

## **Meeting Report**

### **Fostering International Collaboration: Developing consensus on the structure, review and management of collaborative research programs in Ocean Sciences**

**Location: DG RTD CDMA Building, Rue du Champs de Mars N°21, Room SDR-1. Brussels**

**Time: September 14th, 2011 0900 to 1730**

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### **Summary:**

The necessity to move from a local and regional to a global understanding of the role of stressors on the earth system necessitates a coordinated collaboration between researchers from different nations and funding agencies. At present a consensus strategy on the extent of individual projects (individual PI; small research groups; large collaborative projects) evaluation criteria, and program management necessary to bring these collaborations to fruition does not exist. With this as the background this meeting was held to assess the potential to develop an agreed upon strategy to facilitate and manage international collaborative programs involving the US and Canada as well as the European Community and its nation states. To this end, a straw man for operationalization of such projects was distributed prior to the meeting and used as a basis for discussion. A revised version based on these discussions is included in this report and could serve as the basis for implementation of future international programmes. The discussions that transpired clearly highlighted the desire of the assembled funding agencies to develop an implementation strategy for international cooperation, as well as the willingness to make it happen somehow. Finally, it was clear that any acceptable strategy need be sensitive to the existing constraints of the national funding agencies allowing them to participate in international science as well as maintain their

identities.

### **Background:**

It is now recognized that the planet will undergo profound changes during the next century as a result of climate change, exploitation patterns, habitat alteration, invasive species, land-based pollution, and increasing concentrations of CO<sup>2</sup> and other greenhouse gases that will exacerbate climate change, acidification, and sea level rise. These changes have and will influence human health, contribute to social and political upheaval as well as the production of resources necessary to support the growing human population on the planet.

Increasingly it is being recognized that these stressors on the global and regional scale influence the quality of life on the local scale with sea level rise being one example. Similarly, human activities on the local scale contribute to the global situation. For example, the accumulation of green house gases in the atmosphere driven by the burning of fossils fuels strengthens the greenhouse effect influencing surface temperatures on local regional and global scales.

Our understanding of the dynamics and impacts of these stressors is typically the result of research performed on a local scale with results often extrapolated to the regional or global scale via the development and application of deterministic global and regional scale models. These studies although informative and the basis upon which policy is developed often neglect interactions between processes which occur across all scales which can act to intensify or buffer the effect of stressors at the local scale in turn feeding back to the global scale.

The necessity to move from a local and regional to a global understanding of the role of stressors on the earth system necessitates a coordinated collaboration between researchers from different nations and funding agencies. At present a consensus strategy on the extent of individual projects (individual PI; small research groups; large collaborative projects); evaluation criteria, and program management necessary to bring these collaborative programs to fruition does not exist. This situation results in an at best heterogeneous approach to addressing global scale problems and at worst a duplication of efforts and inefficient use of limited funding and expertise.

With this as the background, this meeting assembled members from US, European and Canadian funding organizations to further discuss the development of a strategy to foster and manage a web of linked international projects in the field of ocean ecosystems.

This meeting was organized in light of the international cooperation activities in the work plan of the EU-BASIN FP7 integrated project and experiences from the EU and US funded international BASIN project<sup>1</sup>.

## **Highlights from Presentations.**

*Note: All presentations are available at <http://www.euro-basin.eu/>*

### **1- Arnoldas Milukas** Greeting and presentation of FP7 Environment Program

- Identified four main areas of activities in FP7 Environment programme<sup>2</sup> these being, climate change, sustainable management of resources, environmental technologies, Earth observations and assessment tools, all areas include marine science. Noted that policy drives this programme namely, the recently adopted Europe 2020 strategy<sup>3</sup>, and that environmental problems have trans-boundary regional and global dimensions. As a result international cooperation is an important element of the programme and the Commission envisages international cooperation to continue to be further supported in future programmes.
- Noted that the role of the EC is to act as a facilitator of international partnerships such as BASIN/Euro-BASIN (US and Canada partners), PERSEUS (Southern European Seas) and BONUS (Baltic Sea, cooperative with Russia), in the field of marine research..
- Policy objectives – Future: FP7 ends in 2013 and the Commission is developing a follow-on programme which will be called Horizon 2020 - the future Framework Programme for Research and Innovation. Europe needs cutting edge research and innovation to ensure competitiveness and to address societal challenges and needs, such as climate change.
- The Horizon 2020 programme intends to contribute to raise research funding to 3% of GDP by 2020. Horizon 2020 will cover direct/indirect research costs and the total budget is proposed to be about 80 billion euros; a 46% increase relative to the current research budget
- The Last FP7 call for R&D activities will be in 2012. Proposals for Horizon 2020 will be adopted by the EC in November 2011. Legislative decisions on Horizon 2020 will be made in 2012-2013 and the programme will begin in 2014.

### **2- Mike St John.**

Presentation on the need for a consensus strategy for development of collaborative international research programs.

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<sup>1</sup> European Union Basin-scale Analysis, Synthesis and Integration (<http://www.euro-basin.eu/>)

<sup>2</sup> FP7 Research & Innovation – Environment programme: [http://ec.europa.eu/research/environment/index\\_en.cfm](http://ec.europa.eu/research/environment/index_en.cfm)

<sup>3</sup> Europe 2020, the EU's growth strategy for the coming decade: [http://ec.europa.eu/europe2020/index\\_en.htm](http://ec.europa.eu/europe2020/index_en.htm)

- Gave BASIN, TRACES, SIBER as examples of the type of marine programs that would benefit from such collaboration.
- Identified the need to understand how to work together and give scientists the tools to allow them to work together. Highlights Harmful Algal Bloom (HAB) program as a failure of parallel approaches to support a large collaborative program.

### 3- Errol Levy presentation –EU research cooperation.

- The FP7 has four main parts: cooperation (networks of excellence), ideas (frontier research), people (training, development, mobility), capacity (infrastructure). The majority of funds are in the cooperative part of program (32.4 billion euros), and this has 10 themes one of which is environment including climate change (about 8 billion euros).
- Third countries (e.g. US and Canada) in FP7 as partners/collaborators. This is done through the following mechanisms:
  1. general opening,
  2. targeted calls that specify a work program that wants participation by specific researchers and/or countries,
  3. specific international cooperation activities (SICAs),
  4. coordinated and joint calls for proposals with funds pooled and evaluations done jointly,
  5. Marie Curie fellowships,
  6. twinning – associate with other projects,
  7. joint programming,
  8. mutual opening such as is done with NIH,
  9. multi-partner initiatives such as in agriculture-related research and knowledge-based bio-economy.
- There are bilateral agreements that facilitate some of the above mechanisms. The US and Canada have these. One is the US Science and Technology Cooperative Agreement which has been in place since 1998 and renewed in 2004 and 2008. Canada has a Science and Technology agreement that started in 1996.
- In the future, as well as at present there is a priority on scientific excellence, there will be a strategic focus on addressing societal challenges and more innovation. This will result in choosing partners and activities that will produce a greater scale and scope of cooperation. There will be an expectation of reciprocity. Joint programs could be developed assuming reciprocal access and funding, similar to current programs between EC and NIH. In 2013 there will be a transition to the new Horizon 2020 Framework Program and as such activities are focused on developing the work program to facilitate

### 4- Ludger Viehoff presentation – working to develop initiatives with US – Strategic Forum for international S&T Collaboration (SFIC).

- Designed to increase coordination, share information, cooperation and policies. Coordinate Member States of EC to propose joint initiatives with Third Countries. Recognize increased globalization of science and recognizes emerging powers (China, Brazil). Desire to source knowledge globally, reduce fragmentation and duplication. SFIC initiatives are: India Pilot Initiative (water, bio-resources), approaching China, US energy, health, ageing.

- Problems for US cooperation are: fragmentation of US research environment, IPR and transfer of technology agreements, balanced cooperation, legal obstacles, different approaches to S&T priorities, setting and policy.
- Areas of highest priority are: energy/renewable energy, global challenges/demographic challenges, environment and climate change.
- Issues of joint framework setting are: remove legal barriers, IPR, multilateral coordinated calls with joint priority areas, global challenges and areas of common interest, large-scale international infrastructure, coordinate mobility schemes
- Joint EC cooperation: mutual opening of programs, attractive European research, establish trans-Atlantic space of open innovation, develop strategic intelligence.
- Issues to solve for cooperation are: certain clauses in joint agreements, such as jurisdiction (laws that apply to EC are Belgian laws and are not acceptable to US), need to create special clauses for partners, use binding arbitration for IPR to determine how to share this and/or regulate it.

**5- Alan Edwards** Towards Horizon 2020 – decision made by EC to do program-

- will provide a common strategic framework for research and innovation – innovation is important to EU
- Horizon 2020 includes the current RTD framework program (FP7), the Competitiveness and Innovation Framework program (CIP) and the European Institute for Innovation and Technology (EIT) – it envisages strengthening complementarities with structural funds from regions.
- International cooperation specifically addressed in proposal and is important part of proposals.
- No single entry point for marine science. Marine research is proposed to be covered for instance under the "Food security, sustainable agriculture and bio-economy" challenge with a dedicated activity on “unlocking the potential of aquatic living resources”; and also under the "Climate Action and Resource Efficiency" challenge (want to achieve resource efficient and climate change resilient economy), which includes a broad activity on research on marine ecosystems, from coastal to deep sea.

**6- Luis Cuervo** (DG MARE C1) made a presentation on the Integrated Maritime Policy (IMP)<sup>4</sup> strategy for the Atlantic Ocean area, due for adoption next November.

- He indicated that IMP is putting forward sea-basin strategies to maintain and promote the maritime economy and sectors as a source of sustainable growth in the context of EU 2020. In the particular case of the Atlantic, there are elements which make believe that the Atlantic seaboard of the EU has a potential to become an area of maritime excellence.

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<sup>4</sup> EU Maritime Policy: [http://ec.europa.eu/maritimeaffairs/index\\_en.html](http://ec.europa.eu/maritimeaffairs/index_en.html)

- Indicated that the Atlantic strategy is the result of a bottom-up process requested by the member states and stakeholders. Challenges are:
  - Improving maritime governance building on existing governance + reducing burdens + promoting co-operation.
  - Better use of existing resources to develop sustainable, smart and inclusive growth at sea-basin level.
  - Achieve good environmental status + supporting new opportunities in fisheries + aquaculture
  - Prompting competitiveness of sectors in difficulties (through funding & training) and employment creation.
  - Promoting coastal tourism and improve maritime & hinterland connections (SSS).
  - Fostering Atlantic marine renewable energies to meet EU international commitments.
  
- Governance is complex because of many stakeholders so need efficiency and cooperation. The strategy will propose an Atlantic Forum in which all relevant and concerned stakeholders meet to discuss how to better implement the strategy, within the context of existing legal, financial and institutional framework.
  
- Launch event – 28-29 November 2011 in Lisbon, Portugal – at highest level (participation by the President of Portugal and EC President Barroso and Commissioner Damanaki).
  
- International dimension issues – how can Euro-BASIN and EU Atlantic international partners contribute to the success of the strategy? The issue is to make existing R&D and innovation capacities fit better into marketplace and make these sustainable, need to promote efficient networking structures, so that the strategy is implemented in a fully effective and efficient manner so that individual capacities of stakeholders are put forward in a coordinated manner in order to bring added value.. Noted that Commissioner Damanaki visited the US at the beginning of September, including bilateral talks with Dr Lubchenco, NOAA Administrator (there is great political interest in the US at the moment in developing international maritime cooperation with the EU).

#### **7- Anna Cheilari– Marine Strategy Framework Directive (MSFD)<sup>5</sup>**

- EU legal document for protection of seas, builds on existing activities and is reviewed at six-year intervals.
- Outlined criteria for good environmental status.
- Marine Directive is priority area, MSFD is first community framework instrument directed at marine environment

#### **8- David Conover (Director of Ocean Sciences, US NSF)**

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<sup>5</sup> Marine Strategy Framework Directive: [http://ec.europa.eu/environment/water/marine/directive\\_en.htm](http://ec.europa.eu/environment/water/marine/directive_en.htm)

- Outlined NSF major programs in ocean sciences division with international connections, such as IODP – gives framework for international research. IODP is at end of ten-year program
- Identified the need to go to National Science Board for approval of large programs that require large resources. Thinking about going to parallel program structure for cost reduction.
- NSF is likely to be flat funded for the next several years and NSF is trying to figure out what activities can be supported with this funding.
- OOI – ocean observing initiative is expanding and is putting observations in different regions - \$800 million budget, split about half and half between structure and maintenance, cyber infrastructure being developed to support observation systems that integrate land, ocean, atmospheric observations. OOI create capacity to use sensors rather than ships to observe ocean.
- National priorities in ocean sciences – Obama gave an executive order last year to create a National Ocean Council to develop strategic action plan for nine areas, including
  - ecosystem-based management approaches,
  - coastal marine spatial planning (LMEs),
  - changing conditions in Arctic (environment and security),
  - ecosystem restoration (Gulf of Mexico),
  - climate change and
  - ocean acidification. To implement these, the program will require international partners.
- The new NSF director wrote an editorial in Science that deals with the importance of international relations and the challenges to moving this forward.
- New initiatives at NSF – Science, Economy, Environment related to Sustainability (SEES), focus on sustainable energy production/innovations, sustainable research networks (S&T centers), and research coordination networks (RCNs), launch SEES initiative in coastal zones looking at climate/human impacts, CAMRA initiative focus on hazardous events such as earthquakes with intent to create a more resilient America. SEES includes ocean acidification research.
- NSF is participating in Belmont Forum to develop complementary research programs in various countries
- What areas, where there are openings for cooperative effort at programmatic level?
- NSF can do large major program proposal – must be hypothesis-based that addresses the entire program if this approach is used.

**9- Nina Hedland** (Norway) comments (ocean/coastal areas program manager NRC) – most important thing to do is to establish an agreement between partners involved in a proposal call.

- NRC – use funds for projects in Norway, question is how to handle applications in either 1 or 2 stage process, one stage approach is fastest and most efficient.
- Partners need to agree on information in an application and assignment criteria, decide how to use expert reviewers, make review form/scale that is common for all. Type of call that is developed tells what partners need to be involved and this is most difficult part to agree on because of IPR and conflict of interest issues, researcher makes contract with own country so need agreement as to who is owner of results, patents, etc.
- Example is ERA-Net proposals – have one call with partners from many countries – this might be a structure that will work for international collaborations.

**10- Geoffery O’Sullivan** (Ireland) comments (Ireland program manager) –

- mentioned Seas-ERA Project for North Atlantic, partners are marine funding organizations that manage calls for proposals.
- Seas-ERA Net – has 23 partner institutions, have programs in Atlantic Ocean, Balck Sea, Baltic Sea – 11 funding organizations plus three additional groups.
- Will publish a discussion document that gives suggested Atlantic strategy/research for Europe, next hold meeting with NSF, NOAA and Canadian Research Council to discuss enabling strategies/actions for a joint call, need to find something that is of interest to all parties
- Difficult to have project with industry partners because of IPR and ownership issues
- Problem is to identify something all agencies can buy in to – also each agency has different budgets with different amounts of available funds
- Atlantic program – research strategy agreed among European
- Most European national research programs can fund research in other countries.

**11- Elli Stepanovic** presentation – bilateral agreements – Link2US documents funding by DOE, DHS, NIH,

- Related that problems for the development of joint programs are
  - a lack of administrative support,
  - lack of communication/information,
  - contractual issues related to IPR,
  - budgeting requirements of different funding agencies
- There is a lack of equivalent funding mechanisms. There is need to synchronize funding. Noted that US partners are not fully reimbursed for costs
- EC is in Belgium and Belgian law is not acceptable to all partners, e.g. US

**12- Mike St John** Strawman Open Discussion. The following is the outcome of discussions at the meeting as well as incorporating comments from participants after the meeting.



**Note:** PROGRAMME refers to the International collaboration on a specific theme/issue  
PROJECT: refers to the activities resulting from a single funded proposal

The key discussion points on the straw man were

- A) the role of the International Scientific Steering Committee (ISSC)
- B) Review criteria
- C) Coherence with national laws and regulations

## **MODIFIED STRAWMAN**

### **A framework for the development of International Collaborative Research Programmes: structure, review and management of collaborative research programs in Ocean Sciences**

#### **Step 1: PROJECT Concept:**

Concept based on “theme” proposals from

- a. the scientific community. from self-generated discussions and workshops.
- b. the scientific community based on international groups: e.g. IGBP IMBER/SOLAS working group; SCOR, IOC, PICES, ICES working groups; BELMONT Forum, etc
- c. agency representatives US (NSF, NOAA), Canada ( NSERC, DFO) EC, similarly within e.g., Norway, Germany, UK, France, Spain.

#### **Step 2: Selection of Theme/s for potential international support by multiple agencies.**

- Meeting of participating funding agencies (national, multilateral) to evaluate and assess merit of Themes coming from Step 1 (as needed).
- Selection of themes for the potential development of collaborative projects

#### **Step 3: Generation of Theme support at the National level or EC Level.**

- National Discussions on theme relevance and need for a specific activity
- Agreement or rejection of theme by national funding agencies
- Participating nations decide on activity participation and the level of financial contribution.

#### **Step 4: Establishment of an International Scientific Steering Committee (ISSC)**

Makeup: Comprised of scientists from Nations providing financial support for the potential program.

Note: National funding agencies responsible for determining the makeup of the ISSC

Purpose of the ISSC.

- 1) to act as a consultative body to the funding agencies in particular
  - a. **Aiding** the funding agencies in the development of the call for proposals
  - b. **Suggesting** appropriate reviewers for the resultant collaborative program
  - c. **Suggesting**, based on the overall goals of the programme and the projects submitted to the call for proposals, a coherent matrix of proposals which are best suited to address the overall goals of the programme

**Note: the ISSC does not have a decision making mandate but rather**

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- 2) **fosters collaboration and interactions** within the funded projects
- 3) **informs** the Funding agencies of evolution of the projects i.e. fulfilment of deliverables by individual projects critical for the success of the overall program
- 4) **suggests** project and program evolution based on changes in the state of the art or based on the recognition of information gaps.
- 5) Presents to the funding agencies, end users and the general public a synthesis of programme results as well as identifies expertise within the programme consortium able to address specific information requests.

**Caveats**

- Cooperative financial support and agency oversight of ISSC process and products
- Funding agencies define conflict of interest policies of ISSC participants and ensure coherence by the ISSC,

**Step 5: Development of Coordinated call for Joint Proposals**

Call text developed by the National and International funding agencies in collaboration with the ISSC.

Caveats:

- Consideration of constraints, policies, practices, of participating agencies.
- Decisions about nature of joint calls (unified), and the review processes and criteria required; seeking simplest approaches given constraints;
- Consideration of eligibility requirements within participating nations based on funding agencies
- Consideration of nature of research (fundamental; use-inspired or not; more applied in nature) based on participating agencies.

**Step 6: Single Call for Proposals**

- One Call released
- Call is open to all scientists from all nations providing funding.

**Individual Proposals:**

***Proposal style.***

- Individual researcher, projects (national level)
- Small and large collaborative team projects (national and international levels)
- Joint programs (multiple, integrated, collaborative projects; international level)

Note: Proposals focused on basic science as well as of an applied nature.

**Step 7: Review process:**

International Reviewers

- International reviewers selected and agreed upon by the funding agencies and ISSC based on agreed approaches.

Note: This international review panel does not include members of the ISSC.

- Determination of conflict of interest policies
- Cooperative management of review processes

### **Review criteria**

- Scientific merit (5)
- Importance for realizing the overall goal of the project 'including clear defined international bridging activities'(5)
- Quality of the individual or team. (5)
- Contribution to society (5)
- Management and dissemination Plan. (5)

**Other required criteria based on participating agency policies** (e.g., milestones and deliverables to the project with time lines; diversity of participation; training and education elements, etc.)

**Note:** Weighting above to be established following discussions with the funding agencies Potential for funding agency specific weighting.

### **TOPIC for FOLLOW UP MEETING IN USA.**

#### **Step 8: Project Selection Part 1**

- All reviews disseminated to the funding agency personnel for examination/evaluation.
- All reviews examined by the ISSC,
- ISSC proposes a ranking based on
  - Specified review criteria (determined by funding agencies and as assessed by the international reviewers)
  - critical nature of the contribution to the overall goals of the program
  - links and time lines within the overall project

#### **Step 9: Project Selection Part 2**

- Meeting of the ISSC and Funding agencies to discuss ranking and selection.
- ISSC presentation of a coherent plan of the projects to be funded designed to address the overarching goal of the project.
- Agency decisions on projects to be funded.

#### **Step 10 Project Negotiation**

- Funding agencies negotiate with the leaders of the selected projects.
  - Formalization of contracts and grants according to agencies policies and procedures
- Note. participants are funded by their own nations following all the legal constraints and protocols of that nation.

#### **Step 11: Project Start up**

All projects commence at the same time or are coordinated to start based on the temporal needs of the overall project. I.e. projects start as necessary data or tools are made available from other sources.

### **Project Management:**

- The ISSC acts as an advisory body without decision making powers to both the project participants and the funding agencies.

- Individual projects are managed by a lead PI who acts as the project representative in discussions with the ISSC and funding agencies supporting this project.

### **Reporting**

Annual project reports from all funded reports projects as constrained by agency policy and procedures but detailing;

- Progress, products challenges and problems
- coherence of activities with the milestones and deliverables
- Other matters (e.g., financial accounting; changing budgetary needs; changing personnel, etc.)

**Project Report Reviews and Project Continuation.** (18 Month and final reports dependent upon project duration and discussion with the national funding agencies)

- Individual Project Reports reviewed by independent reviewers selected by the funding agencies in discussion with the ISSC. (Funding agencies determine the reviewers)
- Reviewer Reports disseminated to the funding agencies and the ISC
- Meeting of the ISSC and the funding agencies to assess the status of the individual projects. Presentations by the project leaders in response to the reviews.
- Continuation or termination of individual projects based on accomplishment of planned activities. Based on discussions between the ISSC and funding agencies funding agencies continue or cancel funding to individual projects. (final decision up to the funding agencies).

**TOPIC for FOLLOW UP MEETING IN USA. Potentially project and programme specific.**

### **Other Issues**

#### ***Funding for PIs***

- PIs are funded by contributions from their National funding agencies.

#### ***Deviations from own for own funding.***

Where the contribution is viewed as critical to the project (gap) and sufficient funds are unavailable from the funding nation or the nation is not part of the consortium of participating nations. The ISSC can present a proposal for evaluation and for potential funding to the consortium of funding agencies from participating nations who can agree if the proposal by the ISSC is accepted to secure funding by mechanisms appropriate to the various participating nations.

The proposal shall outline;

- the critical nature of activity by the PI or team
- the necessity for use of specific facilities unavailable within the consortium of PIs.
- The need to develop expertise in the area.

**TOPIC FOR FOLLOWUP MEETING IN USA.**

### **Meeting Participants**

Chair: Mike St. John Denmark

Chair: Eileen Hofmann USA

Norway: Nina Hedlund

Spain: Teodoro Ramírez

USA NSF David Conover

USA NOAA Stéphane Vrignaud

Ireland: Geoffery O'Sullivan

Canada; Katherine Cinq-Mars

Denmark: Michael St. John

Denmark: Ivo Grigorov

UK: DEFRA Cathal Linnane. Not in attendance but will contribute to future actions

Austria: Elli Stepanovic: Representative of the BILAT-USA Project

RTD/I3 Arnoldas Milukas

RTD/I3 Ana Teresa Caetano

RTD/I3 Ariana Nastaseanu

RTD/I3 George Predoiu

RTD/I3 Alan Edwards

RTD/I1 Iveta Aizbalte

RTD/D2 Ludger Viehoff

RTD/D1 Errol Levy

MARE/C1 Luis Cuervo

ENV/D2 Anna Cheilari