for many rivers and requires multiple data requests with widely different formats. For river nutrient fluxes access to data is even more severely restricted, even for data more than one year old. Since most rivers must be monitored continuously this is more a problem of data policy and lack of a single contact point for data from all rivers than a lack of data acquisition. River basin models may alleviate this data gap, but are not yet sufficiently accessible or comprehensive to cover the domain of North Sea ecosystem models. NORSEPP requests that ICES push for public and timely (i.e. within two weeks) access to data and/or model results for discharge and nutrient fluxes from all major rivers discharging into the North Sea.

Annex 1: List of participants

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Annex 2: Agenda

- 1) Opening of meeting
- 2) Summarise the experiences with producing the quarterly update reports on the North Sea for 2005 and their consolidation into a description of conditions in 2005 as a contribution to the ICES Ocean Climate Status Report (ToR a);
- 3) Plan the further production of quarterly update reports for 2006 (ToR b);
- 4) Review the use of NORSEPP products by other ICES WGs and propose ways to improve working relationships with relevant groups (ToR c);
- 5) Evaluate and finalise the NORSEPP products for inputs to the work of REGNS in producing an integrated assessment of the North Sea (ToR d);
- 6) Review and report on the results of the North Sea ecosystem (overview) assessment undertaken by REGNS and prepare recommendations for further or modified analysis made where appropriate. The tables of gridded data used for the 'overview' assessment should be checked and where necessary new data (parameters) included and/or existing data (parameters) updated if relevant (ToR e);
- 7) Future development of the NORSEPP products (ToR f);
- 8) Review the observational data available for generation of the NORSEPP products, identify gaps, and make recommendations for future improvements and services from the Data Centre (ToR g).
- 9) Close of meeting.

Annex 3: PGNSP 2005 Terms of Reference

2005/2/OCC06 The **Planning Group for the North Sea Pilot Project NORSEPP** [PGNSP] (Co-Chairs: Martin Holt, UK, and Hein Rune Skjoldal, Norway) will meet at ICES Headquarters in Copenhagen, Denmark, from 4–5 April 2006 to:

- a) summarise the experiences with producing the quarterly update reports on the North Sea for 2005 and their consolidation into a description of conditions in 2005 as a contribution to the ICES Ocean Climate Status Report.
- b) plan the further production of quarterly update reports for 2006.
- c) review the use of NORSEPP products by other ICES WGs and propose ways to improve working relationships with relevant groups.
- d) evaluate and finalise the NORSEPP products for inputs to the work of REGNS in producing an integrated assessment of the North Sea.
- e) review and report on the results of the North Sea ecosystem (overview) assessment undertaken by REGNS and prepare recommendations for further or modified analysis made where appropriate. The tables of gridded data used for the 'overview' assessment should be checked and where necessary new data (parameters) included and/or existing data (parameters) updated if relevant.
- f) on the basis of experiences with production of the quarterly reports and the inputs to REGNS, review and plan possible future development of the NORSEPP products.
- g) review the observational data available for generation of the NORSEPP products, identify gaps, and make recommendations for future improvements and services from the Data Centre.

PGNSP will report by 1 May 2006 for the attention of the Oceanography, the Living Resources, the Resource Management, the Marine Habitat, and the Advisory Committees.

Supporting information

Priority:	This represents an important initiative for ICES to actively engage itself in GOOS activities. Thus priority is high.
Scientific Justification and relation to Action Plan:	<p>Action Plan Numbers: 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 2.2, 2.9, 4.11, 5.13</p> <p>The ICES/IOC Steering Group for the Global Ocean Observing System (SGGOOS) organized a Workshop <i>Towards a North Sea ecosystem component of GOOS for assessment and management</i> in Bergen 5–7 September 2001 as a follow-up activity of its Implementation Plan. This Workshop produced an agreed IOC/EUROGOOS/ICES/ OSPAR/NSC Statement of Conclusions which was submitted to the 5th NSC in March 2002. Following this, ICES established this Planning Group which in 2002 prepared an implementation plan for NORSEPP.</p> <p>It is intended that the Project should be, if possible, supported by external funding (e.g., FP6) but should not be dependent on that. Consequently EuroGOOS and ICES have agreed that the principles laid down by NORSEPP (PGNSP) should be pursued actively as far as possible from institute sources, but clearly with limited objectives. Against this background and uncertainty, PGNSP will seek to initiate as many elements as possible to further its basic goal of encouraging the use of operational oceanographic products into stock assessment considerations.</p> <p>NORSEPP is now attempting to move into an operational phase by producing quarterly update reports on North Sea conditions and input to the REGNS North Sea assessments.</p>
Resource Requirements:	Costs of running a meeting at ICES. Various Secretariat resources may be required to promote inter-Working Group collaboration in the project. Secretariat support in handling oceanographic data from ICES coordinated surveys (IBTS, herring surveys).
Participants:	Representatives from the physical oceanography community and fish surveys and stock assessment communities are invited. EuroGOOS will also nominate participants. Participants from institutes participating in North Sea/OSPAR monitoring programmes will be essential
Secretariat Facilities:	Relevant Secretariat staff should be directly involved in the Group

Financial:	None
Linkages to Advisory Committees:	Very close to ACE objectives and also highly relevant to the interests of ACFM too.
Linkages to other Committees or Groups:	LRC, MHC are closely linked. Group was created by SGGOOS. REGNS.
Linkages to other Organisations:	EuroGOOS, IOC-GOOS, OSPAR, NSC, COOP
Secretariat Cost share:	ICES: 100%

Annex 4: PGNSP proposed 2006 Terms of Reference

2006/2/OCC06 The Planning Group for the North Sea Pilot Project NORSEPP [PGNSP] (Co-Chairs: Martin Holt, UK, and Hein Rune Skjoldal, Norway) will meet jointly with SGGOOS at [a venue to be decided] from x-x May 2007 to:

- a) summarise the experiences with producing the quarterly update reports on the North Sea for 2006 and their consolidation into a description of conditions in 2006 as a contribution to the ICES Ocean Climate Status Report;
- b) plan the further production of quarterly update reports for 2007;
- c) review the use of NORSEPP products by other ICES WGs and propose ways to improve working relationships with relevant groups;
- d) on the basis of experiences with production of the quarterly reports and the inputs to REGNS, review and plan possible future development of the NORSEPP products;
- e) jointly with SGGOOS, review the coupled physical-biological models running in nowcast-forecast mode, with data available for generation of the NORSEPP products and identify what is ready for application in the NORSEPP reports;
- f) review the observational data available for generation of the NORSEPP products;
- g) identify gaps, and make recommendations for future improvements and services from the ICES Data Centre.

PGNSP will report by x June 2007 for the attention of the Living Resources, the Resource Management, the Marine Habitat, and the Advisory Committees.

Supporting information

PRIORITY:	This represents an important initiative for ICES to actively engage itself in GOOS activities. Thus priority is high.
SCIENTIFIC JUSTIFICATION AND RELATION TO ACTION PLAN:	Action Plan Numbers: 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 2.2, 2.9, 4.11, 5.13 The ICES/IOC Steering Group for the Global Ocean Observing System (SGGOOS) organized a Workshop Towards a North Sea ecosystem component of GOOS for assessment and management in Bergen 5-7 September 2001 as a follow-up activity of its Implementation Plan. This Workshop produced an agreed IOC/EUROGOOS/ICES/OSPAR/NSC Statement of Conclusions which was submitted to the 5th NSC in March 2002. Following this, ICES established this Planning Group which in 2002 prepared an implementation plan for NORSEPP. It is intended that the Project should be, if possible, supported by external funding (e.g., FP6) but should not be dependent on that. Consequently EuroGOOS and ICES have agreed that the principles laid down by NORSEPP (PGNSP) should be pursued actively as far as possible from institute sources, but clearly with limited objectives. Against this background and uncertainty, PGNSP will seek to initiate as many elements as possible to further its basic goal of encouraging the use of operational oceanographic products into stock assessment considerations. NORSEPP is now attempting to move into an operational phase by producing quarterly update reports on North Sea conditions and input to the REGNS North Sea assessments.
RESOURCE REQUIREMENTS:	Costs of running a meeting at ICES. Various Secretariat resources may be required to promote inter-Working Group collaboration in the project. Secretariat support in handling oceanographic data from ICES coordinated surveys (IBTS, herring surveys).
PARTICIPANTS:	Representatives from the physical oceanography community and fish surveys and stock assessment communities are invited. EuroGOOS will also nominate participants. Participants from institutes participating in North Sea/OSPAR monitoring programmes will be essential

SECRETARIAT FACILITIES:	Relevant Secretariat staff should be directly involved in the Group
FINANCIAL:	None
LINKAGES TO ADVISORY COMMITTEES:	Very close to ACE objectives and also highly relevant to the interests of ACFM too.
LINKAGES TO OTHER COMMITTEES OR GROUPS:	LRC, MHC are closely linked. Group was created by SGGOOS. REGNS.
LINKAGES TO OTHER ORGANISATIONS:	EuroGOOS, IOC-GOOS, OSPAR, NSC, COOP
SECRETARIAT COST SHARE:	ICES: 100%