

Schoolchildren Explore Biodiversity in a Changing Climate

During the city of Lübeck's days of action "Artenvielfalt erleben" ("Experience Biodiversity") from 31 May to 2 June 2013, three teams of school children explored the ecological communities along the River Trave and the Bay of Lübeck on-board the research and media vessel ALDEBARAN. The activity, titled "SailingLab Biodiversity," was intended to call attention to the biological diversity which is threatened

by climate change and to make young researchers aware of these problems. In order to take part, participants had to first win a contest that was held prior to the days of action. Research groups of four to six children applied with a project outline on the topic of biodiversity. A jury chose three appropriate project ideas from the submitted proposals.

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Thomas Mann School research team with RADOST research mentor Ivo Bobsien

Rügen in the Year 2030

On 9 April 2013 a cooperative workshop took place between RADOST and the project BiKliTour ("Tourism Regions as Model Regions for the Development of Adaptation Strategies in the Context of Biological Diversity, Tourism, and Climate Change") in Lauterbach on the island of Rügen. BiKliTour is aimed at ensuring, in selected model regions, the sustainability of tourism and biological diversity under the influence of climate change, and therefore focuses on large protected areas. The biosphere reserve (BSR) Southeast Rügen represents one of these model regions. At the same time, the island of Rügen is also an impor-

tant area for adaptation by the tourism sector within the RADOST project region. Together, the two project groups spoke with regional decision makers from tourism, politics, and nature conservation about a future management scheme for tourism development in the BSR Southeast Rügen within the context of climate change.

The discussion centered around possible tourist uses of the biosphere reserve under altered conditions in the year 2030, which was shown on the basis of a climate change scenario and two different possible

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Organizers of the Workshop (l-r): Linda Heuchele (University of Freiburg), Gerd Lupp (IÖR), Christian Filies, Inga Haller (both EUCC-D), Hilmar Schnick (BSR Southeast Rügen)

Regional Activities

RADOST Findings in the “Climate Change in Northern Germany” Dossier



The last century of global warming has also taken hold of Northern Germany and has begun to have impacts on ecosystems and the economy. In the future, it is expected that this warming will accelerate. Climate change calls for adaptation measures in many areas, which may be different from region to region, and which must be based on a consolidation of scientific findings. Such scientific findings relating to climate change are often widely scattered, are produced mainly in English, and are for the most part written for specialists. On the “Climate Navigator” web platform, the Northern German Climate Office, together with the Alfred Wegener Institute

for Polar and Marine Research, the International BALTEX Secretariat at Helmholtz Zentrum Geesthacht, and the Coastal Union Germany (EUCC-D), has now created a dossier

of scientific research pertaining to former and future climate change in Northern Germany and its impacts on ecosystems, agriculture, and tourism. With the findings of the RADOST project, the German Baltic Sea Coast is one of the regional focus points of this dossier.

As is presented in the dossier, climate change can lead, for example, to changes in biodiversity and the food chain in the Baltic Sea. Additionally, the effects of the over-fertilization of the Baltic Sea could be made worse by a warmer climate. With regards to coastal tourism on the Baltic Sea, it is possible that higher

temperatures might have positive effects. More visitors and an extended season could increase usage pressures on sensitive coastal areas. At the same time, it is possible that less sunshine could also make it necessary to shift to more climate-independent offerings.

The “Climate Change in Northern Germany” dossier will continue to be updated and will also be expanded to include other aspects of regional climate change. The Climate Navigator is a website created by a number of different German research institutes that bundles findings related to climate change.

The dossier (in German) can be found at:
www.klimanavigator.de/klimawandel-norddeutschland

Questions and comments can be directed to the Northern German Climate Office:
insa.meinke@hzg.de

Schoolchildren Explore Biodiversity in a Changing Climate

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Six students from the Thomas Mann School in Lübeck, with their project “Neobiota—New Animals, Old Problem,” explored physical and chemical environmental factors (water temperature, salinity, acidity, nutrient concentrations) in multiple water tests. Plankton and bottom-dwelling organisms, captured with both nets and grab sampling, were examined more closely under the microscope. Living conditions for the new species were deduced by comparing the measured environmental factors with the organisms that were found. The young researchers were led by their research mentor, Ivo Bobsien of the RADOST partner institution, the Schleswig Holstein State Agency



Rapt attention to the identification of water organisms from the grab sampling

for Agriculture, Environment and Rural Areas. Most of the 80 “new species” that have established themselves in the Baltic Sea have done so in the last decade. Researchers expect that this trend will continue. In this context, climate change

plays a very important role as it is effectively changing the environmental factors within the Baltic and creating suitable living conditions for invasive animal and plant species.

The days of action, “Experience Biodiversity,” were hosted by the Division of Environmental, Nature, and Consumer Protection of the Hanseatic City of Lübeck as well as the Lübeck Museum for Nature and Environment, in cooperation with numerous other institutions.

Further information (in German):
www.aldebaran.org/artenvielfalt

RADOST at the first European Climate Change Adaptation (ECCA) Conference in Hamburg

In March 2013, the first European Climate Change Adaptation (ECCA) Conference took place in Hamburg. The overarching topic was “Integrating Climate into Action,” with the objective of translating shared ideas into action for adaptation to climate change. Such action is intended to contribute to reduced vulnerability and growing resilience to climate change in Europe and internationally.

On behalf of RADOST, project leader Grit Martinez participated in the conference. Her presentation dealt with the reasons why different measures and attitudes toward climate change emerge in different locations. Two communities on the German Baltic coast were analyzed for their differences—Timmendorfer Strand (Schleswig–Holstein) and Ummanz (Mecklenburg–Western Pomerania). The research was based on qualitative analysis and document research, including chronicles and exploration of local coastal heritage sites. Special attention was given to the respective cultural traditions of the communities, e.g., images of nature, people’s relationships to the sea and their place of residence, economic development, as well as past approaches and attitudes toward coastal defense. The presentation set out the specific constellation of socio-cultural, ecologic, and economic driving forces

Rügen in the Year 2030 ...continuation of page 1

tourism scenarios developed by BiKliTour. The participants discussed a “Wellness Scenario,” in which Rügen is developed as a superior tourism destination for an older demographic group, as well as an “Adventure Scenario,” in which Rügen is made attractive for spontaneous, short trips by younger people looking for trendy sports and adventures. The discussion, creating fictitious plans for the area, was intended



Welcome by Rosemarie Mielke, Vice President Universität Hamburg

that led the communities to adopt different approaches, with a particular focus on different factors of success.

The presentation underlined that culture and tradition are an undervalued part of climate adaptation action research. Research tends to focus on the actual extent of climate change (modeling impacts), the

to clarify for participants the current land management challenges and encourage them to discuss solution strategies.

The participants agreed that both scenarios could be possible. They also agreed that tourist uses of the Southeast Rügen area should be compatible with the natural environment under future, altered circumstances.

The cooperation between RADOST and BiKliTour made this joint discussion be-

technical feasibility of adaptation measures, or participatory approaches. Comparatively little effort is spent on the cultural prerequisites for developing and implementing adaptation actions.

Further information:
<http://klimzug-radost.de/en/events/ecca-2013>

tween regional actors possible, displayed synergies within both projects, and will be pursued further in the future.

Further information (in German):
www.ioer.de/biklitour

Workshop summary in English at:
www.eucc-d.de/ergebnisse-baltadapt.html

International Activities

Adaptation to Climate Change in Mountain & Coastal Areas: A Transatlantic Dialogue



Concluding discussion with Jill Jäger and Susanne Moser at the workshop

An interdisciplinary and international workshop at the Climate Service Center (CSC) in Hamburg brought together experiences with climate change adaptation from different natural areas. Examples from mountain and coastal regions in Europe and the USA were presented. Guy Brasseur, the head of the CSC and host of the event, characterized the participation of politicians, practitioners, and scientists from the various regions as a “multidimensional dialogue.”

Representatives from four different regions were invited to the event from 16–19 April 2013. In addition to the RADOST region’s input from the Bay of Kiel Climate Alliance, Timmendorfer Strand, and Ummanz (Rügen), examples of adaptation to climate change from the Swiss Grindelwald, the ski town Aspen, Colorado (USA), and coastal regions of the USA (North Carolina and the Chesapeake Bay area in Maryland) were also presented.

In addition to informative presentations, the workshop offered plenty of opportunities for interaction between the participants, which highlighted similarities and differences between the mountain and coastal regions. Both types of regions are typically tourism-based and are already facing consequences from climate change, which are expected to intensify in the future. Trends such as decreasing snowfall or increasing beach erosion pose large risks for the economic potential of these areas. Their respective communities are dedicated to finding solutions to these problems, which include technical measures like beach nourishment or snow cannons.

The workshop included an excursion to Timmendorfer Strand, where the participants gained extensive insight into the planning and implementation of the area’s exemplary coastal protection concept. These measures are set apart by the participatory process that was used during decision making and preparation. Comprehensive inclusion of landscape architectural aspects was also part of the planning. For example, solid coastal protection structures like concrete walls were embedded in the natural dune landscape to make them unrecognizable.



Group discussion during the excursion to Timmendorfer Strand

Book Release: “Climate Change Adaptation in Practice: From Strategy Development to Implementation”

Additional measures, like movable or glass protection walls, also provide coastal protection while maintaining the attractiveness of the coastal area for tourism.

An important discussion topic at the event was the communication of climate knowledge between science and practice. The discussion highlighted the role of science to provide information that can be used to make societal decisions. On the topic of climate change, questions arise regarding which scientific information should be provided and how this information can be communicated. While questions about the type of information are to be answered by scientists (e.g., “How detailed can regional climate models be?” or “How much sea level rise can be expected?”), communication of information can be done by “extension agents”—actors who connect science and practice and initiate and moderate the exchange between both groups of actors. On the practical side, scientific actors should increasingly dialogue with communities. In the future, communication mistakes like pessimism or actionism should be avoided; instead, communication should build upon values such as honesty, respect, and trust. To accomplish this, it is important that scientists recognize and address the problems communities face in practice. The plenary session pointed out the importance of such communication rules in contributing to smooth cooperation between science and practice.

The workshop was organized by the Climate Service Center (Hamburg), the Aspen Global Change Institute (Colorado, USA), Duke University (North Carolina, USA), and Ecologic Institute. The transatlantic dialogue will be continued in August 2013 at the Global Change Institute in Aspen.

Further information:

www.climate-service-center.de/037947/index_0037947.html.en



Seaweed washed up on a beach

A number of practical examples of climate adaptation with an emphasis on the Baltic Sea region are presented in the newly published book “Climate Change Adaptation in Practice: From Strategy Development to Implementation.” The largest portion of the book is dedicated to case studies from different Baltic Sea countries, which were investigated in the EU project BaltCICA (Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region). Findings from RADOST research are also presented through multiple articles related to climate change and adaptation on the German Baltic Sea coast. Case studies from Spain and Southeast Asia offer a look beyond the regional focus.

The RADOST contributions included in the publication discuss both natural and social science aspects of climate change on the German Baltic Sea coast. For instance, Klamt and Schernewski (“Climate Change – A New Opportunity for Mussel Farming in the Southern Baltic?”) address the possibility of mussel farming and the question of whether this method could be used to fight back against the eutrophication of Baltic Sea coastal waters. In the chapter “Consequences of Climate Change and Environmental Policy for Macroalgae Accumulations on Beaches along the German

Baltic Coastline,” the authors (Mossbauer, Dahlke, Friedland & Schernewski) show, with the help of numerical modeling, how the accumulation of macroalgae could change under future, altered environmental conditions. Their assessment suggests that the implementation of politically set water quality targets would cause significant increases in algae stocks and thereby also lead to an increase in beach debris, which would then require the development of new strategies for beach management. Two chapters of the book are focused on tourism on the German Baltic Sea coast. Schumacher and Filies, in their article “Climate Change Impacts on Baltic Coastal Tourism and the Complexity of Sectoral Adaptation,” analyze expert interviews of tourism industry representatives on the topic of adaptation. Donges, Haller, and Schernewski report in their article “Tourists’ Perception of Coastal Changes – A Contribution to the Assessment of Regional Adaptation Strategies?” on a survey of beach-going tourists in the region around Rostock (see also: RADOST Newsletter 1/2012, page 6).

The book was edited by Philipp Schmidt-Thomé and Johannes Klein and is 338 pages long. It was published in May 2013 by Wiley. ISBN: 978-0-470-97700-2.

Contested Values and Practices in Coastal Adaptation to Climate Change



The yard surrounding a house in Dorchester County, Maryland is flooded during a spring high tide.

Experience from adaptation to climate change at community level shows that high levels of adaptive capacity are often present but are not used for adaptive action, and therefore communities remain vulnerable. A master's thesis performed in connection with the RADOST project looks at the socio-cultural construction of values and practices that influence risk perceptions and behavioral intentions in coastal management and adaptation to climate change in three states on the US mid-Atlantic coast. The study is based on a discourse analysis of three local newspapers, a literature review, and a survey among decision makers on coastal management in those states. The survey was carried out by the Nicolas School of the Environment at Duke University and Ecologic Institute during three workshops held in Annapolis (Maryland), Beaufort (North Carolina), and Charleston (South Carolina) in April 2012. This data is used to identify the influence of cultural differences on coastal zone management in the study area.

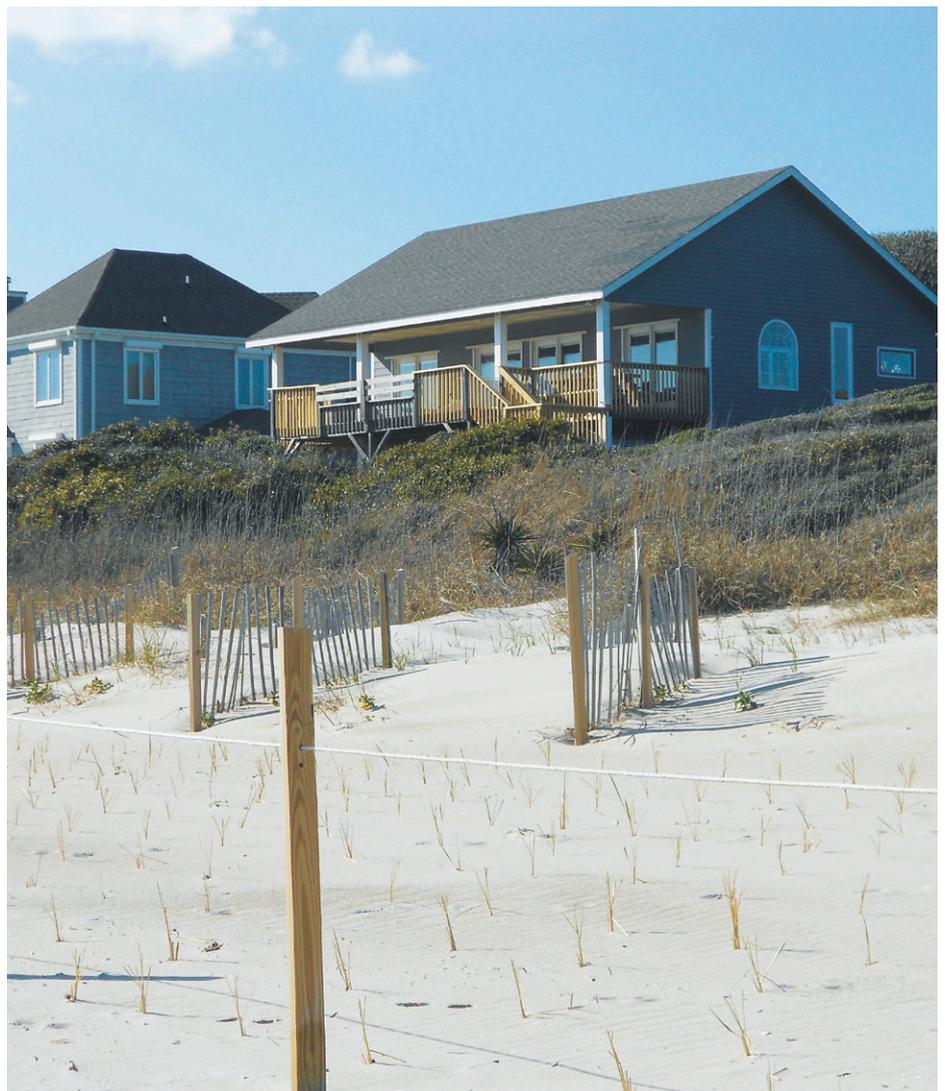
The study identifies four major spaces of contestations over divergent opinions on climate change and coastal management, namely risk ownership, knowledge on climate change, trust in science and politics,

and values. There are local differences in the manifestation of these contestations. However, the findings show that across the study area, currently dominating values and practices hinder the implementation of strategies for adaptation to climate change. While supportive attitudes are also present, they often do not enter the decision-making process under its current design.

The dissertation "Contested Values and Practices in Coastal Adaptation to Climate Change – The Role of Socio-Cultural Con-

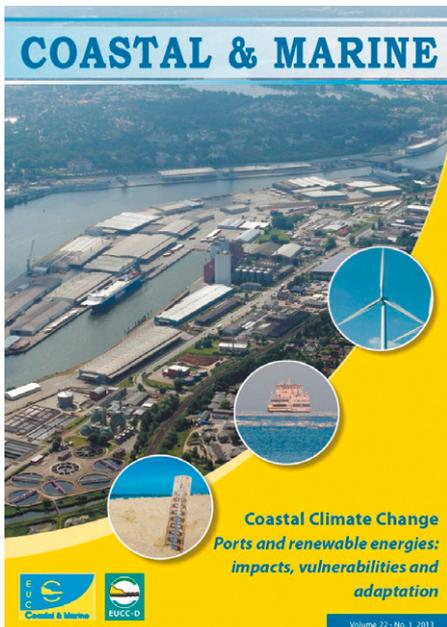
struction in Decision Making for Adaptation to Climate Change and Sea Level Rise in Three US States" was written by Fanny Frick from June to September 2012 at the Development Planning Unit of University College London. It was supervised by Dr. David Dodman (IIED) and Dr. Grit Martinez (Ecologic Institute).

The final version was published as volume 18 of the RADOST Journal Series and is available for download at: <http://klimzug-radost.de/en/report18/contested-values>



House built directly on a dune, Atlantic Beach peninsula, North Carolina

Second Special Edition of “Coastal & Marine” Magazine is Available



Challenges from climate change for ports and the development of renewable energies are the focus of the second issue of the special series on climate adaptation, “Coastal & Marine.” This issue addresses challenges and adaptation strategies for port development, e.g., in Lübeck, and the possibilities for geothermal energy extraction in beach regions. It also presents the effects of offshore wind energy on bird migration. Articles from RADOST were expanded upon with articles from other KLIMZUG projects as well as international projects in the Baltic Sea region.

During the length of the RADOST project, there will be four special editions of this English-language magazine on the topic of “Coastal Climate Change,” which will be written for experts in the areas of coastal management and planning. These editions should expose a larger European audience to the work and findings of the project. Future issues will address climate change-relevant aspects of beach and water management as well as nature conservation. This special series is published by the project partner EUCC – The Coastal Union Ger-

many e.V. together with its international parent organization, the Coastal & Marine Union.

A PDF version is available at:
www.eucc.net/coastalandmarine/index.htm

International Examples of Climate Change Adaptation

International case studies of climate change adaptation are featured in a new RADOST report (RADOST Journal Series No. 19) by Nico Stelljes and Grit Martinez (Ecologic Institute). Three adaptation examples are presented for each of the six RADOST focus topics: coastal protection,

(planned removal of coastal protection) from the UK or the use of wave energy in Lithuania can be classified as adaptation measures. Adaptation processes, by contrast, are demonstrated by a community in New Zealand and the port of San Diego, USA, where the process of setting up an adaptation strategy is analyzed. The range of adaptation options described in the report is intended to provide a source of inspiration for stakeholders on the Baltic coast by showing how climate change, adaptation, and related topics are handled in other regions.

The report (in German) can be downloaded free of charge at:

<http://klimzug-radost.de/en/report19/internationale-beispiele-der-klimaanpassung>



Harbor in San Diego, USA

tourism and beach management, water management and agriculture, ports and maritime economy, nature conservation and land use, and renewable energies, complemented by the topics “planning” and “participation.” In total, 24 examples from countries such as Denmark, Sweden, UK, USA, and Japan are discussed. A distinction can be made between adaptation measures and processes of adaptation. Examples such as a “managed realignment”

Contributors:

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Events

KLIFF Conference: "From Global Climate Change to Regional Adaptation Strategies"
2 – 3 September 2013, Göttingen, Germany
www.kliff-niedersachsen.de/vweb5-test.gwdg.de/?page_id=3302

Baltadapt Final Conference:
"Adaptation to Climate Change in the Baltic Sea Region"
3 – 4 September 2013, Riga, Latvia
<http://conference.baltadapt.eu>

International Conference on Flood Resilience:
Experiences in Asia and Europe
5 – 7 September 2013, Exeter, UK
<http://icfr2013.ex.ac.uk>

BWK Federal Congress:
"Opportunities and Risks for the Coastal Area"
18 – 21 September 2013, Stralsund, Germany
www.bwk-bund.de/index.php?id=83

ICYESS 2013: Understanding and Interpreting Uncertainty
23 – 25 September 2013, Hamburg, Germany
www.icyess.eu

Science for the Environment 2013
3 – 4 October 2013, Aarhus, Denmark
<http://dce-conference.au.dk>

Vilm Expert Dialogue: "Biodiversity and Climate – Networking of Stakeholders in Germany"
7 – 10 October 2013, Vilm, Germany
www.bfn.eu/0604_veranst_vilm.html

KLIWAS Status Conference 2013
12 – 14 November 2013, Berlin, Germany
www.kliwas.de

KLIMZUG Final Conference: "Pathways to Climate Adaptation – Using Regional Networks to Succeed"
26 – 27 November 2013, Berlin, Germany
www.klimzug.de/de/1206.php

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Berlin, June 2013

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