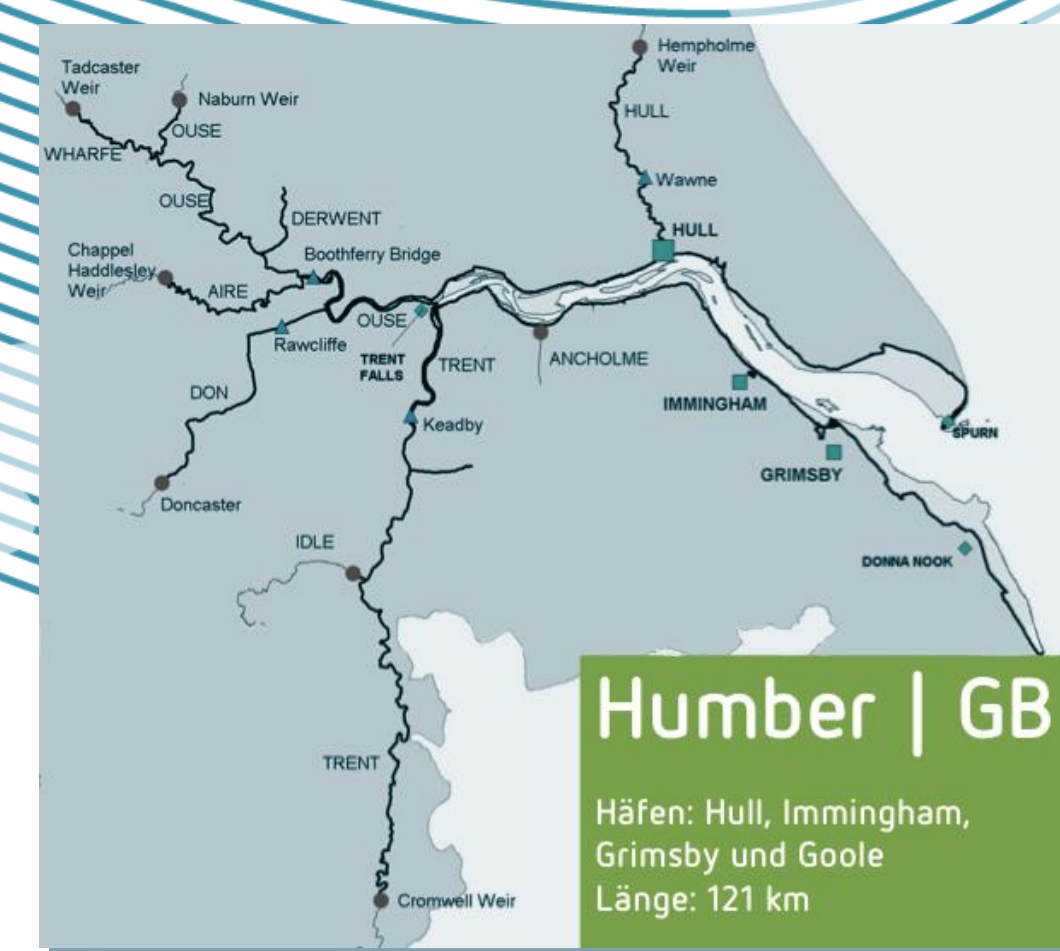


# TIDE

## Tidal River Development



### Four Estuaries ...

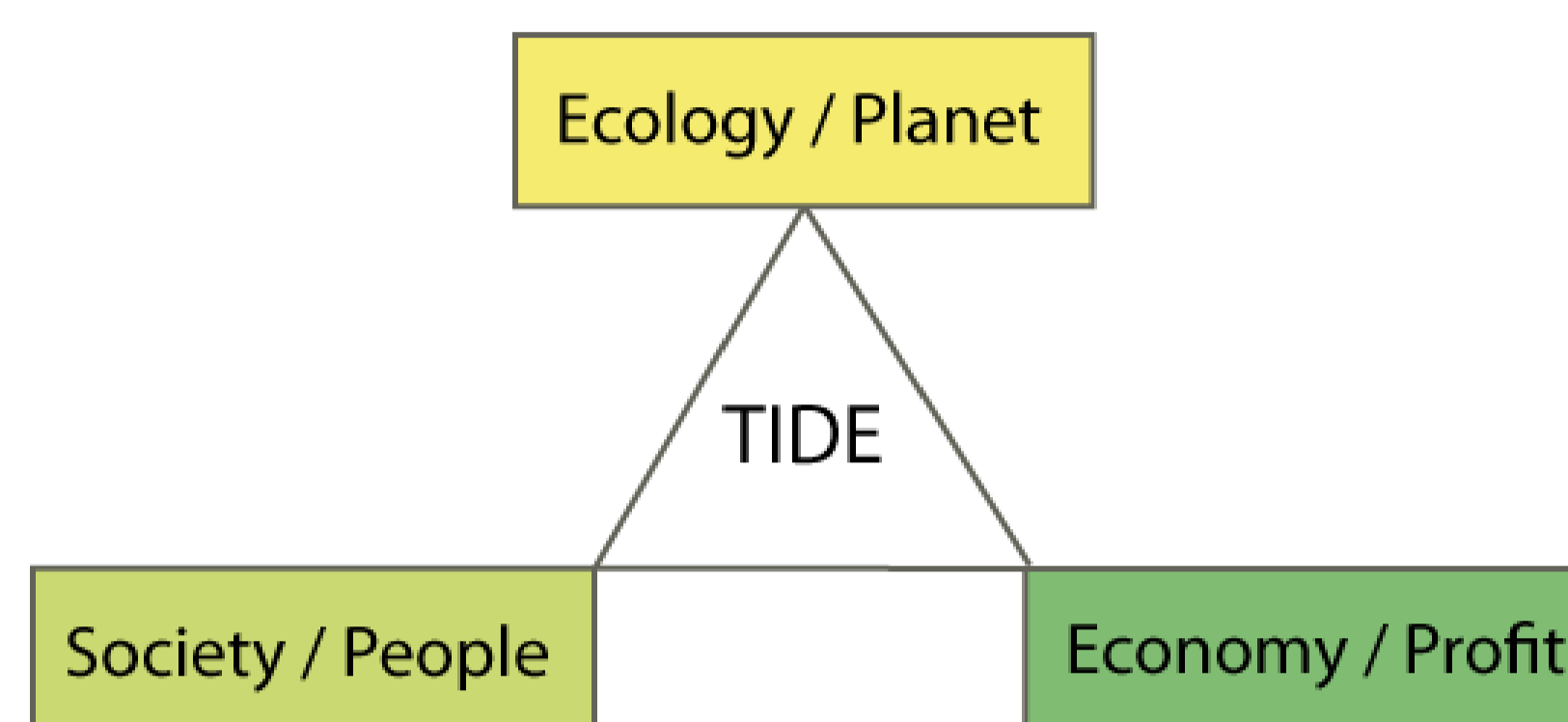
### One Project

TIDE focuses on the estuaries of the Elbe (DE), Humber (UK), Scheldt (BE/NL) and Weser (DE) rivers. They have some characteristics in common:

- They are used as shipping channels leading to large ports.
- They have strong tidal influence.
- They transport large quantities of sediment.
- Most estuarine areas are designated NATURA 2000 sites.

### TIDE Aim...

### Concept and Tools for Integrated Management



### TIDE Partner

- Hamburg Port Authority (Lead Partner)(DE)
- Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency (DE)
- Free Hanseatic City of Bremen (DE)
- University of Bremen (DE)
- Rijkswaterstaat (NL)
- Flemish Authorities, Department of Mobility and Public Works (BE)
- Antwerp Port Authority (BE)
- University of Antwerp (BE)
- Environment Agency (UK)
- Institute of Estuarine & Coastal Studies (UK)

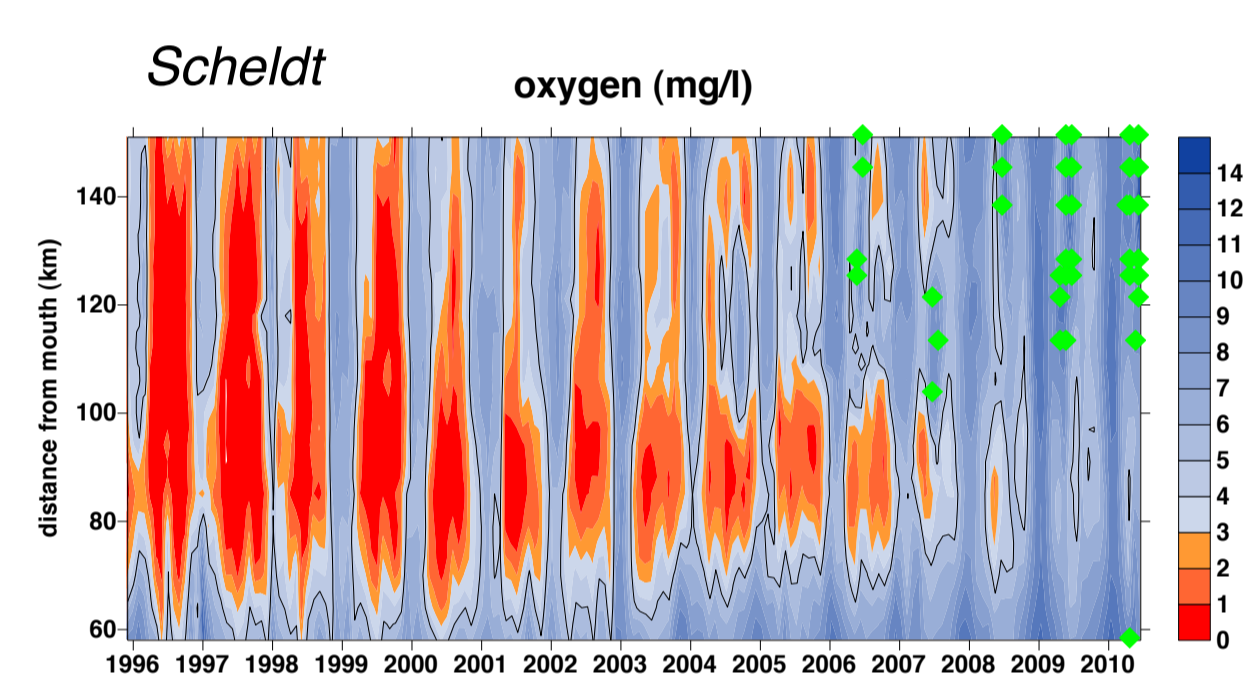
### Science...

### Improve Knowledge on Estuary Functioning

#### INTERESTUARINE COMPARISON:

#### Hydrogeomorphological functions

- Analysis of water levels, current velocities, salinity, sediment distribution
- Comparison of bathymetric evolution



#### INTERESTUARINE COMPARISON :

#### Oxygen and water quality

- Comparison of oxygen levels, nutrients concentrations, primary and secondary production
- Understanding causes of anoxia/hypoxia

#### ECOSYSTEM SERVICES in TIDE estuaries

- Estimation of ecosystem services and derived benefits in each estuary
- Valuation of their importance / presence in different zones of the estuary

### Governance...

### Integrated Management Planning

#### INVENTORY OF GOVERNANCE

- Legislative drivers in each estuary
- Management bodies in place
- Strengths, weaknesses, opportunities and threats (SWOT) of management plans and systems
- Recommendations

Elbe



Humber

| Category                | Elbe | Humber | Scheldt | Weser |
|-------------------------|------|--------|---------|-------|
| Administrative          | Yes  | Yes    | Yes     | Yes   |
| Legislative             | Yes  | Yes    | Yes     | Yes   |
| Management              | Yes  | Yes    | Yes     | Yes   |
| Financial               | Yes  | Yes    | Yes     | Yes   |
| Technical               | Yes  | Yes    | Yes     | Yes   |
| Operational             | Yes  | Yes    | Yes     | Yes   |
| Monitoring              | Yes  | Yes    | Yes     | Yes   |
| Research                | Yes  | Yes    | Yes     | Yes   |
| Education               | Yes  | Yes    | Yes     | Yes   |
| Public Participation    | Yes  | Yes    | Yes     | Yes   |
| Stakeholder Involvement | Yes  | Yes    | Yes     | Yes   |
| Conflict Resolution     | Yes  | Yes    | Yes     | Yes   |
| Adaptability            | Yes  | Yes    | Yes     | Yes   |
| Transparency            | Yes  | Yes    | Yes     | Yes   |
| Accountability          | Yes  | Yes    | Yes     | Yes   |
| Effectiveness           | Yes  | Yes    | Yes     | Yes   |
| Efficiency              | Yes  | Yes    | Yes     | Yes   |
| Equity                  | Yes  | Yes    | Yes     | Yes   |
| Sustainability          | Yes  | Yes    | Yes     | Yes   |

#### INVENTORY OF USES/ CONFLICT MATRIX

- Uses in different zones of each estuary
- Conflicts between uses in these zones or across zones
- Relation of these conflicts to ecosystem services and societal benefits
- Recommendations

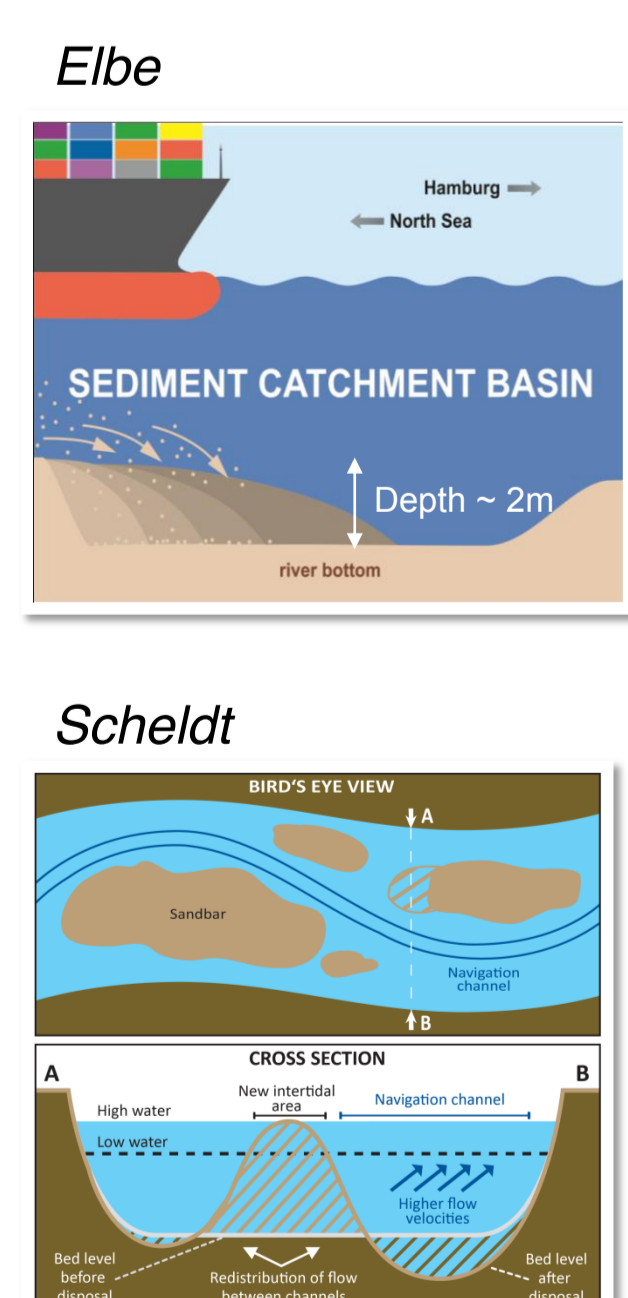
### Measures...

### Mitigation and Compensation Measures and Pilot Projects

#### ANALYSIS OF HUMAN INTERVENTIONS

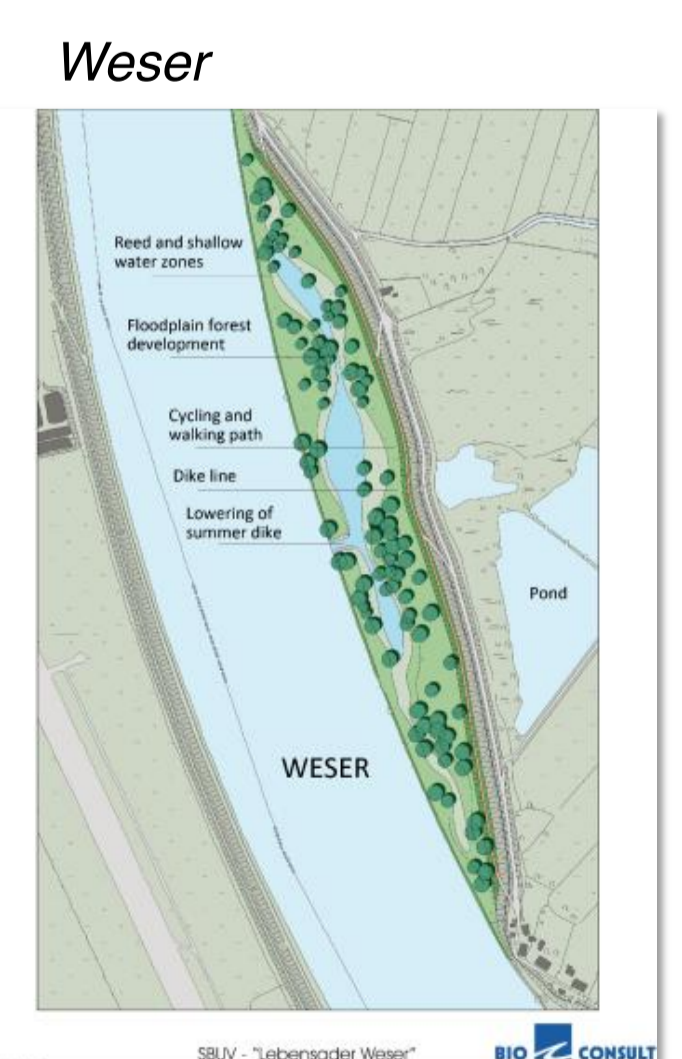
Learning from other's experiences and drawing useful knowledge for future planning and implementation processes

- Identification and selection of human interventions from each estuary
- Collection of detailed information on basis of jointly agreed criteria
- Comparative analysis and recommendations
- Development of an online database for public search



#### PILOT PROJECTS

- Elbe: Evaluation of sediment trap as part of a sediment management scheme
- Scheldt: New strategy for sediment relocation around sandbars
- Weser: Restoration of riverbanks by partial opening of a dam
- Humber: Beneficial use of dredging trial, nourishment of intertidal / low energy area



#### TIDE Contact

Hamburg Port Authority (HPA)  
Dr. Annedore Seifert | Tideelbe / S213-1, Neuer Wandrahm 4, 20457 Hamburg  
Tel. +49 (0)40 428473058, Annedore.Seifert@hpa.hamburg.de

www.tide-project.eu

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