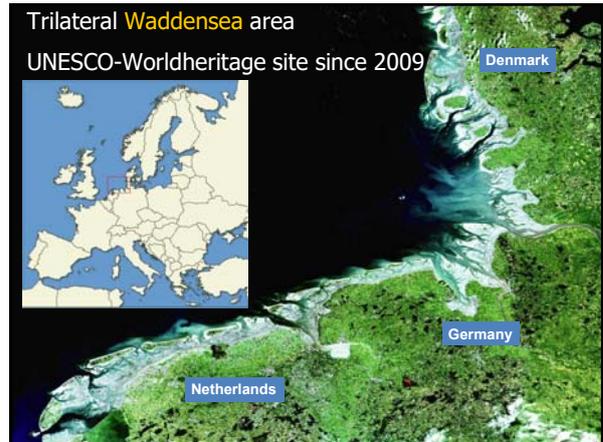


Trilateral Research Agenda Wadden for the Wadden Sea Region and its World Heritage Site

Prof.dr. Jouke van Dijk, Director Waddenacademie

Presentation for 14th International Scientific Wadden Sea Symposium, ECCO Conference Center, Tønder (Denmark), May 9, 2017

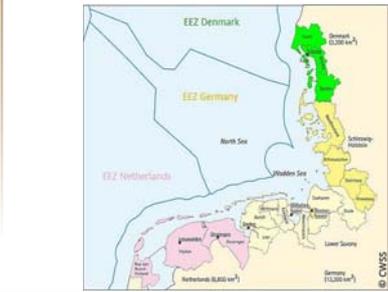
The World Heritage List is the most prestigious List of cultural and natural monuments world wide

2014 entire Wadden Sea on the World Heritage List with the extension of the Danish part

An exceptional opportunity to reinforce conservation and management and advance sustainable regional development with the stakeholders



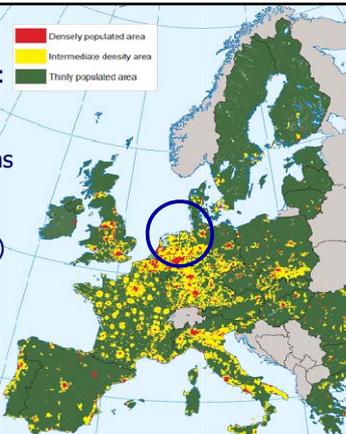
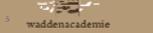

The Wadden Sea Region covers an area, which encompasses the coastal zones, the Wadden Sea with its islands and sands and the relevant parts of the **Exclusive Economic Zones (EEZ)** of Denmark, Germany and the Netherlands. (WSF/CWSS)



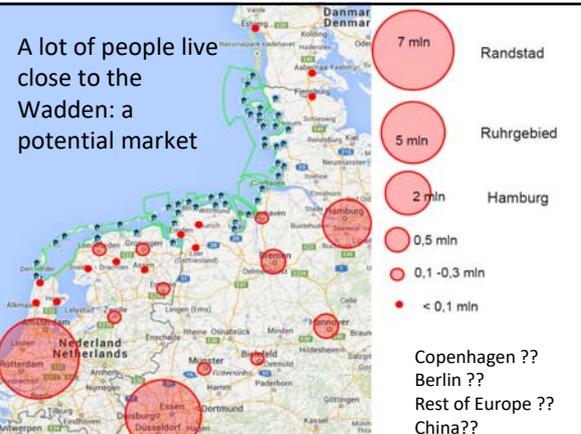

Population density
Rural – urban typology: no real rural areas in most of the Wadden!

Country sites transforms from production space (agriculture) to consumption space (residential and leisure)

Source: EU-Commission (November 2010), Investing in Europe's future, 5-th Report on Economic, Social and Territorial Cohesion

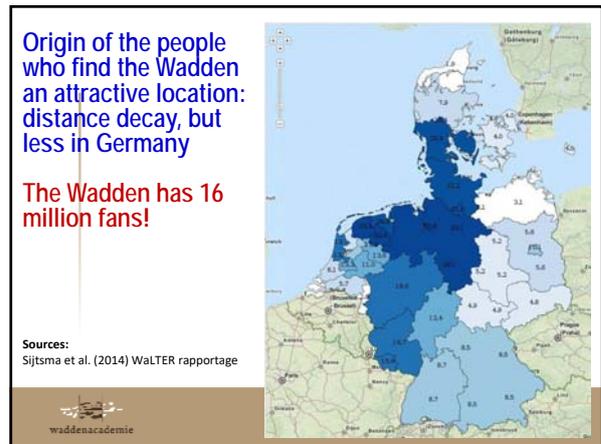
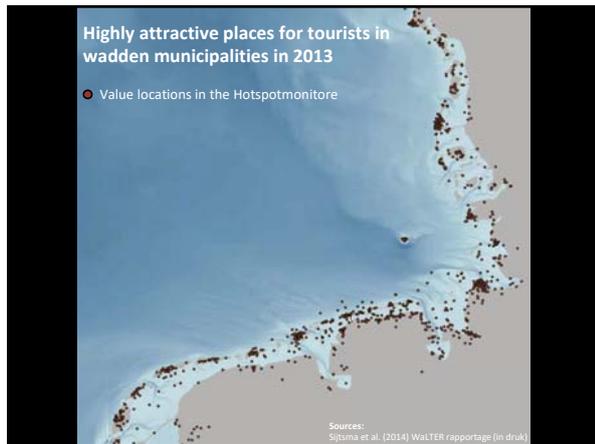
A lot of people live close to the Wadden: a potential market



- 7 mln Randstad
- 5 mln Ruhrgebiet
- 2 mln Hamburg
- 0,5 mln
- 0,1 - 0,3 mln
- < 0,1 mln

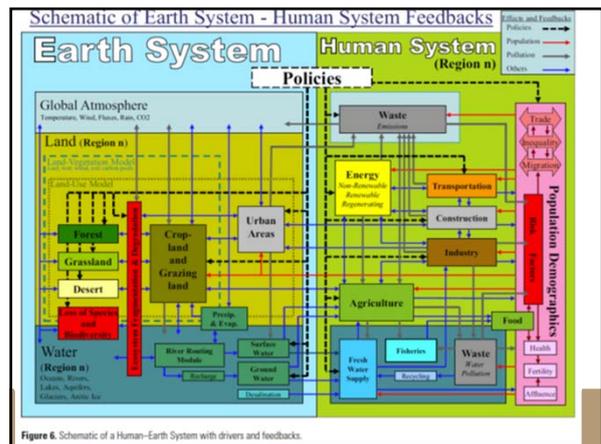
Copenhagen ??
Berlin ??
Rest of Europe ??
China??





Nature Conservation and Human Interaction in the Wadden area since many centuries

- Towards safety and protection of flooding: building dikes
- From reclaiming land to nature protection
- From nature protection to shared use
- From national to trilateral management
- The Wadden system needs to be managed so that both the ecosystem and the social system can develop in a sustainable way. This in itself is a real challenge.
- **Proper management requires sufficient ecological and socio-economic-cultural information (monitoring) and knowledge and understanding of this integral system for effective and efficient management**



Background Trilateral Research Agenda

- The necessity for a Trilateral Research Agenda (TRA) for the Wadden Sea Region originates from the declarations from the Trilateral Government meetings 2010 and 2014, stating that:
- Sylt-declaration 2010, pkt. 41: "Support the establishment of a trilateral research platform directly connected with existing national networks. The platform will elaborate a trilateral agenda for policy-relevant research in consultation with the Board..."
- Tønder-declaration 2014 pkt. 63: "Encourage discussions by the scientific community and policy makers on the major policy issues and related knowledge as a basis for further developing a trilateral research agenda and a trilateral research platform."

Priorities of the Dutch presidency of the Trilateral Wadden Sea Cooperation June 2015:

7. Scientific agenda for the Wadden Sea World Heritage Site: The Wadden Sea has long been a site of much and diverse scientific research. For good management of the World Heritage Site there are plenty of questions that will require common and better coordinated research.

Objective: A coherent scientific agenda, relevant to the World Heritage Site which supports decision-making on current and future issues, captures the interest of young scientists and promotes scientific cooperation between institutions.

Trilateral 'supertrio' installed by the Wadden Sea Board:

Mette Guldberg (Denmark)
/ replaced by Jesper Bartholdy
Karsten Reise (Germany)
Jouke van Dijk (Netherlands, chair)

Support and coordination by CWSS (Folkert de Jong) and Waddenacademie (Klaas Deen) and in the final writing stage by Josef Stuefer (NWO)

Summer 2015: Installation five subgroups

1. Geosciences

DK Jesper Bartholdy, Chair
DE Alexander Bartholomä
NL Hessel Speelman

2. Ecology

DK Karsten Laursen
DE Christian Buschbaum
NL Katja Phillippart, Chair

3. Economy and Society

DK Torben Dall-Schmidt, Chair
DE Ingo Mose
NL Jouke van Dijk

4. Cultural Heritage

DK Mette Guldberg
DE Beate Ratter, Chair
NL Meindert Schroor

5. Climate and Water

DK Aart Kroon
DE Horst Sterr
NL Pier Vellinga, Chair

Summer 2015 – Summer 2016: Working process subgroups

The subgroups write an overall outline of 3-4 pages of themes and issues within their field. The outline serves as a starting point for a broad discussion among scholars in the same field at a workshop. The subgroups finish their report concluding with suggestions for 5-10 important research questions within its field.

The report contains an outline of

- Major achievements and persisting gaps of knowledge (5-10 most important research questions)
- Main questions relevant for policy (science policy matrix)
- Suggestions for transdisciplinary themes

Activities:

Cuxhafen, October 2015: workshop for Cultural History and Economics

Delmenhorst, April 2016: workshop for Geology

Texel, June 2016: workshops for Ecology and Water and Climate

+ Informal discussions

Results → five draft reports available on the ISWSS14 website and used as input for the overarching Trilateral Research Agenda

Trilateral Research Agenda

for the Wadden Sea Region and
its World Heritage Site

May 2017: still a draft!
Open for discussion here!

Scope and Structure of the Trilateral Research Agenda

TRA is a General Framework consisting of:

- Four thematic lines + three overarching challenges
- Mapping and Monitoring
- Outreach, Communication and Education
- Timeline and Implementation
- **TRA can serve as a Framework for a Call for Proposals for transdisciplinary trilateral projects written by researchers from various disciplines and research institutes and funded by research ministries and/or their respective funding agencies**



The 4 BROAD THEMATIC THEMES

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CLIMATE & WATER, SEDIMENTS & SUBSURFACE

1. Climate & Water, Sediments & Subsurface

- Better understanding of the effects of climate change, global warming, sea level rise, sediment dynamics, salt water intrusions, extreme storm surge levels, higher tidal range and waves, mining activities, dredging
- Implications and sustainable adaptations for the ecosystem, fresh water balance, agriculture, fisheries, tourism, energy provision, harbor access, coastal defense strategies society and life styles in the entire Wadden Sea Region

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ECONOMY & SOCIETY, SUSTAINABLE DEVELOPMENT

2. Economy & Society, Sustainable Development

The Wadden Sea Region economy is very heterogenous with strong locational differences between islands and mainland, remote coastal marshland near large urban centers and port facilities interacting with sectoral dynamics and external (global) trends as well as with employment, education and population development. How can policies help to direct this economic and societal diversity towards sustainable development in the face of global warming, sea level rise and other aspects of globalization?

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CULTURAL HERITAGE HUMAN-NATURE-INTERACTIONS

3. Cultural Heritage, Human-Nature-Interactions

The unique cultural landscape of the Wadden Sea Region is the product of a fundamental transformation from a highly dynamic sea-to-land interaction toward a rigidly divided coastal landscape between land and sea separated by dikes. Facing a possible sea level rise of some meters, a second transformation from living against to living with water will be the challenge for the future with unanswered questions relate to regional identity, values and gender issues.

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ECOLOGY & ECOSYSTEM CHANGE, SPATIAL PLANNING

4. Ecology & Ecosystem Change, Spatial Planning

Ecological change in the Wadden Sea World Heritage Site, the islands, coastal lowlands and entering rivers is mainly driven by four main factors, namely temperature rise, bio-invasions, sea level rise and regional human impacts. Since three of these factors operate on a large geographical scale, novel research is needed to explore possibilities for sustainable adaptation measures. Evidence based solutions, such as "building with nature" should form the basis.

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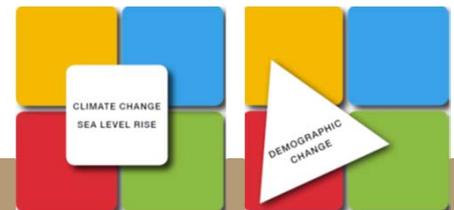
The 3 OVERARCHING CHALLENGES

Proper understanding, effective protection and sustainable development of the Wadden Sea Region requires a **transdisciplinary approach** to tackle the manifold interactions on different spatial and temporal scales that constitute the Wadden Sea Region as an integral socio-ecological system.

The main challenges for the future can only be understood and successfully tackled by a true interaction between different fields of science, including different disciplines and different types of science (fundamental research, monitoring, applied and citizen sciences), and between science and diverse players in society such as regional and national authorities, private companies, NGO's and citizens.

Three overarching challenges:

1. Climate Change and Sea Level Rise
2. Sustainable Coast
3. Demographic Change



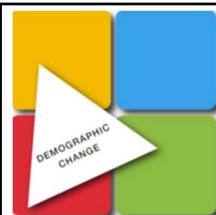
1. Climate Change and Sea Level Rise

Climate change has strong repercussions on natural system, socio-economic and cultural structures and processes. Integrated efforts from science and society as a whole are needed to understand and to deal with this issue. Adapting to climate change and sea level rise requires truly transdisciplinary approaches but also entails new chances and opportunities for the Wadden Sea Region and its universal natural values.



2. Sustainable Coast

The major issues for a sustainable coastal development of the Wadden Sea Region will inevitably deal with the search for viable transformation processes creating educational and economic opportunities for residents. Ecology needs to be understood as part of an inclusive economy. A scientific comprehension of natural and socio-economic processes in the Wadden Sea Region will be of paramount importance to support policy and to strike a good balance between people, nature and profit and requires sophisticated spatial planning.



3. Demographic Change

The economically peripheral, predominantly rural region in the Wadden Sea Region undergo demographic change, mainly due to declining birth rates, aging and migration. Population decline presents severe challenges but offers opportunities as well, such as for natural values, (eco-)tourism, and cultural heritage. The challenge for science is to unravel the underlying mechanism of population change that can be used by policy makers to develop innovative and evidence-based transformation strategies.

Other main issues in the TRA

1. Mapping and Monitoring
2. Outreach, Communication and Education
3. Timeline and Implementation

Mapping and Monitoring

- TMAP
- Future mapping and monitoring needs
- Innovation in mapping and monitoring

Outreach, communication and Education

- Role of Wadden Sea World Heritage Partnership Center
- Captures the interest of young scientists and promotes scientific cooperation between institutions
- Etc.

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Funding

Funds for implementing different parts of the agenda may come from different sources:

- Novel research activities may be funded by research ministries and/or their respective funding agencies
- Mapping and monitoring activities are more likely to be funded by regional and national authorities responsible for environmental issues including reporting obligations stemming from national legislation, European treaties and directives.
- The relative contribution of the three countries to common research programs may roughly follow their respective shares of the Wadden Sea Region: 30% of the trilateral Wadden Sea Region is the responsibility of the Netherlands, about sixty percent of Germany and about ten percent of Denmark
- Indicative budget 50 million.

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Timeline and implementation

- NEXT Steps:
 1. Discussion here in Tønder, Denmark → revise and update Agreement on the headlines of a comprehensive TRA: the main research questions and challenges and policy relevance with support of:
 - The scientific community and research institutes
 - Policy makers
 - NGO's and other stakeholders
 2. Revised and updated final draft shall be presented to and discussed by the Wadden Sea Board in autumn 2017
 3. Final document formally adopted and approved during the Trilateral Governmental Conference to be held in May 2018 in Leeuwarden (Netherlands)

Trilateral Call for Proposals by the end of 2018 or 2019?

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Priorities of the Dutch presidency of the Trilateral Wadden Sea Cooperation:

Objective:

1. A coherent scientific agenda, relevant to the World Heritage Site which supports decision-making on current and future issues
2. Captures the interest of young scientists
3. Promotes scientific cooperation between institutions

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Trilateral Research Agenda Wadden

for the Wadden Sea Region and its World Heritage Site

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Science – policy matrix

| | | | |
|--|----------|--|--------------------------|
| Size of the box: Degree of concern to management: which policy problems have the highest priority? | High | Management has a high level of concern for the value due to its current degraded condition and/or the high level of single or cumulative pressures affecting it. | <input type="checkbox"/> |
| | Moderate | Management has a moderate level of concern for the value due to its current condition and/or the moderate level of single or cumulative pressures affecting it. | <input type="checkbox"/> |
| | Low | Management has a low level of concern for the value due to its current good condition and/or the low level of single or cumulative pressures affecting it. | <input type="checkbox"/> |
| Colour of the box: Adequacy of information: do we have the knowledge to solve the problem? | Good | The good level of information available directly supports management decisions and is currently sufficient to allow progress on the particular issue/interaction. However, further information to support ongoing adaptive management may still be required. | <input type="checkbox"/> |
| | Moderate | The moderate level of information gives a reasonable basis for management decisions, but decisions regarding some aspects of the issue/interaction may be hampered by current knowledge gaps. | <input type="checkbox"/> |
| | Low | The low amount or adequacy of information is a hindrance to management. Decisions are pending the availability of improved scientific understanding of the issue/interaction. | <input type="checkbox"/> |

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