



GOCE-CT-2003-505446  
MarBEF



# Marine Biodiversity and Ecosystem Functioning

*EU Network of Excellence*

*Sustainable development, global change and ecosystems*

## D-7-CSP-4.6 Report on training course “Coastal habitats”, Sylt

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Framework Programme (2002-2006)		
Dissemination Level		
<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	



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# Marine Biodiversity and Ecosystem Functioning






*EU Network of Excellence  
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**T07-8 Report on training course**

**Summer School**  
on  
**Diversity and Functioning  
of Coastal Habitats**

17 – 27 July 2007  
List/Sylt, Germany



Marbef Summer School group at the beach of the Wadden Sea Station Sylt of the Alfred Wegener Institute for Polar and Marine Research, July 2007

### **Scope of the training course Diversity and Functioning of Coastal Habitats:**

Coastal areas are characterised by a high diversity of habitats and organisms. Significant global change is occurring within the coastal zone due to human activity as also by natural forcing especially by climate change. In order to assess the effects of these changes we need a fundamental understanding of ecosystem structure and function. The topic of this advanced study course was a comparison of coastal ecosystems: soft bottom systems in the Baltic Sea versus sedimentary and hard bottom communities of North Sea and Atlantic coasts, with some perspectives to polar and tropical regions.

Colleagues from the Baltic Sea Research Institute, the GKSS Research Centre, the University of Gdansk, IFREMER and AWI organised this Summer School with support by MARBEF, the partner institutes and the SPICE-project. 15 young scientists, mainly doctoral students, (3 male, 12 female: due to a lack of male applications) from 9 nations attended the School: Austria, Denmark, France, Indonesia, Ireland, Italy, Jordan, Spain and Germany (see list below). The students gave talks on their own research. An international group of experts in different fields of coastal research gave lectures and practicals.

Aspects of the influence of global change on diversity and the functioning of coastal ecosystems have been addressed:

- a) historical changes in diversity of habitats and organisms
- b) physical oceanography of Baltic and North Sea in relation to coastal diversity
- c) changes in morphodynamics and environmental impacts
- d) effects of global change on pelagic and benthic communities and food webs: physiological and ecological changes, changes in diversity, invasive species

An introduction to the analysis of food webs was given within a two days session.

Within a special LOICZ-session the question was discussed: How can the scientific community provide recommendations for an integrated coastal zone management and for a sustainable use of natural resources.

## **Programme**

### **Wednesday, July 18**

#### **Introduction and physical background of Climate Change**

##### Lectures

- Ecosystems of the coastal zone – global and regional aspects (Ragnhild Asmus)
- Climate Change and Variability in Coastal Regions (Ralf Weisse)
- Physical oceanography in Baltic and North Sea (Hans Burchard)

#### **Variability and changes in habitats**

##### Lectures

- Coastal geology: changes in morphodynamics (Christian Hass)
- Optical remote sensing of water properties (Roland Doerffer)
- Aliens invading our coasts (Karsten Reise)

### **Thursday, July 19**

#### **Excursion to tidal flats**

Identification and analysis of samples from the excursion

#### **Students' presentation**

- Biodiversity and trophic position of the fish family Gobiidae in a tropical seagrass bed around Barrang Lompo, Indonesia (Hung Ha Trieu Liu)
- Physico-chemical properties and plankton diversity of the Gulf of Aqaba, Red Sea (Tariq Al-Najjar)

### **Friday, July 20**

#### **Tropical coastal systems: coral reefs and seagrass beds**

##### Lectures

- Tropical seagrass systems (Harald Asmus)
- Coral reefs in focus: the German - Indonesian SPICE programme (Claudio Richter)
- Coral reef trophic dynamics (Claudio Richter)
- Molecular Ecology and Systematics (Marc Kochzius)
- Integrated water quality assessment of the Brantes River, Indonesia (Friedhelm Schröder)

#### **Anthropogenic impact on coastal ecosystems**

##### Lectures

- Pollution and biological effects in the Mecklenburg Bight (Doris Schiedek)
- Physiological and ecological changes in bivalves as an effect of eutrophication (Adam Sokolowski, Maciej Wolowicz)

#### **Students' presentation**

- Livelihoods in coastal South Sulawesi, Indonesia: Sustainability and implications (Sven Blankenhorn)

### **Saturday, July 21**

#### **Comparison of larval settlement in Bay of Gdansk, Mecklenburg Bight, Helgoland waters and Sylt area:**

Practical: Analysis of panels

#### **Students' presentation:**

- Function of the habitat-forming seaweed *Fucus serratus* on temporal stability in diversity of macrobenthic communities from Helgoland rocky shores (Nelson Valdivia)

## Sunday, July 22

### Coastal food webs

#### Lectures

- Methodology and application of network analysis to ecosystem foodwebs (Dan Baird)
- Use of stable isotopes in food web studies: application to Marennes-Oléron Bay (Pierre Richard)
- Use of inverse analysis and network analysis for describing food-web properties: application to Brouage Mudflat (Marennes-Oléron Bay) (Nathalie Niquil)
- EwEENA: Ecological Network Analysis used for Ecopath with Ecosim in the Gulf of Alaska (Sheila Heymans)
- Hiding in my niche - Ecosystem Trophic Complexity and Global Change (Ute Jacob)
- Food web interactions in a changing system (Maarten Boersma)
- Significance of benthic communities for the energy flow of an intertidal ecosystem, the Sylt-Rømø Bight (Harald Asmus)

## Monday, July 23

### Coastal food webs

#### Lectures

- Food web of the Puck lagoon (A. Sokolowski, M. Wolowicz)
- Marbef - Foodwebio: A responsive mode project on food web analysis (A. Sokolowski, M. Wolowicz)
- Comparison of ecosystem attributes on temporal and spatial scales at the global level (Dan Baird)
- Health of coastal and estuarine ecosystems
- Water framework directive (Ulrich Claussen, UBA)

First practical steps with network analysis (ENA) (training at computers)

## Tuesday, July 24

### Excursion

#### MYA-catamaran excursion: methods, instruments, fishing, dredging

#### Students' presentation

- Effect of protection on feeding and reproductive conditions of *Paracentrotus lividus* and *Arbacia lixula* in Ustica Marine Protected Area (South Tyrrhenian Sea) (Ilaria Vielmini)
- Seasonal change of trophic guilds of the fish fauna in the Sylt-Rømø Bight (Martina Nawratil)
- A coupled dynamical-static model for the Sylt-Rømø Bight (Carole Lebreton)
- Impact of hydroclimatic variations on trophodynamics in the North Sea (Caroline Kostecki)

## Wednesday, July 25

### Global coastal changes and coastal zone management

- What is LOICZ? (Jürgen Weichselgartner, Götz Flöser – LOICZ-IPO)
- GIS methods and applications in climate change research: the LOICZ typology (Christoph Sebald, LOICZ-IPO)
- Vulnerability of Coastal Zones: Approaches and Assessments (Jürgen Weichselgartner, LOICZ-IPO)
- Introduction to group work / working groups (factors and indicators for assessing vulnerability in coastal areas (Jürgen Weichselgartner, LOICZ-IPO)
- Group work
- Evaluation of group work (Jürgen Weichselgartner, LOICZ-IPO)

## Thursday, July 26

### Plankton

- Census of marine life (Sigrid Schiel)
- Algal Toxins (Malte Elbrächter)
- **Students' presentation:** Community structure of seagrass in Labuange and Awerange bays, Barro Regency, South Sulawesi, Indonesia (Sayuri Sarinita)

Presentation of results and discussion

## **Island-Excursion**

### **Feedback**

The participants gave in general a positive feedback, for details see below.

Results from the questionnaire, rates from 1 – 5, 1= poor, 5= excellent:

#### *Programme and Lectures*

How did you rate the choice of topics for the programme, especially the lectures? 4.3

How did you rate the organisation of presentations and practicals time per contribution? 3.9

Programme keeping to schedule? 4.6

How did you rate the choice of topics for practicals and field trips? 3.6

How did you rate the supply of information and correspondence between organisers and participants?  
4.0

How did you rate the facilities: multi-media, seminar room? 4.1

How did you rate the housing accomodation? 4.1

How did you rate the catering? 3.1

How did you rate the social activities: icebreaker, lunch, dinner, excursions? 4.1

Two rates are surprising, the relatively good one for accommodation although our guest house needs a basic renovation, and the very low one for catering: The meals were in the tradition of the german kitchen, and the students did not seem to be very fond of this style.

The students got certificates according to the ECTS - European Credit Transfer System.

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**Photos taken during the excursion of the Marbef-Summer School group around the island of Sylt, July 2007**