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Introduction

Direct human interventions and natural processes act in concert, changing the structure of tropical coastal ecosystems and affecting their regulatory and socioeconomic functions: their ability to provide goods and services and their potential to act as sinks for climatically relevant trace gases are often reduced. The coming decades will witness an increase in the number of people living in coastal regions: it is believed that two-thirds of the world's population will reside within 150 km of a coastline by 2050. The problems will be especially severe in the tropics, where, if current trends in the use of coastal resources continue, most people will live in polluted, ecologically degraded coastal mega-cities of more than 10 million inhabitants, all lacking in infrastructure.

The most prominent aquatic coastal ecosystems in the tropics are mangrove forests, sea grass meadows and coral reefs. They exist in close physical, biological and geochemical interaction among each other and with the hinterland through the network of rivers, which flow into the coastal seas. In terms of the influence of their hinterlands, tropical coastal seas are globally unique: more than 80% of global water and 70% of global sediment discharge enters coastal seas in the tropics. Sediments and freshwater from these rivers stabilize deltas and coasts, protecting them from erosion; river-derived nutrients fertilize the coastal seas. They thus sustain mangroves, coastal seas and their associated fisheries.

The mangrove forests and underwater vegetation such as sea grass meadows trap sediments. They are sinks for carbon and other organic and inorganic material and pollutants. Thus they act as filters that improve the quality of coastal waters, benefiting for example, coral reef growth. The coral reefs in turn provide protection to shores from erosion and function as physical buffers against ocean-related disasters such as tsunamis and storm surges.

Tropical coasts have an aesthetic and emotional value that manifests itself in the special attraction of coastal landscapes to people (e.g. tourism). And finally, studying coastal structures and functions has information value.

During past decades, a rapid decline of coral reefs, mangrove forests and sea grass beds and their associated resources has been observed. The annual loss rates of mangroves and coral reefs (2.1% and 1.0%, respectively)

even exceed those of tropical rain forests (0.8%). The tropics of Asia provide classic examples. There, mangrove forests are being cleared to make room for fast growing cities, for the expansion of road networks, for wood, or in the short-term, to provide a source of income through aquaculture. Added to this



is the impact of human interventions in the hinterland. Environmentally harmful chemicals from industries, nutrients and pesticides from agricultural activities and sediments from enhanced soil erosion are washed into the estuaries of rivers and coastal seas resulting in the deterioration of water quality through

turbidity, pollution, eutrophication and hypoxia degrading coral reefs and other marine systems.

These problems are exacerbated by extreme events both as a result of climate change (floods, cyclones, storm surges) and from submarine earthquakes and landslides (tsunamis).

The protection of tropical coastal ecosystems in their regulatory, social and economic functions requires interdisciplinary, integrated concepts. »Integrated Coastal Zone Management« is being increasingly cited today in conjunction with ecosystem research in coastal regions impaired by human uses. Its global scale and importance are underlined by its recognition and treatment in international conventions and treaties (e.g. the UNCED, UNCBD, RAMSAR) and science programs (e.g. IGBP-LOICZ, IMBER). Among countries that are party to these conventions, many still lack the necessary capacities to comply effectively. This includes institutions, infrastructure, long-



Several international agencies under the United Nations Organization (e.g. UNESCO-IOC, UNEP) as well as national initiatives through bilateral cooperative projects have been under way to remedy this gap and to build capacity in this field. With the help of research and education, these initiatives are concerned with the development and implementation of sustainable concepts that respond to the scientific, social and economic needs of coastal states.

The ZMT's activities are embedded within this international context and address the overarching theme: »Integrated Social-Ecological Analysis of Tropical Coastal Ecosystems«. The overall objective is to analyze the tropical ecosystems in their complexity and to establish the necessary scientific (ecological and socio-economic) data base for the development of sound science based concepts for Integrated Coastal Zone Management.

The ZMT's projects on research and capa-



term projects and human capacity.

There is also a scarcity of information on the structure and function of coastal ecosystems such as mangroves and coral reefs, their behavior under natural and perturbed conditions as well as the long term impact on their ability to provide resources and services. The role of tropical coastal ecosystems as natural defense against extreme events (e.g. cyclones, storm surges and tsunamis) is being increasingly recognized and taken into account by coastal planners formulating adaptation strategies and rehabilitation measures in the aftermath of such events. This too requires sound knowledge of the functioning and structure of coastal ecosystems and their behavior under specific planning and development scenarios. Clear deficits also exist in most tropical regions with respect to the legislative implementation and enforcement required for the integrated protection of the marine environment.

city building are carried out exclusively in cooperation with partners in the tropics and are funded in Germany by the State of Bremen, the BMBF and the DFG. They focus on mangrove forests, coral reefs, sea grass meadows as well as estuarine and coastal seas with the specific goal of understanding the changes in their ecological and social sustainability and resilience under the impact of direct human interventions, short and long term climatic changes as well as extreme events.

The ZMT is a member of the Consortium of German Marine Research (Konsortium Deutsche Meeresforschung – KDM) where it is the only institution with a focus on tropical coastal marine systems. Through its Contact Office, it offers support for the German marine research community to be active in tropical countries and for similar research communities in tropical countries to find suitable research and education partners in Germany. Currently, the ZMT maintains

cooperation agreements in marine research and education with universities and institutions in South America, Africa, Middle East and South and Southeast Asia. The aim is to create and maintain regional networks involving universities and research institutions, governmental and non-governmental agencies as well as the private sector as a contribution to implementing the recommendations of the Agenda 21 and the United Nations World Summit on Sustainable Development.

Since its establishment in 1991 the ZMT has been conducting long term partnership projects in the tropical regions of South and Central America as well as South and Southeast Asia.

During the reporting period the ZMT successfully completed major research projects and initiated new ones. The bilateral German-Brazilian project on Mangrove Dynamics and Management (MADAM) held its concluding workshop in 2005. Over a period of 10 years, the project investigated the dynamics of a mangrove ecosystem in Northern Brazil to model the impact of different resource use scenarios on the ecosystem, and to formulate recommendations for its management. The bilateral German-Jordanian project on »Red Sea Ornamentals: Clean Aquaculture Project« was also completed in 2005. The project investigated the biology and ecology of ornamental species of Red Sea coral reefs and, in cooperation with partners from the industry, installed a pilot recirculation facility for the commercial production of these organisms for aquariums. With the winding up of the German activities within the international IGBP program »Joint Global Ocean Flux Study – JGOFS«, the ZMT also successfully completed its coordinating contribution to the JGOFS Process Study in the Indian Ocean.

New integrated projects were initiated by the ZMT in Asia. The projects also involve the participation of scientists from all major German marine science institutions associated with the KDM.

The integrated bilateral German-Indonesian project »Science for the Protection of Indonesian Coastal Ecosystems« (SPICE) coordinated by the ZMT, was launched in 2003 with support from the BMBF and Indonesian Ministry of Marine Affairs and Fisheries. The project is being carried out with the participation of a number of German and Indonesian universities and research institutions.

The bilateral German-Vietnamese project



»Land-ocean Atmospheric Interactions in the Coastal Zone of Vietnam« was also launched during the reporting period. The aim is to study the coastal and upwelling ecosystems off South Vietnam to ascertain the role of the mangrove forests in their overall functioning. The ZMT coordinates the project and focuses its research on the mangrove forests in the Mekong Delta.

New cooperation projects in the field of marine research and education with China were initiated. This included the development of a project on »Land-ocean Interactions along Tropical and Subtropical Gradients in China« with the participation of several Chinese and German Institutions, with a first phase focusing on the tropical coastal ecosystems of Hainan.

The ZMT also contributed to the efforts by the international community in the aftermath of the tsunami event in Southeast Asia in December 2004. It made available its expertise in the assessment of the impact of the

tsunami in Thailand within the framework of a project by the German Technical Cooperation (GTZ). Additional research and cooperation was initiated by the SPICE project within the context of the potential role played by coastal ecosystems such as mangroves and coral reefs as natural defenses against hazards from the sea.

The ZMT's research efforts were accompanied by measures that foster capacity and infrastructure building in partner countries. It continued to contribute to the English language Master's Program offered at the University of Bremen, ISATEC (International Studies in Aquatic Tropical Ecology). Together with the Leibniz Institute for Marine Sciences in Kiel, the ZMT coordinates the development of a Master's course in marine science at the Universities of Bremen and Kiel in Germany and the Ocean University in Qingdao in China. Summer schools and special training courses were organized in China, Indonesia and Vietnam under ongoing projects. Through the German Operational Center of the International Ocean Institute, hosted by the ZMT, the ZMT participates in the development of a course in fisheries science in Papua New Guinea.

The ZMT continued to contribute to the activities of international organizations and programs such as the UNESCO-IOC, UNEP-MAB, IGBP-LOICZ and ICSU-SCOPE. Capacity building activities of the SPICE project draw on and contribute to the work of IOC-WESTPAC (IOC Sub-Commission for the Western Pacific) and to research within the IGBP-Project »Land Ocean Interactions in Coastal Zones« (LOICZ) as well as to the implementation of the »OceanLearn« Program of the IOI. The ZMT supports the activities of

SCOPE (Scientific Committee on Problems of the Environment of the International Council for Scientific Unions) by acting as the focal point for the German National Committee.

The ZMT initiated the ACEMON Network (Aquatic Ecosystems of Monsoon Asia) of its partner institutions in the monsoon-influenced Asian regions to coordinate the ongoing research and capacity building activities. Elsewhere, new cooperation agreements were signed with the universities especially with a view to facilitating faculty and student exchange as a measure for continuing education.

The ZMT also strengthened its cooperation with small and medium scale industries by providing the necessary expertise in the rearing and breeding of tropical marine organisms. The project comprises the technical and scientific development of an aquaculture unit with a water processing unit and two water circulation systems for rearing shrimps and ornamental species.

The results of the ZMT's research were published in more than a hundred articles, reports and monographs, as well as in the in-house publications series »ZMT Contribution«.

At the request of the State of Bremen, the ZMT was evaluated in 2005 by Germany's Scientific Council (Wissenschaftsrat). The preparation towards this event was a major activity of the ZMT during the reporting period. Further evaluation of the Institute's research was conducted by its new International Advisory Board in October 2005. In cooperation with the State of Bremen and Bremen University, the ZMT has already initiated steps towards the implementation of the recommendations from these evaluations.



The ZMT maintains a global network of partners in tropical countries with which it conducts its research and capacity building activities.

The map shows countries with which the ZMT has been conducting integrated long term research projects during the reporting period (red). New projects were developed with others and, the ZMT contributed its expertise to projects of other German Institutions (blue).



Long Term Research Projects

Mangrove Dynamics and Management – MADAM

The Project »Mangrove Dynamics and Management« was successfully completed in 2005. This 10-year bilateral project involving the ZMT and the Para Federal University (Universidade Federal do Pará – UFPA) in Brazil, was supported by the Federal German Ministry of Education and Research (BMBF), the State of Bremen, and the Brazilian Research Council (CNPq).

The project carried out research in a 110 km² area of largely undisturbed mangrove forest, located in the estuary of the River Caeté, with the aim of developing an ecosystem model and formulating recommendations for the sustainable management of the system and its resources. Within the study area, approximately 70% of the households rely for their livelihood directly or indirectly on natural products derived from the forest. Economically, alongside fish, the most important product is the mangrove based terrestrial crab, *Ucides cordatus*, whose commercial exploitation provides good financial returns.

In September 2005, the results of the entire program were presented at a week-long closing workshop held in Belém entitled »Final International Evaluation: MADAM - Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project«. The results are to be published as a monograph in the »Ecological Series« of the Springer publishing house.

Field research on the ecology and extraction of the terrestrial crab focused on the spawning rhythms and larval output of *Ucides cordatus*, and on the salinity tolerance of the larvae. Data on fisheries was entered into the project's free-standing Crab Information System (CIS) and will be available for use as a Decision Support System (DSS) for the formulation of management guidelines by local environmental agencies. The matrix model of population dynamics of *Ucides cordatus* was completed and published and, an individual-based spatially-explicit crab model was developed with inputs from field data, for example on the recolonization of experimentally fished areas. The combination of both modeling approaches will enable to carry out a risk

analysis for the crab population of the study area. Laboratory research on the physiology of *Ucides cordatus* larvae has demonstrated the biological need for larval export indicating extensive larval dispersal and drift.

As a part of research on the physiology of mangrove trees, specimens of all four species occurring in Bragança were experimentally exposed to a variety of salinity and inunda-



tion conditions in a polytunnel. Photosynthesis parameters were recorded along with gas exchange and chlorophyll fluorescence measurements and compared with field data. Measurements were made of the Leaf Area Index (LAI) of the different vegetation types found on the Caeté Peninsula. These data were compared with estimates of LAI derived from satellite imagery.

The analysis of satellite images and sediment cores showed a changing geomorphology and vegetation coverage along the mangrove coast of Pará over the last century. The results show a significant retreat of mangrove forests in coastal areas and an incursion of *Avicennia* in topographically higher salt marshes. The dynamics of these processes are compatible with the projected rate of relative sea level changes. A management concept for the area was formulated, which

BRAZIL



takes account of the loss of grasslands due to mangrove colonization, natural forest dynamics and illegal timber extraction, as well as the consequences of rising sea levels.

The regional scope of research aimed at palaeoenvironmental reconstruction enabled to make generalizations from the results obtained from the Bragança Peninsula. Analyses of pollen assemblages, tannin content and ¹⁴C age of samples from cores provided evidence of climatic influences on sea level fluctuations in the region, particularly during the period known as the »little ice age« between 1550 and 1850.

Biogeochemical research, including sample collection and field and laboratory experiments to determine the characteristics of organic nitrogen compounds in the study area, was concluded. The experimental mate-



rial was analyzed for amino acid enantiomers, tannins and methylamins. The capacity of mangrove soil microorganisms to fix atmospheric nitrogen was investigated using acetylene reduction gas chromatography. The nitrogen fixation rates are higher than would be expected for similar ecosystems.

Another focus of research was the ongoing synoptic analysis of mangrove forest dynamics at local and regional scales with the help of the KiWi mangrove forest model, which is based on the Field of Neighborhood (FON) simulation approach. This was complemented by dendro-chronological investigation of mangrove trees and field research on forest structure and the natural regeneration of degraded areas. Measurements of photosynthetic activity and of the carbohydrate reserves for tree growth completed the model, providing information on growth parameters under different environmental conditions.

A map of forest structure showing the precise location of trees in 30 x 30 m sample plots was completed. It was used to investigate LAI and light absorbance data, interspecific competition and successional processes in mangrove stands and to validate simulation processes.

An initial analysis of the satellite imagery provided information on land use changes between 1980 - 2000 in the neighborhood of the newly established protected mangrove forest in Northeast Pará. This information provides the basis for estimating the threats to the North Brazilian coast from global climate change.

Social science research and efforts to build co-management capacity among local resource users have served to develop a common understanding of the problems facing the area, and the shared goals, which provide the foundations for effective coastal zone management. Sociological data on the use of resources and their economic importance for local people have been added, together with other data, to the Mangrove Information System (MAIS) providing the basis for the development of a Decision Support System for the area as a tool for the sustainable use of the natural resources. A Brazilian monograph describing the results of social science research work was published in Belém in 2005. The publication provides a summary of results that is accessible to stakeholder groups, whose only language is Portuguese. The publication will also be used as training material for school teachers. The co-evolutionary development of the social-ecological system (»mangroves – agriculture – beach«) was analyzed and the management consequences identified.

During the course of the project, local people received regular updates on its progress from the free information sheet »Folha do Mangue«, which was distributed in Bragança. At the end of the project, a fully illustrated brochure in Portuguese was published for distribution to the general public, summarizing its most important achievements.

The project partners have expressed the desire to continue the German-Brazilian collaboration on a long-term basis and small offices and laboratory units, in Belém and Bragança, respectively, have been made available for use by ZMT-personnel.

Science for the Protection of Indonesian Coastal Marine Ecosystems – SPICE

The SPICE project, supported by the BMBF, the Indonesian Ministries of Marine Affairs and Fisheries, Research and Technology and the Indonesian Universities was launched in 2003. The project addresses the scientific, social and economic aspects of the protection and sustainable use of Indonesian coastal waters and their resources. The research work is accompanied by a series of training measures to strengthen capacity in marine sciences. Several German and Indonesian research institutes participate in the project under the overall coordination of the ZMT. A BMBF-DAAD Scholarship Program provides further opportunities for Indonesian students to attend German universities.

The overall activities of the SPICE project are subdivided into project clusters and sub-projects. Extensive field research is carried out jointly with the Indonesian partners and the samples are currently being processed.

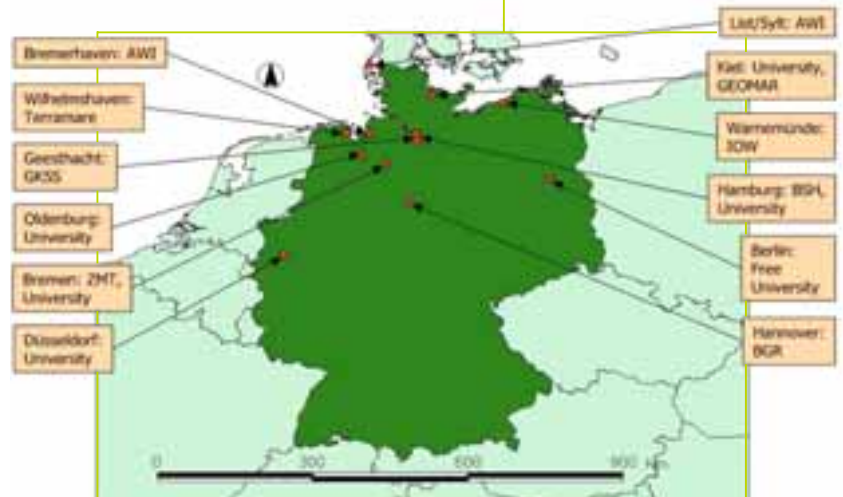
Coral Reef-Based Ecosystems and Resources

The ZMT coordinates the project jointly with the Coral Reef Research Center at Hasanudin University in Macassar, Sulawesi. The project aims at analyzing the status of coral reefs and adjacent sea grass meadows in the Spermonde Archipelago in South Sulawesi. These ecosystems located on the edge of the deep-water Macassar Strait, are characterized by high productivity and biodiversity and are of importance to fisheries. Dynamite fishing and overfishing as well as nutrient pollution from land-based sources are major threats. Research focuses on the biology of selected coral species and their associated fauna. The results of the research provide inputs for management measures taken by local authorities and organizations.

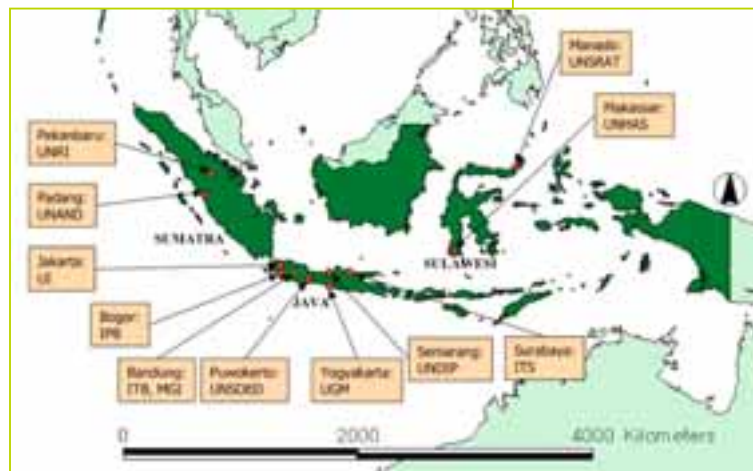
Strategies for a Sustainable Use of Living Resources and Mariculture in the Segara Anakan Lagoon

The principal aim of this project is to establish a biogeochemical, ecological and social science data base for the development of concepts for the sustainable use of natural resources in the largest mangrove ecosystem on the island of Java. The project is carried out jointly with the local General Soedirman

University in Purwokerto. Seasonal measurements are being made of biogeochemical and ecological processes in the lagoon. One



German Partner Institutions in the SPICE Network



Indonesian Partner Institutions in the SPICE Network

component of the project deals with fish parasites as bioindicators for environmental conditions in and around mariculture facilities. The results are expected to provide inputs for a management plan for the lagoon. The project also includes the organization of periodic workshops and training courses.

Transfer of Natural and Anthropogenic Material from Land to the Coastal Sea

The ZMT participates in this project coordinated by the Department of Marine Chemistry at the University of Bremen with research on nutrient and carbon dynamics in the River Siak and tributaries in Sumatra with the aim of quantifying anthropogenic



impacts such as the periodic occurrence of fish mortality.

Biogeochemical Fluxes in the Indonesian Seas

This project investigates the influence of monsoons and climatic anomalies associated with ENSO (El Niño Southern Oscillation) on the upwelling system off the Javanese coast, which is an important region for Indonesian fisheries. Initial results show that El Niño events strengthen upwelling along the Javanese coast and could increase fisheries yield. An increase of the emission of CO₂ to the atmosphere from an intensification of upwelling is also expected.

The aim is to develop an automatic measuring system for the assessment of water quality in the Madura Strait. The ZMT will participate in the project that will be coordinated by 4H Jena Engineering through the collection of spatio-temporal datasets on the impact of the influx of nutrients and organic substances from the Brantas River on the water quality of the Madura Strait. The proposal has been evaluated positively and the project is expected to begin by late 2006.

In the meantime, the ZMT provides young scientists, technicians and students with on-the-job training, to familiarize them with different Javanese aquatic systems and introduce them to modern analytical methods of environmental research and water quality management.

Coastal and Disaster Management for Extreme Events Impact Mitigation

The project started in November 2005 with the support of the International Bureau of the BMFB. It aims to bring together the major players responsible for improving the linkages between early warning systems, disaster prevention and coastal zone management in a series of events such as conferences, summer schools and exchange visits. These activities are intended to provide inputs for the formulation of a new joint project »Coastal and Disaster Management for Improving Preparedness for Extreme Natural Events in Indonesia«.

Complementary Activities and Perspectives

Scientists participating in the SPICE program regularly take part in workshops and training programs to discuss and review the progress of the research program and the activities within the individual projects.

Training programs for young scientists were held in 2004 in Purwokerto and 2005 in Macassar, with the expertise provided by scientists from Germany, Indonesia and from other Southeast Asian countries. Also within the SPICE program several Indonesian scientists visited the ZMT and other participating German research institutions.

SPICE activities are also linked to the activities of regional networks of international programs and organizations such as the »Land and Ocean Interactions in the Coastal Zone« (LOICZ) and the UNESCO-IOC WESTPAC.



Application of Water Quality Control Technology in Tropical Coastal Seas

Building on the achievements of the BMBF project »BRAMS-I: Brantas-Madura Strait Biogeochemistry«, successfully completed in 2003, a new proposal for a project on »Application of water quality control technology in tropical coastal seas« was developed. The aim of BRAMS-I was to characterize the biogeochemistry of the Brantas River and adjacent coastal waters in the Madura Strait in East Java, which are subjected to intense environmental stress arising from human activities in the river catchments. The new project was developed jointly with the GKSS Research Center in Geeshacht and the company 4H Jena Engineering GmbH.

Land-Ocean Atmospheric Interactions in the Coastal Zone of Vietnam



The integrated project »Land-Ocean-Atmospheric Interactions in the Coastal Zone of Vietnam« is supported by the German Research Foundation (DFG) and the Vietnamese Ministry of Science, Technology and Environment (MOSTE). The coastal zone of South Vietnam is influenced by upwelling processes and the inflow of nutrients and sediments from mangrove forests. German research institutions from Kiel, Hamburg and Warnemünde are participating in the project and conducting initial field surveys to ascertain the significance of the mangroves for coastal waters. The ZMT's research focuses on the mangrove forests in the Mekong Delta.

Ecosystem Functioning of Rehabilitated Versus Natural Mangroves in the Can Gio Reserve

This project is being carried out in collaboration with the Department of Botany and Ecology at Vietnam National University in Ho Chi Minh City. Vietnam has been taking measures to restore the mangroves which were heavily degraded during the war by a decades-long reforestation program. The Can-Gio project investigates the question whether reforested mangroves are comparable in terms of function and structure with natural mangrove forests, by studying the biogeochemistry and ecology of benthic organisms.

Biogeochemical studies focused on nutrient dynamics at forest sites differentiated in

terms of species and ages of mangroves, and vegetation density. Benthic studies address the potential of benthic populations as indicators of different forest structures. The work draws on the results of previous research on the meiofauna of sub- and inter-tidal zones of a tidal channel, which however did not show any differences between benthic populations in natural mixed forest and monoculture plantations.

The first phase of the project was completed in October 2005. The results from this phase were presented at a two day joint status-workshop held in October 2005 and sponsored by the German Research Foundation (DFG) and the Vietnamese Ministry of Science, Technology and Environment (MOSTE). The workshop was attended by German and Vietnamese participants of the first phase of the project. The project is being extended until 2007.



VIETNAM



Red Sea Ornamentals – Clean Aquaculture Project

JORDAN

This bilateral project with Jordan was supported by the BMBF and carried out between mid 2002 to mid 2005 in collaboration with the Leibniz Institute for Marine Sciences in Kiel, the company Sander Enterprise and the Marine Science Station in Aqaba. The aims of the project were the investigation of the biology and ecology of ornamental species of Red Sea coral reefs, and the construction

Further aims include the incorporation of photo- and heterotrophic components into integrated mariculture systems (artificial ecosystems) and to undertake more in-depth autecological and ecophysiological investigations into the lifecycles of the species of scientific and commercial interest. Morphometric and genetic molecular studies will be useful to determine the presence of a further species of giant clam, previously unrecorded in the Red Sea.

The project was evaluated by the BMBF Project Agency in early 2005 and it was recommended that the work should continue towards the goal of achieving production of giant clams on a commercial scale together with other species, within the framework of an integrated culture system.



of a recirculation facility, intended to serve as a pilot unit for the commercial production of these organisms for the aquarium market. The overall coordination of the project was with the ZMT.

The installation of the recirculation facility was completed and could be adapted to conditions in the Red Sea for rearing and breeding the giant clams. Work focused from the start on two species of the giant clam found in the Red Sea (*Tridacna maxima* and *T. squamosa*). Adult specimens of both species were collected and successfully reproduced. Studies were also undertaken of the population structure and spatial distribution of giant clams in the shallow water areas of the Northeast Gulf.

The ongoing work is expected to yield quantitative data on giant clam production, larval and juvenile mortality, growth and diet.



Land-Ocean Interactions along Tropical and Subtropical Gradients in Chinese Coastal Waters

The Joint German-Chinese Steering Committee on Marine and Polar Research has approved the project idea submitted by the ZMT to study »Land-Ocean Interactions along Tropical and Subtropical Gradients in Chinese Coastal Waters«. The detailed integrated project has been developed with the support of the International Bureau of the BMBF. The ZMT is responsible for the overall coordination of the German side of the project. Project participants include the Chinese Universities of Qingdao and Shanghai, the Oceanographic Institute in Hangzhou, the Hainan Provincial Marine Department and Design Institute and the Hainan Maritime and Fishery Department. On the German side, several institutes from the Universities of Bremen and Hamburg are collaborating with the ZMT on the project.

The project development also benefited from a week-long bilateral workshop which was held in Peking at the DFG-NSFC Chinese-German Center for Scientific Research and jointly organized by the ZMT and the State Key Laboratory of Estuarine and Coastal Research (SKLEC) at the East China Normal University (ECNU). The workshop provided the opportunity for Chinese and German scientists to present results of the ongoing studies of interactions between land, coast and sea and to make specific plans for project implementation.

The first phase of the project will focus on processes associated with the tropical coastal ecosystems around the Hainan Island in the South China Sea. The coastal ecosystem of Hainan is composed of a mixture

of seagrass meadows, mangroves and coral reefs. These ecosystems are adversely affected by commercial agriculture, forestry and fisheries, industrialization, and the growth of tourism. The project is expected to contribute to the ongoing efforts geared towards the conservation and sustainable use of Hainan's coastal ecosystems. The final project proposal will be submitted to the BMBF with a view to start project activities in the second half of 2006.

P.R. CHINA



Distribution and Frequency of Hypoxia in Chinese Coastal Waters

The sporadic occurrence of hypoxic conditions is a problem along many Asian coasts, and particularly in Chinese coastal waters, with effects on the biogeochemistry and ecology of coastal areas. The ZMT has initiated a project to investigate this phenomenon. It is supported by the International Bureau of the BMBF. The ZMT will work closely

with SKLEC and ECNU, partner institutions that share responsibility with the ZMT for coordinating the German-Chinese Cooperation. These activities contribute to the work of the international programs SCOPE and SCOR, which were jointly initiated by these partner institutions.

P.R. CHINA

Joint Global Ocean Flux Study in the Indian Ocean – JGOFS-INDIK

INDIA



The JGOFS-INDIK project (1995-2003), supported by the BMBF, was a German contribution to the International Geosphere-Biosphere Program »Indian Ocean Flux Study« (IGBP-JGOFS). The aim was to investigate the significance of the monsoon for oceanic CO₂ uptake. The project was coordinated by the ZMT and consisted of up to 16 interrelated sub-projects, focusing on the quantification of key processes in marine carbon and nitrogen cycles. In the final, synthesis phase of the project (Jan. 2001 – Feb. 2003), the focus was on modeling and validation of the results. The partner institute in India was the National Institute of Oceanography in Goa.

The release of greenhouse gases such as CO₂ and N₂O from the Arabian Sea appeared to be related to the strength of the monsoon. The quantitative relationship between monsoon strength and CO₂ emissions has shown gradual changes since the beginning of the '90s; over this period, the emissions have decreased by about 5-10%. The extent to which this is related to the changes in the efficiency of the biological pump needs to be clarified.

Biogeochemical Investigations of Small River Systems of Southeast Asia

INDIA/VIETNAM

With a view to understanding the dynamics of carbon and nutrient transfer from the land to the sea from small and medium sized rivers of Asia, the ZMT has initiated pilot projects in South-central Vietnam and Southern India with the support of the International Bureau of the BMBF.

In Vietnam, the project in cooperation with the Institute of Oceanography at Nha Trang investigates the effects of regional environmental changes on the biogeochemistry of two small rivers, differentiated in terms of size and pollution levels. During two expeditions, carried out during the rainy (December) and dry (June-July) seasons, water, plankton, sus-

pended particles and sediment samples were collected from the rivers and adjacent lakes as well as from the adjacent rice fields and aquaculture ponds.

The project in India is carried out in cooperation with the Center for Earth Science Studies (CESS) in Trivandrum and investigates small mountain rivers in South Kerala for the effects of human activities on their biogeochemistry and their possible impact on estuarine and backwater ecosystems. One sampling expedition was carried out in 2005.

The samples from these two projects are being processed.

Other Cooperation Projects

The ZMT maintains contacts with universities and research institutions in many other countries especially through its support for capacity and infrastructure development.

With some of them, the ZMT has been engaged in the development of new ideas for future research projects.

Environmentally Friendly Reconstruction of Regions Damaged by the Tsunami

The ZMT cooperates with the Phuket Marine Biological Center in Thailand within a project supported by the GTZ to provide scientific support for the reconstruction of coastal areas of the Andaman Sea affected by the Tsunami. The emphasis is on sustainability. Aspects of the damage caused to coral reefs by the tsunami are being investigated: (1) the

possibility of damage being caused to already weakened coral reefs as a result of long-term nutrient pollution (bioerosion of coral reefs as a result of eutrophication), (2) possible long-lasting impacts of the tsunami via bottlenecks in larval supplies that will slow down the regeneration of the reefs.



THAILAND

Ocean-Reef Coupling in the Andaman Sea

A project concept was developed at a workshop sponsored by the DFG and the National Research Council of Thailand (NRCT) to investigate the oceanic processes that affect matter and energy turnover on offshore coral reefs. Of particular interest are internal ocean waves of enormous amplitude (80m),

which can dominate nutrient and larval exchanges where they break on the continental shelf. The project proposal was developed by the ZMT together with the PMBC and the Hamburg Institute of Oceanography and submitted to the DFG and the NRCT.

THAILAND

Sustainable Management of the Gulf of Batabanó

CUBA

Since 2003, ZMT has cooperated with marine research institutions in Cuba, with the support of the State of Bremen. Cooperation agreements were signed with the Cuban Institute of Oceanography (IdO), the Marine Research Center (CIM) at the University of Havana, the Center for Fisheries Research (CIP) and with the Meteorological Institute.

Workshops, research activities and training courses were conducted during the period covered by this report. Investigations focused on the sustainable management of the Gulf of Batabanó in Southern Cuba. The

results of the research were presented at the MARCUBA Congress on Marine Scientists in Havana in December 2003, and at a four-day workshop held in the Center for Fisheries Research also in Havana in March 2005. Exchange of visits by scientists were followed by student exchanges to work on the feeding ecology of juvenile-stage lobsters. The institutions contributed laboratory equipment and the office premises at the Institute of Oceanography in Havana, which were made available for use by personnel involved in the bilateral cooperation.

The Cuban-European Climate Connection

CUBA

The project »The Cuban-European Climate Connection: Atmospheric Variability in the Subtropical and Extratropical North Atlantic Reconstructed from Isotopes and Trace Elements in Massive Scleractinian Corals from Cuba« started in 2003 and is being undertaken by the ZMT together with Bremen

University, with the support of the DFG. Coral samples are being used to reconstruct the climate history of the last 100 to 300 years. The aim is to increase the precision of extreme events forecasting – such as tropical cyclones – and to improve our understanding of the variability of the Gulf Stream.



Contribution of Expertise to Projects of other German Research Institutions

Reconstruction of Paleoenvironmental Conditions in the Southern Indonesian Archipelago – PABESIA



The ZMT participates in this project, which is coordinated by MARUM at Bremen University. The Indonesian Institute of Sciences (LIPI) in Bandung is responsible for the coordination on the Indonesian side. The project is supported by the BMBF. In 2005, the ZMT scientists took part in a joint expedition to the Indian Ocean on the Research Vessel »Sonne« (SO-184). Studies were carried out within the water column and in sediments in the forearc basin of the Indonesian island arc off Sumatra, Java, Bali and Lombok.

INDONESIA



Climate Variability and El Niño Southern Oscillation: Implications for Natural Coastal Resources and Management – CENSOR

Since the middle of 2004, this integrated project has been supported by the European Commission under the Sixth Framework Program (INCO-DEV). The project is being coordinated by the Alfred Wegener Institute (AWI) in Bremerhaven. It investigates the effects of the ENSO (El Niño Southern Oscillation) climate phenomenon on the resources and species assemblages of the Humboldt Current Large Marine Ecosystem. One of the goals of the project is to model the ecosystem and its subsystems, focusing on energy flows and resource productivity under typical El Niño and La Niña conditions. This will provide inputs for recommendations for the sustainable use of marine resources of the ecosystem. The three-year project is a multidisciplinary one and includes a socio-economic component. Fourteen partner organizations from Peru (3), Chile (3), Argen-

tina (2), Spain (1), France (1) and Germany (3) participate in it.

The ZMT focuses on work within the Cluster: »Data Integration and dissemination, modeling and resource management«. The investigations are carried out in close partnership with the National Agrarian University – La Molina in Lima. As part of the CENSOR project, a postgraduate training course on »trophic modeling« was held at the National Agrarian University in Lima in April 2005. Scientific personnel involved in the CENSOR project meets twice a year to coordinate the research activities. In May 2005, participating scientists had the opportunity to meet at the first Alexander Von Humboldt Conference on El Niño, which was held in Guayaquil, Ecuador. A second conference was held in Mar del Plata in Argentina in October 2005.

PERU



Investigation of Dispersal Mechanisms of Zoo- and Ichthyoplankton in the Region of the Angola-Benguela Front – BENEFIT

SOUTHERN AFRICA REGION



BENEFIT (The Benguela Environment Fisheries Interaction and Training Program) is a GTZ-financed research and training program. The ZMT is, together with the Baltic Sea Research Institute (IOW) in Warnemünde, a member of the BENEFIT Committee for



German Cooperation (BCGC), that coordinates the activities undertaken by German organizations participating in the project. The partners are Angolan, Namibian and South African institutions.

Within the BENEFIT Program, the ZMT undertook a project on fisheries biology which was funded by the International Bureau of the BMBF and ran from 2001-2004. The partners were the Marine Zoology

Working Group at Bremen University and the South African Marine and Coastal Management Institute in Cape Town. The aim of the project is to investigate the mechanisms that enable planktonic crab and fish larvae to locate the zones within this region that provide them with optimum living conditions. The study area is characterized by a complex system of fronts and currents. Strong vertical temperature and oxygen gradients influence and limit the habitats and possibilities for dispersal of copepods and fish larvae.

The project partners took part in an expedition on the German research vessel »Alexander von Humboldt« in 2004 as a follow-up of studies carried out during expeditions in 1999 and 2002. Research work on board showed that the abundance and dispersal of fish larvae of determined species can be related to the vertical extension of the oxygen-poor layer in the water column.

An integrated project to investigate the physiological and behavioral adaptations of zooplankton to low oxygen conditions in the Benguela upwelling zone and another for a research cruise on the R/V »Meteor« in the Southeast Atlantic in 2008 were developed and submitted to funding agencies in 2005.

Ecology, Biology and Biodiversity of Southwest Atlantic Bathyraya Rays – ECORAYA

ARGENTINA



ECORAYA is a joint project of the Ichthyological Laboratory and Information Bureau ICHTHYS in Hamburg, the National Institute for Fisheries Research and Development (INIDEP) and the Ichthyological Laboratory of the Mar del Plata University (UNMDP) in Argentina. The ZMT administers the project, which is supported by the Volkswagen Foundation. The project duration is for three years starting July 2003.

ECORAYA investigates the ecology and biology of true rays of the genus *Bathyraya*, eleven species of which are found in the Southwest Atlantic. On account of their size and abundance, these species represent an important commercial fishery resource. However, very

little is known about their biology and ecology. The urgent task of the ECORAYA project is to advance our knowledge of the ecology and biology of these species to the point that stocks can be monitored and adequate measures can be taken to manage the fishery and conserve the habitats and natural diversity of these species. To this end, historical data from 1978 to the present day on ray fisheries in Argentinian waters are to be evaluated.

In the first two years of the project, samples collected during a number of field expeditions were processed. A handbook for the fieldwork was produced in Spanish and English that is available to all project participants on CD and in a printed version.

Projects in Cooperation with Small and Medium Enterprises

The ZMT works together with small and medium enterprises on investigations into rearing and breeding of tropical marine organisms.

The Concept of Sustainable Production of Marine Organisms

Since 2002, the ZMT cooperates with the Bremen firms Polyplan and Algatec on the »Concept of Sustainable Production of Marine Organisms«. The project involves the technical and scientific development of an aquaculture unit with a water processing unit and two water circulation systems for rearing shrimps and ornamental species. It is supported by the Bremen Innovation Agency (BIA) through its State Support Program for Applied Environmental Research.

For the construction of the Aquaculture Unit, two different water processing systems were installed: System 1 with large pools, biofilter and pump for rearing shrimps; System 2 with two biofilters and an UV-system for rearing ornamental species. The first series of tests of metabolism, growth and reproduction of selected species started in the second half of 2003.

The company Umweltschutz Nord installed nine alga reactors to which unicellular green algae were added. The algae serve both as food and as a water clarifier. Seeding with

the first generation of postlarval tropical white shrimp (*Penneaus vannamei*) followed in December 2003; the second generation was bred in the technically improved rearing unit from July 2004 onwards. Feed trials were undertaken with the aim of optimizing feed composition and reduce the use of fish meal. The trial delivery of a kilogram of shrimps to two Bremen supermarkets provided evidence of the excellent quality of the product.



Ornamental Fish Breeding under Controlled Conditions

This project is being undertaken with the companies Sander from Eltze (near Hannover), Mrutzek from Bremen, and Tiros from Oldenburg as a small-scale trial run for the »Clean Aquaculture« project. Biofilters, ozone and skimmers are used to obtain clear water in a circulation system, which will provide ideal conditions for breeding ornamental species. This unit will also be used to optimize experiments on reproductive cycles for subsequent transfer to aquaculture units at tropical partner organizations.

Together with its partners Polyplan, the Institute for Cereal Processing (IGV GmbH)

and the Engineering Office for Aquaculture and Environmental Technology (IBAU), the ZMT plans to undertake further feed trials and bio-monitoring of the shrimp (*Penneaus vannamei*). Support for this work has already been obtained under the Research Program Pro Inno II, through presentation of a project on »Feed Development and Quality Assurance for Tropical White Shrimp« to the Project Agency Syndicate of Industrial Research Associations of the Federal Ministry of Economics and Employment (AIF of BMWA).



Capacity Building

The ZMT is involved in teaching at the University of Bremen. It also coordinates the international ISATEC Masters Course offered by the University of Bremen. The members of the scientific staff of the ZMT provide supervision to both internal and external thesis students. In the period from 2003 to November 2005, 12 doctoral and 8 diploma theses were successfully completed. A total

of 26 doctoral and 2 diploma theses are currently underway. In addition, the ZMT had been involved in a number of research-related capacity building activities in the field of tropical marine ecology. Specialist training courses, summer schools and on-the-job training were offered both in Bremen and in partner countries.

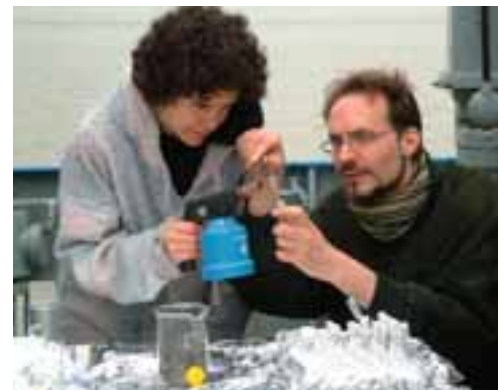
International Studies in Aquatic Tropical Ecology – ISATEC

The ZMT continued to coordinate the English language ISATEC Masters Course, which was set up jointly by the ZMT and Bremen University in 1999. A member of the ZMT's scientific staff is the Director of Studies, who coordinates the course with the support of a technician and a tutor, funded by the University of Bremen and the DAAD, respectively.

The number of applications received annually from qualified applicants has risen from 24 in 1999 to 143 in 2005 reflecting the growing reputation and demand for the

course. ISATEC normally obtains 10-12 full grants and one partial grant for students from developing countries as part of the DAAD focal program »Postgraduate Course of Special Relevance for Developing Countries« and as a result of the positive accreditation obtained from ACQUIN (Accreditation, Certification and Quality Assurance Institute) in 2002.

Under the ISATEC Masters Program a total of 52 Masters Theses have been successfully completed to date.



Masters Course in Costa Rica – GIACT

The international Masters Course »Integrated Management of Tropical Coastal Areas (GIACT)« in Costa Rica has been supported by the EU's ALFA Program (América Latina Formación Académica - Latin America Academic Education) since 2002. The ZMT coordinates this multidisciplinary course, which focuses on the study of tropical coastal ecosystems. Participating institutions include Bremen University and universities and other academic institutions from Spain, France,

Mexico, Panama, Nicaragua and Costa Rica. The first batch of students presented their theses in 2004.

Plans are underway to develop linkages between the Masters Courses, ISATEC and GIACT. At a meeting with the GIACT -network partners in April 2005, a cooperation agreement was drawn up, which provides the basis for future joint teaching and research work within the network beyond the period of EU funding.

Sino-German Cooperation in the Development of a Masters Course in Marine Science

In 2003, the BMBF and the Chinese Ministry of Education agreed to strengthen the cooperation between the National Center for Marine Research at the Ocean University of China (OUC) and marine research institutions in Bremen and Kiel. In early 2004, a delegation from the BMBF, accompanied by the directors of the ZMT and the IFM-GEOMAR visited the Ocean University of China in Qingdao. During this visit, delegates signed a »Memo on Sino-German Center for Advanced Training and Research in Marine Sciences«. As a follow-up to this, the International Bureau of the BMBF approved a proposal to develop an English language master's course in Marine Sciences with the Universities of Bremen and Kiel in Germany and the OUC in China as partners.

The project is currently under way. The ZMT is responsible for coordinating the development of the project for the University

of Bremen. During the visit of a Chinese delegation in July 2005, a course curriculum was agreed upon. Among further activities are annual summer schools to strengthen contacts and promote mutual acquaintance with each other's teaching methods. The first summer school took place in September 2005 on the theme »Warming of the Oceans«, with lecturers from Bremen and Kiel as instructors. Chinese graduate and doctoral students attended the course, as well as students from Germany.

Also at the initiative of the Ocean University of China (OUC) an International Association of Marine-related Institutions (IAMRI) was set up with research institutions working in the field of marine research as members. The ZMT contributes to the IAMRI through its founding member, the University of Bremen.



ZMT Courses on »The Sea and its Resources«

The ZMT has organized a modular series of courses around the theme »The Sea and its Resources«. The courses are offered in response to demand and are open to all ZMT partner organizations. The series currently consists of the following modules:

- Fish Population Dynamics
- Coral Reefs
- Respiration Physiology
- Biogeochemistry of Tropical Coastal Seas
- Benthos Ecology of Mangrove Forests

During the period covered by this report, courses were held at universities and research institutes in Indonesia, the Philippines and in Vietnam.



ACEMON Research Network

The ACEMON (Aquatic Ecosystems of Monsoon Asia) research network was set up by the ZMT in 2004 with the support of the International Bureau of the BMBF. The network provides the ZMT and its partner institutions from monsoon affected countries in South and Southeast Asia (Bangladesh, China, Indonesia, Malaysia, the Philippines,

Vietnam, Sri Lanka and Thailand) the opportunity to coordinate the ongoing research and capacity building activities and to develop joint research and training activities in the field of integrated management of their coastal ecosystems. Network workshops were organized in Indonesia (2004) and India (2005).

Collaboration with International Organizations and Programs

IOC-UNESCO

The ZMT was involved in the development of a Capacity Building Strategy and Implementation Plan by the Intergovernmental Oceanographic Commission of the UNESCO and its presentation at the IOC's 23rd General

Assembly in June 2005. Research projects like SPICE and the ACEMON Network contribute to the programs of the IOC regional subcommission WESTPAC.

ICSU-SCOPE ICSU-SCOR



The ZMT plays an active role through its contributions to the Scientific Committee on Problems of the Environment (SCOPE) and the Scientific Committee on Oceanic Research (SCOR). In addition, the ZMT functions as the focal point for SCOPE's National Committee in Germany by carrying out projects initiated by SCOPE, as well as by contributing to projects jointly developed by SCOPE and SCOR. The ZMT also coordinated the SCOPE project on »Land-Sea Nutrient Fluxes: the Silica Cycle«, partially funded by the DFG.

IGBP-LOICZ

The collaboration between ZMT and IGBP-LOICZ was intensified, especially through the implementation of the joint Indonesian-German SPICE project. The ZMT contributes to both biogeochemical and social science aspects of the investigations of LOICZ.

Collaboration between the ZMT and LOICZ is also planned within the framework of activities of the ACEMON network. With the agreement of LOICZ, the ZMT integrates the work of its partners into LOICZ activities in the region.

IOI



The ZMT hosts the German Operational Center of the International Ocean Institute since October 2002 and has nominated a member of its staff to be the director of the operational center. Through this cooperation, the ZMT has access to additional expertise for its projects, especially in the field of ocean governance. Furthermore, the cooperation enables the ZMT to contribute its expertise in networks run by the IOI and its OceanLearn program.

The Operational Center has sought its own funds for its projects. Among planned projects is the EU project on »Evaluation of Coastal Zone Management in Europe« where ZMT will contribute its know-how. The ZMT will also cooperate with the IOI in a GTZ-project to support capacity building in the fisheries sector in Papua New Guinea together with the National Fisheries Authority.

Services

The ZMT acts as a contact office and provides public relations, laboratory, library and electronic data processing services. During this reporting period this service provision has been strengthened through research-

related teaching and coordination activities. Additional personnel were also employed in electronic data processing, networks and database management as well as public relations.

Contact Office for Tropical Coastal Research

Between 2003 and 2005 the Contact Office expanded its role as an intermediary between science, industry and society in Germany and abroad. Memoranda of Understanding (MOUs) and Cooperation Agreements were prepared for signing between the ZMT and technology centers, institutes, universities and firms. The Contact Office was also involved in the organization of visits by delegations from Oman, Indonesia, the Philippines, Mexico and India at the ZMT. At the end of 2003, with the support of the GTZ-sector project on the subject of »Code of Conduct (FAO)«, the Contact Office or-

ganized a workshop on the »Role of aquaculture in Technical Cooperation: experiences and perspectives«. Over 50 participants from the technical cooperation, politics, industry and science took part in the workshop.

Within the framework of the aquaculture project, the Contact Office has intensified links between small and medium enterprises from North Germany with counterparts in the Tropics. A Cooperation Agreement has been signed with the Bremer firm Polyplan to develop the ZMT's own aquaculture unit in Bremen.



Public Relations

Since 2003 the ZMT has expanded its public relations activities. A regional and supraregional press distribution service was created. Press releases are regularly sent out to corresponding sub-distributors and placed on the ZMT website. The public relations group also provides information to the scientific information service »IDW« and organizes press conferences. In 2005 it was particularly successful in getting radio and TV coverage of issues relating to the ZMT's work. In addition, the department contributes articles to magazines and news items for the ZMT's website. In 2004 and 2005, information about the ZMT was distributed at the national Scientific Journalism Conference »WissensWert«.

To make information on tropical ecosystems and the threats to these ecosystems available to people of all ages and to highlight the importance of science in combating these problems, the ZMT participated in events such as Bremen University's Open Day and Bremen Environmental Film Days. The ZMT also cooperated with museums, an activity which provides good opportunities to build bridges between science and the public. The ZMT provided advice for exhibitions on mangroves at the Oceanographic Museum

in Stralsund and the Overseas Museum in Bremen (Übersee-Museum) and took part in talks given in connection with these events.

Environmental education with school children was given special emphasis, to increase the awareness among young people of the importance of tropical coastal habitats and their problems. Development of teaching modules on themes related to tropical ecology in collaboration with ZMT scientists was facilitated and was complemented by audiovisual materials. These modules were presented at one-day workshops for Bremen school children and as part of the »Summer University« for teachers.

The nomination of Bremen and Bremerhaven as »Science City 2005« provided the ZMT with an additional opportunity to raise its public relations profile. The ZMT took part in a number of events, including the series of talks »Benjamin of Science«, the »Discoveries« exhibition in the Bremen Council House, where it was present with exhibits and a multimedia station, and »On-site Transfer«, where the aquaculture project was presented. The ZMT was a member of the planning group »Science and Schools« which was responsible for coordinating the



»Science City« schools program.

New design standards for ZMT publications were initiated with the object of developing a ZMT corporate design style. New

layouts were designed for printed products like leaflets and reports. Leaflet design was standardized to highlight the fact that these form part of different series.

Library



The ZMT library is a specialized one and contains collections on ecology, marine ecosystems, fisheries biology and coastal management, as well as some titles on socio-economics and biogeochemistry. It is used regularly by the ZMT staff and their guests and especially by ISATEC students. The library is a member of the National Working Group of Marine Science Libraries (AMB). Member libraries of the AMB exchange information and provide mutual support in meeting requests for literature from library users. Through the AMB, the library is eligible for a reduced-price consortium subscription to online-access to the ASFA Database.

In 2005, periodicals in the ZMT library were entered into the German Union Catalogue of Serials (ZDB) of the German Library. This database, which provides infor-

mation on titles and location of periodicals and other serial publications, is the largest of its type in the world. In addition, a cooperation agreement was signed with State and University Library (SuUL) in Bremen. Under the terms of this agreement, the ZMT's periodical »Coral Reefs« was taken over by the Online Public Access Catalogue (OPAC) of the State and University Library. The SuUL has integrated the title into the SpringerLink Consortium on the Common Library Network, thereby providing the ZMT with access to all Springer titles held by the Consortium.

The library database was converted from ProCite to the IPÖ's web-based »Rebase« interface with the aim of providing ZMT personnel with desktop access to the ZMT's in-house library for their researches.

Laboratory



The ZMT possesses three laboratories: chemistry, biology and a special laboratory for the analysis of sclerochronological samples. All continued with the development of new and with the refinement of existing analytical methods and the technicians underwent training courses. An airflow rate monitoring system, an acid extractor cabinet with air washer and a neutralization unit were acquired for the laboratory. Members of the technical staff were increasingly involved in the planning and preparation of field expeditions within the partnership projects and supported scientific personnel in

the field as well as their research at the ZMT. Occasionally, they supported work in the partner laboratories in the tropics and took part in cruises and expeditions. An essential part of their work remained the support for research by ISATEC-students, doctorates, guest scientists and interns.

The ZMT continued its cooperation with other chemistry laboratories at MPI, IfM-GEOMAR, IPÖ and IOW on an informal basis. Contact with other faculties from the University of Bremen was intensified, particularly with Faculty 5 (FB5).

Electronic Data Processing and Data Management

The work of the Electronic Data Processing (EDP) network focused on the growing demand for electronic storage space for projects and documentation, user support, the installation and maintenance of computer pools, whose number is growing with the expansion of the ZMT network, and the upkeep

and maintenance of the homepage.

To achieve the conditions required for online access, numerous corrections to the contents of the database MAIS were required. The concept and programming of the website, which will in future provide access to the database, is almost complete. During this,

MAIS will be expanded by the continuous incorporation of new data. The MAIS database is coupled to a Geographical Information System (GIS) to provide a user friendly tool for communication between scientists, decision makers and the local population, which is essential for the Decision Support System.

The library database software »Procite« was exchanged for »Rebase«, a platform independent software. This should enable the collected titles of the in-house library to be made available over the net to each computer user. A first software version of the picture database for public relations was also completed.

A test installation of »Voice over IP« (Internet Protocol) or internet telephone was successfully tried out with a few users. This brings forward the possibility of building a communications environment for affiliates and project partners of the ZMT, and reducing the costs of international telephone calls.

Following a complete revamp of the website on data bank basis (php), the statistical registration of visitors was organized on a

completely new basis. The internet site was converted to the new server-side log file analyzer AwStats. EDP service provision for the ZMT staff and their partners was also extended. This focused on the installation of a shared user communications interface, which can be accessed over the internet independently of the platform and operating system in use. This means that the new interface will be accessible for the ZMT staff with its mixed networks of PCs, Mac and Linux computers, as well as for ZMT partners from outside. Further improvements in communication are planned through a shared interface with forum, data exchange, calendar, memo and software update functions, among others. The purchase of new hardware and software will be required to ensure secure connections for external service provision.

As part of the development of internal database services that are also accessible to all Contact Office and ZMT partners, a new server was installed, which incorporates an internal picture database and address database, among other features.



Administration and Infrastructure

In 2005, core financing rose by about 700 000 EUR compared to the previous year. These additional resources provided continuing funding for some members of the staff from the MADAM project, which was concluded on 30 September 2005. The funds also enabled the acquisition of urgently required additional infrastructure. All FIP projects of the State of Bremen were transferred to the ZMT core funding in 2005. While during the third phase of the MADAM project the proportion of BMBF funding continued to decline, and was made up by compensatory funding from the State of Bremen, third party funding from other sources rose in 2003 and 2004. This is essentially due to the SPICE project and DFG support for the projects in Vietnam.

The number of personnel rose from 37 in 2003 to 38 in 2004 and 41 in 2005 (full-time and full-time equivalent of aggregated part-time posts). At the end of 2002 a

position was created for the maintenance of the internal network and in July 2003 a head of administration was appointed. At the end of 2003 a technician was appointed to work on the aquaculture project. Non-permanent work contracts could in many cases be renewed. A coordinator for the SPICE project was appointed in April 2004. The appointment of additional members of the staff is planned in connection with the restructuring of the ZMT in 2006.

It is planned to hire additional rooms, to meet the need for more space as the number of personnel grew due to restructuring. During 2005 new resources were available to meet additional costs for rent and at the start of 2006 the first floor of the annex will be made available for use by the ZMT. During this reporting period one large storeroom was converted into an aquaculture lab, in response to the emerging importance of the ZMT's work in this field.

Outlook

The uniqueness of the ZMT's activities stems from its exclusive focus on tropical coasts and their living resources. They are carried out within long term research projects, conceived, developed and implemented in close cooperation with partners at universities, research institutions as well as in decision making bodies in the tropics. Over the past few years, these projects have allowed the ZMT to gain experience in conducting integrated coastal ecosystem analyses and develop concepts for sustainability by taking into account the prevailing specific ecological, social, economic, political and cultural char-

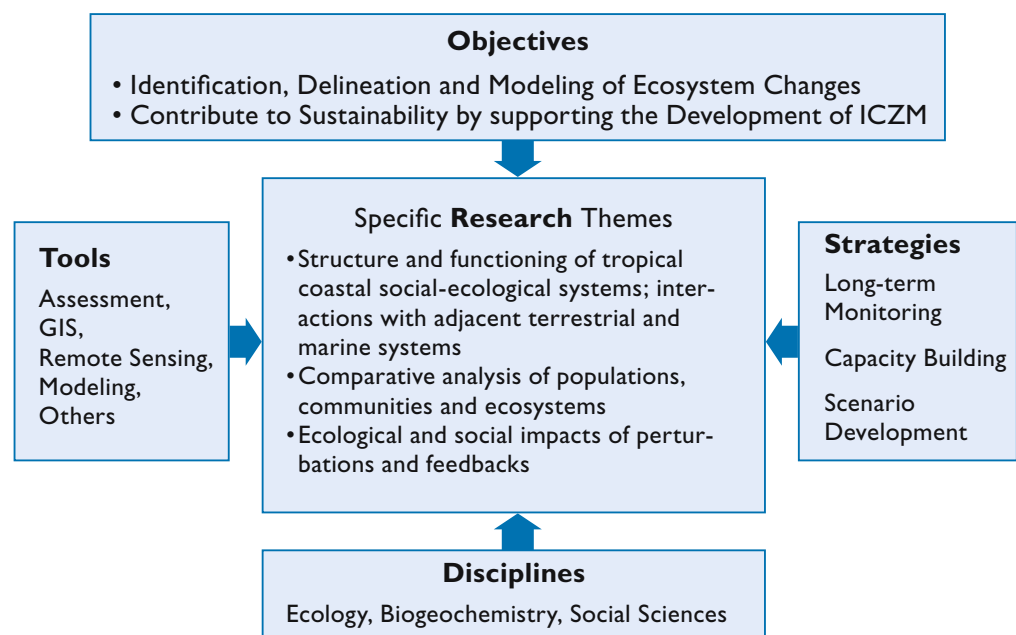
acteristics of the regions. The ZMT has also engaged in the coordination and research-based capacity building activities and has in the past acted as advisor to governmental and non-governmental agencies at national and international levels.

Based on the recommendations of the Science Council (Wissenschaftsrat) and the International Scientific Advisory Board, the ZMT has initiated a series of measures to further develop its research profile and its scientific and organizational structure. These measures are being taken in close cooperation and consultation with the University of Bremen and the Bremen Senate Office for Education and Research and are expected to be completed by 2008.

With the new research profile, the ZMT strives to consolidate its position as a focal point for research on tropical coastal ecosystems. A major scientific goal will be to identify, delineate and model spatial and temporal changes of tropical coastal ecosystems. This requires an improved understanding of the structure and functions of tropical coastal marine ecosystems, their behavior under differing biodiversity, human pressures and uses as well as their response to natural and human perturbations at a range of spatial and temporal scales that are relevant for managers and decision makers. The major



Integrated Ecological and Social Analysis of Tropical Coastal Ecosystems



societal goal is to support the development of integrated coastal zone management concepts thereby contributing to social and ecological sustainability. Three major research themes have been identified in this context:

- **Structure and function of ecological and social systems along tropical coasts, their interrelationships and interactions with adjacent terrestrial and marine systems**

Understanding the structure and function of coastal marine ecosystems as well as their internal dynamics is a prerequisite for assessing their status and their response to perturbations. Because of their close proximity, individual tropical coastal ecosystems are also in constant exchange of matter and energy among themselves, and with the hinterland and the open sea. Therefore, understanding the basic principles of ecosystem functioning also requires knowledge about these interrelationships and interactions. Thus, the role of land-sea-atmosphere interactions in global biogeochemical cycles and on ecosystem structure and functioning is a major component of this theme. Projects will address the interrelationships of material fluxes, the cycling between salt marshes, mangroves, sea grass meadows, coral reefs and the open ocean and the interactions between coastal ecosystems and the hinterland (drainage basins). They will focus on mass balances: fluxes, pathways and fate in transport, role in ecosystem functioning as well as response to natural and anthropogenic changes. Impact of changes in large scale ocean circulation and upwelling systems on tropical coastal systems will be an additional focus.

- **Comparative analyses of organisms, populations, communities, and ecosystems**

Tropical coastal marine regions differ in productivity and diversity and in their ecological, economic, and social sustainability. Comparative analyses of the functioning of the different tropical ecosystems and their uses allow formulating management strategies that are tailored to suit specific regional needs based on the observed similarities and differences. These analyses will concentrate on the recognition of patterns that reveal the underlying processes and, therefore, the working principles of systems. Examples for such patterns are, for example, the changing physical and geochemical environment manifested in biogeochemical indicators, characteristic size

distributions and cycles in population sizes, or species shifts that result from characteristic ecological and biogeochemical processes driving the systems.

- **Ecological and social impacts of perturbations and feedbacks**

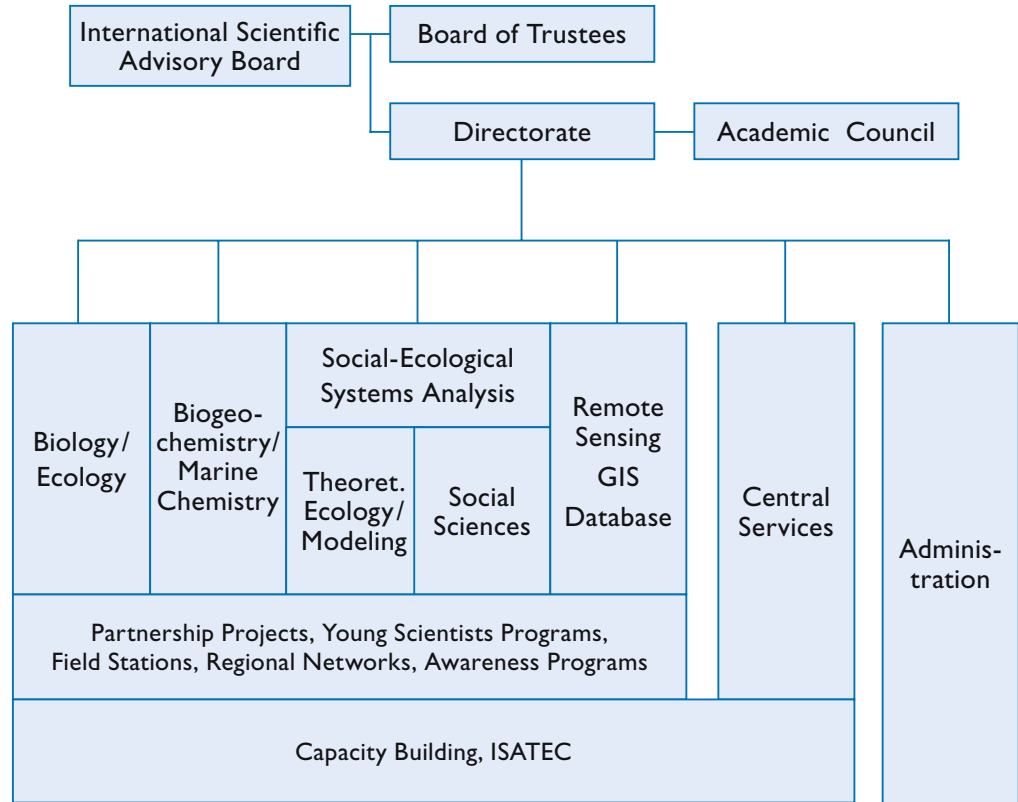
Tropical coastal ecosystems come under a variety of perturbations (natural and anthropogenic) that are long-term and gradual, or short-term and immediate (extreme events). This research theme will focus on the detection of regular signals induced by recurrent events and by rapid changes of environmental settings, habitat quality, and their consequences based on the analyses of time series data sets, monitoring, and (paleo)-reconstruction in coastal wetlands (including salt marshes and mangroves), corals and marine sediments. These studies have important implications for conservation issues and a risk assessment of natural, direct or indirect human-induced disturbances on the status and dynamics of populations, communities as well as coastal and marine tropical ecosystems.

The ZMT will, in the immediate future, focus on tropical coastal ecosystems of Southeast Asia and South-Central America, regions that will allow implementing programs that are in tune with its research profile. These regions vary in their biodiversity, the degree of human pressures as well as in the social, economic and cultural aspects of their use. The tropical coastal ecosystems of Southeast Asia are more diverse, and are subjected to more intense pressures of human activities from a fast growing population and industrial and economic development than those in South-Central America. They are subjected to a higher degree of terrestrial influences because of the prevailing geological and tectonic settings, and to the frequent occurrences of extreme events.

The goals set by the new research profile necessitate the collection of long term data sets (long term research and monitoring) and, require the expertise from a wide variety of disciplines in natural and social sciences. Needed is expertise to cover (1) structure and functioning of ecosystems such as the mangroves and coral reefs, as well as marine plankton, and fisheries; (2) the biogeochemical basis of ecosystem functioning and processes along the watershed-river-seas continuum and their interactions; and (3) theoretical ecology and modeling as well as



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the analysis of social and economic dynamics. Furthermore, the implementation of the new research profile needs infrastructure and methodologies that allow the collection and handling of heterogeneous data sets from natural and social science disciplines at a va-

riety of time and space scales as well as their archiving, application and use in the development of planning and management concepts and strategies. This includes expertise in remote sensing and GIS and in the maintenance of databases to archive information specifically on tropical ecosystems, as well as field stations in key tropical regions that allow continuous long term joint observations of ecosystem processes. Such a combination of expertise in scientific disciplines and methodologies will provide an excellent link between field studies, laboratory experiments, and simulation experiments leading to an effective synthesis of the obtained and existing information on system structure and dynamics.

The new structure of the ZMT will accordingly have 4 research divisions covering expertise in Biology/Ecology, Biogeochemistry/Marine Chemistry, and Social Ecological System Analysis as well as Remote Sensing and GIS. The available expertise at the ZMT is being strengthened by establishing new professorships and research groups in cooperation with the University of Bremen and its research institutes.



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U. Berger

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Modelling tropical coastal ecosystems: Introduction to the topic and example on mangrove ecosystem modelling (1), Dynamics of neotropic mangrove forests – a modeling approach (2), Seminar & Lectures on Aquatic Ecosystems of Monsoon Asia Region, UNSOED, Purwokerto, Indonesia, 08.-09.12.2004

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K. Diele

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W. Ekau

Oxygen as limiting factor for fish larvae distribution in upwelling areas, e.g. the Northern Benuela current area (gemeinsam mit Hans Verheye u. Anja Kreiner), 30th Pacem in Maribus. A Year after Johannesburg, Kiev, Ukraine, 24.-31.10.2003

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M. Glaser

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Visionen und Konflikte in der Gestaltung des nachhaltigen Küstenmanagements in Nordbrasilien, Kolloquium Sustainability Studies: Nachhaltigkeit gestalten, Universität Bremen, 17.12.2003

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- Biogeochemical investigations along tropical continental margins, Marine Science Institute, University of the Philippines, Manila, 06.05.2004
- Brantas-Madura Strait Biogeochemistry (1), SPICE Cluster 2 (2), PABESIA: expedition with RV »Sonne« (3), Brantas-Project (Phase 2) (4), Sitzung Lenkungsausschuss Indonesien, BMBF, Berlin, 06.-07.10.2004
- Biogeochemistry of tropical rivers and coastal waters (1), Mangroves: Dynamic ecosystems in the land – ocean transition (2), Joint Chinese-German Workshop on Land-Sea Interactions along Temperate-Tropical Gradients in Chinese Coastal Waters, Chinesisch-Deutsches Zentrum für Wissenschaftsförderung, Peking, China, 06.05.2005
- K. Kober**
- Variabilität und Opportunismus – Watvögel in den tropischen Watten Brasiliens, 137. Jahresversammlung der Deutschen Ornithologen-Gesellschaft, Kiel, 30.09.-03.10.2004

E. Krain

ZMT / SPICE / ISATEC-Präsentation, The SPICE program, University of Riau, Sumatra, Indonesia, 09.07.2004

SPICE – An Indonesian-German research initiative within the frame of land and ocean interactions, LOICZ II Inaugural Open Science Meeting, Royal Netherlands Institute for Sea Research, Egmond oon Zee, 26.-30.06.2005

SPICE – An Indonesian-German research initiative within the frame of land and ocean interactions, Indonesia Ocean Forum 2005, Bali, Indonesien, 13.-15.07.2005

G. Krause

Spannungsfelder und Managementoptionen in einem sozio-ökologischen Küstensystem bei Bragança (Bundesstaat von Pará, Nordbrasilien), 21. Jahrestagung des Arbeitskreises Geographie der Meere und Küsten – AKMK, Geogr. Institut der Universität, Essen, 01.-02.05.2003

Fachübergreifende Nachhaltigkeitsforschung: Stand und Visionen am Beispiel des deutsch-brasilianischen Forschungsprojektes MADAM (mit M. Glaser), Jahrestagung der Deutschen Gesellschaft für Humanökologie, Sommerhausen, 09.05.2003

Multifunctional use and environmental regulations: potentials in the offshore aquaculture development in Germany« (mit B. Buck & H. Rosenthal) (1), Social equity in the coastal zone: coastal dynamics, socio-economic structures and legislation in the Bragança region (Pará, North Brazil)« (mit M. Glaser) (2), Multidisciplinary Scientific Conference on sustainable Coastal Zone Management, The Beijer International Institute of Ecological Economics, Stockholm, 12-13.06.2003

Offshore Co-Management: Probleme und Perspektiven, Marikultur in Offshore-Windparks, AWI, Bremerhaven, 8.11.2004

Forderung der Evaluation interdisziplinärer Nachhaltigkeitsforschung aus Sicht der Humanökologie, Jahrestagung Deutsche Gesellschaft für Humanökologie (DGH), Sommerhausen, 19.-21.05.2005

Social-Ecological System Analysis for ICM support: A Mangrove Ecosystem in North Brazil, Conference on Coast and Coastal People, Egmond aan Zee, Niederlande, 26.-30.06.2005

Remote Sensing of Mangrove Structure (1),

Social Ecological System Analysis as Support to ICM (2), Final International Evaluation: MADAM, Belém, Brasilien, 15.-16.09.2005

U. Krumme

Die südasiatische Tsunami-Katastrophe – Ökologische Aspekte des Desasters und der Folgenbewältigung, Meeresumwelt-Symposium, Bundesamt für Seeschifffahrt und Hydrographie, Hamburg, 08.06.2005

A. Kunzmann

Mariculture: plans for research and training at ZMT National Grouper Forum, BPPT and National Fisheries Association, Jakarta, Indonesien, 18.02.2003 u. 19.02.2003

ZMT Kooperation mit KMU am Beispiel der Fa. BUTT, SEQUA – Stiftung für wirtschaftliche Entwicklung und berufliche Qualifizierung, Bonn, 28.07.2003

Marikultur von Zierorganismen am ZMT, Marikultur in Bremen, Informationsveranstaltung zur Entwicklung von Aquakulturprojekten am ZMT, ZMT, 12.11.2003

Welche Formen der Marikultur werde von unseren Partnern nachgefragt? WS Deutsche Aquakulturtechnologie in der EZ – Erfahrungen, Herausforderungen, Märkte, gemeinsam mit GTZ, ZMT, 20.01.2004

Partnership projects of ZMT, Anbahnungsreise, Leigh Marine Laboratory, Univ. Auckland, Neuseeland, 02.03.2004

ZMT contributions to the Code of Conduct for responsible fisheries CCRF, CCRF Workshop (GTZ, BMZ) mit Vertretern internationaler Organisationen, Bonn, 21.-22.06.2004

Physiological response to environmental parameters: Introduction to the topic and examples, Seminar & Lectures on Aquatic Ecosystems of Monsoon Asia Region: Status, Resources and their Sustainable Use, UNSOED, Purwokerto, Indonesia, 08.12.2004

R. Lara

A ZMT-Initiative: Coastal ecosystems change in tropical countries, Building networks for global change research, IAI, Mendoza, Argentinien, 27.01.2003

Synoptic analysis of surface structures in tropical coastal wetlands: a case study and emergent methodological approaches, Meeting of the UNESCO Ecohydrology Program Working Group, Danzig, Polen, 27.-30.04.2003

LECTURES

- Synoptic analysis of mangrove structures, Congreso Latinoamericano de Ciencias del Mar (COLACMAR), San Jose, Costa Rica, 23.09.2003
- Ein Porenwassersalinitätsmodell für Mangroven, Technische Universität, Dresden, 15.06.2004
- Saline lagoons in the semiarid Pampa grassland: the urgent need for integrated research, capacity building and management, UNESCO Ecohydrology Program Working Group, Workshop zum Integrierten Management des Ästuars des Guadiana Flusses, Universidade do Algarve, Faro, Portugal, 01.-05.09.2004
- Management of coastal lagoons in the Global Change, International Conference for Integrated Water Resources Management, Fisheries University Tokyo, Japan, 08.12.2004
- The influence of inundation regime on system features, Final International Evaluation: MADAM, Belém, Brasilien, 15.09.2005
- Halophytes and the future of wetland creation, Ecohydrology in Coastal Regions, Inst. f. Meeresforschung, Split, 28.09.-02.10.2005
- Climate change, sea-level rise and the dynamics of South American coastal wetlands, Globale Erwärmung und Herausforderungen an die Forschung, Symposium der Alexander-von-Humboldt-Stiftung, Buenos Aires, Argentinien, 12.-18.10.2005
- U. Mehlig**
- Mangrove tree gas exchange at two field sites of different inundation regime at Bragança, Pará, Brazil, Conference Mangrove 2003, Salvador de Bahia, Brasilien, 19.-23.05.2003
- C. Orejas**
- Cuban-German cooperation in marine science: towards a sustainable development of the Cuban coastal ecosystems (1), Hydrozoans: gourmets or fast food eaters? (2), 5th Hydrozoan Society Workshop, Langebaan Kapstadt, Südafrika, 12.-14.01.2003
- C. Richter**
- Das Korallenriff als Plankton-Falle, Zoologisches Institut, Universität Köln, 07.05.2003
- Coral Reefs, US-German Frontiers of Science Symposium, National Academy of Sciences/Alexander von Humboldt Stiftung, Irvine, CA, USA, 05.-07.06.2003
- Pelagic-benthic and oceanic-neritic coupling in a Red Sea fringing reef, 10th International Coral Reef Symposium, International Society for Reef Studies, Okinawa, Japan, 28.06.-02.07.2004
- Hätten intakte Riffe Menschenleben retten können? Berichte von einer Mission zu Untersuchungen zum Zustand von Küstenbiotopen in Thailand (zusammen mit Dr. Uwe Scholz, GTZ, Eschborn), Sonderkolloquium, IfM-GEOMAR, Kiel, 21.02.2005
- Biological oceanographic processes and pelagic-benthic coupling in coral reefs, Joint Chinese-German Workshop on Land-Sea Interactions along Temperate-Tropical Gradients in Chinese Coastal Waters, Chinesisch-Deutsches Zentrum für Wissenschaftsförderung, Peking, China, 06.05.2005
- T. Rixen**
- Long-term variability of particles fluxes and the marine carbon cycle in the northern Indian Ocean (1), The nitrogen and oxygen cycles in the Arabian Sea (2), Biogeochemical processes in the northern Indian Ocean, Biogeochemical Fluxes in the northern Indian Ocean (3), NIO-Workshop Goa, Indien, 26.-28.02.2003
- Biogeochemical Cycles in the Arabian Sea, Kochin University of Science and Technology, Kochin, Indien, 02.03.2003
- Long-term particle flux studies in the northern Indian Ocean (1), Der Monsun und die Produktivität des Ozeans (2), Long-term particle flux studies in the northern Indian Ocean (3), 3. JGOFS Synthese Workshop, Institut für Meereskunde, Kiel, 12.-13.06.2003
- ENSO-driven changes in carbon fluxes to the deep sea off South Java, International Ocean Research Conference 2005, UNESCO, Paris, 06.-09.06.2005
- Monsoon-driven carbon fluxes in SE Asia College of Environmental Science and Engineering, Ocean University of China, Qingdao, 20.09.2005
- The ENSO-driven Carbon Sea - Sow, Universität Oldenburg, 16.11.2005
- U. Saint-Paul**
- The Center for Tropical Marine Ecology Building networks for global change research, IAI, Mendoza, Argentinien, 28.01.2003
- Fisheries ecology in Amazonian inundated for-

- ests, Large River Symposium, Phnom Pen, Kambodscha, 13.02.2003
- Live mangrove fishes under tidal stress? (1), Programa MADAM e sua contribuição para os estudos costeiros (2), Mangrove 2003, Salvador de Bahia, Brasilien, 21.-22.05.2003
- MADAM – an example for a bilateral project in marine sciences, Scoping Seminar Brazil/Germany, Recife, Brasilien, 24.05.2003
- Tidal induced fish migration in a mangrove tidal creek in north Brazil, Estuaries on the Edge, Conference of Ocean, Land and Culture, ERF, Seattle, 16.09.2003
- Mangrove – ein Lebensraum zwischen Land und Meer, Fisch & Reptil, Grosse Fach- und Informationsmesse, Sindelfingen, 29.11.2003
- Ecosystem Approach to Inland Fisheries, International Workshop INWENT & WorldFish, Penang, Malaysia, 14.01.2004
- Interrelations between mangroves, local economy and social sustainability. A review from a case study in North Brazil, International Conference on effective land-water interface management for solving agriculture-fishery-aquaculture conflicts in coastal zones, Bac Lieu, Vietnam, 02.03.2005
- Ecosystem functioning of rehabilitated versus natural mangroves in the Can Gio Reserve, Vietnam, The Importance of Mangrove and Other Coastal Ecosystems in Mitigating Tsunami Disasters, Symposium, ISME, Kuala Lumpur, Malaysia, 24.08.2005
- Interrelations between mangroves, local economy and social sustainability. A review from a case study in North Brazil, Egerton University, Kenia, 05.10.2005
- P. Westhaus-Ekau**
- Working Session with the Alumni: Education in the Field of Marine Science, Marine Sciences, DAAD-Alumni Seminar Jakarta, Indonesien, 30.09.2003
- ZMT – Mission, Research and Partnership Projects (1), SPICE – The New German-Indonesian Initiative in Earth System Research (2), Bogor Agricultural University, Faculty of Fisheries and Marine Sciences, Bogor, Indonesien, 07.04.2004
- Education in Marine Sciences – ZMT Contribution to Bremen University Educational Programmes, Chinese Delegation from the Ocean University of China (OUC), Qingdao, ZMT, 12.08.2004
- Sino-German Initiative on Marine Sciences: Status and Tasks (1), German Contribution to the Summer School 2005 (2), Delegationsbesuch Ocean University of China, Qingdao, ZMT, 05.-07.05.2005
- The University of Bremen: General Facts, Study and Research, Working Meeting for the Initiation of International Association of Marine-related Institutions (IAMRI), University of Western Brittany, Brest, 12.-14.07.2005
- Global Climate Change: Effects on Shallow Physiological Constraints in Fish (1), Ecosystem and Upwelling Areas, Warming of the Oceans (2), Summer School, Ocean University of China, Qingdao, China, 18.09.-01.10.2005
- M. Wolff**
- Trophic flow structure of three tropical aquatic ecosystems as related to their fishery potential (1), A holistic approach for ecosystem analysis with special reference to the tropics (2), King Fahd University, Dahren, Saudi Arabien, 22.-23.01.2003
- Working Session with the Alumni: Education in the Field of Marine Science, Marine Sciences, DAAD-Alumni Seminar Jakarta, Indonesien, 30.09.2003
- Trophic flow structure as related to the fishery potential of three tropical coastal systems, Gadj Mada University, Jogjakarta, Indonesien, 08.10.2003
- The Batabanó ecosystem and its fishery targets: Assessment of current state and simulation of use scenarios, MARCUBA 2003, Havanna, Kuba, 01.12.2003
- Der Batabanó Golf, Kuba: Beispiel für ein durch menschliche und natürliche Einflüsse gestresstes tropisches Ökosystem, Freunde der Universität Bremen und der International University Bremen e.V., Bremen, 19.02.2004
- Driving Forces and Sustainable Fisheries' Yields of the Humboldt Current LME, IV World Fisheries Congress, Vancouver, 05.05.2004
- Variabilidad Climática y su impactos sobre los recursos costeros: el proyecto SENSOR SENSOR, Kick-off Workshop, Universidad La Molina, Lima, Peru, 26.10.2004
- International Teaching at ZMT – a 10 years experience (1), Upwelling is the disturbance, not El Nino: insights from modelling community organization and flow structure

LECTURES

- in the Independencia Bay ecosystem, Peru (2), Driving forces and sustainable fisheries yield of the Humboldt Current Large Marine Ecosystem (3), Universidad de Antofagasta, Chile, 15.-19.11.2004
- Driving forces and sustainable fisheries yield of the Humboldt Current LME, Conferencia Magistral, Centro Interdisciplinario de Ciencias Marinas del IPN, La Paz, Mexico, 27.01.2005
- Upwelling is the disturbance, not El Niño: insights from modeling community organization and flow structure in the Independencia Bay Ecosystem, Peru, Departamento de Pesquerias y Biología Marina, Centro Interdisciplinario de Ciencias Marinas del IPN, La Paz, Mexico, 28.01.2005
- Biomass flow structure and resource potential of mangrove estuaries: insights from comparative modelling, Pesca 2005, CIP, Havana, Cuba, 09.03.2005
- Spectrum and feeding behaviour of two sympatric species of pinnipeds (*Arctocephalus australis* and *Otaria flavescens*) in relation to the 1997-1998 El Niño, 1st Alexander von Humboldt International Conference on El Niño Phenomen and its global impact, Universo foundation, Guayaquil, Ecuador, 18.05.2005

POSTER PRESENTATIONS

- K. Diele**
O efeito da salinidade na duração e sobrevivência das larvas do *Ucides cordatus* (mit D. Simith) (1), Ritmo da desova e ocorrência das larvas zoea-I do caranguejo *Ucides cordatus*, no estuário do rio Caeté, Bragança, PA (mit O. Santana-Sousa) (2), Conference Mangrove 2003, Salvador de Bahia, Brasilien, 19.-23.05.2003
- W. Ekau**
IOI – OceanLearn Coasts and Coastal People – Scenarios for Change and Responses – LOICZ II Inaugural Open Science Meeting, Royal Netherlands Institute for Sea Research, Egmond aan Zee, 26.-28.06.2005
- G. Krause**
Beach Morphodynamics and Corresponding Societal Structures on the Bragantian Mangrove Peninsula (Pará, North Brazil) (mit C. Soares), Conference Mangrove, 2003 Salvador de Bahia, Brasilien, 19.-23.05.2003
- Change Dynamics on the Mangrove Peninsula of Bragança, Pará (North Brazil) (1), Classification of Mangrove Structure with IKONOS Satellite Imaging (2), Multiscale Mangrove Species Classification Using Remote Sensing Techniques (3), Co-Evolution of Social and Ecological Systems (4), Final International Evaluation: MADAM – Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project, Belém, Brasilien, 11.-19.09.2005
- U. Mehlig**
Genetic diversity of *Avicenia germinans* (L.) from mangrove of north-eastern Brazil evaluated by microsatellites, Conference Mangrove 2003, Salvador de Bahia, Brasilien, 19.-23.05.2003
- Análise de estrutura de um bosque de manguezal na região bragantina, Pará, Brasil (1), Estudos preliminares da vegetação de restinga da península de Ajuruteua, nordeste do estado de Pará (2), Brasilianischer Botanik-Kongress 2004, Viçosa, Minas Gerais, Brasilien, 13.-18.07.2004
- T. Rixen**
ENSO-driven changes in carbon fluxes to the deep sea off South Java, International Ocean Research Conference 2005, UNESCO, Paris, 06.-09.2005
- H.A. Roa-Quiaoit, C. Richter, M. Zibdah**
Towards a Sustainable Aquaculture of Giant Clams (*Tridacnidae*) in the Jordanian Sector of the Gulf of Aqaba, 6th International Aquarium Congress, Monterey, Kalifornien, 05.-10.12.2004
- U. Salzmann**
CIS – Crab Information System: a decision support system for the management of the

mangrove crab *Ucides cordatus* in North Brasil, 3rd Brazilian Crustacean Congress, Florianopolis, Brasilien, 24.-28.10.2004

D. Unger

Mit B. Gaye-Haake & V. Ittekkot: 15N in sinking particles from the southern Bay of Bengal:

evidence for variable nitrogen sources, Conference on Significant Processes, Observations, and Transformation in Oceanic Nitrogen SPOT-ON, Leibniz-Institut für Ostseeforschung, Warnemünde, 26.06.-01.07.2005

POSTER PRESENTATIONS

Events Organized by the ZMT

Planungsworkshop MADAM, Norderney, 13.-15.01.2003

EU-Workshop on Managing Aquatic Coastal Ecosystems in Monsoon Asia: From Crisis Management to Prevention of Water Quality Problems, Bremen, 11.-15.08.2003

Kickoff Meeting, Indonesia-Germany Research Cooperation in the Field of Marine Sciences and Geosciences (SPICE), Jakarta, Indonesien, 29.09.2003

Mariculture in Bremen, Informationsveranstaltung zur Entwicklung von Aquakulturprojekten am ZMT, Bremen, 12.11.2003

SCOPE Workshop on editing the publication »The Silica Cycle«, Bremen, 05.-07.12.2003

Deutsche Aquakulturtechnologie in der Entwicklungszusammenarbeit – Erfahrungen, Herausforderungen und Märkte. Ein GTZ/ZMT-Workshop, Bremen 20.01.2004

Kickoff Meeting, Inst. of Oceanology, Havanna, Kuba, 01.-17.02.2004

Planungsworkshop bilaterale Meeresforschung BMBF/CNPq, UFPe, Recife, Brasilien, 19.-23.03.2004

IOI-Ocean Learn – Global Learning in Ocean Science, Ein IOI/ZMT Workshop, Hanse-Wissenschaftskolleg, Delmenhorst, 24.-28.05.2004

WTZ-Brasilien Meeresforschung – Abschlußtreffen zur Projektentwicklung, Bremen, 09.06.2004

Deutsch-mexikanischer IB-CONICYT Workshop Bremen, 16.-18.06.2004

Rundgespräch mit Rektoren ost-indonesischer, staatlicher Universitäten zum Aufbau wissenschaftlicher Kooperationen zwischen indonesischen und deutschen Forschungseinrichtungen, Bremen, 18.06.2004

Modelling of Mangrove Forest Dynamics, 7th INTECOL International Wetlands Conference, Utrecht, 27.07.2004

Linking Individual Behavior and Population Ecology: Models, Theory, and Applications, Konferenz ESA 2004, Portland, USA, 06.08.2004

Higher Education in Marine Sciences: Development of Joint Activities between the Ocean University of China and the Universities of Bremen and Kiel, Bremen, 13.08.2004

Deutsche Gesellschaft für Meeresforschung, Mitgliederversammlung, Bremen, 24.09.2004

DFG-SCOPE Roundtable on Scientific Issues Related to Coastal Zone Management in Semi-enclosed Basins, Bremen, 04.-05.10.2004

SPICE-Projekt, Seminar & Lectures on Aquatic Ecosystems of Monsoon Asia Region: Status, Resources and their Sustainable Use, UNSOED, Purwokerto, Indonesia, 03.-11.12.2004

Vorbereitungsworkshop für Inputs zu einer außerordentlichen Sitzung des indonesisch-deutschen Lenkungsausschusses Earth and Ocean Research im Hinblick auf die Tsunamiflutkatastrophe und die Positionierung von SPICE, Bremen, 08.02.2005
Workshop on the Formation of SPICE Cluster 6, Project Proposals under Cluster 6 and Other Additional Project Proposals Under the Umbrella of SPICE, Bremen, 08.03.2005

Workshop on the Gulf of Batabanó, Instituto de Oceanología, Havanna, Kuba, 14.-22.03.2005

Joint Chinese-German Workshop on Land-Sea Interactions along Temperate-Tropical Gradients in Chinese Coastal Waters Chinesisch-Deutsches Zentrum für Wissenschaftsförderung, Peking, China, 04.-09.05.2005

SPICE-Workshop der deutschen Cluster-Koordinatoren, Bremen, 22.06.2005

EVENTS

EVENTS

Individual based modelling and ecology I & II, Annual Meeting of the British Ecological Society, University of Hertfordshire, Hatfield, 04.-08.09.2005

GTZ Workshop on Fisheries Degree Program in Papua New Guinea, Bremen, 14.-16.09.2005

Final International Evaluation: MADAM – Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project, Belém &

Bragança, Brasilien, 13.-16.09.2005

Workshop on Aquatic Ecosystems of Monsoon Asia Region: ACEMON Netzwerk Institute of Ocean Management, Chennai, Indien, 26.09.-01.10.2005

German-Vietnamese Workshop on Land-Ocean-Atmospheric Interactions in the Coastal Zone of Southern Vietnam. Achievements and Prospects of the Joint Project, Bremen, 20.-21.10.2005

Participation in Events

M. Arias-Schreiber

Workshop on the Gulf of Batabanó, Instituto de Oceanología, Havanna, Kuba, 14.-22.03.2005

U. Berger

7th INTECOL International Wetlands Conference, Utrecht, 25.-30.07.2004

Multiple Skalen und Skalierung in der Ökologie, Potsdam, 03.-05.03.2005

Internationales Abschiedssymposium zu Ehren Prof. Wissel, Ökosystemanalyse, UFZ Leipzig, 13.-15.07.2005

Mangrove Seagrass Symposium 2005, Smithsonian Institute, Bocas del Toro, Panama, 28.10.-04.11.2005

K. Bergmann

Oracle Software, Schulung Regiodata GmbH, Bremen, 07.-08.08.2003, 19.-20.08.2003

WebWorkshop Elektronische Beschaffung, Bremen, BBN GmbH, 28.04.2004

Network Security Workshop, Bremen, Watchguard GmbH, 11.05.2004

M. Birkicht

Fortbildung Gefahrstoffe, Arbeitssicherheitslehrgang, Vbg, Storkau, 23.-25.02.2004

Lehrgang Technomathematik, Universität Bremen, 11.05.2004

G. Boehme

Jahrestagung der Deutschen Gesellschaft für Humanökologie, Sommerhausen, 08.-10.05.2003

D. Dasbach

Strahlenschutzlehrgang, LPS, Berlin, 30.01.-01.02.2005

K. Diele

Encontro técnico: Elaboração duma legislação para a defesa do caranguejo-ucá durante a época reprodutivo em Pará, IBAMA, SECTAM, Belém, Brasilien, 24.01.2004

S. Eickhoff

Wissenschaft und Journalismus, Jahrestagung der Hochschulpressestellen in Deutschland, Universität Dortmund, Dortmund 25.09.2003

WissensWerte, Bremer Forum für Wissenschaftsjournalismus, Bremen, 22.-23.11.2004

Pausenlos Presstexte produzieren, Fortbildung, Universität Bremen, 15.-16.03.2005

Mit Journalisten erfolgreich reden, Fortbildung, Universität Bremen, 20.-21.09.2005

Pressearbeit in Zeiten der Hochschulreformen, Workshop, Haus der Wissenschaft, Bremen, 22.11.2005

PR-Konzeptionen erfolgreich planen und umsetzen, Fortbildung, Universität Bremen 06.-07.12.2005

W. Ekau

IOI-Kooperation, Code of Conduct, GTZ, Eschborn, 23.01.2003

Expert consultation for the development of an Ocean Policy for Thailand, Bangkok, Thailand, 22.03.-29.03.2003

Scoping Seminar, Recife, Brasilien, 20.-27.05.2003

Planungssitzung für das nationale angolische Meeresforschungsprogramm, Luanda, Angola, 10.-14.07.2003

DGM-Jahresversammlung, Zoologisches Institut und Museum, Hamburg, 05.12.2003

Kleine Sitzung der Gemischten Kommission

- zur deutsch-brasilianischen Kooperation
Meeresforschung, Bonn, 09.12.2003
- Eurocean 2004, European Federation of Marine Societies, Galway, 10.-13.05.2004
- Troubled Waters, GIWA-Workshop, GIWA, Kalmar, 22.-24.09.2004
- Messe SMM (Shipbuilding – Machinery & Marine Technology), Messezentrum Hamburg 28.09.2004
- Warnsignale Klima, Symposium, Fa. Nautilus, Hamburg, 29.09.2004
- Jahressitzung des Committee of Directors of IOI, Piran, Slowenien, 10.-16.10.2004
- Informationsveranstaltung zum IMBER-Projekt, ZMAF, Hamburg, 10.12.2004
- Small Islands Developing States, UN Symposium, Mauritius, 10.-16.01.2005
- Seerecht, Vortragsveranstaltung, Deutscher Verein für Internationales Seerecht, Hamburg, 08.02.2005
- Vorstandssitzung der DGM ZMAW, Hamburg, 07.03.2005
- IOI-OceanLearn Implementation Committee Meeting, UN, New York 16.-23.04.2005
- Coasts and Coastal People – Scenarios for Change and Responses - LOICZ II Inaugural Open Science Meeting, Royal Netherlands Institute for Sea Research, Egmond on Zee, 26.-28.06.2005
- M. Glaser**
- Neue theoretische Herausforderungen, Deutsche Gesellschaft für Soziologie, Kassel, 06.-07.05.2004
- Jahrestagung der Deutschen Gesellschaft für Humanökologie, Sommerhausen 13.-15.05.2004
- International Workshop: Researching Well-Being in Developing Countries, Hanse-Wissenschaftskolleg Delmenhorst, 02.-04.07.2004
- Nationale IKZM Strategien – Europäische Perspektiven und Entwicklungstrends Bundesministerium für Verkehr, Bau- und Wohnungswesen, Berlin, 28.02.-01.03.2005
- H. Hildenbrandt**
- Internationales Abschiedssymposium zu Ehren Prof. Wissel, UFZ Leipzig, 13.-15.07.2005
- V. Ittekkot**
- Global Water System Project (GWSP), Regionaltreffen, Research Institute for Humanity and Nature, Kyoto, Japan, 15.-19.03.2003
- International Conference on Ecosystem Futures, Zürich, 22.-27.03.2003
- DAAD-Stipendiaten-Auswahl, Jakarta, 05.-11.04.2003
- ICRI Panning Council Meeting, Gland, 07.-09.05.2003
- SCOPE Executive Meeting, Granada, 07.-14.06.2003
- EU-Workshop on Managing Aquatic Coastal Ecosystems in Monsoon Asia: From Crisis Management to Prevention of Water Quality Problems, Bremen, 11.-15.08.2003
- Interministerielle Sitzung zur WTZ-Kooperation mit Indonesien, Fischereiministerium und Forschungsministerium, Jakarta, Indonesien, 07.-11.02.2004
- Delegationsreise der Universität Bremen zur
Netzwerkbildung mit indischen Universitäten, Bangalore, Cochin, Indien, 21.02.-03.03.2004
- Workshop in Medan zur Kooperation mit der EU, mit Beteiligung von Italien und Malaysia; Eröffnung von SEACORM South East Asia Marine Research Center – SEACORM, Jakarta, 26.03.-02.04.2004
- BMBF-Delegationsreise zur Entwicklung des Studienganges »Meereswissenschaften«, Beijing, Qingdao, V.R. China, 03.-11.04.2004
- Executive Committee Meeting SCOPE, Montreal, Kanada, 28.04.-03.05.2004
- Vorstandssitzung Otto-Schmidt-Labor, Informationsaustausch, Universität Moskau Otto-Schmidt-Labor, St. Petersburg, Universität Moskau, 11.-15.05.2004
- Lenkungsausschuss China, Planungssitzung IB, Bonn, 21.06.2004
- BMBF-Delegation zur Tagung des Lenkungsausschuss »Meeres- und Geowissenschaften«, Beijing, Shanghai, V.R. China, 03.-17.07.2004
- DFG-SCOPE Roundtable on Scientific Issues and Problems of Semi-enclosed Basins, ZMT, 04.-05.10.2004
- Sitzung Lenkungsausschuss Indonesien, BMBF, Berlin, 06.-07.10.2004
- Joint Chinese-German Workshop on Land-Sea Interactions along Temperate-Tropical Gradients in Chinese Coastal Waters, Chinesisch-Deutsches Zentrum für Wissenschaftsförderung, Peking, China, 04.-09.05.2005
- IOW-Beiratssitzung, Leibniz-Institut für Ostseeforschung, Warnemünde, 21.-22.04.2004

EVENTS

T. Jennerjahn

EU-Workshop on Managing Aquatic Coastal Ecosystems in Monsoon Asia: From Crisis Management to Prevention of Water Quality Problems, Bremen, 11.-15.08.2003

Conference on Significant Processes, Observations, and Transformation in Oceanic Nitrogen SPOT-ON, Leibniz-Institut für Ostseeforschung, Warnemünde, 26.06.-01.07.2005

E. Krain

Sitzung Lenkungsausschuss Indonesien, BMBF, Berlin, 06.-07.10.2004

DAAD-Alumni-Seminar, DAAD, Bali, Indonesien, 10.-18.10.2004

Zukunft Küste – Coastal Futures, Auftaktveranstaltung, Forschungs- und Technologiezentrum Westküste, Büsum, 22.10.2004

GTZ-Tagung: Nachhaltigkeit macht den Unterschied. Neue Herausforderungen in Internationalen Wertschöpfungsketten, Berlin, 25.-26.09.2005

G. Krause

Gis DATA PRO, Einführung in die GIS-Software, Essen, 12.03.2003

Küstenmanagement in der Praxis, Politische Soziologie der Umwelt: Global Change und ICZM, ARTEC, Bremen, 04.11.2003

Nationale IKZM-Strategien – Europäische Perspektiven und Entwicklungstrends, Bundesministerium für Verkehr, Bau- und Wohnungswesen, Berlin, 28.02.-01.03.2005

Workshop on the Formation of SPICE Cluster 6, Project Proposals under Cluster 6 and Other Additional Project Proposals Under the Umbrella of SPICE, ZMT, 08.03.2005

A. Kunzmann

IOI-Kooperation, Code of Conduct, GTZ, Eschborn, 23.01.2003

Workshop der Gesellschaft für Biotechnologie und Forschung, Braunschweig, 11.02.2003

Meer und Mehr – Nutzen von Mikro- und Makroalgen, Symposium, Forschungs- und Technologiezentrum, Büsum, 05.06.2003

Workshop zum Thema Bedeutung und Chancen der Aquakultur, BIS, Bremerhaven, 26.06.2003

EAS Konferenz, Kooperation mit dem Institute of Marine Research (IMR), Bergen, Trondheim, 07.-13.08.2003

National Conference on Science and Tech-

nology Development of Aquaculture in Indonesia, Semarang, Jakarta, Indonesien, 25.01.-04.02.2004

FAO, Code of Conduct for Responsible Fisheries (CCRF), BMZ, Bonn, 21.-22.06.2004

Collective Research in FP6, SME Program, EU, Brüssel, 10.-17.10.2004

Mitgliederversammlung der KDM, Eröffnung InWaterTec, IfM-GEOMAR, Kiel, 31.08.2005

R. Lara

Informationsveranstaltung zum 6. Forschungsrahmenprogramm der EU, Bonn, 19.02.2003

U. Mehlig

Brasilianischer Botanik-Kongress 2004, Viçosa, Minas Gerais, Brasilien, 13.-18.07.2004

I. Opitz

Tag der Perspektiven, Infoveranstaltung zu Diamant/2-Software, Hamburg, 17.08.2004

Sondertagung TVöD – Der neue Tarifvertrag für den öffentlichen Dienst ab dem 01.10.2005, Haufe-Verlag, Hamburg, 15.06.2005

C. Orejas Saco del Valle

5th Hydrozoan Society Workshop, Langebaan, Kapstadt, Südafrika, 08.-18.01.2003

D. Peterke

2. Konferenz für Ionen-Analytik – CIA, Technische Universität, Berlin, 23.-26.02.2003

Strahlenschutzlehrgang der Landesanstalt für Personendosimetrie und Strahlenschutz-ausbildung Mecklenburg-Vorpommern, Berlin, 03.-08.09.2004

U. Saint-Paul

16. gtö-Jahrestagung, Rostock, 20.-22.02.2003

2. Sitzung der Aquakulturkooperation Schleswig-Holstein und Bremen, ZMT, 01.04.2003

Joint WorldFish Center/InWent International Workshop, Steering Committee Meeting, Feldafing am Starnberger See, 22.-23.04.2003

Begutachtung BIOLOG 2, BMBF, Bonn, 05.-06.05.2003

Didaktik-Werkstatt, Feldafing am Starnberger See, 09.-13.07.2003

BEAF, Fachbeirat »Internationale Agrarforschung«, Evaluation und Wirkungsbeobachtung, Bonn, 21.07.2003

- DEKLIM, Gutachtersitzung und Statusseminar, Bad Münstereifel, 06.-08.10.2003
- Sustainable Use and Conservation of Biological Diversity – A Challenge for Society, International Symposium, Berlin, 01.-04.12.2003
- BEAF, Fachbeirat »Internationale Agrarforschung«, Begutachtung von 24 Projektanträgen, Bonn, 24.-25.09.2003
- gtö-Präsidiums-Sitzung, Frankfurt a. Main 10.10.2003
- Deutsche Aquakulturtechnologie in der Entwicklungszusammenarbeit – Erfahrungen, Herausforderungen und Märkte – GTZ/ZMT-Workshop, ZMT, 20.01.2004
17. gtö-Jahrestagung, Bayreuth, 17.-20.02.2004
- Sustainable Use of Coastal and Marine Resources, COASTMAN Training course, Bremen, 18.05.2004
- Global Learning in Ocean Science, IOI-Workshop, Hanse-Wissenschaftskolleg Delmenhorst, 24. 05.2004
- Presentation to Chinese Delegation from the Ocean University of China (OUC), Qingdao, ZMT, 12.08.2004
- Higher Education in Marine Sciences: Development of Joint Activities between the Ocean University of China and the Universities of Bremen and Kiel, ZMT, 13.08.2004
- BIOTA West Begutachtung, Burkina Faso und Benin, 24.09.-07.10.2004
- InWent Kurs Sustainable Use of Coastal and Marine Resources, ZMT, 06.06.2005
- Begutachtung Mata Atlântica Projekte, Rio, Sao Paulo, Brasilia, Brasilien, 09.-24.04.2005
- DEKLIM Abschluss-symposium, Leipzig, 09.-12.05.2005
- Biota Ost Begutachtung, Kenia, Uganda, 21.09.-07.10.2005
- First International Symposium on Evaluating of Mechanisms Sustaining the Biodiversity in the Tonle Sap, Phnom Penh, Kambodscha, 27.11.-03.12.2005
- Chr. Schnack**
26. Sitzung der Arbeitsgemeinschaft meereskundlicher Bibliotheken, Bundesamt für Naturschutz, Insel Vilm, 07.-09.09.2003
27. Sitzung der Arbeitsgemeinschaft Meereskundlicher Bibliotheken (AMB), Zentrum für Marine und Atmosphärische Wissenschaften, Hamburg, 13.09.2004
28. Sitzung der Arbeitsgemeinschaft Meereskundlicher Bibliotheken (AMB),AWI Bremerhaven, 26.09.2005
- Joint Chinese-German Workshop on Land-Sea Interactions along Temperate-Tropical Gradients in Chinese Coastal Waters, Chinesisch-Deutsches Zentrum für Wissenschaftsförderung, Peking, China, 04.-09.05.2005
- U. Selent**
- Fortbildungsveranstaltung, Pädagogisches Institut für die Wirtschaft, Fulda, 03.-04.05.2004
- Mitgliederversammlung der KDM, Eröffnung InWaterTec, IfM-GEOMAR, Kiel, 31.08.2005
- C. Stefes**
- Tag der Perspektiven, Infoveranstaltung zu Diamant/2-Software, Hamburg, 17.08.2004
- D. Unger**
- Forschungszentrum Ozeanränder RCOM, Klausurtagung, Tagungshaus Farge, 22.01.2004
- Conference on Significant Processes, Observations, and Transformation in Oceanic Nitrogen SPOT-ON, Leibniz-Institut für Ostseeforschung, Warnemünde, 26.06.-01.07.2005
- P. Westhaus-Ekau**
- I. Deutsch-Chinesisches Bildungsforum Institut für Asienkunde, Hamburg, 03.03.2005
- M. Wolff**
- ECOFISH-Workshop, La Paz, Mexiko, 02.-04.03.2004
- Global Learning in Ocean Science, IOI-Workshop, Hanse-Wissenschaftskolleg Delmenhorst, 24.28.05.2004
- Teilnahme an PhD-Begutachtungskommission, Centro Interdisciplinario de Ciencias Marinas del IPN, La Paz, Mexico, 20.-30.01.2005
- Cross Border Education and Development Cooperation, DAAD, Bonn, 01.06.2005

RESEARCH STAYS / EXPEDITIONS

M. Arias-Schreiber

Kuba-Projekt, Koordination, Vorbereitung der Feldforschung, IdO, Havanna, Kuba, 06.-14.12.2004

H. Behling

MADAM-Projekt, Geländearbeiten, Erprobung von Sedimentkernen, Doktorandenbetreuung, Porto Alegre, Florianopolis, Belém, Brasilien, 23.04.-15.05.2003

U. Berger

MADAM-Projekt, Feldarbeiten, Studentbetreuung, Belém und Bragança, Brasilien, 01.-10.12.2003

Kooperationsvorhaben und Feldarbeiten, Everglades Ranger Station, Florida 11.-23.12.2003

MADAM-Projekt und Planung bilaterales Forschungsprogramm, Universidad de Pernambuco, Recife, Sergipe Belém, Brasilien, 08.-24.03.2004

MADAM-Projekt, Feldexkursion, Betreuung von Doktoranden und Studenten, Recife, Belém, Brasilien, 16.11.-05.12.2004
Feldforschung, Fort Pierce, Florida, USA, 05.-11.11.2005

G. Boehme

MADAM-Projekt, Administration, Vorbereitung des Projektabschlusses, Belém, Brasilien 09.10.-07.11.2004

MADAM Projektabschluss, Belém, Bragança, Brasilien, 26.08.-02.10.2005

S. Bröhl

Benguela-Projekt, Alexander von Humboldt Expedition, Angola-Benguela Front, Namibia, 22.01.-14.02.2004

D. Dasbach

Probennahme, CESS, Trivandum, Indien, 21.11.-03.12.2005

K. Diele

MADAM-Projekt, Forschung und Koordination, Belém, Bragança, Brasilien, 01.2004-09.2005

A. Echterhoff

MADAM-Projekt, technische Unterstützung, Belém, Bragança, Brasilien, 03.04.-13.07.2003

MADAM-Projekt, technische Unterstützung, Belém, Bragança, Brasilien, 04.11.-

04.12.2003

MADAM-Projekt, technische Unterstützung, Feldexkursionen, Belém, Bragança, Brasilien, 16.02.-27.05.2004

MADAM-Projekt, technische Unterstützung, Vorbereitung Feldexkursionen, Belém, Bragança, Brasilien, 20.10.-19.11.2004

MADAM Projekt, Feldeinsatz, techn. Assistenz, Belém, Bragança, Brasilien, 09.-29.06.2005

W. Ekau

Projektentwicklung und Partnersuche, College of Fisheries, Mangalore und Centre for Earth Science Studies, Trivandrum, Indien, 06.-14.05.2003

WTZ-Projekt Südafrika »Mechanisms in Zooplankton«, Auswertung, Marine and Coastal Management Institut, Kapstadt, 03.-14.08.2003

Projekt Aquakulturkooperation, Fisheries College, Mangalore, 18.-27.11.2003

Benguela-Projekt, Alexander von Humboldt Expedition, Angola-Benguela Front, Namibia, 22.01.-14.02.2004

ECORAYA-Projekt & WTZ Brasilien, INIDEP, Mar del Plata, Argentinien & UFF, Niteroi, Brasilien, 28.11.-06.12.2004

M. Glaser

MADAM-Projekt, Feldforschung und Lehre, UFFa, Belém, Brasilien, 17.03.-10.04.2003

MADAM-Projekt, Forschungscoordination und Studentbetreuung, Belém, Brasilien, 14.-30.09.2003

MADAM-Projekt, Projektstätigkeit, Belém, Brasilien, 27.02.-15.03.2004

Projektplanung, Núcleo de Apoio à Pesquisa sobre Populações Humanas e Áreas Úmidas Brasileiras, Universität Sao Paulo Carlos Diegues, Brasilien, 17.-18.03.2004

Projektplanung, Itajai, Florianopolis, Rio de Janeiro, Brasilien, 21.-24.03.2004

MADAM-Projekt, Projektstätigkeit, Sao Paulo, Belém, Brasilien, 10.-23.10.2004

MADAM-Projekt, Projektstätigkeit, Belém, Brasilien, 01.-16.06.2005

H. Hildenbrandt

MADAM-Projekt, Projektstätigkeit, Belém, Bragança, Brasilien, 16.11.-08.12.2004

V. Ittekkot

Aquakultur Project, Koordination und BMBF Begutachtung, MSS, Aqaba, Jordanien, 04.-08.06.2005

T. Jennerjahn

- Expedition, Ho Chi Minh Stadt, Nha Trang, Qhy Nhon, Vietnam, 24.06.-09.07.2003
 SPICE-Projekt, Expedition Segara Anakan Lagune, UNSOED, Purwokerto, Indonesien, 08.-28.05.2004
 SPICE-Projekt, Expedition Segara Anakan Lagune, Workshop, Summer School »Monsoon Asia«, UNSOED, Purwokerto, Indonesien, 22.11.-20.12.2004
 SPICE-Projekt, Cluster-Koordination, Segara-Anakan Expedition, UNSOED, Purwokerto, Indonesien, 24.06.-09.07.2005
 SPICE-Projekt, Feldexkursionen, Laborarbeit, Expedition Segara Anakan Lagune mit FS »Sonne«, UNSOED, Purwokerto, Indonesien, 17.08.-15.09.2005

C. Jimenez

- Kuba-Projekt, Probennahme, Institute of Oceanology, Havanna, Kuba, 01.-17.02.2004
 Kuba-Projekt, Organisation der Feldforschung, Instituto de Oceanología (IdO), Havanna, Kuba, 02.-20.05.2004
 Kuba-Projekt, Instituto de Oceanología (IdO), Havanna, Kuba, 03.-11.12.2004

E. Krain

- SPICE-Projekt, Koordination und Projektim-plementation, Jakarta, Makassar (Sulawesi), Purwokerto (Java) und Pekanbaru (Sumatra), Indonesien, 27.06.-10.07.2004
 SPICE-Projekt, Koordination, BPPT, Jakarta, Semarang, UNDIP, IBP, Bogor, Indonesien, 10.-19.10.2004
 SPICE Project, Koordination, Summer School, Jakarta, Makassar, Bandung, Indonesien, 11.-22.07.2005
 SPICE-Projekt, Koordination, Summer School, Lenkungsausschußsitzung, Makassar, Hasanuddin Universität, Manado, Jakarta, Indonesien, 21.10.-25.11.2005

G. Krause

- GPS-Kontrollmessungen, DLR, Köln, 22.-23.09.2003

U. Krumme

- MADAM-Projekt, Lehre und Feldarbeiten, Belém, Bragança, Brasilien, 13.11.2003-22.01.2004
 MADAM-Projekt, Lehrveranstaltung und Feldforschung, Belém, Bragança, Brasilien, 09.06.-03.07.2005

A. Kunzmann

- Aufbau einer Zweigniederlassung der Kontaktstelle, Belém, Bragança, Brasilien, 13.11.2003-22.01.2004
 Aquakultur Project, Koordination und BMBF Begutachtung, MSS, Aqaba, Jordanien, 04.-09.06.2005

R. Lara

- Mangrovenexkursion, Kooperationsvorhaben, CIMAR, Universidad de Costa Rica, 19.04.-24.01.2003
 MADAM-Projekt, Laborarbeiten, Feldarbeiten, Belém, Bragança, Brasilien, 02.-18.05.2003
 MADAM-Projekt, Feldforschung und Studentenbetreuung, Belém, Brasilien, 12.-28.03.2004
 Can-Gio-Projekt, Koordination, Feldforschung u. Aufbau des Labors, Universität f. Naturwissenschaften, Ho Chi Minh City, Vietnam, 24.04.-10.05.2004
 Can-Gio-Projekt, Koordination und Feldforschung, Universität f. Naturwissenschaften, Ho Chi Minh City, Vietnam, 25.09.-13.10.2004
 MADAM-Projekt, Feldforschung und Studentenbetreuung, Belém, Amapá, Brasilien, 26.10.-12.11.2004
 Can Gio Projekt, Feldarbeiten, University of Natural Sciences, Ho Chi Minh City, Vietnam, 28.03.-18.04.2005
 MADAM-Projekt, Feldforschung und Studentenbetreuung, Belém, Brasilien, 04.-18.07.2005

U. Mehlig

- MADAM-Projekt, Bragança, Brasilien, Langzeitaufenthalt bis 09/2005

S. Meyerholz

- MADAM-Projekt, administrative Unterstützung, Belém, Bragança, Brasilien, 15.09.-02.10.2003

O. Morisse

- Forschungsexpedition »South Bengal 2003«, Chennai, Kochi, Indien, 07.-22.05.2003
 SPICE-Projekt, Expedition Segara Anakan Lagune, UNSOED, Purwokerto, Indonesien, 06.-28.05.2004
 SPICE-Projekt, Expedition ins Spermonde-Archipel, UNHAS, Makassar, Indonesien, 28.08.-15.09.2004
 SPICE-Projekt, Probennahme Segara Anakan Lagune, Laboranalyse, UNSOED,

RESEARCH STAYS / EXPEDITIONS

Purwokerto, Indonesien, 22.11.-20.12.2004
SPICE-Projekt, Expedition Spermonde Archipel,
Fahrtabschnitt I bis III, UNHAS, Makassar,
Indonesien, 06.03.-03.04.2005

SPICE-Projekt, Feldexkursionen, Laborarbeit,
Expedition Segara Anakan Lagune mit FS
»Sonne« (SO-184), UNSOED, Purwokerto,
Indonesien, 26.06.-15.09.2005

I. Nordhaus

SPICE-Projekt, Expedition Segara Anakan
Lagune, UNSOED, Purwokerto, Indonesien,
06.05.-18.06.2004

SPICE-Projekt, Benthosbestimmung, Sencken-
berg Museum, Frankfurt, 19.-22.10.2004

SPICE-Projekt, Probennahme Segara Anakan
Lagune, Workshop, Summer School
»Monsoon Asia«, UNSOED, Purwokerto,
Indonesien, 22.11.-20.12.2004

SPICE-Projekt, Probennahme Segara Anakan
Lagune, Benthos-Kurs, UNSOED,
Purwokerto, Indonesien, 24.06.-19.08.2005

C. Orejas Saco del Valle

Expedition in den Golfo de Batabanó, IdO,
Havanna, Kuba, 03.05.-05.06.2003

D. Peterke

MADAM-Projekt, technische Unterstützung,
Belém und Bragança, Brasilien, 04.05.-
15.06.2003

Can-Gio-Projekt, Feldforschung u. Aufbau des
Labors, Universität f. Naturwissenschaften,
Ho Chi Minh City, Vietnam, 24.04.-
12.05.2004

MADAM-Projekt, Etablierung einer Meß-
methode, Belém, Brasilien, 12.11.-
13.12.2004

H. Pohl

MADAM-Projekt, Belém, Brasilien, Langzeit-
aufenthalt

C. Richter

Forschung und Koordination Aqaba-Projekt,
Amman und Aqaba, Jordanien, 02.-
27.08.2003

Clean-Aquaculture Project, Forschung und
Koordination, MSS, Aqaba, Amman, Jor-
danien, 13.-21.02.2004

Clean-Aquaculture Project, Forschungsar-
beiten, Photosynthese, Koordination,
Entwicklung Projektskizze, MSS, Aqaba,
Jordanien, Interuniversity Institute, Eilat,
Israel, 17.04.-08.05.2004

SPICE-Projekt, Forschungsexpedition ins
Spermonde-Archipel, Coral Reef Center,
Hasanuddin University Makassar, Indone-
sien, 15.05.-05.06.2004

SPICE-Projekt, Forschungsexpedition ins
Spermonde-Archipel, Coral Reef Center,
Hasanuddin University Makassar, Indone-
sien, 01.-16.09.2004

Clean-Aquaculture Project, Forschung und
Koordination, MSS, Aqaba, Jordanien,
25.10.-03.11.2004

SPICE-Projekt, Expedition Spermonde Ar-
chipel, Fahrtabschnitt I und II, UNHAS,
Makassar, Indonesien, 09.-23.03.2005

Aquakultur Project, Koordination und BMBF
Begutachtung, MSS, Aqaba, Jordanien, 04.-
09.06.2005

GTZ-Projekt Thailand, Phuket Marine Biologi-
cal Center (PMBC), Thailand,
13.-18.07.2005

SPICE-Projekt, Feldarbeiten, Koordination,
Summer School, UNHAS, Makassar,
Indonesien, 02.-23.09.2005

GTZ-Projekt Thailand, Feldarbeiten, Bangkok,
PMBC, Phuket, Thailand, 29.11.-10.12.2005

T. Rixen

Kuba-Projekt, Probennahme, Institute of
Oceanology, Havanna, Kuba, 01.-17.02.2004

SPICE-Projekt, Felduntersuchungen, Pekanbaru,
Projektkooperation mit der Universität
Sumatra Nord, Medan, Eröffnung Seacom-
Center, Bali, Indonesien, 09.03.-03.04.2004

Kuba-Projekt, Probennahme, Institute of
Oceanology, Havanna, Kuba, 23.-31.07.2004

SPICE-Projekt, Felduntersuchungen, Pekanbaru,
Indonesien, 08.09.-03.10.2004

Kuba-Projekt, Instituto de Oceanología (IdO),
Havanna, Kuba, 03.-11.12.2004

SPICE-Projekt: Feldarbeiten, University of Riau,
Indonesien, 18.07.-09.08.2005

U. Saint-Paul

Mangrovenexkursion, Kooperationsvorhaben,
CIMAR, Universidad de Costa Rica, 19.01.-
24.01.2003

MADAM-Projekt, Koordination, Belem, Bra-
gança, Brasilien, 16.03.-29.03.2003

MADAM-Projekt, Koordination, WTZ-Vorha-
ben mit UFPe, Recife, Belém, Bragança,
Brasilien, 06.-18.08.2003

MADAM-Projekt, Koordination, Lehre, Belém,
Bragança, Brasilien, 12.-26.11.2003

Can Gio-Projekt, Ho Chi Minh City, Can Gio,
Hanoi, Vietnam, 07.-16.02.2004

RESEARCH STAYS / EXPEDITIONS

MADAM-Projekt, Koordination, Lehre, Belém, Bragança, Brasilien, 24.03.-01.04.2004

Can Gio-Projekt, Ho Chi Minh City, Can Gio, Hanoi, Vietnam, 05.-16.11.2004

MADAM-Projekt, Koordination, Prüfungsabnahme, Projektanbahnung, UFPe, Recife, Belém, INPA, Manaus und CNPq, Brasília, Brasilien, 18.01.-05.02.2005

Expedition Mekong: Aquakulturanlagen und Inspektionsreise hinsichtlich einer studentischen Exkursion, Chau Doc, Vietnam, Phnom Penh, Kambodscha, 06.-11.03.2005

MADAM-Projekt, Koordination, Belém, Bragança, Brasilien, 09.-24.04.2005

MADAM-Projekt, Koordination des Projektabschlusses, Abschlußworkshop, Belém, Bragança, Brasilien, 31.08.-10.09.2005

U. Salzmann

MADAM-Projekt, Forschung und Datenbankmanagement, Belém und Bragança,

Brasilien, 13.01.-10.06.2004, 26.07.-31.12.2004

MADAM-Projekt, Forschung und Vize-Koordination, Belém, Bragança, Brasilien, 01.2004-09.2005

J. Tiemann

Forschungsexpedition »South Bengal 2003«, Chennai, Kochi, Indien, 07.-22.05.2003

M. Wolff

Batabanó-Projekt, Feldforschung, Koordination, Instituto de Oceanología, Havanna, Kuba, 04.-12.06.2004

CENSOR-Projekt, Universidad de Antofagasta, Chile, 07.-21.11.2004

M. Wunsch

Projektvorbereitung Cluster III, Public Awareness und audiovisuelle Medien, Havanna, Kuba, 12.-28.05.2003

U. Berger

MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003

Redaktionstreffen, UFZ, Abteilung Ökosystemanalyse, Leipzig, 17.-21.12.2003

Planungsworkshop, UFPe, Recife, Brasilien, 08.-23.03.2004

Datensichtung, Betreuung Masterthesis, Feldstudie Aqaba, Universität Essen/Duisburg, 27.04.2004

Kooperationsplanung Verbundprojekt Brasilien, Universität Kiel, 04.05.2004

Mangrove Succession & Modelling, Special Issue Edition, Kooperationsvereinbarung, Louisiana State University, Baton Rouge, United States Geological Survey, Lafayette, USA, 23.-31.01.2005

KiWi-Modell, Publikation, Technische Universität Freiberg, 18.-19.07.2005

M. Birkicht

Bildung einer Interessengemeinschaft zur Sensortechnik, UFT, Bremen, 27.07.2004 u. einmal wöchentlich August 2004

G. Boehme

Final International Evaluation: MADAM – Mangrove Dynamics and Management.

Achievements and prospects of the German-Brazilian joint project, Belém u. Bragança, Brasilien, 13.-16.09.2005

Chr. Brandt

Kooperationsaufbau mit Aquarium, Zucht von Zierorganismen, Transport lebender Tiere, Zoologischer Garten, Rotterdam, 18.-19.04.2005

K. Diele

MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003

Final International Evaluation: MADAM – Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project, Belém u. Bragança, Brasilien, 13.-16.09.2005

S. Dittmann

SPICE, Kick-off meeting, Jakarta, Purwokerto, Indonesien, 27.09.-06.10.2003

S. Eickhoff

Sitzungen Planungsgruppe »Stadt der Wissenschaft«, Bremen, März 04 – Mai 05, monatlich
Sitzungen Planungsgruppe »Wissenschaft und Schule«, Bremen, Mai 04 – Mai 05, monatlich

PROJECT MEETINGS

PROJECT MEETINGS

SPICE-Projekte, Informationsreise, Purwokerto, Surabaya, Makassar, Manado (Indonesien) 26.06.-17.07.2005

W. Ekau

Aquakulturkooperation Indien,

Fa. ECOMARES, Büsum, 25.04.2003

Vorbereitung Namibia-Expedition, IOW, Warnemünde, 13.11.2003

Planungsworkshop, UFPe, Recife, Brasilien, 19.-23.03.2004

Vorbereitungsworkshop für Inputs zu einer außerordentlichen Sitzung des indonesisch-deutschen Lenkungsausschusses Earth and Ocean Research im Hinblick auf die Tsunamiflutkatastrophe und die Positionierung von SPICE, ZMT, 08.02.2005

GTZ Workshop on Fisheries Degree Program in Papua New Guinea, ZMT & GTZ, Eschborn, 14.-16.09.2005

Kick-off Workshop GTZ-ZMT-Projekt, Vudal University, College of Fisheries, Papua New Guinea, 12.-21.11.2005

I. Freytag

Entwicklung eines gemeinsamen Masterstudiengangs »Meereswissenschaften«, Ocean University of China, Qingdao, China, 13.-20.11.2004

M. Glaser

MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003

Mitgründung der Studiengruppe »Partizipation« der Deutschen Gesellschaft für Humanökologie, Sommerhausen, 13.05.2004

Lehre und SPICE-Cluster 6, Wissenschaftszentrum für Sozialforschung, Lateinamerika Institut, Berlin, 24.-26.01.2005

Vorbereitungsworkshop für Inputs zu einer außerordentlichen Sitzung des indonesisch-deutschen Lenkungsausschusses Earth and Ocean Research im Hinblick auf die Tsunamiflutkatastrophe und die Positionierung von SPICE, ZMT, 08.02.2005

Final International Evaluation: MADAM – Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project, Belém & Bragança, Brasilien, 06.-22.09.2005

Kooperation in Lehre, Projektanbahnung, Humboldt-Universität, Berlin, 28.-29.09.2005

H. Hildenbrandt

MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003
Redaktionstreffen, UFZ, Abteilung Ökosystemanalyse, Leipzig, 17.-21.12.2003

Datensichtung, Betreuung Masterthesis, Feldstudie Aqaba, Universität Essen, Duisburg, 27.04.2004

Mangrove Succession & Modelling, Special Issue Edition, Kooperationsvereinbarung, Louisiana State University, Baton Rouge, United States Geological Survey, Lafayette, USA, 23.-31.01.2005

Final International Evaluation: MADAM, Belém & Bragança, Brasilien, 13.-16.09.2005

V. Ittekkot

Vorbereitung internationaler Workshop, Institute of Oceanography, Goa, Indien, 27.12.2002-11.01.2003

Planung Aquaculture Workshop IOI-Kooperation, GTZ, Eschborn, 23.01.2003

JGOFS-Workshop »Biogeochemical Fluxes in the Indian Ocean«, NIO, Goa, Indien, 22.02.-02.03.2003

Kerala Reservoir Fisheries Project, Minister für Fischerei und Tourismus, Kerala, Indien, GTZ, Berlin, 06.-07.03.2003

Projekt »Vernbanad Lake« und Brantas-Projekt, BMBF, Bonn, 28.-29.04.2003

Jordanien-Kooperation, MSS, Aqaba, Jordanien, 02.-06.08.2003

Kuba-Kooperation, IdO, CIM, CITMA, Havanna, Kuba, 18.-25.08.2003

ACEMON, EU-Antragstellung, Universität Brüssel, 09.-11.09.2003

Vorbereitungs- und Planungsgespräche zum IOC-Capacity Building Strategie-Papier, UNESCO-IOC, Paris, 27.-28.01.2004

Kickoff Meeting, Institute of Oceanology, Havanna, Kuba, 12.-16.02.2004

Netzwerkaufbau in den Tropen Asiens, National Institute of Oceanography (NIO), Goa, Indien, 26.-28.05.2004

Koordination von Ausbildungsvorhaben auf Java, UNSOED, UNHAS, Jakarta, Indonesien, 29.05.-01.06.2004

Workshop Cooperation with Indian Partner Universities at the University of Bremen, ARTEC, Bremen, 09.-10.06.2004

Ausbildungskooperation mit China, Forschungszentrum Westküste, Büsum, 23.08.2004

Kooperation mit LIPI, Indonesien, Amsterdam, 08.-09.10.2004

- SPICE-Projekt, Seminar & Lectures on Aquatic Ecosystems of Monsoon Asia Region: Status, Resources and their Sustainable Use, UNSOED, Purwokerto, Indonesia, 03.-11.12.2004
- Projektentwicklung »Biogeochemie kleiner Flusssysteme« in Vietnam, Vietnam National University, Ho Chin Minh City, Institute of Oceanography, Nha Trang/Vietnam, 1.-17.12.2004
- Deutsch-Chinesisches Masterprogramm u. Einbindung des Ph.D.-Programms East China Normal University, Second Institute of Oceanography, Hangzhou, Hainan Fishery Department, Qindao, 25.12.2004-01.01.2005
- Vorbereitungsworkshop für eine außerordentliche Sitzung des indonesisch-deutschen Lenkungsausschusses Earth and Ocean Research, ZMT, 08.02.2005
- Vorbereitung CB Strategy, TEWS Workshop, UNESCO, Paris, 05.-11.03.2005
- Begleitung der Ministerin Bulmahn, Jakarta, Indonesien, 12.-19.03.2005
- Entwicklung der Ausbildungskooperation; Begleitung der Rektordelegation der Universität Bremen, Qingdao und Shanghai, China, 03.-15.05.2005
- Statusbericht Strukturentwicklung, IfM-GEO-MAR, Kiel, 13.06.2005
- Präsentation der OC CB Strategy, UNESCO Paris, 24.-28.06.2005
- GTZ-Projekt, SPICE Lenkungsausschuß, Phuket Marine Biological Centre, Thailand, Palembang, Indonesien, 12.-26.07.2005
- Evaluation of Masters Program in Tropical Coastal Resources, Newcastle, UK 31.08.-02.09.2005
- Projektentwicklung, Department of Fisheries and Marine Affairs, Hainan u. Shanghai, China, 04.-09.09.2005
- NAM and Developing Country Centre-Cooperation in CB with ACEMON in developing countries, New Delhi, Chennai, Indien, 17.09.-03.10.2005
- Lenkungsausschußsitzung BMBF, Vorbereitung Special Courses mit NAM Centre und UNSOED, Jakarta, Makassar, Purwokerto, Indonesien, 14.-30.11.2005
- T. Jennerjahn**
- SPICE-Projekt, Vorbereitung Verbundantrag Brantas-Projekte, Indonesien, mit indonesischen Partnern, BPPT, Jakarta, Indonesien, 27.05.2004
- SPICE-Projekt, Vorbereitung Verbundantrag Brantas-Projekte, Indonesien, mit deutschen Partnern, GKSS Forschungszentrum, Geesthacht, 05.08.2004
- Kooperationsvorbereitungen, Marine Science Institute, University of the Philippines, Manila, Philippinen, 02.-07.05.2004
- SPICE-Workshop der deutschen Cluster-Koordinatoren, ZMT, 22.06.2005
- C. Jimenez**
- Kickoff-Meeting, Institute of Oceanology, Havana, Kuba, 01.-17.02.2004
- E. Krain**
- SPICE-Projekt, Abstimmungsworkshop mit deutschen Cluster-Koordinatoren bzgl. der Implementierung von SPICE, ZMT, 17.06.2004
- SPICE-Projekt, Arbeitstreffen mit Dr. H.-G. Rast, Bayer Health Care, Wuppertal und Prof. Dr. P. Proksch, Düsseldorf Cluster 4, Institut für Pharmazeutische Biologie, Universität Düsseldorf, Düsseldorf, 25.06.2004
- Sitzung des deutsch-indonesischen Lenkungsausschusses zur Forschungszusammenarbeit in der Meeresforschung und -technologie, Berlin, 06.-07.10.2004
- SPICE-Projekt, Seminar & Lectures on Aquatic Ecosystems of Monsoon Asia Region: Status, Resources and their Sustainable Use, UNSOED, Purwokerto, Indonesia, 03.-13.12.2004
- SPICE-Cluster 6, Wissenschaftszentrum für Sozialforschung, Berlin, 25.-26.01.2005
- SPICE-Workshop der deutschen Cluster-Koordinatoren, ZMT, 22.06.2005
- Vorbereitung Summer School und SPICE-LOICZ-Konferenz, Wissenschaftszentrum, Berlin, 05.12.2005
- G. Krause**
- MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003
- MADAM-Projekt, Abstimmung der Feldarbeiten 2003, DLR, Köln, 13.-14.03.2003
- MADAM-Projekt, Abstimmung der Feldarbeiten 2003 u. Publikationsvorhaben, DLR, Köln, 29.-30.04.2003
- Final International Evaluation: MADAM – Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project, Belém u. Bragança, Brasilien, 13.-16.09.2005

PROJECT MEETINGS

MADAM-Projekt, Veröffentlichungen, DLR, Oberpfaffenhofen, 21.-23.11.2005

A. Kunzmann

Koordination Aquakulturprojekte, AWI, Bremerhaven, 15.01.2003

2. Sitzung der Aquakulturkooperation Schleswig-Holstein und Bremen, ZMT, 01.04.2003

Aquakulturprojekt »Zierfische«, Kooperation, Bangor, Wales, 27.-29.05.2003

Kooperationsanbahnung Aquakulturkooperation, Fa. ECOMARES, Büsum, 22.09.2003

Konzeption Demo-Anlage Aquakultur, BIS, Bremerhaven, 17.11.2003

FAO Fishlarvae trainings manual, IfM-GEOMAR, GTZ, 22.01.2004

FAO, Code of Conduct for Responsible Fisheries (CCRF), BMZ, Bonn, 21.-22.06.2004

Kooperation Algenkultur, BAH-AWI, List/Sylt, 03.09.2004

Konzeptpräsentation einer Aquakulturforschungsanlage, BIS, Bremerhaven, 08.09.2004

Kooperationsaufbau mit Aquarium, Zucht von Zierorganismen, Transport lebender Tiere, Zoologischer Garten, Rotterdam, 18.-19.04.2005

GTZ Workshop on Fisheries Degree Program in Papua New Guinea, ZMT, 14.-15.09.2005

R. Lara

MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003

Deutsch-brasilianische Kooperation in der Meeresforschung, Planungsworkshop, UFPe, Recife, Evaluierung Kooperationsmöglichkeiten, Universidade Federal de Bahia, Universidade Federal de Sergipe, Brasilien, 12.-28.03.2004

Can-Gio-Projekt, Kooperation, TU Dresden, 15.-16.06.2004

Can Gio Projekt, Kooperationstreffen zur Fortführung des DFG-Projektes, Universität Hamburg, 24.-25.05.2005

German-Vietnamese Workshop on Land-Ocean-Atmospheric Interactions in the Coastal Zone of Southern Vietnam. Achievements and Prospects of the Joint Project, ZMT, 20.-21.10.2005

U. Mehlig

MADAM-Projekt, Klausurtagung zur inhalt-

lichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003
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I. Nordhaus

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C. Richter

SPICE, Kick-off meeting, Jakarta, Makassar, Indonesien, 27.09.-07.10.2003

Planungsworkshop bilaterale Kooperation mit Israel, Interuniversity Institute Eilat, Israel, 05.05.2004

SPICE-Projekt, Präsentation der Aktivitäten anlässlich des Staatsbesuchs der Bundesforschungsministerin in Indonesien, Jakarta, Indonesien, 15.-17.03.2005

T. Rixen

Projekt Biogeochemical Fluxes in the Arabian Seas, IfM-GEOMAR, Kiel, 24.01.2003

SPICE, Kick-off meeting, Jakarta, Makassar, Indonesien, 27.09.-05.10.2003

Kickoff-Meeting, Institute of Oceanology, Havanna, Kuba, 01.-17.02.2004

Meteor-Expedition Indik, Vorbereitung, Universität Hamburg, 09.12.2005

U. Saint-Paul

MADAM-Projekt, Klausurtagung zur inhaltlichen und organisatorischen Planung der 3. Projektphase, Norderney, 13.-15.01.2003

Vietnam-Projekt, IOW, Warnemünde, 08.09.2003

Can Gio-Projekt, Planungsworkshop, Ho-Chi-Minh-City, Can Gio, Vietnam, 07.-16.02.2004

Kooperationsplanung, Florianopolis, Brasilien, 16.-19.03.-2004

Planungsworkshop, UFPe, Recife, Brasilien, 19.-23.03.2004

Evaluierung von Untersuchungsgebieten im Rahmen der MCT/BMBF Ausschreibung, Aracuja, Teresina, Parnaiba, Brasilia, Belém, Brasilien, 30.06.-16.07.2004

BIOLOG-West, Begutachtung, Burkina Faso, Benin, 24.09.-08.10.2004

PROJECT MEETINGS

Final International Evaluation: MADAM – Mangrove Dynamics and Management. Achievements and prospects of the German-Brazilian joint project, Belém u. Bragança, Brasilien, 13.-16.09.2005

Begutachtung, Egerton University, Kenia, 21.09.–07.10.2005

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U. Salzmann

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P. Westhaus-Ekau

Reiseplanung deutsch-chinesische Lehrkooperation Masterstudiengang Marine Sciences, IfM-GEOMAR-GEOMAR, Kiel, 08.11.2004

Deutsch-Chinesisches Masterprogramm, Ocean University of China (OUC), Qingdao, China, 13.-20.11.2004

Kooperation der Universitäten Bremen und Kiel mit der Ocean University of China Entwicklung eines gemeinsamen Masterstudienganges, ZMT, 03.02.2005

Vorbereitung des Besuchs einer chinesischen Delegation und Summer School in Qingdao, BMBF, Bonn, 02.05.2005

Sino-German Initiative on Marine Sciences, IfM-GEOMAR, Kiel, 07.-09.07.2005

Delagationsbesuch Ocean University of China, Qingdao, BMBF, Geographische Gesellschaft, Chinesische Botschaft, Berlin, 09.-12.07.2005

M. Wolff

Anbahnung ISATEC Kooperation, King Fahd University, Dahrein, Saudi Arabien, 19.-25.01.2003

EU-Meeting zum GIACSTudiengang u. Spezialkurs, Costa Rica, 20.03.-21.04.2003

Kooperationsmöglichkeiten zwischen ISATEC mit Universität Kiel, Universität Kiel, 07.-08.01.2004

GIACSTudiengang, Workshop, Universidad de Costa Rica, San Jose, Costa Rica, 18.-26.01.2004

Alumni-Netzwerk-Treffen, Rektorat der Universität Bremen, 10.03.2004

ALFA GIACST, Arbeitstreffen, Universidad de Costa Rica, San José, Costa Rica, 17.-24.07.2004

CENSOR Kickoff Workshop, Universidad La Molina, Lima, Peru, 16.-29.10.2004

Batabanó-Workshop, CIP, Havanna, Kuba, 14.-17.03.2005

ALFA GIACST, Arbeitstreffen, Universidad de Costa Rica, San José, Costa Rica, 27.-30.04.2005

CENSOR-Projekt, Stakeholder Workshop, Pisco, Sechura, Peru und Guayaquil, Ecuador, 05.-17.05.2005

GTZ Workshop on Fisheries Degree Program in Papua New Guinea, ZMT, 14.-15.09.2005

Dr. Mohammad Ibrahim **Badran**, University of Jordan & Yarmouk University, 15.01.-19.01.2003

M.Sc. Claudio Fabian **Szlafzstein**, Universidade Federal do Pará, Belém, Brasilien, 01.03.-15.07.2003

Ikhsan B. **Wahyono** u. Endro **Soeyanto**, BPPT Jakarta, Indonesien, 03.03.-02.04.2003

Prof. Dr. John **Benzie**, Centre for Marine and Coastal Studies at the University of New South Wales, Sydney, Australia, 10.03.-11.03.2003

M.Sc. Geórgenes Hilário **Cavalcante Segundo**, UFF, Niterói, Brasil, 11.04.-31.05.2003

Prof. Dr. Horacio **Schneider** u. Prof. Dr. Maria Iracilda **da Cunha Sampaio**, Universidade Federal do Pará, Belém, Brasilien, 14.04.-13.07.2003

Dr. Ita S. **Mucharam**, University of Indonesia, Jakarta, Indonesien, 10.-17.05.2003

Anja **Kreiner**, NatMIRC, Swakopmund, Namibia, 26.05.-06.06.2003

Prof. Dr. Gustavo **Necco**, Interamerican Institute for Global Change Research (IAI), Sao José dos Campos, Sao Paulo, Brasilien, 27.05.-28.05.2003

Vincent **Vedel**, University of Wales, Swansea, UK, 10.06.-15.09.2003

Prof. Dr. Ngyen **Tac An**, Institute of

VISITORS AND GUEST RESEARCHERS

VISITORS AND GUEST RESEARCHERS

- Oceanography, Nha Trang, Vietnam, 16.06.-20.06.2003
- Nikitina Nadezda **Vasilievna**, Universität Moskau, Russland, 17.06.-15.07.2003
- MSc. Cleise **Cordeiro**, Universidade Federal do Pará, Belém, Brasilien, 01.09.-31.12.2003
- Dr. Ilka **Feller**, Smithsonian Environmental Research Center, Edgewater, Maryland, 03.09.-06.09.2003
- Rozilda **Drude**, Universidade Federal do Pará, Belém, Brasilien, 08.09.-11.09.2003
- Dr. Hans **Verheye** u. Tembaletu **Tanci**, Marine and Coastal Management, Kapstadt, Südafrika, 11.09.-27.09.2003
- Dr. Justo A. **Quintero**, Ministerio de Ciencias (CITMA), Havanna, Kuba, 25.09.-26.09.2003
- Juan José **Alvarado**, CIMAR, University of Costa Rica, San Jose, 14.10.2003
- Dr. S.W.A. **Naqvi**, National Institute of Oceanography, Goa, Indien, 15.10.2003
- Nguyen **Thanh Duc**, Dept. of Analytical Chemistry, University of Ho-Chi-Minh City, 22.10.2003-19.01.2004
- Dr. Mohammad **Badran** u. Fatmeh A.M. **Al Fakri**, University of Jordan & Yarmouk University, 27.10.-31.10.2003
- Prof. Dr. Sambasiva Rao **Patchineelam**, Universidade Federal Fluminense, Instituto de Química, Niterói-RJ, Brasilien, 04.12.-08.12.2003
- Prof. Dr. José **Ramos**, Universidade Federal do Pará, Belém, Brasilien, 26.05.-15.06.2004
- Prof. Dr. Ngyen **Tac An**, Institute of Oceanography, Nha Trang, Vietnam, 15.-22.06.2004
- M.Sc. Charles Maine **Kihia**, Egerton University, Njoro, Kenia, 01.08.2004-31.01.2005
- Dr. Claudio **Szlafsztein**, Universidade Federal do Pará, Belém, Brasilien, 03.08.-01.09.2004
- Dr. Pedro **Walfir** u. Martins **Souza Filho**, Universidade Federal do Pará, Belém, Brasilien, 16.08.-11.09.2004
- Dr. Damodharan **Padmalal**, Centre for Earth Science Studies, Kerala, Indien, 18.08.-09.11.2004
- Dr. Hans **Verheye**, Marine and Coastal Management, Kapstadt, Südafrika, 04.-18.09.2004
- Dr. Roberto **Perez**, Instituto de Oceanología, Havanna, Kuba, 09.-15.10.2004
- M.Sc. Lualhati **Lachica Aliño**, University of the Philippines, 15.10.2004-22.11.2005
- Prof. Dr. Maria Iracilda **da Cunha Sampaio** u. Prof. Dr. Horacio **Schneider**, Universidade Federal do Pará, Belém, Brasilien, 18.10.-12.11.2004
- Septinus Catur **Setyo Nugroho**, Universitas Jenderal Soedirman (UNSOED), Purwokerto, Indonesien, 20.10.-18.11.2004
- Dr. Ario **Damar**, Bogor Agricultural University, Bogor, Indonesien, 21.10.-10.11.2004
- Dr. Yusli **Wardiatno**, Bogor Agricultural University, Bogor, Indonesien, 21.10.-10.11.2004
- Dr. Jamaluddin **Jompa**, Marine Research Department, Hasanuddin University, Makassar, Indonesien, 29.10.-24.11.2004
- Dr. W.A. **Naqvi**, National Institute of Oceanography, Goa, India, 01.11.2004-31.03.2005
- M.Sc.A. Rozilda Henrique **Drude**, Universidade Federal do Pará, Belém, Brasilien, 24.12.2004-16.01.2005
- M.Sc. Neila **Cabral** u. M.Sc. Lucinaldo **Blandtt**, Universidade Federal do Pará, Núcleo de, Altos Estudos Amazonicos, (UFPA/NAEA), Belém, Brasilien, 12.01.-05.02.2005
- Dr. Marcelo **Cohen**, Universidade Federal do Pará, Belém, Brasilien, 17.01.-16.02.2005
- Prof. Dr. Su **Mei Liu**, Ocean University of China, College of Chemistry and Chemical Engineering, Qingdao, China, 18.01.-17.02.2005
- Chen Wen **Qun**, Hainan Marine and Fishery Department, Hainan Province, Haikou, China, 18.01.-17.02.2005
- Dr. Dao Ru **Wang**, Hainan Provincial Marine Development and Design Institute, Hainan Province, Haikou, China, 18.01.-17.02.2005
- Dr. Dedi **Zhu**, Second Institute of Oceanography, Key Lab. of Ocean Dynamic Processes and Satellite Oceanography (SOA), Hangzhou, China, 18.01.-17.02.2005
- M.Sc.A. Rozilda Henrique **Drude**, Universidade Federal do Pará, Belém, Brasilien, 10.-17.02.2005
- M.Sc. Rosete **da Silva Oliveira**, Universidade Federal do Pará, Belém, Brasilien, 21.04.-30.05.2005
- M.Sc. Tommaso **Giarrizzo**, Universidade Federal do Pará, Belém, Brasilien, 21.04.-12.06.2005
- Juan José **Alvarado Barrientos**, Centro de Investigación en Ciencias del Mar y Limnología (CIMAR), University of Costa Rica, 17.05.-18.07.2005
- Dr. Victoria **Isaac**, Universidade Federal do Pará, Belém, Brasilien, 21.06.-18.07.2005
- Dr. Claudio **Szlafsztein**, Universidade Federal do Pará, Belém, Brasilien, 29.06.-04.07.2005
- Dr. Manuel **Zetina Rejón**, CICIMAR, La Paz, Mexico, 03.-07.07.2005

VISITORS AND GUEST RESEARCHERS

- M. Sc. Silvia Patricia **Gonzales Diaz**, Center for Marine Research, University of Havana, Kuba, 08.07.–11.08.2005
- Prof. Dr. Maria Iracilda **da Cunha Sampaio** u. Prof. Dr. Horacio **Schneider**, Universidade Federal do Pará, Belém, Brasilien, 08.–18.07.2005
- Dr. Nguyen **Vu Thanh**, Department of Nematology, Institute of Ecology and Biological Resources, National Centre for Natural Sciences and Technology, Hanoi, Vietnam, 12.–29.07.2005
- Dr. Jaime **Mendo**, Universidad Nacional Agraria La Molina, Facultad de Pesqueria, Lima, Peru, 17.07.–05.08.2005
- M.Sc. Ana Rosa **da Rocha Araújo**, Universidade Federal do Pará, Campo Universitario de Bragança, Brasilien, 09.08.–29.12.2005
- Dr. Claudio **Franzosi**, Universität Buenos Aires, Argentinien, 20.08.–20.09.2005
- Dr. Marcelo **Cohen**, Universidade Federal do Pará, Belém, Brasilien, 29.08.–04.09.2005
- Dr. Ir. Iwan G. **Tojakusuma** u. M.Sc. Mochamad Saleh **Nugrahadi**, Agency for the Assessment and Application of Technology, Jakarta, Indonesien, 09.09.–04.10.2005
- M.Sc. S. **Sooraj**, Centre for Earth Science Studies (CESS), Trivandrum, Indien, 21.09.–18.11.2005
- Prof. Dr. V. **Subramanian**, Jawaharlal Nehru University, New Delhi, Indien, 30.09.–03.10.2005
- M.Sc. Tommaso **Giarrizzo**, Universidade Federal do Pará, Belém, Brasilien, 03.11.–12.12.2005
- Dewi **Yanuarita**, Center for Coral Reef Studies, Hasanuddin University, Makassar, South Sulawesi, Indonesien, 20.11.–19.12.2005
- Prof. Dr. Su Mei **Liu**, Ocean University of China, College of Chemistry and Chemical Engineering, Qingdao, China, 30.11.–14.12.2005
- Dr. Dao Ru **Wang**, Hainan Provincial Marine Development and Design Institute, Haikou, China, 08.–20.12.2005
- Prof. Jing **Zhang**, State Key Laboratories of Estuarine and Coastal Research, East China Normal University, Shanghai, China, 04.–22.12.2005

Teaching at Bremen University

ISATEC

International Studies in Aquatic Tropical Ecology (U. Berger, M. Birkicht, S. Dittmann, W. Ekau, M. Glaser, T. Jennerjahn, G. Krause, A. Kunzmann, I. Nordhaus, C. Richter, U. Saint-Paul, P. Westhaus-Ekau, M. Wolff), WS 2002/2003 – WS 2005/2006

Lectures

Lebensräume tropischer Küsten (S. Dittmann, A. Kunzmann, C. Richter), WS 2002/2003, WS 2003/2004

Konzept der Benthosökologie (S. Dittmann), WS 2002/2003

Theoretische Ökologie (U. Berger), WS 2002/2003, SS 2003,

Biogeochemistry of tropical marine systems (V. Ittekkot), WS 2002/2003, WS 2003/2004, SS 2004, WS 2004/2005

Einführung in die Palynologie und Vegetationsgeschichte der Erde (H. Behling), WS 2002/2003

Molekulare Tracer zur Untersuchung mariner Stoffkreisläufe (R. Lara, G. Kattner, T. Dittmar), WS 2002/2003, SS 2003

tmr), WS 2002/2003, SS 2003

Biologische Ozeanographie/Meeresökologie (S. Dittmann, M. Wolff), SS 2003

Global Change and Marine Systems (V. Ittekkot), SS 2003, WS 2003/2004, WS 2004/2005, SS 2005, WS 2005/2006

Marine Biogeographie (S. Dittmann), WS 2003/2004

Fischereiökologie der Tropen (U. Saint-Paul), WS 2004/2005

Biologische Ozeanographie/Meeresökologie: Fischereiwissenschaft (W. Ekau, U. Saint-Paul, P. Westhaus-Ekau), SS 2005

Practical Courses

Biologische Ozeanographie/Meeresökologie: Fischereiwissenschaftliches Praktikum (W. Ekau, U. Saint-Paul, P. Westhaus-Ekau), SS 2003, SS 2004, SS 2005

Pollenanalytisches Praktikum (H. Behling), SS 2003

Moderne organische Spurenanalytik in der marinen Biogeochemie (R. Lara, G. Kattner, T. Dittmar), WS 2003/2004, WS 2004/2005,

CAPACITY BUILDING

CAPACITY BUILDING

WS 2005/2006
Grundkurs Ökologie (U. Berger), SS 2004, SS 2005

Fischereiökologie der Tropen (U. Saint-Paul), WS 2004/2005

Seminars and Colloquia

Biogeochemistry of tropical marine systems (V. Ittekkot), SS 2004, WS 2004/2005

Global Change and Marine Systems (V. Ittekkot), SS 2005

Artesanale Fischerei und Aquakultur in Vietnam und Kambodscha (U. Saint-Paul), WS 2005/2006

Tropenökologisches Seminar und Kolloquium (S. Dittmann, V. Ittekkot, U. Saint-Paul, M. Wolff), WS 2002/2003 – WS 2005/2006

Teaching at other Partner Institutions

Trophic Modelling of Aquatic Ecosystems, MSc.-Studiengang GIACT, CIMAR Universidad de Costa Rica, M. Wolff, 31.03.-04.04.2003

Trophic Modelling of Aquatic Ecosystems Universitas Jenderal Soedirman, Puwokerto, Indonesien, M. Wolff, 02.10.-07.10.2003

Nekton (Kurs mit Vorlesungen), UFPa, Belém, Brasilien, U. Saint-Paul, 16.11.-28.11.2003

Phytoplankton and Zooplankton, Module in Marine Science, Special Training Course (MST-2004), Bogor Agricultural University, Faculty of Fisheries and Marine Sciences, Indonesien, P. Westhaus-Ekau, 29.03.-02.04.2004

Marine Fish Eggs and Larvae – Development, Ecology and Relation to Fisheries, Modul in Marine Science, Special Training Course (MST-2004), Bogor Agricultural University, Faculty of Fisheries and Marine Sciences, Indonesien, P. Westhaus-Ekau, 03.-10.04.2004

Coastal Resources Management (Special Training Course), Western Philippines University, Puerto Princesa, A. Kunzmann, 27.6.-16.07.2004

Respiration Physiology, Kursreihe: The Sea and its Resources, Purwokerto Summer School, Indonesien, A. Kunzmann, 25.11.-11.12.2004

Trophic Modelling Course, Facultad de Pesqueria, Universidad Nacional Agraria La Molina, Lima, Peru, M. Wolff, 18.-26.04.2005

Scientific Diving, Kursreihe: The Sea and its Resources, NIO, Nha Trang, Vietnam, A. Kunzmann, 01.-17.05.2005

Sino-German Summer School on Warming of the Oceans: The Global Biogeochemical Carbon Cycle (Vorlesungen mit Übungen), Ocean University of China, Qingdao, China, T. Rixen, 18.-22.05.2005

Nekton (Kurs mit Vorlesungen), Universidade Federal da Pará, Bragança, Brasilien, U. Krumme, 13.-17.06.2005

International Course on Benthic Ecology: »Benthic Organisms in Mangrove Forests and Tidal Flats« (Vorlesungen mit Praktikum), Universität UNSOED, Purwokerto, Java, I. Nordhaus, 01.-05.08.2005

Coral reef ecosystems, Summer School, Marine Ecology Special Training Course (MEST), UNHAS, Makassar, Indonesien, C. Richter, 05.-09.09.2005

Coastal Planning and Management as part of regional development (1), Coastal Planning and Management in relation to geo-hazards such as tsunamis (2), Summer School, Marine Ecology Special Training Course (MEST), UNHAS, Makassar, Indonesien, E. Krain, 24.-25.09.2005

Habilitations

Dr. Uta Berger: Metapopulation: Theoretisches Konstrukt oder nützliches Konzept? (Universität Bremen 2004)

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Aktani, Unggul: Fish communities as related to substrate characteristics in the coral reefs of Kepulauan Seribu Marine National Park, Indonesia, five years after stopping blast fishing practices (Wolff), 2003

Cohen, Marcelo: Past and current evolution of the Bragança mangroves – North Brazil (Saint-Paul), 2003

Kötter, Iris: Feeding Ecology of coral reef sponges (Hempel), 2003

Krumme, Uwe: Wanderungsökologie und großräumige Bilanzierung der Verteilung von Fischen zwischen den Tidenkanälen der Mangrove und dem Caeté Ästuar (Saint-Paul), 2003

Porto, Fernando: Zooplankton as Bioindicator of Environmental Quality in the Tamandaré Reef System (Pernambuco, Brazil):

- Anthropic Influences and Interaction with Mangroves (Saint-Paul), 2003
- Reise, Anneken: Estimates of biomass and productivity in fringe mangroves of North-Brazil (Saint-Paul), 2003
- Kober, Kerstin: Nahrungsökologie und Habitatnutzung von Schreit- und Wattvögeln im Ökosystem Mangrovenwald des Caeté Ästuars Nordbrasilien (Saint-Paul), 2004
- Nordhaus, Inga: Ernährungsökologie der semiterrestrischen Krabbe *Ucides cordatus cordatus* in einem Mangrovenwald in Nordbrasilien (Wolff), 2004
- Cornils, Astrid: Bedeutung des Zooplanktons für die benthisch-pelagische Kopplung in Korallenriffen des Roten Meeres (Ittekkot), 2005
- Roa-Quiaoid, Hilly-Ann, The Ecology and Culture of Giant Clams (*Tridacidae*) in the Jordanian sector of the Gulf of Aqaba, Red Sea (Saint-Paul), 2005
- Olivares, Gonzalo: The role of semi-enclosed embayment for the metapopulation dynamics of coastal marine invertebrates in the Humboldt Current System (Wolff), 2005
- Velez, José: Funktion der Bucht von Independencia, Peru, als Larvenaufwuchsgebiet (Wolff), 2005
- Ongoing:**
- Adams, Moira: Succession of mangrove forests after different kind of disturbances (Saint-Paul)
- Aggrey-Finn, Joseph: Fishery biology and management in Ghana (Wolff, Ekau)
- Alves da Silveira, Paula Cilene: Verteilung von Fischlarven im Küstengebiet vor Recife (Saint-Paul)
- Ardli, Erwin Rhyanto: Räumlich explizierte trophische Modellierung der Segara Anakan Lagune, Java, Indonesien (Wolff)
- Badjeck, Marie Caroline: Vulnerability of coastal fishing communities to climate variability and ENSO: Implications for natural coastal resources and management in Peru and Chile (Wolff)
- Baum, Antje: Nutrient dynamics in tropical rivers (Ittekkot)
- Baumgart, Anne: Biogeochemische Stoffkreisläufe vor Indonesien (Ittekkot)
- Borell, Esther: Water quality and heterotrophic feeding affects susceptibility of scleratinian corals – with particular reference to *Pocillopora damicornis* (Ittekkot)
- Dominici-Arosemena, Arturo: Fish assemblage of the Central American Region: a comparison between both sides of the Isthmus of Panama (Wolff)
- Ferse, Sebastian: Gezüchtete Korallenfragmente contra künstliche Riffsegmente – Vergleich verschiedener Methoden der Wiederansiedlung von degradierten Korallenriffen in Indonesien (Kunzmann, Wolff)
- Fontalvo Herazo, Martha Liliana: Development of an ecological cellular automata model for the evaluation of mangrove forest dynamic theories (Berger)
- Giarrizzo, Tommaso: Ecologic relationship of intertidal fish fauna of a mangrove estuary at the Amazon South Channel (Saint-Paul)
- Hüerkamp, Chistiane: Ernährungsphysiologische Untersuchungen an verschiedenen riffbildenden Korallen unter simulierten El Niño Bedingungen (Wolff)
- Keyl, Friedemann: Ertragsabschätzung und Modellierung mariner Ressourcen des Humboldtstrom-Auftriebsystems mittels gekoppelter Klima-Fischereimodelle (Wolff)
- Knittweis, Leyla: An investigation into juvenile sea cucumbers ecology in the tropics – Lessons for aquaculture production and stock rehabilitation programmes (Ittekkot)
- Lachica-Aliño, Lualhati: Vergleichende trophische Modellierung verschiedener Flachgewässer der Philippinen (Wolff)
- Lai Phu Hoang: Benthic community structure as indicator for system stability of a rehabilitated mangrove in South Vietnam (Saint-Paul)
- Leal Florez, Jenny: Impacts of introduced fish species in the fishery of the coastal lagoon Cienaga Grande de Santa Marta, Northern Columbia (Wolff)
- Mendoza, Ursula: Biogeochemie von Phosphor in Sedimenten, Biota und Wasser des Caeté Ästuars, Nordbrasilien (Lara, Saint-Paul)
- Menezes, Moirah: Investigations of the dynamic of mangrove forests by means of dendrochronological methods (Berger, Saint-Paul)
- Meynecke, Jan-Olaf: Biodiversität von Mangroven-Systemen unter Einwirkung globaler Klimaveränderungen in Australien und dem Indo-Pazifik – Indikationen für ein nachhaltiges Küstenmanagement (Saint-Paul)
- Oxmann, Julian: Organic matters and nutrients in natural and regenerated mangrove forests in Can Gio, Vietnam (Lara)

- Piou, Cyril: Analysis of buffer mechanisms in crab populations (*Ucides cordatus*) by means of spatial explicit, individual-based models (Berger, Saint-Paul)
- Protazio, Marcelo: The development of a methodology to detect and to analyze weak spatialecological pattern (Berger, Saint-Paul)
- Rocha Araujo, Ana Rosa da: Commercial crab capture of *Ucides cordatus* on the Braganca Peninsula: Fishery statistics and commercialization chain (Saint-Paul)
- Schloeder, Carmen: Reproductive ecology of the Caribbean coral *Porites furcata* in Bocas del Toro, Panama (Saint-Paul)
- Schmitt, Bettina: Charakterisierung von organischen Stickstoffverbindungen im Sediment und Wasser in einem Mangrovenökosystem Nordbrasilens (Lara)
- Selmi, Farid: Comparative Analysis of Indonesian governance systems (Glaser, Lange).
- Taylor, Marc: Energy flow structure and resource productivities of coastal systems of the Humboldt Current Large Marine Ecosystem (Wolff)

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- MSc. Claudio Szlafsztein: Vulnerability and response measures to natural hazard and sea-level impacts: Long-term coastal zone management of the State of Pará, Brazil Prof. H. Sterr, CAU Kiel (R. Lara), 2003
- MSc. Indra-Junaidi Zakaria: On the growth of newly settled corals on concrete substrates in coral reefs of Pandan and Setan islands, West Sumatera, Indonesia, CAU Kiel, Prof. Spindler (A. Kunzmann), 2004
- Lahajnar, Nico: Organic matter degradation in the deep sea: results from sediment trap studies and sediment sampling. Dr. rer. Nat., Universität Hamburg (V. Ittekkot), 2005

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- MSc. Lucinaldo Blandtt: Capacitação da resiliência social através de metodologias participativas: Experiências em comunidades amazônicas, (capacitation of social resilience with participatory methodologies, UFPa, Campo Universitario de Belém, Brasilien (M. Glaser)
- MSc. Cabral, Neila: O setor pesqueiro brasileiro e o desempenho das estruturas e sistemas

- de representação política, Universidade Federal do Pará (M. Glaser)
- Dipl. Biol. Sascha Romatzki: Reproduktionsstrategien von Steinkorallen (*Scleractinia*) in einem äquatornahen, indonesischen Korallenriff. Beiträge zum Coral-farming., CAU Kiel, Prof. Spindler (A. Kunzmann)
- Dipl. Biol. Sonja Rückert: Fischparasiten in der indonesischen Zackenbarschmarikultur, Universität Düsseldorf
- MSc. Ana Rosa da Rocha Araujo: Commercial crab capture of *Ucides cordatus* on the Bragança Peninsula: Fishery statistics and commercialization chain, UFPa, Campo Universitario de Bragança, Brasilien (U. Saint-Paul)
- MSc. Lualhati Lachica Aliño: Soft Bottom ecosystem benthopelagic coupling: the interaction of topographic and hydrographic attributes and fisheries potentials, University of the Philippines (M. Wolff)
- MSc. René Capote: Resilience of mangrove forests, University of Havana, Kuba, PhD Program: Universität Bonn (U. Berger)

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- Gieseler, Jörn: Intertidal fish species distribution/Part I in different habitats of Paranaguá Bay estuary (East-West axis) and feeding ecology of *Atherinella brasiliensis* as a study case (Saint-Paul), 2003
- Peterhänsel, Sabrina (2003): Migration pattern of the four-eyed fish *Anableps anableps* (*Anableptidae*, *Cyprinodontiformes*) in the mangrove estuary of the Caeté river (Northern Brazil), 2003
- da Rocha, Régine Elisabeth: Nahrungsökologische Untersuchungen an Fischgemeinschaften (Saint-Paul), 2003
- Schweers, Tanja: Populationsdynamische Untersuchungen an der Schokoladenmuschel *Megapitaria squalida* (Sowerby, 1835) in der Bahia Magdalena, Baja California (Mexiko) (Wolff), 2003
- Stoll, Ursula: Biogeochemical fluxes in the Indonesian Sea (Ittekkot), 2003
- Weber, Miriam: Untersuchungen zu Synergismus-Effekten von Sedimentation und Nährstoffen auf Steinkorallen (Wolff), 2003
- Hauptmann, Lars: Untersuchung der Wachstumsraten asexuell vermehrter Kolonien hermatypischer Steinkorallen in einem geschlossenen Aquariensystem unter Berücksichtigung

sichtigung verschiedener Leuchtmittel und Strahlungsintensitäten (Saint-Paul), 2004

Schmitt, Christoph: Beiträge zur Ökologie der Baumkrabbe *Aratus pisonii* in den Mangroven von Itamaracá, Nordbrasilien (Saint-Paul), 2004

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Behmann, Faris: Identification of molecular mechanisms underpinning pathogen defense systems in the onset of coral disease epizootics (Saint-Paul).

Fürsich, Catherine: Stomach content of the Spiny Lobster (*Panulirus argus*) juveniles in their algal phase in the South of Cayo Matias/Cuba (Wolff).

Henkel, Susann: Biogeochemische Untersuchungen kleiner Gebirgsflüsse in Süd-Kerala, Indien (Ittekkot).

Pohlenga, Insa: Biogeochemische Charakterisierung von Mangrovensedimentkernen aus der Segara Anakan Lagune, Java, Indonesien (Ittekkot).

Staller, Torsten: Klimarekonstruktion anhand von Korallen aus Costa Rica (Ittekkot).

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Jobmann, Christopher: Die Mangrovenkrabbe *Ucides cordatus*: Betrachtung zweier Populationsmodelle aus mathematischer und biologischer Sicht, FB Mathematik, Universität Bremen (U. Berger), 2005

Grote, Britta: Temporal Variability of the Transport of Larvae of Non-Clupeoid Fish Species in the Benguela jet Current off South Africa, Prof. W. Hagen, FB 2, Universität Bremen (W. Ekau), 2005

Schwarz, Heidemarie: Klassifikation von Mangroven des Caeté-Ästuars an der Nordostküste Brasiliens im Staat Pará mit Hilfe eines objektorientierten Verfahrens auf der Basis von Ikonos-Daten Prof. Dr. J. Hill & Prof. Dr. J. Ries, Universität Trier, Fachbereich Geographie/Geowissenschaften (G. Krause), 2005

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Hammes, Moritz: Genetische Diversität von Zooxanthellen in marinen Evertebraten des Spermonde Archipels, Indonesien Prof. M. Wahl, IfM-GEOMAR, CAU Kiel (C. Richter)

Jantzen, Carin: Photosyntheseleistung der Riesenmuschel *Tridacna* spp. im Golf von Aqaba, Rotes Meer, PD Dr. Ralph Tollrian, Universität München (C. Richter)

Stadtlander, Timo: Population structure and fisheries potential of *Labeobarbus aeneus* in a South African reservoir, Prof. W. Hagen, FB 2, Universität Bremen (W. Ekau)

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Adjei, Richard (Ghana): Differences in Growth of the Black-Chinned Tilapia (*Sarotherodon melanotheron*) in two Coastal Wetland Areas in Ghana (Ekau, Kunzmann), 2003.

Arias-Schreiber, Milena (Peru): Prey spectrum and feeding behaviour of the two sympatric pinnipeds (*Arctocephalus australis* and *Otaria flavescens*) in relation to the 1997-98 ENSO in southern Peru (Wolff, Mendo), 2003.

Busch, Julia- Anke (Deutschland): The Peruvian diving fishery on benthic invertebrates: Assessment of impacts on the socio-economic situation of fishermen (Wolff, Mendo), 2003.

Chi, Faustino Hilario (Belize): Long term effect of hurricane disturbance and recovery based on vegetation coverage, biomass and productivity estimates of the Turneffe mangrove forest in Belize (Wolff, Feller), 2003.

Estrada Mora, Esteban (Costa Rica): Zooplankton Dynamics in the Golfo Dulce, Costa Rica: feeding preferences and grazing rates in main groups of microcrustaceans (Richter, Morales), 2003.

Neumann, Christian (Deutschland): Contributions to the Yala Fisheries Management Plan-Key Characteristics of the Fishery in Kirinda, Sri Lanka (Ekau, Kunzmann), 2003.

Palla, Herminie (Philippinen): Population Dynamics and Exploitation Rate of *Leiognathus bindus* (Valenciennes), *L. elongatus* (Günther) and *Pentaprion longimanus* (Cantor) in Honda Bay, Palawan, Philippines (Wolff, Ekau), 2003.

Piou, Cyril (Frankreich): Effects of hurricane disturbances on mangrove forest structure,

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- studying the case of Belizean offshore islands and KIWI model simulations (Berger, Lara), 2003.
- Schiefenhoevel, Karin (Deutschland): Scientific contribution to sponge farming – growth, survival and attachment of two Indo-Pacific sponges, *Neopetrosia* sp. and *Stylissa massa* (Kunzmann, Richter), 2003.
- Schmidt, Christiane (Deutschland): Post-harvest-Mortality in the Marine Aquarium Trade. A Case Study at an Indonesian Export Facility (Kunzmann, Saint-Paul), 2003.
- Silz, Anja (Deutschland): Population dynamics and stock assessment of Mobulid rays in the Bohol Sea, Philippines (Wolff, Brey), 2003.
- Taylor, Marc Hollis (USA): Comparison of different growout culture methods for the Lion's Paw scallop *Nordipecten subnodosus* in Estero San Buto, Bahia Magdalena, B.S.C., Mexico (Wolff, Koch), 2003.
- Tin, Joo Yen (Malaysia): Transport and sedimentation of organic matter in the estuary of the Paraiba do Sul River, Brazil (Jennerjahn, Cavarlho), 2003.
- Yapinchay, Arnel (Philippinen): Green Mussel, *Perna viridis* (Mollusca: Mytilidae), Population and Fishery Assessment with Management Recommendations in Malampaya Sound, Philippines (Wolff, Ekau), 2003.
- Aheto, Denis (Ghana): Community involvement in mangrove ecosystem utilization: the case of Brenu and Kuve, Ghana (Breckling, Jha), 2004.
- Al-Khatib, Mohammed (Palästina): The discharge of water, nutrients and carbon of Dumai river, Indonesia (Ittekkot, Jennerjahn), 2004.
- Ewah, Carol (Kamerun): Response to abrupt climatic changes during the quaternary recorded in marine sediments of the central slope off Northeastern Brazil (Jennerjahn), 2004.
- Ferse, Sebastian (Deutschland): Rearing techniques for coral fragments in an ocean-based nursery: the use of cages (Kunzmann, Wolff), 2004.
- Fischer, Sönke (Deutschland): Fisheries biology of *Callinectes arcuatus* in the gulf of Nicoya, Costa Rica (Wolff)
- Fontalvo Herazo, Martha (Kolumbien): Development of an indicator system for integrated coastal management at Bragança peninsula – North Brazil (Glaser, Gläser), 2004.
- Goetz, Sabine (Deutschland): Characterization of the interaction between the Southern Sea Lion (*Otaria byronia*) and the artisanal fishery in Coquimbo, Chile (Stotz, Wolff), 2004.
- Haile, Johannes (Eritrea): Nucleic acid based identification of microbial diversity and measurement of their activity: a study in the waters of Namibia (Amann, Fuchs), 2004.
- Harun, Ernestina (Philippinen): Investigating the role of interactions between *Laguncularia racemosa* in competing other mangrove species by means of Leaf area Index (LAI) and its spatial structure, Pará, Bragança, Brazil (Berger, Mehlig), 2004.
- Hu, Haiping (China): Effects of potential stress factors on chlorophyll fluorescence of four mangrove species in Bragança, Brazil (Berger, Mehlig), 2004.
- Mallu, Pratibha (Indien): The influence of dietary protein on the growth performance of juvenile European sea bass (*Dicentrarchus labrax*) cultured in a recirculation system (Kunzmann, Saint-Paul), 2004.
- Malonek, Marika (Deutschland): Development of a sustainable fishing method for *Xanthochorus lassidiformis* (Gastropoda) as an alternative for the destructive diving fishery in Coquimbo Bay, Chile (Wolff), 2004.
- Nyangau, George (Kenia): Population characteristics, muscle wasting condition and socio-economic value of crayfish *Procambarus iderea* Girard in lake Naivasha, Kenya (Breckling), 2004.
- Pena Baca, Tania (Peru): An attempt to model the impact of El-Niño on the macrozoobenthos at the soft bottoms of Ancon bay, Peru (Tarazona, Arntz), 2004.
- Selmi, Farid (Deutschland): Analysis of the sustainable development in a fishery community in the Hambantota District-Sri Lanka (Gläser, Glaser), 2004.
- Siddiquee, Muhammad Nurul Amin (Bangladesh): Impact of development of sustainable aquaculture project DSAP on pond fish farmers with emphasis to wealth classes (Glaser, Reuter), 2004.
- Stern-Pirlot, Amanda (USA): Population dynamics and fisheries exploitation of *Anadara tuberculosa* in Costa Rica (Wolff), 2004.
- Zetsche, Eva-Maria (Deutschland): Effects of nutrient efflux on algal production on dif-

- ferent reef substrata (Richter, Kirst), 2004.
- Akbulut, Neslihan (Türkei): Comparison of different protein sources in shrimp feed in relation to shrimp growth and water quality (Kunzmann, Berger), 2005.
- Arbiol, Joseph (Philippinen): Assessment of the small-scale fisheries and evaluation of fish catch monitoring project in the Pacific Coast of Souther Leyte, Philippines (Wolff, Campos), 2005.
- Bakr, Alaa El-din (Ägypten): Bacterial communities in coastal surface waters along the Egyptian Mediterranean coast (Amann, Harder), 2005.
- Ballon Soto, Michael (Peru): Comparative analysis of the community structure and trophic relations of the Peruvian hake *Merluccius gayi peruanus* and its by-catch of the years 1985 and 2001 (Wolff, Brey), 2005.
- D'Lima, Dominique F. Coralie (Indien): Movement ecology of the mangrove crab *Ucides cordatus cordatus* (L.) (Decapoda: Brachyura) in the Caeté estuary, North Brazil (Berger, Diele), 2005.
- Dohna, Tina (Deutschland): Spatial and Seasonal Response of Meiofauna to different Mangrove Vegetation Types in the Can Gio Estuary, Vietnam (Saint-Paul, Nordhaus), 2005.
- Haasbach, Alexandra (Deutschland): Rationalities and response strategies under changing resource availability: Fishing households in Adecor, Island Garden City of Samal, Davao del Norte, Philippines (Glaser, Estrellada, Saint-Paul), 2005.
- Kyaw, Ai Thanda (Myanmar): Socioeconomic analysis of ornamental fish trade in Yangon, Myanmar (Wolff, Jha, Breckling), 2005.
- Luna Zarate, Soledad (Ecuador): Long term analysis of the spatial distribution and development of a Red Sea coral reef, Aqaba (Berger, Richter), 2005.
- Lyons, Erika (Irland): Health assessment of the green turtle *Chelonia mydas*, in Baja Sur, Mexico, 2005.
- Mawundu, Sellu (Sierra Leone): Population dynamics of *Ethmalosa fimbriata* (Bowdich, 1825) in the Western area district (Freetown), Sierra Leone (Wolff, Ekau), 2005.
- Naumann, Malik (Deutschland): The role of coral mucus in scavenging picoplankton as a food source for passive benthic suspension feeders (Richter, Wildt, Wolff), 2005.
- Neogi, Sucharit Basu (Bangladesh): Occurrence, survival and diversity of vibrios along a gradient of brackish to freshwater in Karnaphuli River estuary, Bangladesh (Wolff, Harder), 2005.
- Roder, Cornelia (Deutschland): Land-based pollution on the Caribbean Coast of Costa Rica: Nutritional and skeletal characteristics of the reef-building coral *Siderastrea iderealis* as a response (Lara, Cortes, Jimenez), 2005.
- Schläppy, Marie-Lise (Schweiz): Algae and detritus in the epilithic algal matrix of *Stegastes diemcaeus* (Pomacentridae) territories: their prevalence and nutritional value as food items (Jonkers, Wilson, Breckling), 2005.
- Schülke, Alexander (Deutschland): Meiofauna in the Can Gio mangrove estuary, South Vietnam. Changes between seasons, habitat type and sites (Saint-Paul, Schwarzer, Nordhaus), 2005.
- Schwarzer, Lioba (Deutschland): Low-cost coral transplantations for the recovery of coral reefs in Adecor, Island Garden City of Samal, Gulf of Davao, Philippines (Wolff, Kunzmann), 2005.
- Sunagawa, Shinichi (Deutschland): Seasonal variations in symbiont densities and skeletal Phosphorus concentrations in the Eastern Pacific (Costa Rica) Coral *Pavona clavus* (Lara, Cortes, Jimenez), 2005.
- Yao, Fang (China): Methodology to evaluate the intersex effect on mullet population (*Liza haematocheila*) (Wolff, Berger), 2005.
- Yuniar, Asri Trisnani (Indonesien): Parasites of marine fish from Segara Anakan, Java, Indonesia and their possible use as biological indicators (Hagen, Palm), 2005.

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- Andrade, Fernanda A.G.: Aspectos Ecológicos da fauna de morcêgos com ênfase na família Phyllostomidae, associada às florestas de mangue e terra firme na fazenda das salinas Bragança-PA. Mestrado em Ecologia de Ecosistemas Costeiros e Estuarinos, UFPA, Belém, 2003.
- Drude, Rozilda H.: Saúde do tirador do caranguejo, Estudo de Acarajo, PA. Mestrado, NEAF/UFPA, 2003.
- Magalhães, André L.P.: Distribuição espaço-temporal, densidade e biomassa das espécies de *Pseudodiaptomus* (Copoda,

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- Calanoida) no estuário do Rio Caeté, Bragança, Pará, Brasil. Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Oliveira, Rosete: Reserva extrativista marinha: Um processo em discussão em Porto do Campo, Augusto Corrêa. Mestrado, Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Bragança, 2003.
- Rodriguez, Luciana M.: Dinâmica populacional de *Cathorops spixii* (Teleostei), no estuário do rio Caeté, Bragança-PA. Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Santos, Sonia M.L.: Estudos genéticos e ecológicos em *Teredinidae* (Mollusca: Bivalvia) do Pará. Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Sousa, Alexandra R.B.: Abordagem molecular para caracterizar espécies brasileiras de peixe-serra e cavala (*Scomberomorus*, *Scombridae*, *Perciformes*). Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Sousa, Simone S.: Taxonomia molecular e biogeografia da Pescada-Gó (*Macrodon ancylodon* – *Sciaenidae*) da costa atlântica da América do Sul. Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Souza Sampaio, Dioniso: Comparação da macrofauna bentônica em bosques de mangue sob diferentes graus de degradação, no município de Bragança-Pará-Brasil. Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Vale, Paulo A.: Biologia reprodutiva do caranguejo *Ucides cordatus cordatus* no manguezal do estuário do rio Caeté, Pará, Brazil. Mestrado em Ecologia de Ecossistemas Costeiros e Estuarinos, UFPa, Belém, 2003.
- Barbosa Brabo, Lucinea: Medidas de trocas gasosas de plantas de manguezal sob diferentes condições de salinidade e inundação em estufa e campo. MSc thesis, UFPa, 2004.
- Elias, M.P. de Paiva: A pesca de tubarões e arraias no litoral Norte do Brasil. (em preparação). Dissertação de Mestrado. Universidade Federal do Pará. Biologia Ambiental. Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2004.
- Harun, E.: Spatial structure, leaf area index and light reception of different mangrove forest stands in the Caeté mangrove estuary, Bragança, Pa, Brazil, 2004.
- Klose, F.: Räumliche und sozioökonomische Dynamik in der Landwirtschaft am Beispiel von Tamatateua, Pará, Brasilien. Universität Bonn, 2004.
- Pereira, F.: Avaliação de impactos sócio ambientais causados por projetos de extensão no litoral bragantino, Bragança, PA. 120 f. Dissertação (Mestrado em Biologia Ambiental), Universidade Federal do Pará, 2004.
- Silva Júnior, M.G. da: Crescimento e mortalidade de algumas espécies de peixes do Estuário do rio Caeté, Bragança, PA. 101 f. Dissertação (Mestrado em Biologia Ambiental), Universidade Federal do Pará, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2004.
- Silva, B.B. da: Diagnóstico da pesca no litoral paraense. 140 f. Dissertação (Mestrado em Biologia Ambiental), Universidade Federal do Pará, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2004.

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lungsländer, 18.01.2004 (GTZ-Workshop)
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 Klimawandel: wie reagiert ein Ökosystem? 13.01.2005 (Artikel im Magazin »Science« von T. Jennerjahn)
 Tsunami-Flutkatastrophe: technisch-wissenschaftliche Hilfe am Tag danach, 07.02.2005 (Tsunami-Workshop am ZMT)
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 Rifforschung für Anfänger, 30.05.2005 (Schülerworkshops am ZMT)
 Bremen kooperiert mit renommierter chinesischer Forschungseinrichtung, 29.07.2005 (Kooperation mit Qingdao, China)
 Aufbau der Fischereiwissenschaften in Papua-Neuguinea: Unterstützung kommt aus Bremen, 27.09.2005 (Workshop am ZMT)
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 Respiration Physiology (Special Courses), 2004
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Public Awareness Events

»Das Meer und seine Ressourcen«, Tag der offenen Tür, ZMT, 10.05.2003
 Film premiere »Abenteuer im Korallenriff«, ZMT, 10.05.2003
 9. International Trade Fair for Fish and Seafood, Messe Bremen (Präsentation des ZMT und des Aquakulturprojektes), 20.01.2004
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 Pressekonferenz zum Workshop »Tsunami-Flutkatastrophe: technisch-wissenschaftliche Hilfe am Tag danach«, ZMT, 08.02.2005
 Vortrag »Mangroven: Lebenskünstler zwischen Land und Meer«, U. Krumme, Überseemuseum, Bremen, 09.02.2005
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PUBLIC RELATIONS

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Lehrerworkshops »Ökosystem Mangrove« und »Bedrohte Korallenriffe«, ZMT (im Rahmen der SommerUni Bremen), 14.-15.07.2005
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Wissenschaftsspaziergang »Expedition in die Tiefe«, ZMT (Präsentation des ZMT für Hochschulpressesprecher der HRK), 23.11.2005
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(until 2004)

LIST OF ACRONYMS

ABEQUA	Associação Brasileira de Estudos do Quaternário (Brasilien)	BHU	Bung Hatta University (Padang, Indonesien)
ACEMON	Managing Aquatic Coastal Ecosystems of Monsoon Asia	BIA	Bremer Innovations-Agentur
ACQUIN	Akkreditierungs-, Zertifizierungs- und Qualitätssicherungs-Institut e.V	BIG	Bremer Investitionsgesellschaft
AGEP	Arbeitsgemeinschaft entwicklungs-länderbezogener Postgraduierten-Programme	BITZ	Bremer Innovations- und Technologiezentrum
AIF	Arbeitsgemeinschaft Industrieller Forschung	BIOLOG	Biodiversität und Globaler Wandel
AIMS	Australian Institute of Marine Science	BIOME	Global Biome Mapping Project
ALFA-COSTA	América Latina Formación Académica – Coastal Sustainable Management of Tropical America	BIOTA	Biodiversity Monitoring Transect Analysis in Africa
A&M	Agricultural and Mechanical	BIS	Bremerhavener Investitions- und Stadtentwicklungsgesellschaft
AMB	Arbeitsgemeinschaft meeres-kundlicher Bibliotheken	BLE	Bundesanstalt für Landwirt-schaft und Ernährung
ARTEC	Forschungszentrum Nach-haltigkeit, Universität Bremen	BMBF	Bundesministerium für Bildung und Forschung
ASEAN	Association of South-East Asian Nations	BMVEL	Bundesministerium für Ver-braucherschutz, Ernährung und Landwirtschaft
ASFA	Aquatic Sciences and Fisheries Abstracts	BMWA	Bundesministerium für Wirtschaft und Arbeit
ASLO	American Society for Limnology and Oceanography	BMZ	Bundesministerium für Wirt-schaftliche Zusammenarbeit und Entwicklung
ATSAF	Arbeitsgemeinschaft Tropische und Subtropische Agrarfor-schung e.V. (jetzt BEAF: Beratungsgruppe Entwicklungs-orientierte Agrarforschung)	BPPT	Agency for the Assessment and Application of Technology (Indonesien)
AU	Anna University Chennai (Indien)	BRAMS	Brantas-Madura-Strait Biogeo-chemistry
AWI	Alfred-Wegener-Institut für Polar- und Meeresforschung, Bremerhaven, Potsdam, Sylt und Helgoland	B.Sc.	Bachelor of Science
BBN	Bremen Business Net	BSH	Bundesamt für Seeschifffahrt und Hydrographie, Hamburg
BCGC	BENEFIT Committee for German Cooperation	CAPES	Coordenação de Aperflicoa-mento de Pessoal de Nível Superior, Ministério da Educação, Brasilien
BEAF	Beratungsgruppe Entwicklungs-orientierte Agrarforschung	CAU	Christian-Albrechts-Universität Kiel
BEG	Bremer ExistenzGründungs-initiative	CCM	Center for Coastal Manage-ment, Newcastle
BENEFIT	The Benguela Environment Fisheries Interaction & Training Programme	CCMRS	Centre for Coastal and Marine Resources Studies (Indonesien)
BEO	Projekträger des BMBF, Biologie, Energie und Ökologie	CCRF	Code of Conduct for Respon-sible Fisheries
BFAFi	Bundesforschungsanstalt für Fischerei	CDG	Carl-Duisberg-Gesellschaft
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover	cenTER	Centre for Tropical Ecosystems Research, Aarhus University
		CENSOR	Climate variability and El Niño Southern Oscillation: Implications for natural coastal resources and management
		CESS	Centre for Earth Science Studies, Indien

LIST OF ACRONYMS

CGK	Cordes-Graefe-Kluncker, Bremen	DKP	Ministry of Marine Affairs and Fisheries (Indonesien)
CHM	Clearing House Mechanism, Kanada	DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V.
CIBNOR	Centro de Investigaciones Biológicas del Noroeste, Mexico	DSE	Deutsche Stiftung für internationale Entwicklung
CICESE	Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Baja California	DSS	Decision Support System
CIAD	Centro de Investigación en Alimentación y Desarrollo, Mexiko	DWK	Deutsche Wissenschaftliche Kommission für Meeresforschung
CIM	Centro de Investigaciones Marinas (Kuba)	DZG	Deutsche Zoologische Gesellschaft
CIMAR	Centro de Investigación en Ciencias del Mar y Limnología (Costa Rica)	EAS	European Aquaculture Society
CIP	Centro des Investigaciones Pesqueras (Kuba)	ECNU	East China Normal University
CIS	Crab Information System	ECOMARES	Ecological Marine Recirculation Systems
CITMA	Ministerio de Ciencias, Tecnología y medio Ambiente (Kuba)	ECOSUR	El Colegio de la Frontera Sur
CMTT	Continental Margin Task Team	EDFAM	European Decapod Fisheries: Assessment and Management
CNPq	Conselho Nacional de Desenvolvimento Científica e Tecnológico (Brasilien)	EDP	Electronic Data Processing
CNPS	Carbon Nitrogen Phosphorus Sulfur	EDV	Elektronische Datenverarbeitung
CoF	College of Fisheries (Indien)	EEAA	Egyptian Environmental Affairs Agency (Ägypten)
Corelab	Coastal Research Laboratory, Universität Kiel	EIOT	Equatorial Indian Ocean Trapp
CSA	Cambridge Scientific Abstracts	ENAAM	Encontro Nacional de Educação Ambiental em Áreas Manguezais (Brasilien)
CZM-C	Coastal Zone Management Centre, Den Haag	ENSO	El Niño-Southern Oscillation
DAAD	Deutscher Akademischer Austauschdienst	EPD	European Pollen Database
DATZ	Deutsche Aquarien- und Terrarien Zeitung	ESRC	Economic and Social Research Council (UK)
DDR	Deutsche Demokratische Republik	ETFERN	European Tropical Forest Research Network
DED	Deutscher Entwicklungshilfedienst	ETM	Enhanced Thematic Mapper (ETM)
DEKLIM	Deutsches Klimaforschungsprogramm	EU	Europäische Union
DEKLIMC	Deutsches Klimaforschungsprogramm, Teil C	FAO	Food and Agriculture Organization of the United Nations
DFG	Deutsche Forschungsgemeinschaft	FHB	Freie Hansestadt Bremen
DFN	Deutsches Forschungsnetz	FIAS	Flow Injection Analysis System
DG	Directorate-General of the European Commission	FIP	Forschungs- und Infrastrukturplan der FHB
DGM	Deutsche Gesellschaft für Meeresforschung	FON	Field of Neighbourhood
DIVERSITAS	An International Programme of Biodiversity Science	FRS	Fisheries Research Ship
		FS	Forschungsschiff
		FTZ	Forschungs- und Technologiezentrum Westküste der Christian-Albrechts-Universität zu Kiel
		FUB	Freie Universität Berlin
		FUNTEC	Fundação de Tecnologia Florestal e Geoprocessamento (Brasilien)
		GATE	Guide to Academic Training and Education
		GEO	Geowissenschaften der Universität Bremen
		GEOMAR	Forschungszentrum für marine Geowissenschaften der Christian-

LIST OF ACRONYMS

	Albrechts-Universität zu Kiel		GmbH
GfÖ	Gesellschaft für Ökologie	IKT	Informations- und Kommunikations- technologie
GFZ	GeoForschungsZentrum Potsdam	IMBER	Integrated Marine Biogeochemistry and Ecosystem Research
GIACT	Gestion Integrada de Areas Costeras Tropicales	IMR	Institute of Marine Research, Norwegen
GIS	Geographisches Informations- system	INCO	Iranian National Center for Oceanography
GIWA	Global International Waters Assessment	INCO-DEV	International Cooperation in the Field of Research and Techno- logical Development
GKSS	Gesellschaft für Kernenergie- verwertung in Schiffbau und Schifffahrt mbH (Geesthacht)	INIDEP	Instituto Nacional de Investigacion y Desarrollo Pesquero (Argentinien)
GMA	Global Marine Assessment	InnoWi	Innovation für die Wirtschaft
GTÖ	Gesellschaft für Tropenökologie	INPA	Insituto Nacional de Pesquisas da Amazônia
GTZ	Gesellschaft für Technische Zusammenarbeit	INQUA	International Union for Quaternary Research
HfK	Hochschule für Künste, Bremen	INSMET	Instituto de Meteorología Ministerio de Ciencia, Tecnología y Medio Ambiente de la República de Cuba
HHUD	Heinrich-Heine-Universität, Düsseldorf	INVEMAR	Instituto de Investigaciones Marinas y Costeras
HPLC	High Performance Liquid Chromatography	InWent	Internationale Weiterbildung und Entwicklung gemeinnützige GmbH
HTML	Hypertext Markup Language	IOC	Intergovernmental Oceanographic Commission
HWK	Hanse-Wissenschaftskolleg Delmenhorst	IOI	International Ocean Institute
IACRS	Indonesian Association for Coral Reef Studies	IOM	Institute for Ocean Management (Indien)
IAMRI	International Association of Marine-related Institutions	IOW	Institut für Ostseeforschung, Warnemünde
IB	Internationales Büro	IPCC	Intergovernmental Panel on Climate Change
IBAU	Ingenieurbüro für Aquakultur und Umwelttechnik	IPB	Fisheries Faculty of Bogor University (Indonesien)
IC	Ionenchromatographie	IPN	Instituto Politécnico Nacional (Mexico)
ICBM	Institut für Chemie und Biologie des Meeres, Oldenburg	IPÖ	Institut für Polarökologie, Kiel
ICHTHYS	Ichthyological Research Laboratory and Consultancy	ISATEC	International Studies in Aquatic Tropical Ecology
ICRI	International Coral Reef Initiative	ISME	International Society for Mangrove Ecosystems
ICSU	The International Council for Science	ISRS	International Society for Reef Studies
ICZM	Integrated Coastal Zone Management	IST	Institute of Technology, Surabaya
IdO	Instituto de Oceanología (Kuba)	ITB	Bogor Agricultural University (Indonesien)
IDW	Informationsdienst Wissenschaft	ITLOS	International Tribunal for the Law of the Sea
IEE	Institute for Ecological Economics (University of Maryland, USA)	IUI	Internuniversity Institute (Israel)
IfBM	Institut für Biogeochemie und Meereschemie der Universität Hamburg		
IfM	Institut für Meereskunde		
IfM-GEOMAR	Leibniz-Institut für Meereswissen- schaften an der Universität Kiel		
IGBP	International Geosphere-Biosphere Programme		
IGV	Institut für Getreideverarbeitung		

LIST OF ACRONYMS

IUIC	Instituto de Investigaciones Cientificas (Venezuela)	MPIMM	Max-Planck-Institut für marine Mikrobiologie, Bremen
JGOFS	Joint Global Ocean Flux Study	MRE	Ministério das Relações Exteriores (Brasilien)
JIGIE	Joint Indonesian German Indian Ocean Expedition	M.Sc.	Master of Science
JIGSE	Joint Indonesian-German Sunda Expedition	MSS	Marine Science Station, Aqaba (Jordanien)
JOPS I/II	Joint Oceanographic Projects I/II	NAM S&T	Centre for Science and Technology of the Non-aligned and other Development Countries
KDM	Konsortium Deutsche Meeresforschung	NEBROC	Netherlands Bremen Oceanography
KfW	Kreditanstalt für Wiederaufbau, Frankfurt	NGO	Non-Governmental Organisation
KiWi	Mangroven-Waldmodell	NHI	Neue Hanse Interregio
KLMN	Konferenz leitender Meeresforscher Norddeutschlands	NIO	National Institute of Oceanography (Goa, Indien)
KMFRI	Kenya Marine & Fisheries Research Institute (Kenia)	NIOF	National Institute of Oceanography and Fisheries (Ägypten)
KRT	The Ministry of Research & Technology (Indonesien)	NIOZ	Nederlands Instituut voor Onderzoek der Zee, Texel
LAI	Leaf Area Index	NLU	Institut für Natur-, Landschafts- und Umweltschutz
LAPAN	National Aeronautics & Space Institute (Indonesien)	NRC	National Research Center (Ägypten)
LAPD	Latin American Pollen Database	NRCT	National Research Council of Thailand
LIPI	Indonesian Institute of Sciences	NSFC	National Natural Science Foundation of China
LME	Large Marine Ecosystem	NTAFS	Network of Tropical Aquaculture and Fisheries Scientists (Malaysia)
LOI	Letter of Intent	NUMA	Núcleo do Meio Ambiente (Brasilien)
LOICZ	Land-Ocean Interactions in the Coastal Zone	NWO	Nederlandse Organisatie voor Wetenschappelijk Onderzoek
LPS	Landesamt für Personendosimetrie und Strahlenschutz Ausbildung	OECD	Organization for Economic Cooperation and Development
MAB	Man and the Biosphere	OPAC	Online Public Access Catalogue
MADAM	Mangrove Dynamics and Management	OUC	Ocean University of China
MAIS	Mangroven-Informationssystem	PACON	Pacific Congress on Marine Science and Technology
MARCUBA	Congress on Marine Science in Cuba	PAGES	Past Global Environmental Changes (IGBP)
MARUM	Zentrum für Marine Umweltwissenschaften, Bremen	PAHs	Polyaromatic Hydrocarbons
MCT	Ministério da Ciência e Tecnologia (Brasilien)	PANGAEA	Paleo-Network for Geological and Environmental Data
MCM	Marine and Coastal Management (Südafrika)	PCAMRD	Philippine Council for Aquatic and Marine Research and Development
MEN RISTEK	Ministry for Science and Technology (Indonesien)	PCG	Palestine Consultancy Group, Jerusalem
MFRI	Marine and Fisheries Research Institute (Kenia)	PD/A	Programas Demonstrativas, tipo A (Brasilien)
MoU	Memorandum of Understanding	PFAU	Programm zur Förderung für angewandte Umweltforschung
MOSTE	Vietnamese Ministry of Science, Technology and Environment	Ph.D.	Doctor of Philosophy
MPA	Marine Protected Areas		
MPEG	Museu Paraense Emilio Goeldi (Brasilien)		
MPI	Max-Planck-Institut		

LIST OF ACRONYMS

PIK	Potsdam Institut für Klimafolgen forschung, Potsdam	SMEs	Small and medium enterprises
PMBC	Phuket Marine Biological Center (Thailand)	SOA	State Oceanic Administration
POLYPLAN	Ingenieurbüro für Energie- und Umwelttechnik GmbH (Bremen)	SOLAS	Surface Ocean Lower Atmosphere Study
PPGCIEEN	Programa de Pós-Graduação em Ciências: Ênfase em Desenvolvi- mento Sustentável (Brasilien)	SP	Sonderstipendienprogramm
Pro Inno II	Programm zur Förderung der Er- höhung der Innovationskompetenz mittelständischer Unternehmen	SPICE	Science for the Protection of the Indonesian Coastal Ecosystems
PRORENDA	Programma de Renda Familiar (Brasilien)	SSC	Scientific Steering Committee
ProSys	Gesellschaft für produktions- orientierte Umweltsystemtechno- logien und -management mbH	SUCOZOMA	Sustainable Coastal Zone Management (Schweden)
PSC	Phillips Seafood Company (Indonesien)	SKLEC	State Key Laboratory of Estuarine and Coastal Research
PT	Projekträger	TEMA	Training, Education and Mutual Assistance
PUSH	Public Understanding of Science and Humanities	TROPICOAST	Datenbank für tropische Küsten- forschung
RMD	Resource and Development Division (Philippinen)	TUVA	United Lands of Neighbours for the Environment (Costa Rica)
RISTEK	Ministry of Science and Technology (Indonesien)	TZ	Technische Zusammenarbeit
RSMAS	Rosenstiel School of Marine and Atmospheric Science (USA)	TTZ	Technologie-Transfer-Zentrale
RSP	Red Sea Program on Marine Sciences	UBH	Universitas Bung Hatta
RV	Research Vessel	UCC	University of Cape Coast (Ghana)
SADC	South African Development Countries	UCR	Universidad de Costa Rica (Costa Rica)
SAMSS	South African Marine Sciences Symposium	UENF	Universidade Estadual do Norte Fluminense, Campos-RJ (Brasilien)
SBBT	Southern Bay of Bengal Trap	UI	University of Indonesia (Indonesien)
SCOPE	Scientific Committee on Problems of the Environment	UFCE	Universidade Federal do Ceará (Fortaleza, Brasilien)
SCOR	Scientific Committee on Oceanic Research	UFF	Universidade Federal Fluminense (Niteroi, Brasilien)
SECTAM	Secretaria do Meio Ambiente – Environmental Ministry of the State of Pará (Brasilien)	UFPA	Universidade Federal da Pará (Belém, Brasilien)
SEQUA	Stiftung für wirtschaftliche Entwicklung und berufliche Qualifizierung	UFPE	Universidade Federal de Pernambuco (Recife, Brasilien)
SFAS	Segmented Flow Analysing System	UFRPe	Universidade Federal Rural de Pernambuco (Recife, Brasilien)
SFB	Sonderforschungsbereich	UFT	Zentrum für Umweltforschung und Umwelttechnologie (Bremen)
SHIFT	Studies on Human Impact on Forests and Floodplains in the Tropics	UFZ	Umweltforschungszentrum Leipzig-Halle GmbH
Sim-Coast	Coastal Management Expert System (Computermodell)	ULBRA	Universidade Luterana do Brasil (Brasilien)
SIRRO	Siberian River Runoff	UN	United Nations
		UNA	Universidad Nacional de Costa Rica (Costa Rica)
		UNALM	Universidad Nacional Agraria La Molina (Costa Rica)
		UNAM	University of Namibia
		UNAN-León	Universidad Nacional Autónoma de Nicaragua-León (Nicaragua)

LIST OF ACRONYMS

UNCBD	The United Nations Convention on Biodiversity	WAST	Western Arabian Sea Trap
UNCED	The United Nations Conference on Environment and Development	WBGU	Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen
UNCLOS	United Nations Convention on the Law of the Sea	WDC-Mare	World Ocean Data Center
UNDIP	University of Diponegoro (Indonesien)	WESTPAC	IOC Sub-Commission for the Western Pacific
UNEP	United Nations Environmental Programme	WOCE	World Ocean Circulation Experiment
UNESCO	United Nations Educational, Scientific and Cultural Organization	WOTRO	Netherlands Foundation for the Advancement of Tropical Research
UNHAS	University of Hasanuddin (Indonesien)	WTZ	Wissenschaftlich-Technische Zusammenarbeit
UNMdP	Universidad Nacional de Mar del Plata (Argentinien)	WWF	World Wildlife Fund
UNRI	University of Riau (Indonesien)	ZAIT	Zentrum für Angewandte Informationstechnik
UNSOED	Universitas Jenderal Soedirman (Indonesien)	ZALF	Zentrum für Agrarlandschafts- und Landnutzungsforschung (Müncheberg)
UNSW	University of New South Wales (Australien)	ZARM	Zentrum für angewandte Raumfahrttechnik und Mikrogravitation
UP-MSI	University of the Philippines, Marine Science Institute	ZDB	Zeitschriftendatenbank
URGS	Universidade Federal Rio Grande do Sul (Brasilien)	ZMAW	Zentrum für Marine und Atmosphärische Wissenschaften (Hamburg)
USFQ	University San Francisco de Quito (Ecuador)	ZMK	Zentrum für Meeres- und Klimaforschung (Hamburg)
USP	Universidade de Sao Paulo (Brasilien)		
vdbiol	Verband Deutscher Biologen und biowissenschaftlicher Fachgesellschaften e.V.		

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