

Wadden Science for Wadden Policy

Visit Jon Day, Director Ecosystem Conservation & Sustainable Use, Great Barrier Reef Marine Park Authority, Townsville, Australia
Huis voor de Wadden, Leeuwarden, May 3, 2013

Jouke van Dijk
President Waddenacademie-KNAW

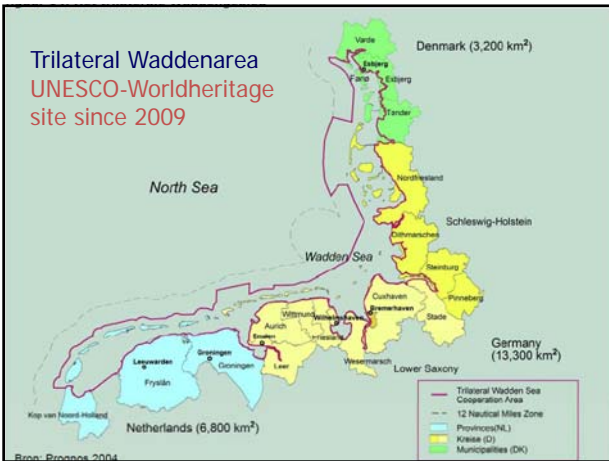


Trilateral Waddensea area

UNESCO-Worldheritage site since 2009



Trilateral Waddenarea UNESCO-Worldheritage site since 2009



The responsible governments in the Netherlands choose for:

To preserve the natural values of the Wadden Sea Region while allowing sustainable shared human use with nature and the landscape as the basis for both ecological and economic functions as for the livability of the inhabitants



Working on robust resilience



Resilience of the Wadden Sea Area





Global Trend of Green Growth requires a better understanding about how the ecological, social and economic systems work and interact with each other in the UNESCO World Heritage Wadden:



Green growth strategy requires integrated research

- it combines **two or more disciplines** with the emphasis on feedbacks and interactions;
- it focuses attention on the **interactions between space and time scales**;
- it focuses attention on the **accumulation of processes**, interventions and effects;
- it is based on the **co-production of knowledge** in which knowledge demands are generated, knowledge is used and generated in close interaction between scientists, practitioners and policymakers (**engaged scholarship**)



Incentives for the foundation of the Waddenacademie

-Final report of the Advisory Group on Wadden Sea Policy (Meijer Committee, 2004): policy and management of the Wadden Sea Region had reached an impasse;

-Recommendations included: improve the natural qualities of the Wadden Sea Region; reform the policy and governance structure; shellfish fisheries and gas extraction within limits of the natural system; **a better knowledge structure for the Wadden Sea Region**

-Government decisions: quit mechanical fisheries on cockles; allow gas extraction following 'hand on the tap' principle; establishment of the Wadden Fund (800 million euro; 20 years) for enhancement of the natural values and a sustainable economy; **establishment of the Waddenacademie for the development of a good knowledge structure.**



Waddenacademie (founded 2008)

An institute of the Royal Academy of Arts and Sciences (founded in 1808)



Wadden Academy's tasks:

- to identify gaps in cross-domain knowledge in order to assist in the sustainable development of the Wadden Sea Region;
- to promote a coherent research programme at regional, national and international level and;
- to promote information supply and knowledge exchange within and between research institutes, government, industry and social organisations.



Board Waddenacademie

Per 1-1-2013:
Katja Philippart new board member Ecology



Hessel Speelman,
Jouke van Dijk,
Jos Bazelmans,
Peter Herman en
Pavel Kabat



Characteristics Waddenacademie

- Network organisation
- Links science to policy (interface)
- NOT a research institute
- Organizes workshops, symposia
- Publications: scientific articles/reports and also for the general public
- Compact: five parttime boardmembers (1 day per week) and small staff (4 fte)



Waddenacademie promotes integrated multi-disciplinary research in a system approach

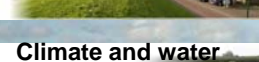
Geoscience



Ecology



Society and cultural history



Social and spatial Economics & planning

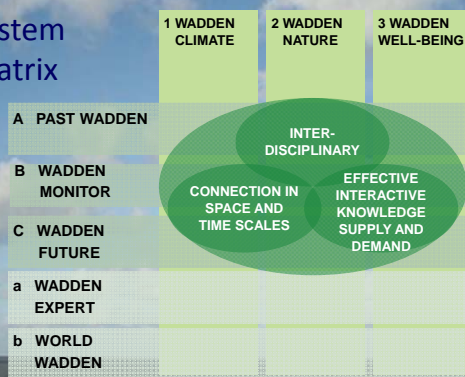


Climate and water



For more information see: www.waddenacademie.nl

System Matrix



Important research questions (1)

- Safety:** how can the safety of the Wadden Sea Region and its population be guaranteed in the long-term, also taking into account the possible harmful effects of climate change?
- Climate-neutral:** how can a sustainable energy balance for the region be realised?
- Protection:** how can the natural values be safeguarded?
- Development:** which regional economic developments are possible within the constraints?

Important research questions (2)

- Adaptation:** how will the natural environment adapt to climate change, the introduction of invasive species, changes in the global economy?
- Sustainable economy:** how can work and income for the residents be guaranteed in a sustainable manner?
- Liveable community and quality landscape:** how can social cohesion, a recognisable man-made landscape and living heritage be safeguarded?

→ New research institute of the Royal Dutch Academy of Sciences: Waddenacademy
For more information: www.waddenacademie.nl

Ambition Waddenacademie

...to develop the Wadden Sea Region into an incubator for widely applicable integrated knowledge of sustainable development of a coastal area, in which natural values are a key element and form the foundations of the local and regional economy.

The region is a meeting place for scientists from the Netherlands and elsewhere, administrators, policymakers and management agencies. Together, they develop sustainable and innovative solutions based on interdisciplinary knowledge.

By 2020, the trilateral Wadden Sea Region will be the best monitored and best understood coastal system in the world.



The integrated research agenda

'Knowledge for a sustainable future of the Wadden'

Research agenda for the Dutch Wadden Sea Region

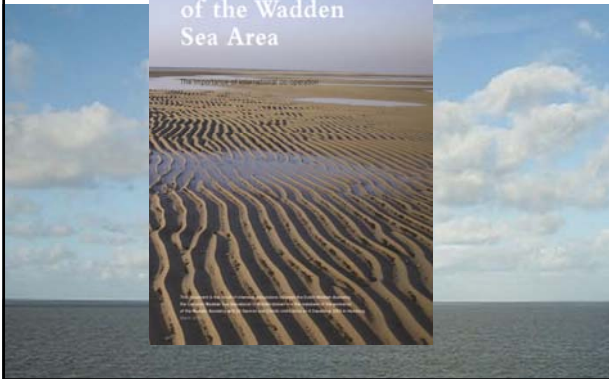


Presentation research agenda



Waddentogdag,
Delfzijl,
30 May 2009

Towards a trilateral research agenda of the Wadden Sea Area



Presentation trilateral research agenda, Sylt 2010



Trilateral research necessary

for the management of the World Heritage Site Wadden Sea, by:

- Making the concept of safeguarding "ecosystem integrity" operational through delivering the scientific basis for managing cross border challenges, in particular
 - Invasive alien species and biodiversity
 - Impacts of sea level rise and sedimentation
 - Bird population developments along the Flyway
- Interaction economy and ecology: energy (gas extraction, powerplants, coolingwater, windenergy), fisheries, harbour activities, tourism, etc.

The need for trilateral research was strongly supported by the 13th Scientific Wadden Sea Symposium

13^e ISWSS 21/23 november 2012



200 scientists and policy makers, key-note lectures from Korea and Australia
Four themes

→Preparation for the trilateral governmental conference februari 2014 in Denmark

Recommendations symposium Theme 1: climate and water

- Study the *regional* climate change in the Wadden Sea Region;
- Explore *cross-border* safety strategies including the possibility of large-scale sand nourishments;
- Improve our understanding of morphological processes in the Wadden Sea and North Sea in relation to sea-level rise;
- Develop innovative ways of dealing with climate change related challenges including sea-level rise and salinization.

Recommendations symposium Theme 2: biodiversity

- Studies indicate that biodiversity enhances the resilience of the Wadden Sea ecosystem which stresses the importance of prevention of biodiversity loss;
- Gain further insight into food-web functioning with a focus on ecosystem engineers and explore ways to restore key species;
- Treat invasive species no longer exclusively as enemies to the system but also look at their added value;
- Study bird populations at the major staging/feeding areas along the East-Atlantic flyway, not just the Wadden Sea.

Recommendations symposium: Theme 3: science for management and policy

- Critically analyze the functioning of the science-policy interface;
- Develop an integrated monitoring system with a focus on the accumulation of processes at different spatial and temporal scales;
- Create and maintain a data portal for Wadden Sea research;
- Stimulate publication in open access journals.

Recommendations symposium Theme 4: sustainability and ecosystem services

- Safeguard the protection of the natural values of the Wadden Sea in (EU) fisheries management;
- Take action to restore the morphology and ecology of estuaries;
- Explore and monitor the opportunities for tourism provided by the UNESCO world heritage status;
- Study and preserve our important cultural heritage.

Conclusions and recommendations of the trilateral scientific symposium

- The overall management of the trilateral Wadden Sea World Region requires cross-border and interdisciplinary research
- The main themes for trilateral research have been identified and receive broad support
- The implementation requires a Trilateral Research Platform and a Trilateral Research Fund

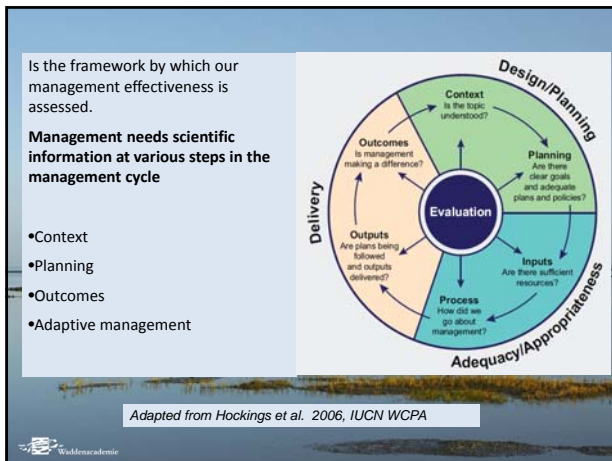
Science needs for management

Australian Government
Great Barrier Reef
Marine Park Authority

GREAT BARRIER REEF
Climate Change
Action Plan 2007-2012

Reef Water Quality
Protection Plan
Research, Development
and Innovation Strategy
2009-2013

FORMATION NEEDS
MENT OF THE
GREAT BARRIER REEF MARINE PARK
2009 - 2014



Scientific information needs for biodiversity components

Australian Government
Great Barrier Reef Marine Park Authority

Degree of concern to management: High, Moderate, Low
Adequacy of information: Good, Moderate, Low

Component	Factors influencing biodiversity components										OVERALL STATUS	
	Commercial marine tourism	Defence	Fishing	Ports and shipping	Recreation (other than fishing)	Scientific research	Traditional use of marine resources	Climate change	Coastal development	Catchment run-off		
Habitats	Marais											
	Reefcorals											
	Mangroves											
	Deepwater meadows											
	Coastal reefs											
	Lagoon floor											
	Shoals											
	Hardwood banks											
	Continental slope											
	Open reefs											
Range of species	Mangroves											
	Deepwater											
	Mangroves											
	Open meadows											
	Coastal											
	Other meadows											
	Reefcorals & invertebrates											
	Bony fish											
	Sharks & rays											
	Marine turtles											
Sea snakes												
Open reefs												
Sea birds												
Waders												
Shoals												
Drapings												

Degree of concern to management	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"/>
Adequacy of information	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"/>

Component	DEVELOPS										PRECLUDES			RESPONSE		
	Tourism	Fishing	Ports and shipping	Recreation	Aquaculture	Mining	Energy generation	Ports and shipping	Other agriculture	Invasive alien species	Urbanisation	Practices	Marine trade	Climate Change	Governance	OVERALL STATUS
SOCIETY	Subsurface use and ports/wharves															
	Longer term geomorphology															
	Shoal term morphodynamics															
ECOSYSTEM	Biodiversity - Reefbuilding Zoobenthos															
	Biodiversity - Diadromous Fish															
	Biodiversity - Breeding Birds															
	Habitats - Subtidal Sandbanks															
	Habitats - Salt Marshes															
	Habitats - Beaches & Dunes															
CULTURE/INDUSTRY	Functions - Primary Productivity															
	Functions - Nursery North Sea Fish															
	Functions - Fuelling Station Migratory Birds															
SOCIOECONOMY	Awareness/valuation															
	Maintenance															
	Public access															
COMMUNITY	Employment															
	Income															
	Provision															
	Usability															
ENVIRONMENT	Longer term sediment rise															
	Fresh water availability															
	Weather extremes															

How to achieve this?

- Option 1: A trilateral Waddenacademie (TRIWAD)
- Option 2: Three Wadden Academies
- Option 3: A common Wadden Science Council
- Status as trilateral UNESCO Institute

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