

Already adapted?

Already adapted? – From 31 May to 1 June 2010, a conference on opportunities and risks of climate change in Germany was held in Dessau in an attempt to answer this question. The German Federal Environment Agency invited representatives from associations, businesses, public authorities and academia to discuss further steps towards developing a national framework for adaptation. Basing its work on the German Adaptation Strategy

published at the end of 2008, the German government will produce an Adaptation Action Plan by April 2011 that will serve to solidify and prioritize further adaptation measures in Germany.

The topic of education developed into a main theme of the discussion. Many stakeholders made clear that the level...

...to be continued on page 2



German coastal associations tackle climate change

Interview with Andreas Kuhn, mayor of Zingst and head of the Mecklenburg-Western Pomeranian association of coastal communities

One of the greatest challenges today is to make the global phenomenon of climate change both understandable and possible to act upon at the regional, local and personal level. RADOST project leader Dr. Grit Martinez discussed adaptation activities on the German Baltic coast with Andreas Kuhn, mayor of Zingst and head of the Mecklenburg-Western Pomerania association of coastal communities.



Which climate change issues are particularly of interest to the beach communities in Mecklenburg-Western Pomerania?

There are several issues: building on the coastal cliffs and promenades, invest-

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ments in long-lasting beach projects, the management of beaches and surrounding areas as well as additional costs due to storm damages. In order to preventatively adapt to climate change, we need information on the possible effects and outcomes for our region. For example, the issues of how and when higher temperatures may lead to a collapse of the marine ecological system and whether we must prepare for increased algae levels interest are of vital interest for us. Another related question is how currents in the Baltic Sea will change in the future. Where is sand carried away and where is it washed up? And last but not least, will we have to...

...to be continued on page 2

Regional Activities

...continuation of „Already adapted?“

of awareness of the issue of climate change adaptation must be further increased on the municipal level and among the general public. In the working group on implementation, it was made clear that a willingness of municipal decision makers to participate in the implementation of adaptation measures is absolutely necessary. Dialogue events in communities, like those conducted through RADOST, were pointed out as being particularly helpful for the successful implementation of adaptation measures. These dialogues should provide basic information by highlighting key messages. In addition, good practice examples are particularly helpful in promoting an understanding of adaptation measures and in showing options for concrete implementation. In a joint presentation with other KLIMZUG projects at the “Regional market place”, RADOST representatives Peter Krost of CRM Coastal Research & Management and Grit Martinez of Ecologic Institute were available for discussion. In particular, they provided information on the RADOST implementation project “Mariculture”. Mariculture may benefit from a broader spectrum of species and increased productivity of cultivated species due to climate change. Plants from extractive mariculture could be used to a much greater extent than they are today and marketed to great profit. CRM is using marine biotechnology for products such as cosmetics from algae.

...continuation of „German coastal associations tackle climate change“

deal with more intense cliff break-offs, and if so, what can we do to counteract this? We also are extremely interested in economically efficient strategies for algae disposal.

The project RADOST supports local stakeholders in pilot regions on the German Baltic coast in dealing with climate change. You chose to have a partnership with RADOST. Why?

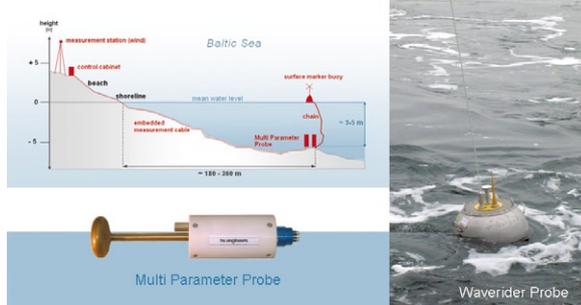
The IMK in RADOST

What is the IMK?

The Internal Monitoring Network – Coast (Internes Messnetz Küste – IMK) is an environmental information system of the Staatliches Amt für Umwelt und Natur Rostock (State Agency of Environment and Nature) that has recorded important environmental data for 12 years.

Internes Messnetz Küste – IMK (internal monitoring network - coast)

Measuring equipment



What is new?

In 2009, the IMK was completely revised so that every citizen is now able to access its information online at www.imk-mv.de or by telephone.

We hope for suggestions and innovative approaches to protecting our treasured Baltic coast. We know that we must treat nature with care and we do this in our own interest. However, we are asking the relevant state authorities to make decisions that encourage maintaining and developing attractive tourist beaches, as long as they are proven not to damage the local environment.

The spa and resort communities depend on tourism, as in Zingst, for example, where 90% of the employment is either directly or indirectly involved in tourism. So “nature conservation at any cost” should be avoided. Tourism and nature are dependent upon each other and must have a balanced relationship.

Thank you very much for this interview, Mr. Kuhn.

What services does the IMK provide?

The IMK offers regularly updated information on hydrodynamic parameters that is used by the flood emergency services control center in case of flooding. It also collects data for documentation and makes it available for external users. In addition, it provides long-term data on water levels, wind conditions and the state of the sea to support the assessment of coastal processes as well as the determination of building dimensions.

What role does the IMK play in RADOST?

As part of the RADOST project, changes in the shape of sandy coasts will be documented in a locally limited coastal area. This documentation will extend beyond the duration of the project. This will be done by the installation of measurement equipment through which measuring devices will be placed at different water depths. The data gained can then also be retrieved from the IMK.

NOTE:

The German Spa Association (Deutscher Heilbäderverband e.V.) together with the German Weather Service (DWD) have already reacted to climate change. The DWD will publish a new bioclimate map which takes climate change into account.

Action Day for school children "Everyone can protect the climate"

On 26 May 2010, RADOST gave a presentation in Rostock as part of the wide variety of activities offered at the day of action for school children "Everyone can protect the climate" – ("Schüler StAUNen").



Rostock school children at the action day.

Along with the opening of the exhibit "Everyone can protect the climate", the presentation of the contributions to the "Schüler StAUNen" competition was at the center of the event. The programme was complemented by information stands and contributions from numerous stakeholders active in the field of climate protection.

The Minister of Agriculture, Environment and Consumer Protection of Mecklenburg-Western Pomerania, Dr. Till Backhaus; the head of the State Agency of Environment and Nature (StAUN) of Rostock, Hans-Joachim Meier (member of the RADOST advisory board); and the competition partners, in the presence of the mayor of the city Rostock, Roland Methling, awarded the best submissions. They expressed their appreciation for the interest taken in the competition and the active participation taken by the school children in environmental protection and sustainable development.

The RADOST presentation at this event will contribute to strengthening the position of the project in the Rostock region. The network will be extended through new contacts with the scientific association Umwelt of Rostock University, with the climate protection control center of Rostock and with other stakeholders.

School children and teachers were encouraged to make the step from climate change mitigation to adaptation as a subject of their project work. This will also contribute to the implementation of the UN Decade of Education for Sustainable Development (ESD) 2005-2014 in Mecklenburg-Western Pomerania.

Climate Alliance Kiel Bay is launched and named as winner at the competition "Come enjoy the sea"

Since 23 March 2010, the Baltic Tourism Network for Climate Change Adaptation is now officially called the "Climate Alliance Kiel Bay" (KBKB). The new name more accurately describes the region, which includes the coastal areas between Eckernförde and Hohwacht. In the future, the local authorities hope to combine efforts to tackle climate change with adaptation measures and make a name for themselves as a climate-friendly tourist region. The Climate Alliance Kiel Bay is an implementation project within RADOST. The project was initiated by Prof. Dr. Horst Sterr of the Geographic Institute at the University of Kiel and by Wilfried Zurstraßen, mayor of the municipality of Schönberg.

Already there is success to report on: In the competition "Lust op dat Meer" (Come enjoy the sea), the projects "Bäderbus" (resort bus) and "ZuMStrand" (ZukunftsManagement Strand - Future Beach Management) submitted by KBKB were among the five projects selected.

In order to make tourist mobility more climate-friendly, a bus (with bike racks) will be set up in the summer season to provide a quick, direct connection between the

First annual RADOST conference in Schwerin

RADOST held its first annual conference in Schwerin on 24 and 25 March 2010. At the conference, which was conducted under the auspices of the Ministry of Economics, Labour and Tourism of Mecklenburg-Western Pomerania, approximately 100 participants discussed the challenges presented by climate change for the German Baltic coastal region, the current state and limits of scientific knowledge on the subject as well as possible solutions and practical examples of adaptation measures.

The tourism sector was a focal point of the discussion. The presidents of the tourism association and the association of coastal



central train stations of Kiel and Eckernförde and the beaches of the participating regions. In so doing, traffic will be reduced and regional tourism will be encouraged.

A particular challenge for the Climate Alliance is the issue of beach management in the face of climate change. Various issues concerning tourism, nature conservation and coastal protection are to be addressed in the overall concept "ZuM Strand", in which a symposium will take place.



The damages to tourist infrastructure caused by coastal erosion, as seen here in Laboe, pose great challenges to these communities.

In addition, the Climate Alliance Kiel Bay now has its own homepage (www.klimabuendnis-kieler-bucht.de). From July on, partners, press, locals and tourists will be able to get an overview of the current climate-friendly offers and adaptation strategies going on in the region.

communities of Mecklenburg-Western Pomerania, Mathias Löttge and Andreas Kuhn presented the perspective and current activities of this branch of trade related to climate change. Representing Schleswig-Holstein, Professor Horst Sterr of the University of Kiel introduced the newly formed Climate Alliance Kiel Bay (Klimabündnis Kieler Bucht). An international perspective was also given: Professor Donald Boesch (University of Maryland) gave an overview of the programme of the US state of Maryland on climate change impact assessment, mitigation and adaptation; Johannes Klein (Geological Survey of Finland, Project BaltCICA) presented dialog-oriented approaches to identifying adaptation options, using the example of Kalundborg, Denmark.

Regional Activities

An Introduction to the RADOST advisory board

At the end of the annual RADOST conference in Schwerin, the project's advisory board was officially instated on 25 March 2010. From now on, it will monitor the progress of the project and ensure its connection to regional politics, government and economy, as well as to relevant national and international developments.

The following individuals are members of the advisory board:



Prof. Dr. Donald F. Boesch,
President of the University of Maryland Center for Environmental Science (UMCES) and member of the National Academies Committee on America's Climate Choices, USA



Hans-Joachim Meier,
Head of Staatliches Amt für Umwelt und Natur (State Agency of Environment and Nature – StAUN) Rostock



Dr. Gerald Schernewski,
Leibniz Institute for Baltic Sea Research Warnemünde (IOW), RADOST module coordinator for research in natural and engineering sciences



Dr. Achim Daschkeit,
Competence Center on Climate Impacts and Adaptation (KomPass) at the German Federal Environment Agency



Dr. Grit Martinez,
Ecologic Institute, RADOST project leader



Michael Sturm,
Head of Invest in Mecklenburg-Western Pomerania GmbH



Dr. Ulrich Hausner,
Department Head of Cluster Development and Promotion of Business at Business Development and Technology Transfer Corporation Schleswig-Holstein GmbH



Dr. Johannes Oelerich,
Director of Landesbetrieb Küstenschutz, Nationalpark und Meeresschutz Schleswig-Holstein (Schleswig-Holstein Agency for Coastal Defence, National Park and Marine Conservation – LKN)



Wolfgang Vogel,
Director of Landesamt für Landwirtschaft, Umwelt und ländliche Räume (State Office of Agriculture, Environment and Rural Areas of the State of Schleswig-Holstein – LLUR)



Dr. Jesko Hirschfeld,
Institute for Ecological Economy Research (IÖW), RADOST module coordinator for socio-economic research



Dr. Beatrix Romberg,
climate change officer, Ministry of Economics, Labour and Tourism Mecklenburg-Western Pomerania

Climate change on the German Baltic Sea coast

Dr. Insa Meinke,

GKSS, Northern German Climate Office

By the end of this century, we can expect to see a world-wide average temperature increase of 2 to 4.5 °C. A similar development is also likely to occur on the German Baltic Sea coast.

The climate of the Baltic Sea has changed

World wide our climate has changed during the past century. Temperature measurements across the world show an average in-

crease of approximately 0.8 °C. This increase can only be explained by human influence. Along the Baltic sea coast a similar temperature increase took place in Schleswig Holstein, whereas Mecklenburg-Western-Pomerania showed only an increase by +0.4 °C. Other changes can be seen in precipitation records: precipitation in Schleswig-Holstein, Niedersachsen, Hamburg and Bremen increased by approximately 10 to 13 % in the last 100 years. This increase was especially noticeable in the winter months.

Changes in Baltic Sea storm floods until now

In addition to changes in temperature and precipitation, developments in the water level are of particular importance for the Baltic Sea coast. The extent to which the height of storm floods on the German Baltic coast change, for example, is dependent on both the rise in sea level and the wind climate over the Baltic Sea. So far, winds over the Baltic Sea have not experienced any systematic changes. The sea level, how-

International Activities

ever, has risen by a world-wide average of about 20 centimeters during the last 100 years and the water levels of the German Baltic Sea have changed to approximately the same extent.

What can we expect in the future?

An average temperature increase of 2.1 °C to 4.8 °C is expected on the German Baltic Sea coast by the end of the century. Simultaneously, it could also get more humid: annual precipitation on the German Baltic Sea coast could increase by up to 14% by the end of the century.

The greatest temperature increase will presumably occur during the summer months:

by the end of the century, the German Baltic Sea coast could averagely be 1.9 to 5.1 °C warmer compared to today's average. During the same period, summer precipitation could decrease by 6 to 38%.

Conversely, a clear increase in precipitation is to be expected in the winter months. Of all German Federal States Mecklenburg-Western Pomerania is the most affected as winter precipitation could increase by as much as 63%. During the same time period, the strength of storms could also grow more intense and again Mecklenburg-Western Pomerania could be affected most with an increase of up to 14% in winter storms.

Sea level rise could accelerate in the future

The Intergovernmental Panel on Climate Change (IPCC) expects a world-wide sea level rise of approximately 20 to 60 cm by the end of the 21st century. If the great ice sheets in Greenland and Antarctica begin to melt more quickly, the water level rise could even reach 80 cm, according to the IPCC. Today it seems plausible to assume that the average sea level of the German Baltic Sea will rise to the same degree. This must, however, be researched further.

Further Information:

www.norddeutsches-klimabuero.de and
www.norddeutscher-klimaatlas.de

Responding to Climate Change - a Dinner Dialogue on America's Climate Choices

On 23 March 2010, RADOST hosted a dinner dialogue on America's Climate Choices for a group of distinguished guests. Participants from German and other international institutions came together to learn about and discuss an ongoing series of studies by the U.S. National Academy of Science (NAS).

The main guest speaker at the event was Don Boesch, Professor of Marine Science and President of the University of Maryland Center for Environmental Science (UMCES), who serves as a member of the National Academy Committee on America's Climate Choices. Don Boesch is also a member of the RADOST advisory board since March 2010.

Don Boesch presented an overview of the ongoing work of the Committee, which in 2009, at the request of Congress, began activities to inform and guide responses to climate change across the nation. On the committee, experts representing various levels of government, the private sector, nongovernmental organizations, and research serve on four panels as well as an overarching com-



Prof. Dr. Donald F. Boesch, President of the University of Maryland Center for Environmental Science (UMCES) and member of the National Academies Committee on America's Climate Choices, USA

mittee. The committee will issue a final report in 2010 that will integrate the findings and recommendations from the four panel reports and other sources to identify the most promising short-term and long-term strategies, investments and opportunities for responding to climate change.

A lively discussion followed, which touched upon several issues related to climate change impacts and coastal zone management such as:

- Possible effects of climate change on

communities and the uncertainty of climate change forecasts;

- Encouraging participation in affected communities and factors for success;
- Implications for national security, such as data accessibility from military monitoring facilities and the heightened awareness of climate change reported in the Quadrennial Defense Review (QDR);
- Difficulties arising from the many different regulatory frameworks that govern water bodies (e.g. different US states or neighbouring states in the Baltic Sea area).

International Activities

RADOST participated in the Global Oceans Conference 2010

Climate change adaptation: A global challenge for the local level

The 5th Global Conference on Oceans, Coasts and Islands (<http://www.globaloceans.org/content/5th-global-conference-oceans-coasts-and-islands>) took place 3-7



Diver inspecting the shell culture in the Kiel Fjord

May at the UNESCO Headquarters in Paris. Organized by the Global Forum on Oceans, Coasts and Islands, UNESCO and the government of France, the conference brought together more than 850 participants from all relevant sectors. Government representatives, international agencies, nongovern-

mental organizations, academia and the private sector met for a week with the common interest of advancing the global oceans agenda. The theme of this year's conference was "Ensuring Survival, Preserving Life and Improving Governance," focusing on the areas of climate change, biodiversity and ocean governance.

On behalf of RADOST, Dr. Grit Martinez from Ecologic Institute participated in the session "Coastal Climate Adaptation in a Regional Context", organized by the US National Oceanic and Atmospheric Administration (NOAA). To prepare coastal communities for the effects of climate change, NOAA has set up a variety of e-tools, including a virtual library, which helps to exchange lessons learned among local stakeholders in coastal regions in the US.

On the other side of the Atlantic, RADOST fosters learning and sharing of best practices among regional communities and businesses located on the German coast of the Baltic Sea. In addition, RADOST supports transnational communication and best practices exchange of coastal adaptation strategies and application projects.

The session "Managing Tropical Coastal Wetlands" touched upon the question of the sustainability of industrial aquaculture, one of the fastest growing food-producing sectors in the world, especially in the least developed countries. There is an increasing awareness of the negative side-effects of industrial aquaculture: for example, it leads to a decline in marine and terrestrial biodiversity in wetlands, mangrove forests and coastal ecosystems. RADOST is also addressing aquaculture through an implementation project, albeit a very specific project that deals with high-grade products grown on a small scale. RADOST project partner CRM Coastal Research & Management in Kiel is investigating the different implementation possibilities for aquaculture. Among such possibilities are the production of raw materials to generate energy (Project Algasolar®) and the production of foodstuffs and extracts for cosmetic, pharmaceutical or medicinal products.

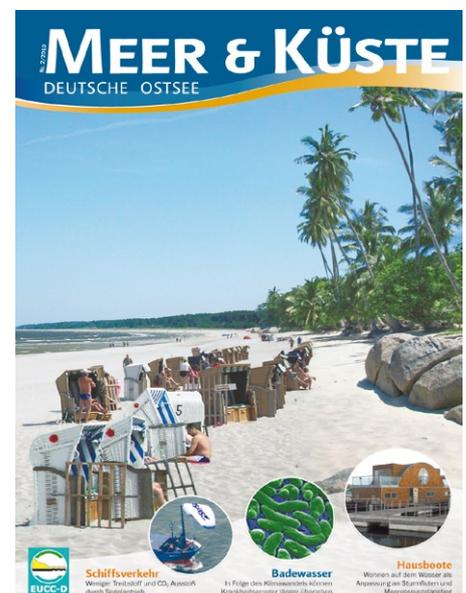
Publications

Meer und Küste

New issue of "Meer und Küste" focuses on "Changes in the Baltic Sea Region"

Changes are coming to the Baltic Sea region that are caused not only by climate change, but also by economic and demographic changes. Due to multiple uses of the coastal regions, competitive situations that lead to long-term damages to the ecosystem are not an uncommon occurrence. In order to achieve sustainable management of this region's sensitive habitat and economic market, it is necessary to elucidate possible conflicts and find common solutions for all affected parties.

The new issue of the German-language Magazine "Meer und Küste" ("Sea and Coast"), which comes out in June 2010, is dedicated to "Changes in the Baltic Sea Region" ("Ostseeküste im Wandel"), providing information on the areas of coastal protection, tourism, ecology, wind power, fishing and water quality, among others. The effects of climate change on these areas are the main focus of the issue, but the complex interaction between them is also addressed. "Meer und Küste" can be found mostly in tourist information points and environmental education centres along the German Baltic coast and will soon be available online at www.meer-und-kueste.eucc-d.de. The magazine is published by the EUCC – the Coastal Union Germany.



Publications

Academic theses in RADOST

Climate change perception by Baltic Sea tourists

(Larissa Hallermeier)

Conducted as part of RADOST, this diploma thesis investigates how tourists perceive climate change impacts on the Baltic Sea beaches. During the 2010 summer season, a survey of selected beaches in the focus

the way they vacation? Do tourists make a connection between some of these aspects and climate change? Of prime importance is what kind of practical meaning the results of the study could have for regional



area of Rostock will shed light on which aspects of climate change vacationers notice and which aspects could potentially bother them or make them feel restricted (such as cleanliness, drift line, erosion, temperature changes). Do these perceived developments or other phenomena influence

coast and beach management. Which climate adaptation measures can and should be introduced in the important tourist coastal regions and how can the interests of tourism, coastal protection and nature conservation be brought together? (Mentor: EUCC-D)

Opportunities made possible by climate change:

Specialised crops and sustainable tourism development on the coast

(Annekatriin Olwig)

A preliminary study (Bachelor's thesis) at the Leibniz Institute for Baltic Sea Research Warnemünde (IOW) investigated the possibility of using changes to the climate to benefit the development of the coastal regions. The outlined tourism development concept

is based on growing specialised crops and using them as a tourist attraction. The results of this preliminary study and other studies will also be used in RADOST. (Mentor: IOW)

"Concepts for encouraging climate friendly bicycle mobility in the region of Kiel and the Danish Wahld Peninsula"

(Marcel Kohla)

The idea for a diploma thesis discussing bike tourism infrastructure and climate friendly bicycle mobility in a diploma thesis emerged from a two-semester student project on the fjord bike path between Laboe and Strande. The thesis will deal primarily with transportation by bicycle in the region of Kiel and the Danish Wahld peninsula. A representative survey given out in 2010 to around 300 people will give insight into whether there is a need to expand tourism infrastructure on the Danish Wahld peninsula. First and foremost, the study looks at concrete plans for using buses between different resorts, which will also be able to transport tourists with bicycles and thereby encourage bike vacationing in the area.

In addition, the natural landscape of the region and its ability to attract nature-oriented and "soft" (bike) tourism will also be discussed.

(Mentor: University of Kiel)

What's next?

Participatory monitoring and evaluation
workshop with community practicum
26-31 July 2010, Ottawa, Canada
www.mosaic-net-intl.ca

Workshop "Multilevel Governance and the Baltic Sea"
1 August 2010, Stockholm, Sweden
www.neln.life.ku.dk

International summer school
on "Climate Change in the Baltic"
5-18 September 2010, Leibniz Institute for Baltic Sea Re-
search, Warnemünde, Germany
www.io-warnemuende.de/summer-school-2010-en.html

Storm Surges Congress
13-17 September 2010, Hamburg, Germany
www.meetingorganizer.copernicus.org/SSC2010

International Conference
"Deltas in Times of Climate Change"
29 September - 1 October 2010, Rotterdam, The Nether-
lands
www.climatedeltaconference.org/nl/25222734-Home.html
www.KNMI.m10.mailplus.nl/nct31327319/CNWMdXu7AQLRnzk

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Project Partners

