

MarBEF Theme 2: Marine Biodiversity and Ecosystem Functioning**Bioassay Methods in Marine Chemical Ecology****ROSEMEB Research Mode Project Course**By **Raffaella Casotti**

Training is a key part of the ROSEMEB Research Mode Project, since research in chemical ecology is still in its infancy in Europe, with a few excellent centres but little general knowledge of its relevance in biodiversity and ecosystem functioning. In addition, general concepts of chemical ecology are not usually applied to any living model, while some fields of research could, instead, greatly profit from considering chemical compounds produced and used by organisms for communication, defence, signalling, etc, as key components of ecosystems.



Some of the participants on the ROSEMEB course *Bioassay Methods in Marine Chemical Ecology*.

This research group, born within MarBEF, aims at training a new generation of scientists that could profit from the conceptual framework of chemical ecology and also from the techniques used to assess the presence and the function of molecules in the marine environment.

For these reasons, a first course on bioassay methods in marine chemical ecology was held in Stromso, Sweden, at the Tjarno Marine Biological Station during 9-14th September, 2006. The course was coordinated by Adrianna Ianora (Italy) and Henrik Pavia (Sweden). As local organiser, Gunilla Toth (Sweden) did a great job in covering the scientific as well as the logistic aspects of the course.

The aim of the course was to teach some of the basic principles and protocols to monitor the responses of marine organisms to secondary metabolites and the role that these

compounds play in mediating ecological interactions. Lecture topics focused on the ecological effects of secondary metabolite production in heterotrophic bacteria, phyto- and zooplankton, benthic macrophytes and invertebrates. The course included theoretical presentations in the morning sessions and illustrations of theory and small practical experiments in the laboratory in the afternoon sessions.

One whole day was dedicated to each one session, with two to three teachers covering different aspects, and coordinating the practicals. When possible, students were assigned a scientific problem and given the tools to solve it. Overall, they responded very well to this approach, showing high motivation and curiosity, even when the topic was far from their direct interests. Teachers were Jens Harder and Friederike Hoffman (Germany) for the bacteria session, Raffaella Casotti (Italy),

Catherine Legrand (Sweden) and Mike Steinke (England) for the phytoplankton, Adrianna Ianora (Italy), Serge Poulet (France), Giovanna Romano (Italy) and Maarten Boersma (Germany) for the zooplankton, Henrik Pavia (Sweden), Gunilla Toth (Sweden), Mark Hay (USA) and Philippe Potin (France) for the seaweeds, and Angelo Fontana (Italy), Ernesto Mollo (Italy) and Joe Pawlik (USA) for the invertebrates.

A total of 18 students (12 women and six men) from Sweden, Italy, Germany, Ireland, the Philippines, UK, Spain and Mexico attended the course, most of whom were PhD or post-doc students from member MarBEF institutions. The teaching staff consisted of 15 researchers, mainly from the MarBEF community, two invited lecturers from the UK and Sweden, and two invited lecturers from the US.

This was a very successful course, as testified by both teachers and students. The latter were stimulated to conduct their own experiments and did so with dedication and motivation, even when their research background was distant from their own topic. The teachers profited from the contacts with other experts, and the multiple topics treated gave an opportunity to exchange scientific problems and approaches between scientists, using different organisms as models and different techniques.

In the interests of spreading excellence and communicating knowledge from the course to the MARBEF community and beyond, all the teaching material – programme, extended report, participants' list, lectures – as well as a photo-gallery, are available on the MARBEF website www.marbef.org.

The next training initiative of ROSEMEB will be a course on 'Isolation and Characterisation methods in Marine Natural Product Chemistry,' to be held in September 2007 in Pozzuoli, Italy, just before and linked to the Fifth European Conference on Marine Natural Products to be held in Ischia.

Stay tuned by visiting the ROSEMEB webpage: <http://www.marbef.org/projects/rosemeb/index.php>.

MarBEF Theme 3: Socio-economics**Development of decision support systems****– a Theme 3 Responsive Mode Action Project**

By Anne Husum

Aerial view of Isles of Scilly, England © John Davey

The collaborative Responsive Mode Action in the socio-economic Theme 3 is moving ahead: two PhD students were employed during the year.

Progress made in 2006

Adriana Ressurreição's PhD thesis on 'Economic Valuation of Marine Environment and Biodiversity' is being hosted by the University of the Azores and co-supervised by Gareth Edward-Jones (CEFAS) and Tomaz Ponce Dentinho (University of the Azores). Adriana is focusing on socio-economic valuation using the methodology of 'Exchange Rate between Scientific Currencies: an application to the marine environment' (Dentinho *et al*). Her case-study area will primarily be the Pico-Faial Canal in the Azores.

Elizabeth Bayer has taken up a PhD thesis at the Law School at University of Hull. Her thesis is entitled 'Critical Analysis of Marine Indicator Development within Domestic and International Policy and Legislative Frameworks: Development of a Common Language.' Elizabeth's supervisors are Dr Richard Barnes and Professor Michael Elliott, from the University of Hull.

Adriana and Elizabeth both gave a presentation on their work at the PhD training workshop and Theme 3 RMP update meeting in Lecce, Italy, in May 2006.

In Lecce, Tomasz Zarzycki, a PhD student at the Institute of Oceanography, University of Gdansk, also gave an update on his thesis, 'Development of decision support systems to provide cost-effective strategies for effective management of the Gulf of Gdansk ecosystem and biodiversity.' Tomasz is co-supervised by Prof Anna Szaniawska (IOUG, Poland) and Prof Tomaz Dentinho (UAç, Portugal).

During the summer, a Plymouth MSc student, Andy Pearson, took on a project in Scilly, researching the goods and services provided by marine biodiversity. Andy focused his studies on direct use services, and his results are very useful. This project is an important trial of the proposed RMP methodology.

The Core Strategic Project (CSP) management team met to discuss the RMP progress and future activities in Bristol Airport on 25th August, 2006. The Roskilde University team, led by Poul Holm, has taken over responsibility for the CSP and administrative work from 1st September. Roskilde University and the Plymouth Marine Laboratory team, led by Melanie Austen, will continue to coordinate the leadership of the CSP and RMP of the socio-economic theme.

Forthcoming activities

The latest activity in Theme 3 was an RMP update meeting on 16-17th November in the Hague, organised by the National Institute for Coastal and Marine Management – RIKZ. This meeting focused on methodologies and new future activities for Theme 3.

A joint MARBEF-ENCORA workshop on marine and coastal biological valuation will take place

on 6-8th December 2006 at University of Ghent. This workshop is being organised by Steven Draeger and Sofie Derous.

In February 2007, a workshop and report to review indicators/data for quantifying ecosystem goods and services is planned.

The socio-economics Theme 3 will hold a training course on valuation methodologies for marine environments. The proposed date for this course is April 2007.

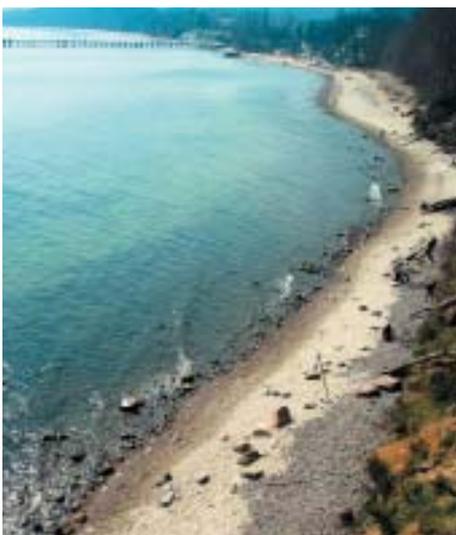
Considerable effort is currently being made to employ two further PhD students, a socio-cultural PhD student and a decision support systems PhD student. These appointments have been delayed due to a change in circumstances at Roskilde University, where the first appointed decision support systems PhD student regrettably left the project.

An important next step will be the appointment of a number of MSc students. It is hoped these students will be in place for summer 2007. Their research will cover case-study areas including Isles of Scilly, Flamborough Head, Pico-Faial Canal, Dutch-Belgian coast and the Wadden Sea island of Sylt and Romo. The same methodology will be employed in each of the five study areas.

A PhD and two MSc students at IOUG cover the study area of the Gulf of Gdansk. There will be a training course in spring 2007 which will help to train the students before they begin their research.

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Gydnia coastal zone, Orłowo, Poland.

Table 1: THEME 3 RMP (RESPONSIVE MODE PROJECT)**WP-RMP code and title**2-1 Development of decision support systems (www.marbef.org/projects)**Principal Investigators**

Poul Holm and Melanie Austen