

Workshop 7:

Scientific input to the integrated management of sea basins



Report

1. Three key messages :

We need productive and healthy seas

- This requires strong marine science input and a structured science policy interface
- Marine research and maritime technology are essential for sustainability and competitiveness of maritime industries. Effective science/industry interface is key
- Management of sea basins requires investment in continuous scientific monitoring

Speakers

- Andris ANDRUSAITIS, Programme Manager, BONUS
- Evangelos PAPATHANASSIOU, Research Director Hellenic Centre for Marine Research
- Willem LAROS, The European Technology Platform WATERBORNE
- Fernando TORRENT, European Aquaculture Technology Platform, Chair for the Thematic Area "Integration with the environment"
- Jørn KROG, Secretary General, Ministry of Fisheries and Coastal Affairs of Norway

2. Science input to policy support:

- **BONUS (Andris Andrusaitis)**

Bonus is a Community-supported regional environmental research programme, which aims to assess the pressures and impacts of human activities in the Baltic Sea system with a view to providing

scientific input for its integrated management. The Baltic Sea system is composed of 0.4 million km² of sea with 1.7 million km² of drainage, with 14 countries and 95 million inhabitants, which gives an idea of the size of the pressures. The Baltic Sea research programme has come quite far in assessing the pressures and modelling the impacts, as well as in helping policy makers designing answers. Eutrophication is certainly one of the most important environmental challenges faced in the Baltic Sea and an evaluation of the cost of options to deal with it has also been performed. This is based on an assessment of the nutrient (Nitrogen and Phosphorus based) reduction needed to avoid eutrophication thanks to the NEST model. Model calculations suggest a minimum annual outlay of approximately € 2.6 billion for a cost-effective combination of measures to achieve the targets for all countries in the Baltic Sea region according to their action plan (i.e. Cost of Measures to reduce nutrient loads).

As to the key message, BONUS supports the view that it is possible to have an effective science / policy interface but this has to rely on a number of key principles including a strong political commitment and willingness, which is already in place from the coastal Member states. At regional level, BONUS has succeeded in developing a joint research programme via the BONUS-Plus ERA-Net Plus initiative with integrated funding across the participating States and sectors. Also of key importance are scientific relevance to policy, transparency and stakeholder involvement.. It should be stressed however that modelling relies on observation and science infrastructure; in that regard, it might be needed to add 2 NEST institutes (in Poland and Finland) to the 2 existing ones.

- **SESAME (E. Papathanassiou)**

SESAME covers two research areas: Coastal ecosystem functioning and deep sea processes in the Mediterranean and Black seas .The project started by collecting existing data and by testing 12 different models in order to find the best possible solution for monitoring the ecosystems, yet there are still gaps to be filled, regarding the models, the data and the research.

SESAME has already identified the critical topics which include invasions, unsustainable fisheries and aquaculture, algal blooms, climate change, hazards, waste from land, maritime transport, as well as a lack of knowledge on extreme ecosystems. Based on these issues, SESAME scientists try to assess the current ecosystem status, as well as the historical changes within it, in order to predict future ecosystem responses, in addition to the goods and services that the ecosystem can provide.

The aim of SESAME is to provide scientific input to policy and decision-makers, which will eventually affect their decisions and thus the future of the areas in question. The project will also provide an integrated ecosystem management approach, based on models on fisheries, jellyfish populations etc. The scientists behind SESAME are developing transfer mechanisms, while emphasis is placed on training, education and public outreach initiatives. Additionally, stakeholder meetings and consultations to integrated the human impact element, as well as design of policy scenarios has been initiated, as a result of the project's innovation to bridge natural science and socio-economics. However, the development of the science-policy interface remains a key challenge, while getting the scientists and policy-makers to meet still represents some degree of difficulty. Finally, the limited data on the Southern Mediterranean Sea and the issue of neighbouring countries indicate some problems that they hope will be resolved in the future.

3. Industry input from Waterborne an EAITP – environmental challenges and responses:

- **EAITP (Fernando Torrent)** stated that the aquaculture industry more than any depend on the GES. As the industry is expected to grow it will rely on clear, user friendly and scientifically based guidelines to ensure its sustainable development. Most environmental impacts of aquaculture can be managed and minimised through the understanding of the processes, responsible management and effective siting of farms he stated and by avoiding repeating former mistakes. Competing claims for space will make this even more necessary being a major challenge. Public awareness on aquaculture interaction with the environment must be raised.

Development of aquaculture needs to be supported by excellence in research and innovation. EAITP will provide the stakeholders with a strategic research agenda, which responds to the challenges, identified, amongst others sustainability, and a key objective is to ensure effective mechanisms for dissemination and transfer of technology. There is need to ensure that sufficient scientific capacity.

- **Waterborne technology platform (Willem Laros)** equally insisted that there are synergies to be established between marine research and maritime technology. The present situation in industry opens up for new opportunities with transferring skills to renewable sectors and developing concepts like "Clean Ship". This can be

facilitated by linking marine and the maritime industry. Through the Waterborne platform areas of synergies have already been targeted, and are being discussed with the marine stakeholders through the MARCOM project supported through FP7. This is very positive and is a process started back in developing the Aberdeen+. The broader group is cooperating in the second project of EMARES which again is a support action to bring this science and industry stakeholder community together in FP7 (both EAITP and Waterborne but also the oil industry to OGP are partners and networking to this). Laros stated the need to consolidate these processes, and keeping this in mind, Laros questioned the added value by the "Venice" and the role of this new stakeholder forum initiative as to science, as we should build on what has already been developed and supported.

- **The role of policy building and using science for policy goals (Jørn Krog)**

We need to invest in science and research and it must be publically funded. Governments have 2 roles:

- science for policy
- and funding of precompetitive research for industry.

Only science can provide the policy level with sound advice on sustainable development and harvesting of the seas. Structured arenas for science policy dialog is a prerequisite, as well as long time funding. Clustering between maritime industry sectors can create important areas of synergies and transfer of knowledge between them, also linking new areas to this (CCS, renewable energies and growth in existing, blue biotech, through absorbing new technology break through and spillover between them). Publically funded science must be open, it can provide useful input to industry.

4. Key points from the discussion:

- The Baltic Sea integrated programme shows that marine science can provide an effective support to policy makers for an integrated management of a sea basin. For this to happen, science must be relevant to policy makers and speak the language of politicians. This is a challenge because transferring relevant knowledge to policy makers is a different work than that of producing pure scientific knowledge for publication. It requires specific skills and resources and it should be valued as such.
- Science must be seen as an investment. Science needs a long term perspective, as advice tomorrow must build on knowledge created today. In particular, we need to move away from a situation where scientific monitoring of the seas is done on a

project basis to a situation where continuous scientific monitoring becomes an integral part of the management of sea basins.

- Maritime industries are environmentally responsible and are prepared to move towards more environment-friendly technologies and production processes, in line with policy requirements. They recognise the value and innovation potential of cooperating with marine science and are engaged into such cooperation.