



Embracing Estuaries 2016

# TIDE: Integrated management for estuaries

Lessons learnt from an international EU project

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# Agenda

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**01** Challenges for estuarine management

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**02** The TIDE approach

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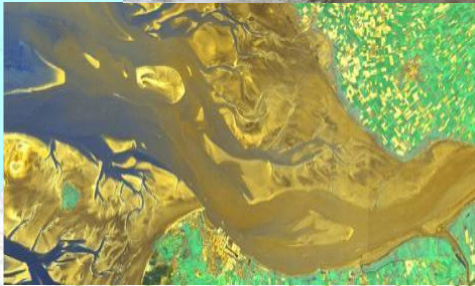
**03** Recommendations

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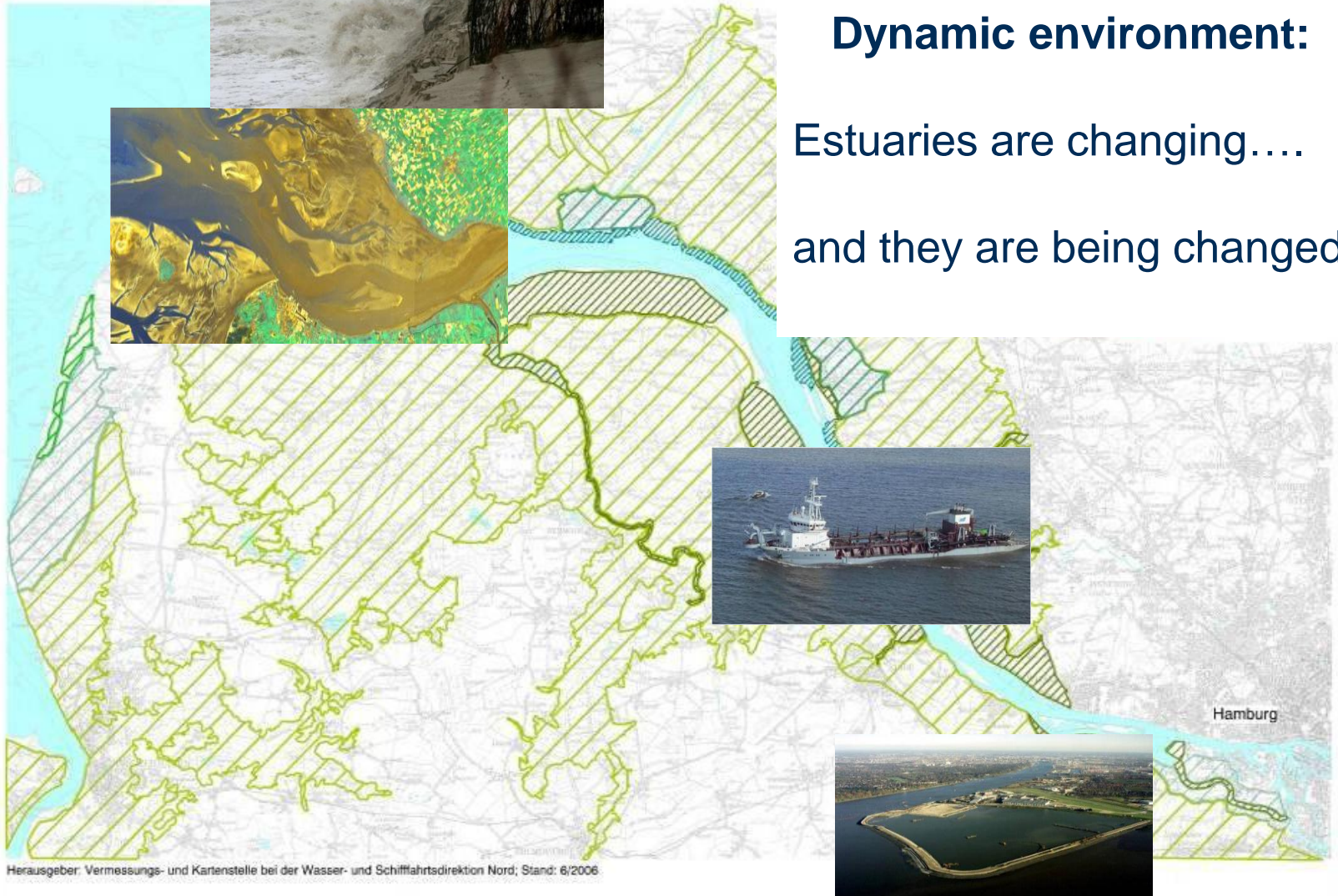
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# 01 Challenges for estuarine management

# Challenge



**Dynamic environment:**  
Estuaries are changing....  
and they are being changed



Herausgeber: Vermessungs- und Kartenstelle bei der Wasser- und Schifffahrtsdirektion Nord; Stand: 6/2006



# Challenge

## Diverse uses have to be managed



**-> conflicts**

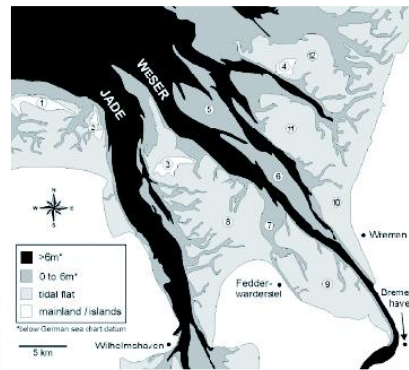
The main objective of estuarine management should be to maintain and protect the natural ecology while safeguarding the delivery of benefits for society. As such, estuarine management is the responsibility of all stakeholders.

*'TIDE tied together'*

**How??**

## Four North Sea Region Estuaries with comparable challenges

Scheldt | NL, BE



Elbe | DE



Weser | DE



Humber | GB

- 3.7 m €, 50% ERDF financed
- INTERREG IV B North Sea Region Programme
- January 2010 - June 2013

European Union The European Regional Development Fund

The Interreg IVB  
North Sea Region  
Programme

Investing in the future by working together  
for a sustainable and competitive region



# TIDE partners

## Diversity: public administration, port authorities, universities...



Hamburg Port Authority  
(Lead Partner)



Flemish Authorities,  
Department of Mobility and  
Public Works



Lower Saxony Water  
Management, Coastal  
Defence & Nature  
Conservation Agency



Antwerp Port Authority



Free Hanseatic City of  
Bremen



University of Antwerp



University of Bremen



Environment Agency



Rijkswaterstaat



Institute of Estuarine &  
Coastal Studies, Hull

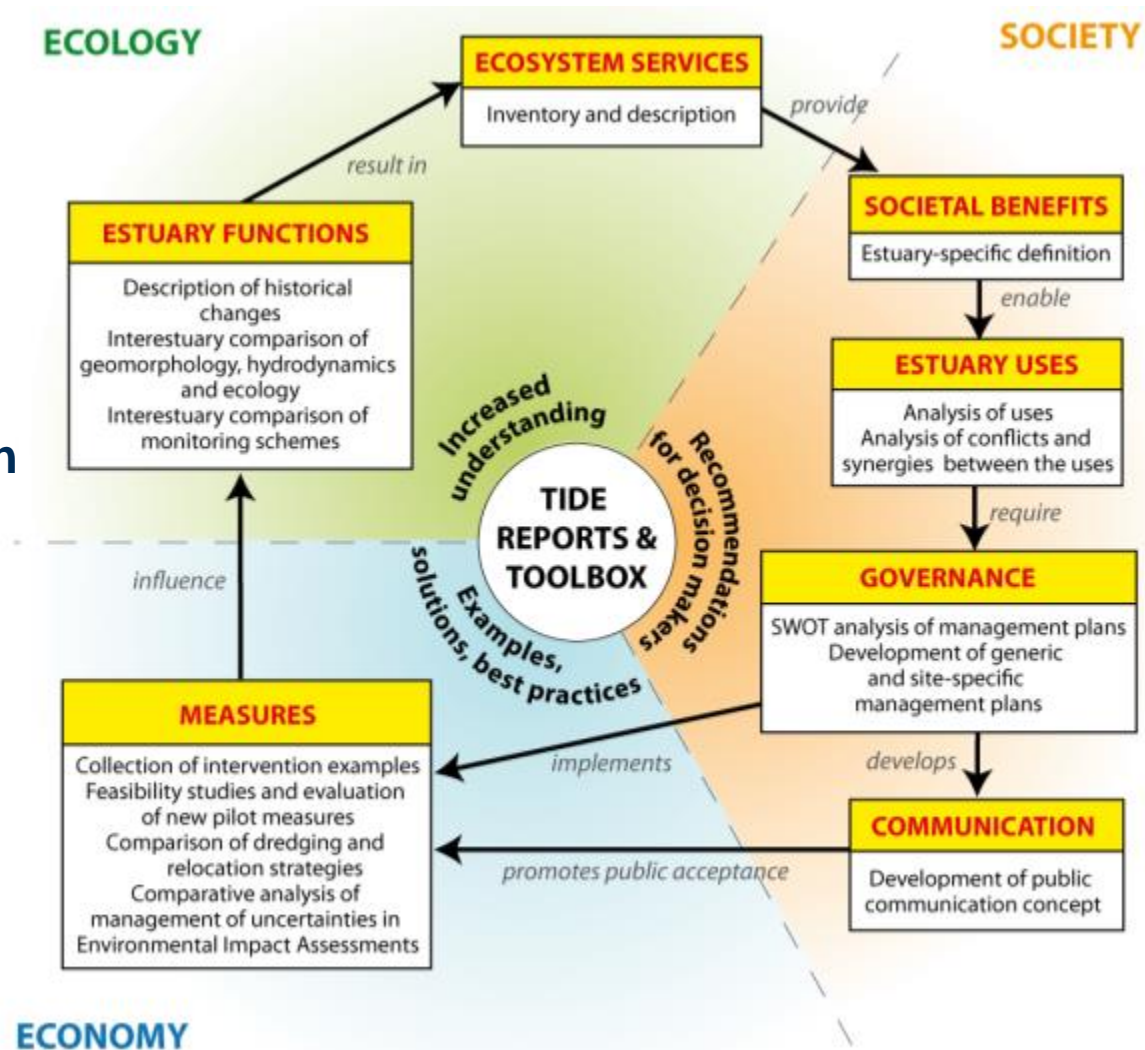


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# 02 The TIDE approach

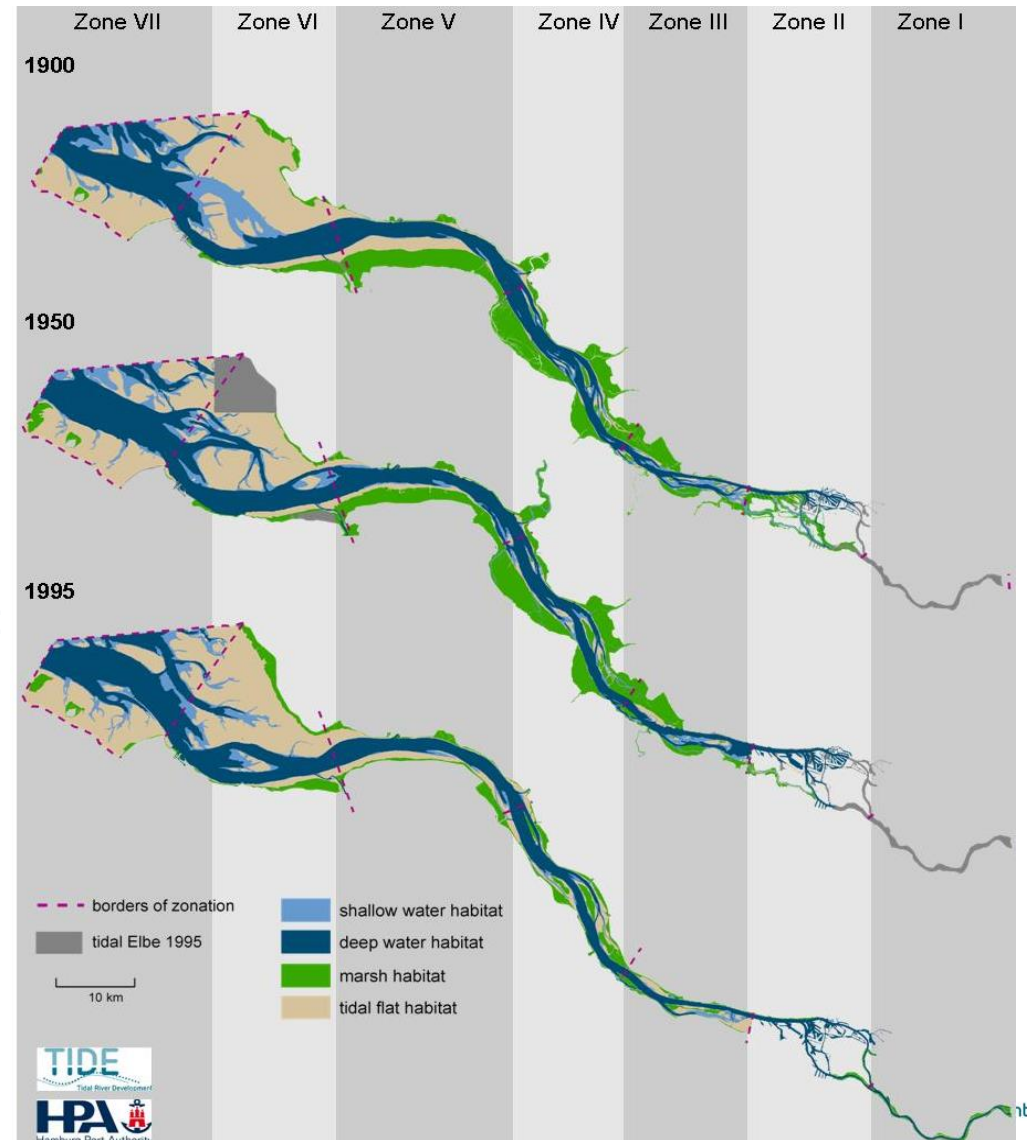
# The TIDE approach

- Knowledge
- Governance & communication
- Management measures



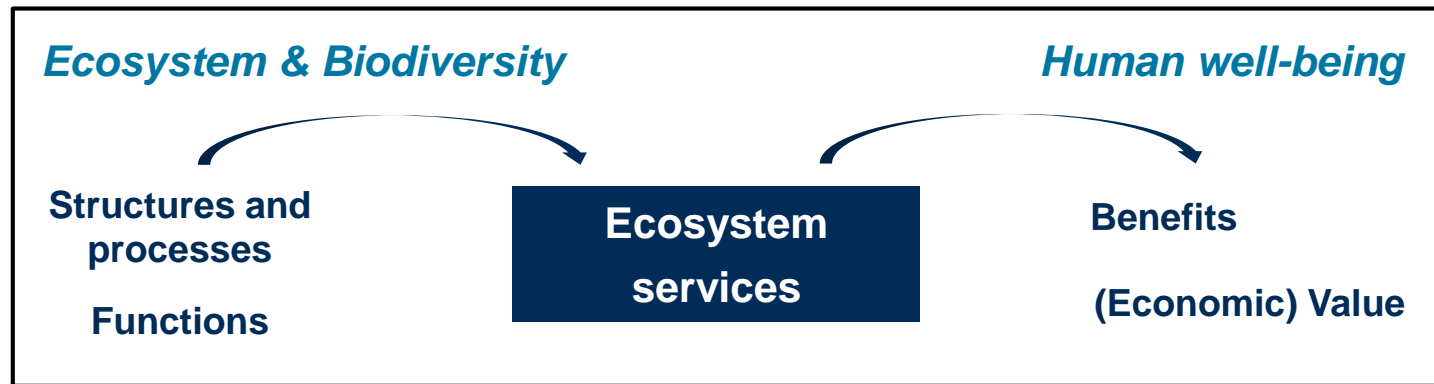
## Inter-estuarine comparison

- Geomorphology
- Hydrodynamics
- Ecology, oxygen and water quality
- Historical development
  - Relevant changes & pressures:
    - Human activities
    - Tidal evolution
    - Ecology
    - Habitats



# Knowledge: estuary functioning

## Application of Ecosystem Services approach



- High potential to link different ecosystem parts and tie it to socio-economic system
- Help to implement management measure by estimating its potential impact on ES delivery
- Communication: understand how human interventions affect these inter-relations



## Inventory & SWOT Analysis of Management Plans

Management plans in each estuary: WFD, N2000 management plan, flood protection, etc.

### Best Practice – towards the sustainable management of estuaries

#### Strengths

statutory in nature

multi-sectoral

sufficient spatial coverage to provide a broad management remit for the estuary

#### Weaknesses

lack of financial support/funding when non-statutory

plans which have non-specific targets

plans which are very narrow in focus lacking multi-sectoral inclusiveness

#### Opportunities

to be forward thinking to integrate new issues e.g. climate change

to be framework for future management needs

conflict resolution between different sectors and provide win-win situations

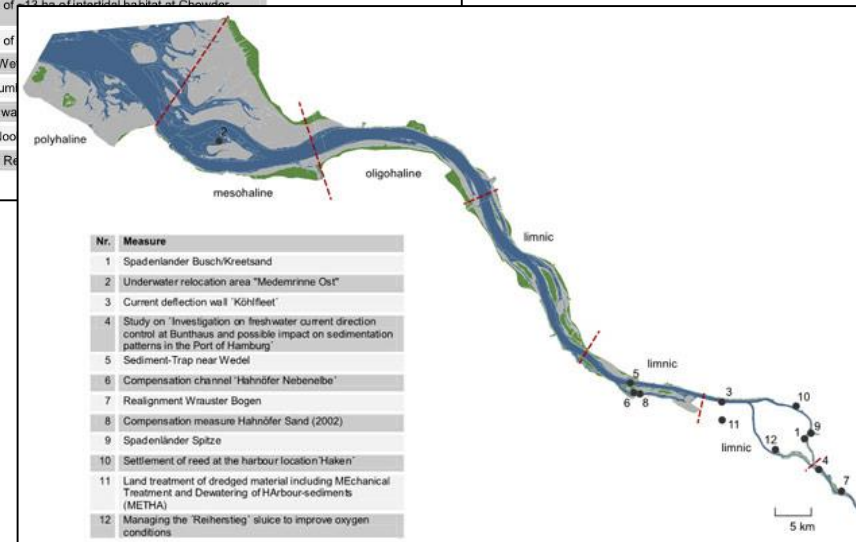
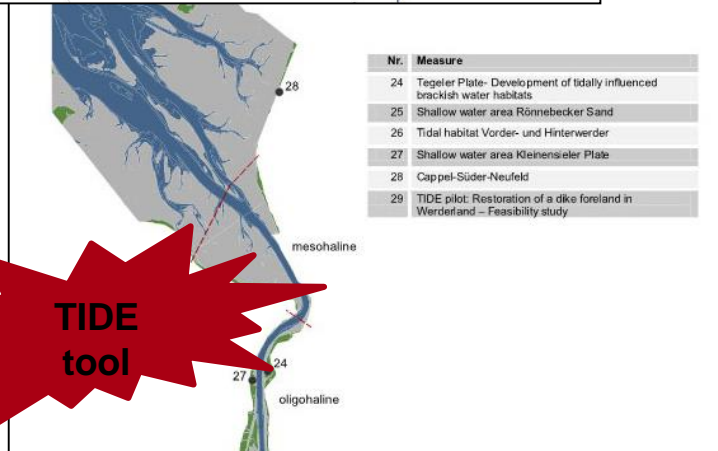
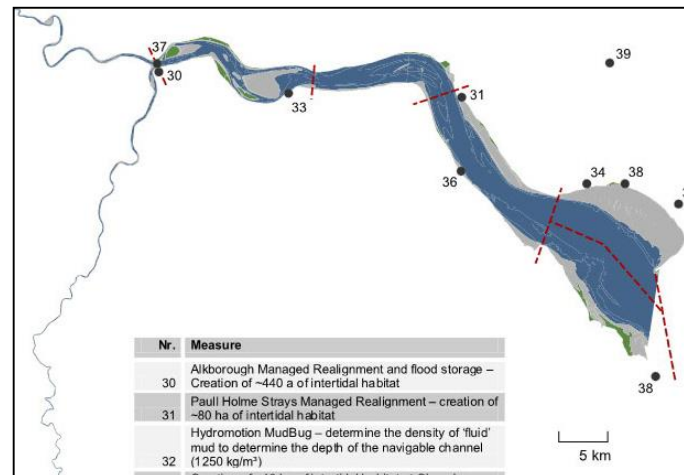
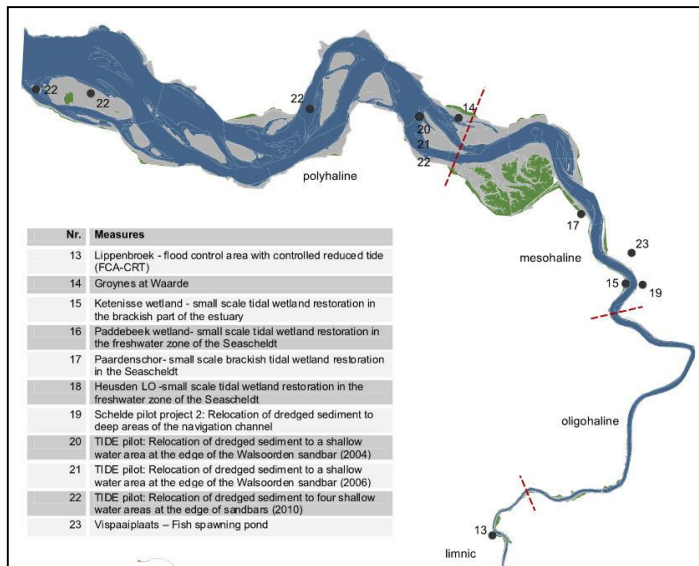
#### Threats

limited funding therefore making a plan short lived

too many stakeholders with different goals can threaten a plan's success

limited spatial coverage of a plan

## Measure database: Compilation and evaluation of 39 measures



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# 03 Recommendations for estuarine management

# Recommendations of the TIDE project

## Use best practices from similar cases

- *Learn from others*

## Follow a holistic approach

- *Consider all aspects of the system*

## Practise adaptive management & monitoring

- *Plan and implement step-by-step, monitor the effects and adjust measure if necessary*

## Apply thoughtful management of morphology

- *Work with nature, not against it*

## Accumulate and share knowledge

*of estuary structure and functions*

## Consider the entire estuarine system

- *Do not stop at political, department or discipline boundaries*

## Use the 'Ecosystem services' approach

- *To measure, balance and communicate changes which can result in societal benefits*

## Apply an appropriate communication strategy

- *Explain and actively discuss the background of a planned measure at an early stage*



# Recommendations implemented

## Elbe Example: Communication & knowledge sharing

### Pilot project ‘Kreetsand/Spadenlander Busch’

*HPA*



### Dialogue proces with stakeholders of the Elbe estuary

*Waterways & Shipping Administration, HPA*



[www.dialogforum-tideelbe.de](http://www.dialogforum-tideelbe.de)



### Establishing of an Estuary partnership

*Stakeholders of the Elbe Estuary*

*- under the auspice of the Behörde für Umwelt & Energie &  
Behörde für Wirtschaft, Verkehr und Innovation -*



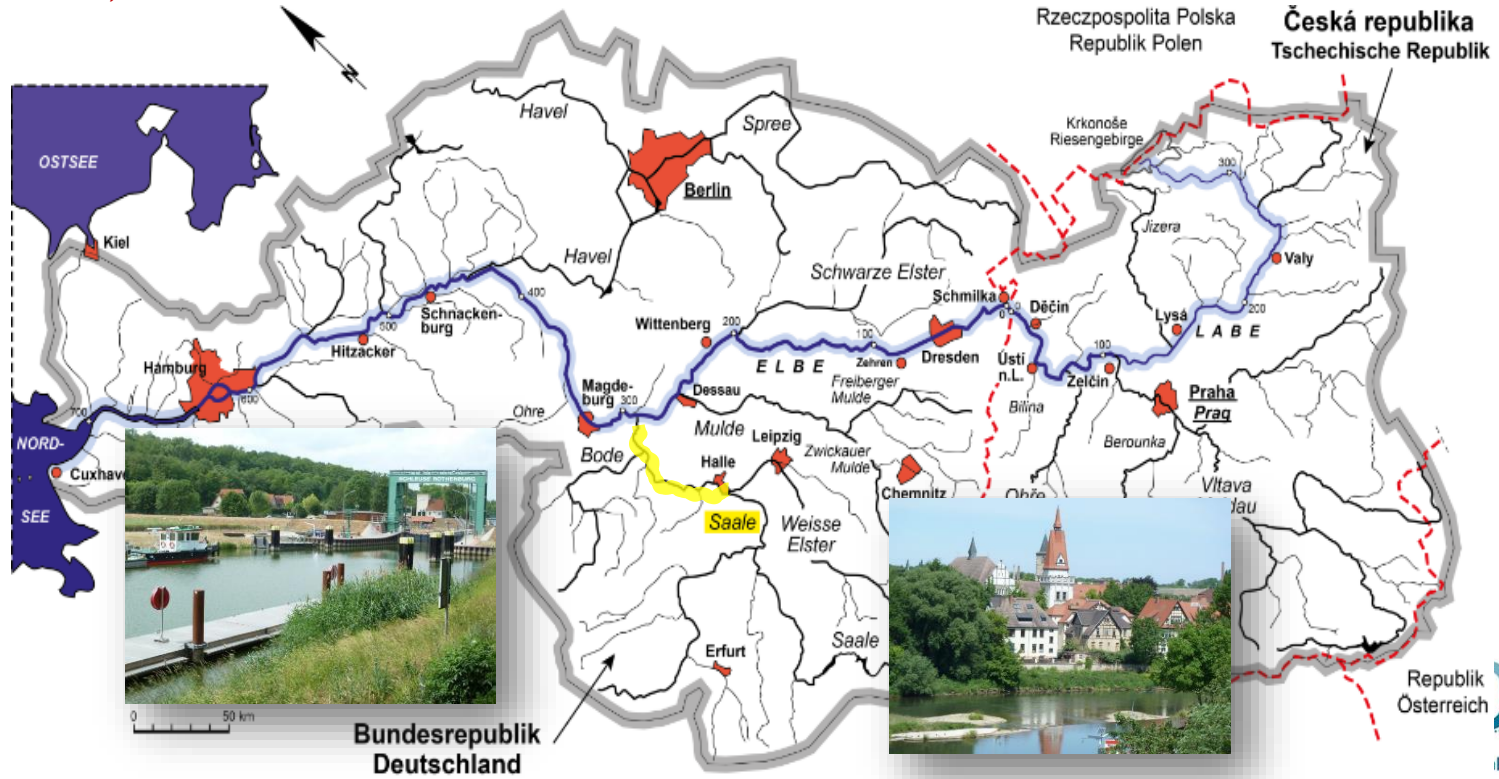
# Recommendations implemented

Example: Consider the entire system & do not stop at boundaries



Example project  
„Management of the Saale-Staustufen“:  
Reduction of uncontrolled transport of polluted sediments

Behörde für Umwelt & Energie, HPA,  
Behörde für Wirtschaft, Verkehr und Innovation



## Results of the TIDE Project:

- Reports, Management Measures Database, Tools, Links

- ✓ Recommendations
- ✓ Templates
- ✓ Methodologies
- ✓ Good practice examples
- ✓ App
- ✓ EPSS



The screenshot shows the TIDE toolbox website. At the top, there is a banner with the text "TIDE toolbox" and an aerial view of an estuary. Below the banner is a navigation menu with the following items: Start, About TIDE toolbox, Glossary, Management issues, TIDE tools, Reports, Management measures, and Links. A "Give us feedback" button is also visible. Below the menu, there is a link to "www.tide-project.eu" and logos for the European Union and the Interreg IVB North Sea Region Programme. A disclaimer is located at the bottom left of the screenshot.

**TIDE toolbox**  
Guiding Estuarine Management

Due to their high dynamics and various uses the management of estuaries demands an integrated approach taking into account estuarine functioning, appropriate governance and the implementation of measures based on knowledge and experience. TIDE offers a selection of tools and recommendations.



The Venn diagram illustrates the integrated management approach. It consists of three overlapping circles: "Functioning" (green), "Governance" (red), and "Measures" (blue). The central intersection of all three circles is labeled "Integrated Management".

- Functioning »**  
Increased understanding  
• Ecology  
• Hydrogeomorphology  
• Ecosystem Services
- Governance »**  
Recommendations for decision makers  
• Management plans  
• Estuary Uses  
• Communication
- Measures »**  
Examples, solutions and good practice  
• Pilot studies  
• Feasibility studies  
• Evaluations

Relationships between the circles are indicated by arrows:  
- "Functioning" **Provides** "Governance"  
- "Measures" **Implements/promotes** "Governance"  
- "Measures" **Influences** "Functioning"

**TIDE**  
Tidal River Development

**Thanks to the partners of the TIDE project!  
Thank you very much for your attention!**



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