

Editorial

In 2005 EUR-OCEANS made significant advances into science and integration.

The annual PI meeting of our Network of Excellence will be held in Barcelona, Spain, on 15-16 March 2006. The three reviewers of our 2005 annual report, chosen by the European Commission, will attend the meeting. Here are a few highlights of the Barcelona meeting.

Firstly, this will be an opportunity to review some of the advances we made in the scientific domains of EUR-OCEANS during 2005, concerning the climate/anthropogenic forcings on pelagic marine ecosystems. Jef Huisman (U. of Amsterdam), James Orr (IPSL), Xabier Irigoien (AZTI), and Patrick Lehodey (CLS) will provide examples of scientific advances in each of the four EUR-OCEANS Themes, i.e. Ecosystems end-to-end, Biogeochemistry, Ecosystem approach to marine resources, and Within-system integration.

Secondly, we will examine significant examples of integration during 2005 as regards modelling (the AMEMR initiative; Icarus Allen, PML), the EUR-OCEANS PhD and post-doc programmes (Carlos Duarte, CSIC), and the public outreach programme (Sylvain Ghiron, Oceanopolis).

Thirdly, we will review significant advances of integration and international cooperation through: the North Atlantic BASIN programme (a EUR-OCEANS-NSF joint initiative; Roger Harris, PML), our contribution to the International Polar Year (ICED initiative; Eugene Murphy, BAS), the recently funded Marie Curie Early Stage Training programme (METAOCEANS; Xabier Irigoien, AZTI), the international plans for the Eastern Boundary Coastal Upwelling System (Pierre Freon, IRD), and the under-review Mediterranean and Black Seas SESAME Integrated Project (Evangelis Papathanasiou, HCMR). Of course, other examples of integration will be provided by every Work Package and System.

Fourthly, a general discussion (Chair: Karin Lochte, IFM-Geomar) will consider, among other topics, the concept of European multi-sites Institute, which will be a legacy of our Network in a few years time. It is important to note that EUR-OCEANS is joining efforts with the two other marine Networks of Excellence (MarBEF and of Marine Genomics Europe) on this key topic.

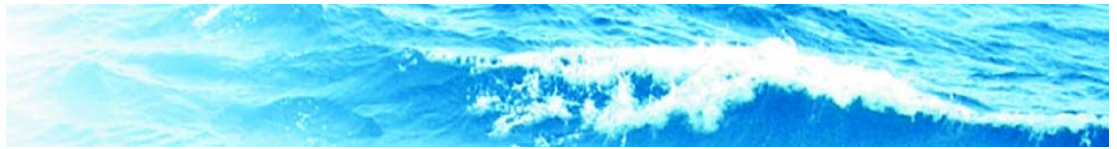
Fifthly, Gerhard Herndl (NIOO) and Antonio Tovar-Sánchez (IMEDEA) will receive the 2006 EUR-OCEANS awards for established and junior researchers, respectively.

We look forward to seeing you in Barcelona soon.

Paul Tréguer and Louis Legendre
Scientific Directors of EUR-OCEANS

List of contents

- Editorial
- General News
- WP News
- EUR-OCEANS science
- Job opportunities
- Calendar of events



GENERAL NEWS

■ Annual meeting Barcelona March 2006

EUR-OCEANS annual Pls meeting will be held in Barcelona on 15-16 March 2006. The aim of this meeting is to present the advances made in the various EUR-OCEANS Work Packages and Systems, and to allow for general discussions about the activities of the network. All EUR-OCEANS Pls, as well as their colleagues and students, are invited to this meeting. If you wish to attend it and have not yet registered, please fill in the attached registration form and send it back to lonela.Daha@univ-brest.fr, as soon as possible.

The agenda of the meeting, as well as practical information including the address of the meeting venue, maps, addresses of hotels and information about refunding of costs are attached to the general announcement in the "Events" section of the EUR-OCEANS website. In case you need an invitation letter to attend this meeting, please let us know about it in advance.

■ New Matchmaking tool on the website

A new section is now available on the EUR-OCEANS website, called "Matchmaking". Inspired from that already used for the PhD and post-doc topics, this enlarged Matchmaking tool allows you to get informed about job opportunities at the partners' institutions, berth spaces in cruises, and project partners searched/available for proposals related to EUR-OCEANS. To see the offers, click on "Matchmaking" from the main menu in the public area, and then click on a title in the list to see the details of an offer. To post an offer, you need to be from a partner institution of EUR-OCEANS, and to be registered on the website. If this is the case, go to the private area (providing your login and password) and click on the section "Matchmaking" of the menu, then follow the instructions.

WP NEWS:

■ WP1.1: Online access to sharing facilities database

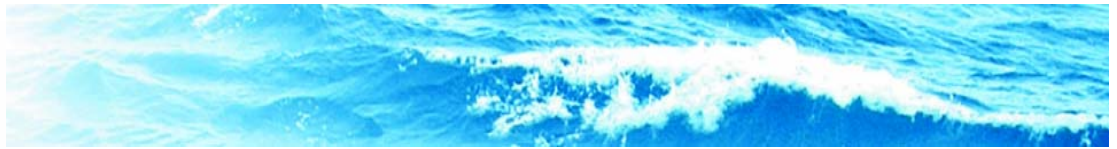
A first version of the meta-data distribution system (DDS) of the database on large infrastructure is online (http://euroceans.ifm-geomar.de/dds/dds_index.php).

Status December 2005:

Until the end of 2005 more than 113 full-members of the EUR-OCEANS network have responded to the meta data acquisition activity of WP 1.1. This corresponds to a feedback from about 85% of all EUR-OCEANS member organisations and more than 80% of all local member institutions. Currently the database holds more than 90 facilities submitted by 46 EUR-OCEANS Pls. In detail there are currently:

mass spectrometers: > 20	mesocosms: 7
seagoing gear: > 20	molecular biological platforms: 4
clean laboratories: >10	others: >20
culture facilities: 10	

Currently not all facility providers have filled the 'sharing options' form and for some facilities the provided description is still sparse. Hence the initial online presentation of the EUR-OCEANS data base on large infrastructure is restricted to those facilities for with we have a reasonable 'minimum' of information



■ WP1.2: First call for Mobility actions and Awards

The call for mobility actions in EUR-OCEANS was open from 08 November 2005 until 12 January 2006. There are three types of stay: mini-sabbaticals, short visits and technical exchanges, which offer great opportunities for integration of research relevant to the network. We have received the following number of applications: 26 for short-visits, 3 for mini-sabbaticals and 1 for technical exchanges. The outcome will be published in the EUR-OCEANS web site by mid of February.

The call for EUR-OCEANS awards was also open from 8 November 2005 until 12 January. There are two types of awards: young scientist and senior scientist. We remind you that the Awards ceremony will be held at the 2006 EUR-OCEANS General meeting (Barcelona, 15-16 March, 2006). We encourage you to nominate both your senior and junior colleagues for the next calls as a way to celebrate their contribution to science in areas relevant to EUR-OCEANS.

■ WP2.1: Post-doc position in WP2.1 Observing Systems

A post doc is required for WP 2.1 (Observing systems) to examine the wide variety of multidisciplinary data obtained by the Eulerian observatories around Europe. He or she will synthesise these data and write papers for both the popular and scientific press focussing particularly on their role in understanding the processes of climate change. The candidate will have close interactions with a number of relevant research centres in Europe. The post is initially for a period of 2 years but this will hopefully be extended further. The starting date should ideally be within the first 6 months of 2006. Candidates may obtain further particulars from:

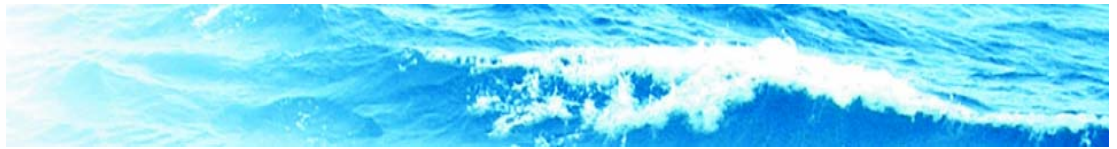
Dr Richard Lampitt
National Oceanography Centre, Southampton
Empress Dock, Southampton, SO14 3ZH, UK
Tel: 44 (0)23 80596347 Fax: 44 (0)23 80596247
R.Lampitt@noc.soton.ac.uk

■ WP3.1 and 7: Assistant for Work Package 3.1 and 7 appointed

Ivo Grigorov has been appointed assistant for Work Packages 3.1 & 7. Ivo Grigorov can be contacted on ivo_grigorov@hotmail.com, postal address IUEM, Place Nicolas Copernic, Plouzane 29280, France

■ WP4: Questionnaire about the identification of key ecosystem players and their vital rates

In WP4 'ecosystems end-to-end' a desk study on the validation and/ or quantification of key species vital rates is scheduled within the first half of 2006 (Deliverable 25). Some of you may have received the attached file already through their specific system leaders. We, however, ask all participants of the themes to check the questionnaire, which has been recently slightly modified. We know that time is limited but will appreciate any, even small pieces of information! For questions and return of the sheet, please contact Rabea Diekmann (Assistant to WP4; <mailto:rabea.diekmann@uni-hamburg.de>, questionnaire can be found at the EUR-OCEANS web site)



■ **WP4: New e-discussion: Is temperature a fundamental factor governing plankton growth in ecosystem models?**

A new topic has been launched on the WP4 discussion page. We hope for numerous contributions to the controversial subject if and how temperature should be included in ecosystem models to simulate phytoplankton and zooplankton growth rates. Please, go to the EUR-OCEANS Forum for further details

■ **WP8: Meet the EUR-OCEANS PhDs and post-docs in Barcelona!**

The final list of students selected for funding in the EUR-OCEANS PhD programme was released in July 2005. Selected candidates and advisors were requested to confirm their availability before September 15. A total of 18 proposals were fully funded by EUR-OCEANS which added the two co-funded by DIFRES (Denmark) and one more fully funded by the French government, make a total of 21 PhD projects under the EUR-OCEANS umbrella. The call for the EUR-OCEANS postdoctoral programme was closed in September 2005. Seven post-doctoral proposals were funded. Post-doctoral candidates are expected to start their projects no later than March 31, 2006. If you want to know more, all EUR-OCEANS PhDs and post-docs will be presenting their projects in a poster session at the Annual PIs meeting in Barcelona (15-16 March 2006).

■ **WP9: Knowledge Transfer webpages**

The EUR-OCEANS Knowledge Transfer Unit (previously WP9:Transfer to socio-economic users) webpages are now live! (Address: www.eur-oceans.org/KTU)

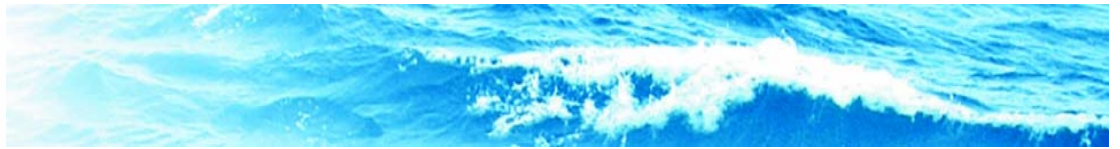
Accessible through the main menu bar on the EUR-OCEANS site, the Knowledge Transfer Unit (KTU) pages outline the activities of the Unit. There are products to download including the Knowledge Transfer Strategy and EUR-OCEANS factsheets. The KTU pages also feature a searchable database of key socio-economic users of relevance to EUR-OCEANS knowledge transfer. The database provides contact details of organisations as well as key individuals within them.

We aim to continually expand the contacts database so if you know of any organisations or specific people you feel should be included please let us know (through the 'Contact Us' page or directly to jessh@pml.ac.uk).

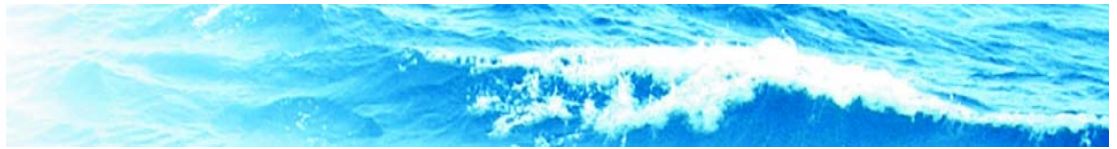
Please browse the pages and let us know if you have any comments or would like to make suggestions for future knowledge transfer activities, including factsheet topics or anything else that would support the transfer of EUR-OCEANS research-based knowledge to the user community.

■ **WP10: EUR-OCEANS web site for the general public**

EUR-OCEANS website for the general public is now available at the following address: <http://www.eur-oceans.info>. This website is managed by the Association of aquariums for the promotion of EUR-OCEANS, as component of the Work Package 10 "Public Outreach". The first event hosted on this website was a European web-based press conference held on 30 September 2005, and broadcasted live on the website from 9 stages in Europe (Brest, Cambridge, Gdynia, Genoa, Göteborg, Heraklion, Lisbon, Paris, and Plymouth). The website include several sections (Education, Conferences, etc) in addition to a general presentation of



EUR-OCEANS activities both globally and in each System. Volunteers needed! The content of the website is minimal so far, but it shall evolve thanks to the contribution from all interested people. We have identified one or a few contact persons in each System willing to contribute relevant information and documents to the website. All contributions and ideas are welcome in addition to this. If you are interested in such activity, please contact Caroline Gernez and/or Sylvain Ghiron (Oceanopolis, Brest).



EUR-OCEANS Knowledge Transfer Unit

Jessica Heard, Plymouth Marine Laboratory, UK

The Knowledge Transfer Unit (KTU) of EUR-OCEANS (formally WP9) is now in full swing. Over the passed 6 months an assistant, Jessica Heard, has been hired to support Manuel Barange (Work Package leader) in the development and launch of a number of knowledge transfer tools and products.

A dedicated website providing information on EUR-OCEANS knowledge transfer activities together with a overarching strategy and other downloadable products has just been launched www.eur-oceans.org/KTU. If you have any comments or suggestions for the website please contact the Knowledge Transfer Unit as directed on the website.

A EUR-OCEANS Knowledge Transfer Contacts Database has also been created. This contains contact details for institutes within the network together with information on a wide range of socio-economic users who will be targeted for knowledge transfer over the coming years. The database can be interrogated via the KTU website by both those inside and outside of the network. The database will be continually updated so please feel free to recommend any additional contacts, especially local ones (contact jessh@pml.ac.uk).

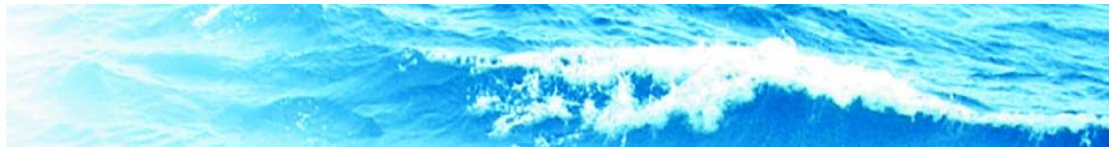
Finally, the first EUR-OCEANS Fact Sheet is set for publication in January 2006. Fact Sheet 1 will introduce EUR-OCEANS to global users and explain the network's activities and objectives. Fact Sheet 2 is planned for dissemination soon after and will provide a vision for EUR-OCEANS Theme 3 'Ecosystem Approach to Fisheries (EAF)'. This will set the scene for more specific Fact Sheets describing the implementation of the EAF by EUR-OCEANS partners. It is envisaged that a similar approach will be developed to transfer the knowledge of the network regarding the different Themes that constitute the EUR-OCEANS Jointly Executed Research programme.

The fact sheets offer a real opportunity to transfer exciting and innovative research-based

knowledge arising from partnerships within EUR-OCEANS to the user community and ensure that our science reaches the right places. If you have an idea for a fact sheet topic please contact Jessica Heard (jessh@pml.ac.uk) or refer to the Knowledge Transfer Unit website for more information.



If you would like to be kept informed of, or participate in future activities of the Knowledge Transfer Unit please sign up to our mailing list on the EUR-OCEANS main website, www.eur-oceans.org. To do so, click on the icon "Account" at the top of the page, and make sure "WP9" is ticked. Otherwise keep an eye on the KTU website for ongoing developments.



EAF Indicators: a comparative approach across ecosystems

Yunne Shin, IRD, France

Objectives

The goal of this working group is to gather and share indicators expertise and tools across EUR-OCEANS Systems and member institutions, in order (i) to propose a set of synthetic indicators, which would accurately reflect the effects of fishing on marine ecosystems, and would support sound communication and management practices, and (ii) to build a generic dashboard comprising a set of interpretation and visualisation methods. The inter-ecosystems comparative approach in this context is not directed at comparing ecosystems, a rather perilous exercise; rather, its purpose is to help identify and select robust indicators that would individually or collectively be meaningful over a set of diverse and contrasted situations, and to help specify their conditions of use.

The working group will benefit from the experience gained recently during the SCOR/IOC working group 119 (*Quantitative Ecosystem Indicators for Fisheries Management*, 2001-2004) which was concluded by the eponym international symposium (Paris, March 2004; proceedings published in *ICES Journal of Marine Science* 2005, volume 62(3); EUR-OCEANS deliverable D34). The Working Group is planned for 4 years (2005-2008) with workshops organised every six months. It is opened to any representative of a EUR-OCEANS marine ecosystem, for conducting the comparative approach. At this stage, 7 sets of ecosystems are represented (figure 1).

Participants are expected to contribute with (and/or):

- standardisation of data and estimation of indicators in their respective ecosystems
- elaboration of a common generic dashboard
- testing the dashboard in their respective ecosystem
- address specific issues on the use of indicators (i.e. discrimination between fishing and climate effects) using a comparative approach

Selection and computation of a Minimal List of Indicators (MLI)

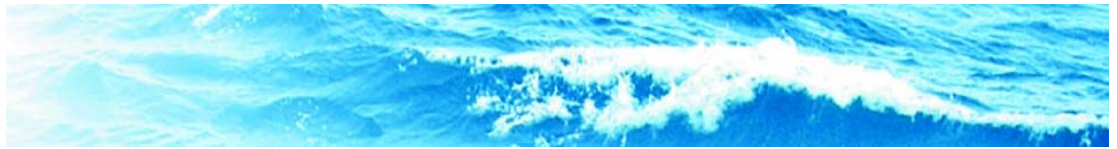
A minimal list of indicators (MLI) was selected and tentatively computed in each ecosystem. Several categories of indicators were distinguished: size-based, species-based, trophodynamic and exploitation indicators. The criteria which were adopted for selecting the MLI were: the ecological significance, the availability and cost of the data, the sensitivity to fishing pressure.

The most constraining criterion, when dealing with several ecosystems, was that of the availability of the data but the MLI is not strictly the lowest common denominator of all the ecosystems represented. Recommendations were made for future data sampling, in order to fill the gaps. The cross-system inventory allowed to highlight the general lack of data for all non-fish compartments of the ecosystem (phyto- and zooplankton, birds, marine mammals etc). The consistency in time series, the definition of the spatial limits and potential sampling biases were discussed for each ecosystem.

Elaborating the diagnosis: protocol for interpreting indicators

The group proposed some methods for elaborating a diagnosis from a set of indicators, and raised some statistical problems linked with the analysis of indicators:

- the interpretation of a combination of indicators (i.e. mean length, maximum length and abundance index) which are considered to be complementary either because they reflect different processes or because their response to fishing is different.
- the detection of trends and correlation between ecological indicators and exploitation indicators with difficulties linked to the non-linearity of the relationship, the responsiveness of ecological indicators to fishing pressure, spatial heterogeneity, the joint effects of environmental variability.
- redundancy and complementarity between indicators. The monitoring of *a priori* redundant indicators may be useful to consolidate the diagnostic.



- standardisation methods. Before undertaking any analysis, the WG underlined the necessity to standardise indicators (or their trends) in order to compare species / indicators / ecosystems. Dimensionless indicators must be used, *i.e.* divide the whole time series by a reference value (e.g. mean, standard error, starting date of the time series). Biological reference points can be determined for standardizing indicators. In the case of model simulations where diverse scenarios can be tested, it is useful to refer to the same reference state of the ecosystem (*i.e.* the present state).

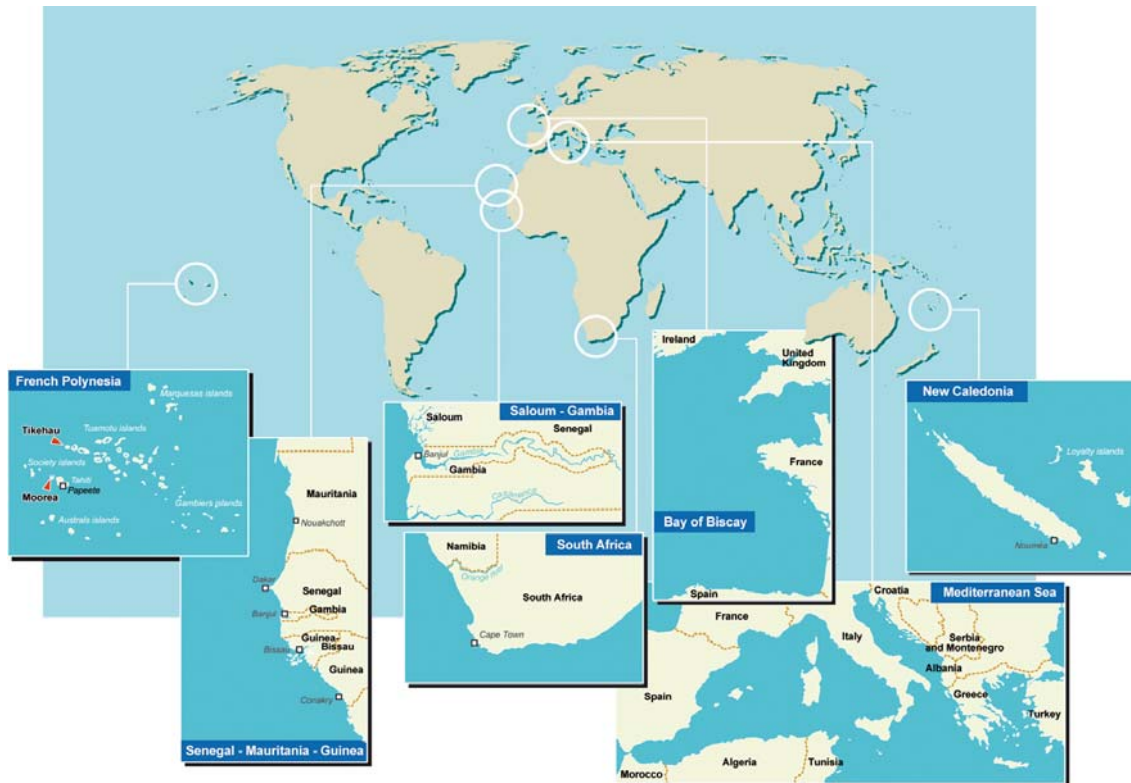
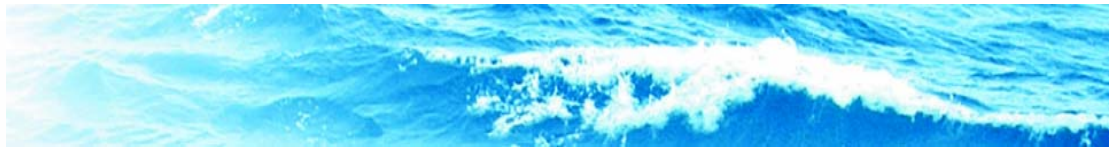


Figure 1: Ecosystems analysed during the 1st meeting of the Working Group “EAF Indicators: a comparative approach across ecosystems”, July 2005

Representing and communicating indicators: towards a dashboard

According to the public considered, different strategies will be adopted for communicating the scientific expertise and representing the indicators. There is a gradient of information along the three levels of communication that were identified by the WG:

- the expert level or base level will contain an exhaustive set of basic graphs and tables quantifying the values and trends of different indicators;
- the manager level or intermediate level will give access to a dashboard with a selection of key indicators, synthetic graphs and figures and key species and/or functional groups;
- the large public level or upper level will be provided a quantitative (scoring) and qualitative (colour, commentary, state of some emblematic species) assessment of a given ecosystem for ecological (habitat, fisheries, pollution, biodiversity) and socio-economic aspects (social, economic).



According to this hierarchy, we will propose a prototype dashboard in a webpage, by which a user can enter first through the large public level and can progressively have access to more detailed information (manager or expert level). In order to avoid any misleading use of the dashboard, the passage from one level to another must be explicit. This will require the development of common methods within the WG for interpreting the trends in indicators, and transform quantitative information into semi-quantitative and qualitative information. The norms adopted have to be explicit, stable through time and similarly applicable in different ecosystems

The codes of colours, the symbols and the graphics must be carefully chosen and adapted to the public. The graphs will provide information on the present state of the ecosystem (kite diagrams), on the short-time and long-time trends in the indicators (traffic lights coding for unsafe or safe trends).

In addition, the information must be available for a selection of key species or key species groups. The selected species must participate significantly in the trophic fluxes, and must help tracking the direct and indirect effects of fishing. In each ecosystem, we might be able to identify: top predators (top-down effects, higher longevity so that they integrate across long-term impacts), forage species (bottom-up effects, fast turnover rates so that they potentially have a high responsiveness to changes in fishing and in environmental conditions), target species (direct effects of fishing), habitat-linked species, charismatic or vulnerable species.

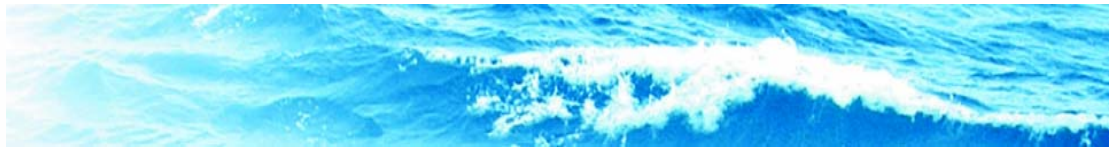
In order to elaborate a generic dashboard for an ecosystem approach to fisheries, the WG relies on the comparative approach between various types of ecosystems, with contrasted availability of data, different structures and functioning, and different levels of exploitation. The success of the comparative approach is notably conditioned by the proposition of a panel of common methods for estimating the indicators, establishing a diagnosis, and communicating it. For future meetings, efforts must be done towards (i) representing both the state (problem for defining reference points) and the trends (problems for defining the time scales, non linearity of the processes) of ecological indicators, (ii) identifying key species or groups of species to focus on, (iii) refining the estimation of exploitation indicators, (iv) disentangling the joint effects of fishing and climate changes, (v) including spatial indicators. The second meeting was organised recently (February 1st-3rd 2006), in CRH Sète.

EUR-OCEANS Working Group - WP6 Ecosystem Approach to Marine Resources

Coordinators: *Yunne Shin and Philippe Cury*

Participants: **Pierre-François Baisnée (IRD), Nicolas Bez (IRD), Clotilde Bodiguel (IDDRA), Audrey Colomb (IRD), *Philippe Cury (IRD), Jocelyne Ferraris (IRD), Cheikh Inejih (IMROP), Didier Jouffre (IRD), Jean Lefur (IRD), Olivier Maury (IRD), H  l  ne Rey (Universit   Montpellier 1), *Marie-Jo  lle Rochet (IFREMER Nantes), *Lynne Shannon (MCM), *Yunne-Jai Shin (IRD), Luis Tito de Morais (IRD), Guy Vidy (IRD), *Dawit Yemane (UCT), Francis Lalo   (IRD)*

*: EUR-OCEANS PIs or associated scientists



Integrating scientific activities through EUR-OCEANS PhD programme

S. Ruiz, C.M. Duarte and J. M. Arrieta
IMEDEA (CSIC-UIB), Spain

The main goals of EUR-OCEANS WP8 are to promote cutting-edge research in JER (WPs 4-7) with gender balance and develop joint activities for Ph.D. students and post-doctoral fellows, researchers and other key staff. In this context, the call for EUR-OCEANS in-house Ph.D. programme was closed last May 15, 2005 and by now, all selected candidates have begun their Ph.D. programmes. The peer-review of the 101 applications received was carried out by external reviewers and in parallel the proposal were sent to the corresponding Systems and Themes leaders who assessed their relevance. The EUR-OCEANS Ph.D. programme together with the post-doc programme is already a mechanism working for the integration of the scientific activities in the network of excellence.

The 21 projects of the selected Ph.D. candidates cover a wide range of relevant topics for EUR-OCEANS. Distributed by work packages (figure 1), 32% of the projects fall into the WP5 Biogeochemistry, whereas WP4 Ecosystems end-to-end and WP6 Ecosystems approach to marine resources retain 29% of the projects each one, the remaining 10% is for WP3 Model integration (5% for the Global Ocean and 5% for the Earth System). Additionally, it is worth noting that projects will promote and integrate research in the seven Systems defined in EUR-OCEANS (figure 2): 23% for the Southern Ocean, 19% for the Mediterranean Sea, 14% for both, the North Atlantic Ocean and the North Atlantic Shelves, 10% for the Eastern boundary Upwelling systems and 10% for the Baltic Sea. Each specific project will contribute to improving our knowledge on different relevant topics. We found projects focused on the impact of climate and the increased temperature and CO₂ on marine ecosystems (food web interactions, primary production, diversity, size, spectrum and abundance of zooplankton, fish, etc). The use of coupling models is also a topic proposed for different studies, in particular for modelling: phytoplankton and ichthyoplankton

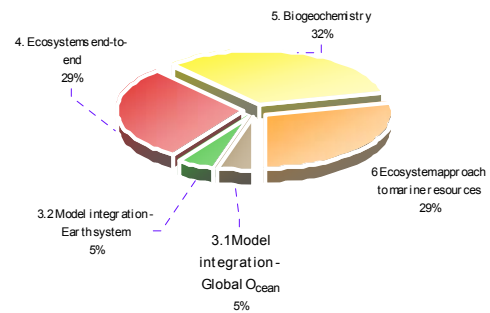


Figure 1. Distribution of PhD grants by WPs.

and the global carbon cycle. There are also studies related to the nitrogen cycling, origin and transformation of biogenic matter settling, implications of phytoplankton cell death for carbon flux, etc. The complete list of selected Ph.D candidates and more information on each one (name, nationality, title of the project, advisors, institution,...) can be found on the EUR-OCEANS website.

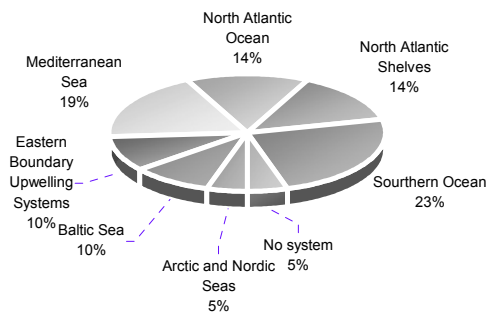
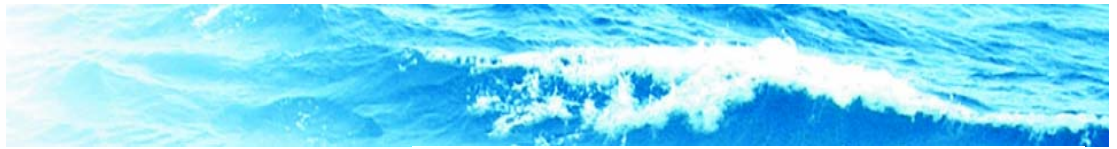


Figure 2. Distribution of PhD grants by Systems.

We would like to remind you that the EUR-OCEANS annual meeting (Barcelona 15-16 March 2006) will include a poster session where Ph.D. students and post-doc fellows will show the progress of their research.

Finally we would like to encourage all students and fellows to contribute to the forthcoming EUR-OCEANS Newsletter; your exciting results are welcome!



Advances in Marine Ecosystem Modelling Research (AMEMR)

Jerry Blackford
Plymouth Marine Laboratory, UK

In June 2005 Plymouth Marine Laboratory organised and hosted an international symposium titled Advances in Marine Ecosystem Modelling Research (AMEMR). This provided a novel forum for presentation and discussion of all aspects of model based marine ecosystem research, encompassing numerical, conceptual, mathematical and statistical approaches. The symposium attracted over 160 abstract submissions and nearly 200 delegates from across the globe specialising in a diverse range of modelling techniques and research foci.



The need for such a symposium stems from the development of earth system science over the last few years. Marine, coastal and estuarine ecosystems are complex assemblages of biota, chemical processes and physical dynamics that are influenced by both climate and human activities. Interactions between these system components are often non-linear and comprise varied feedback mechanisms. As a result, changes in species distributions and seasonal responses are rarely fully understood. It is becoming clear that improved management of the marine system requires an appreciation of both ecosystem structure and function. Modelling provides a key scientific technique by which we can elucidate the workings of the marine system and predict its evolution in both the short and long term. Our ambition was that this symposium will contribute to the next generation of model based exploration by providing scientists and students an opportunity to discuss and contrast recent advances, outstanding problems and future requirements.

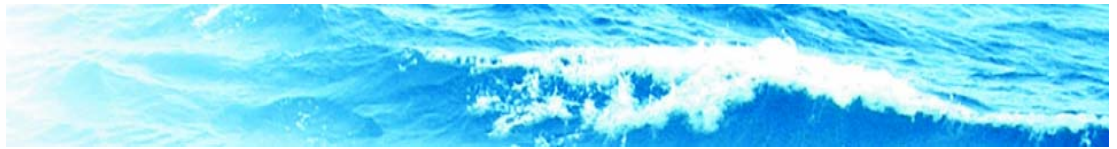
Three key challenges for ecosystem modellers were identified during the conference; how do we balance increasing model complexity to



AMEMR International Symposium, June 2005, Plymouth

represent all relevant processes with the subsequent increase in uncertainty in parameterisation, how can we re-establish the relationship between modellers and experimentalists and how can we better understand, quantify and reduce model errors? The primary role of models in ecosystem science is to provide a simplification of complex reality. However it is apparent that a deeper understanding of the marine biogeochemical system is required and to describe the multidimensional behaviour of ecosystems and their interaction with many interlinked biogeochemical cycles, the degree of elaboration may have to grow substantially more. A fundamental issue therefore, is to establish appropriate levels of complexity that will enable ecosystem models to have most predictive skill while also providing scientific insight.

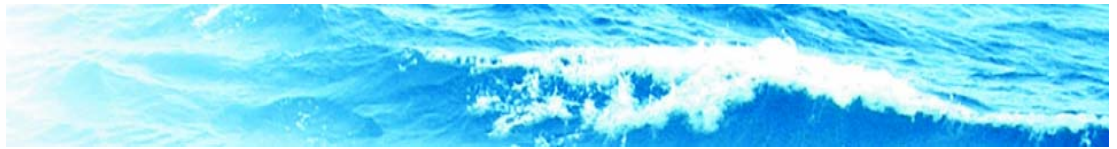
However, the continual development and enhancement of coupled hydrodynamic-ecosystem models has reached the point where the outputs of such models are themselves of a complexity and volume that they require simplification in order to be understood. Validation is a non-trivial exercise as errors can derive from both models and real-world observations. Model errors may derive from inaccuracies in process descriptions, parameterisation, initialisation and forcing functions. Errors in real-world observations may arise from basic measurement error, inappropriate scales of sample dispersion (for example data that are over influenced by



Poster session during AMEMR International Symposium, June 2005, Plymouth

small-scale processes not included in the model) or lack of replication. A crucial issue is balancing precision (how well the model fits the data) with trend (how well the model reproduces observed trends). For example, small differences in the timing of an event can lead to large errors in terms of precision even when the trend is well reproduced. The choice of error statistic is crucial, and a comprehensive validation process must consider several. Taking all of this into account, it is surprising that model evaluation, when it is attempted, is often qualitative and largely subjective.

The conference organisers are currently preparing a special issue of the *Journal of Marine Systems* for selected papers from the symposium and, given the outstanding success of AMEMR I, a second symposium will be organised, probably for the summer of 2007 in Plymouth.



JOB OPPORTUNITIES

- Post-doc position in carbon cycle climate modeling in Bergen (Norway)
- Open position: Director of European Institute for Marine Studies (IUEM), Brest, France.
- Post-doctoral positions and database managers positions in the REMIGE programme.
- Professorships in Fisheries Oceanography, Marine Historical Ecology and Fisheries Economics and Management
- Post-doc position in biogeochemical modeling (Antarctic Ocean) at ULB, Belgium

For details on these offers, please refer to the News on the EUR-OCEANS website

CALENDAR OF EVENTS 2006

Dates	Venue	Event	EUR-OCEANS financial support
31 January 03 February	Tvärminne, Finland	Baltic Sea workshop	Yes
February 01-03	Sète, France	EAF indicators: a comparative approach across ecosystems – 2 nd meeting	Yes
February 08-10	Liverpool, England	Irish and Celtic Seas Marine Research Workshop	Yes
February 20-24	Hawaii, USA	ASLO/AGU	No
February 22-24	Nantes, France	Workshop on Indices of meso-scale structures	Yes
March 07-08	Nantes, France	WP6/EAMR “vision” paper/workshop	Yes
March 15-16	Barcelona, Spain	EUR-OCEANS annual PIs meeting	Yes
April 02-07	Vienna, Austria	EGU General Assembly	No
April 03-05	Nantes, France	Workshop on advancements in modeling physical-biological interaction	Yes
April 26-28	Monaco	Eulerian observatories workshop in Monaco	Yes

EUR-OCEANS Newsletter is compiled by the mobility and communication Task Team (WP1.2), Carlos Duarte (carlosduarte@imedea.uib.es), Caroline Gernez (caroline.gernez@univ-brest.fr) at IMEDEA, c/Miquel Marqués, 21 07180 Esporles, Spain

Please send articles for inclusion in the Newsletter to the above address or to Simón Ruiz, editor and assistant of WP1.2, (simon.ruiz@uib.es)

Permission to quote an article from this Newsletter should be obtained from the author

Information about EUR-OCEANS can be found at www.eur-oceans.org