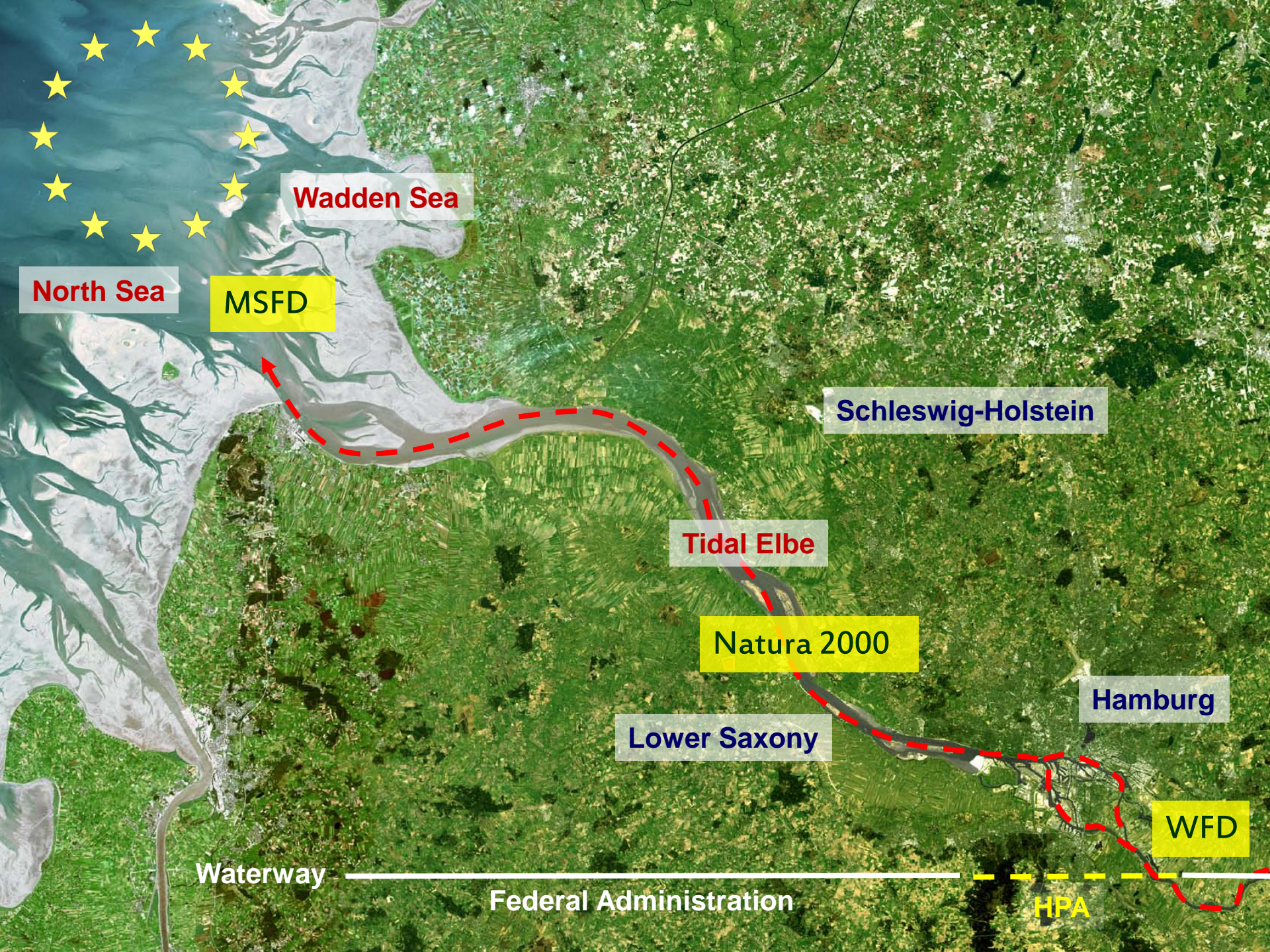




## New shallow water area in Hamburg in the frame of the Tidal Elbe Concept

8<sup>th</sup> international SedNet conference  
6 - 9 November 2013, Lisbon





North Sea

Wadden Sea

MSFD

Schleswig-Holstein

Tidal Elbe

Natura 2000

Lower Saxony

Hamburg

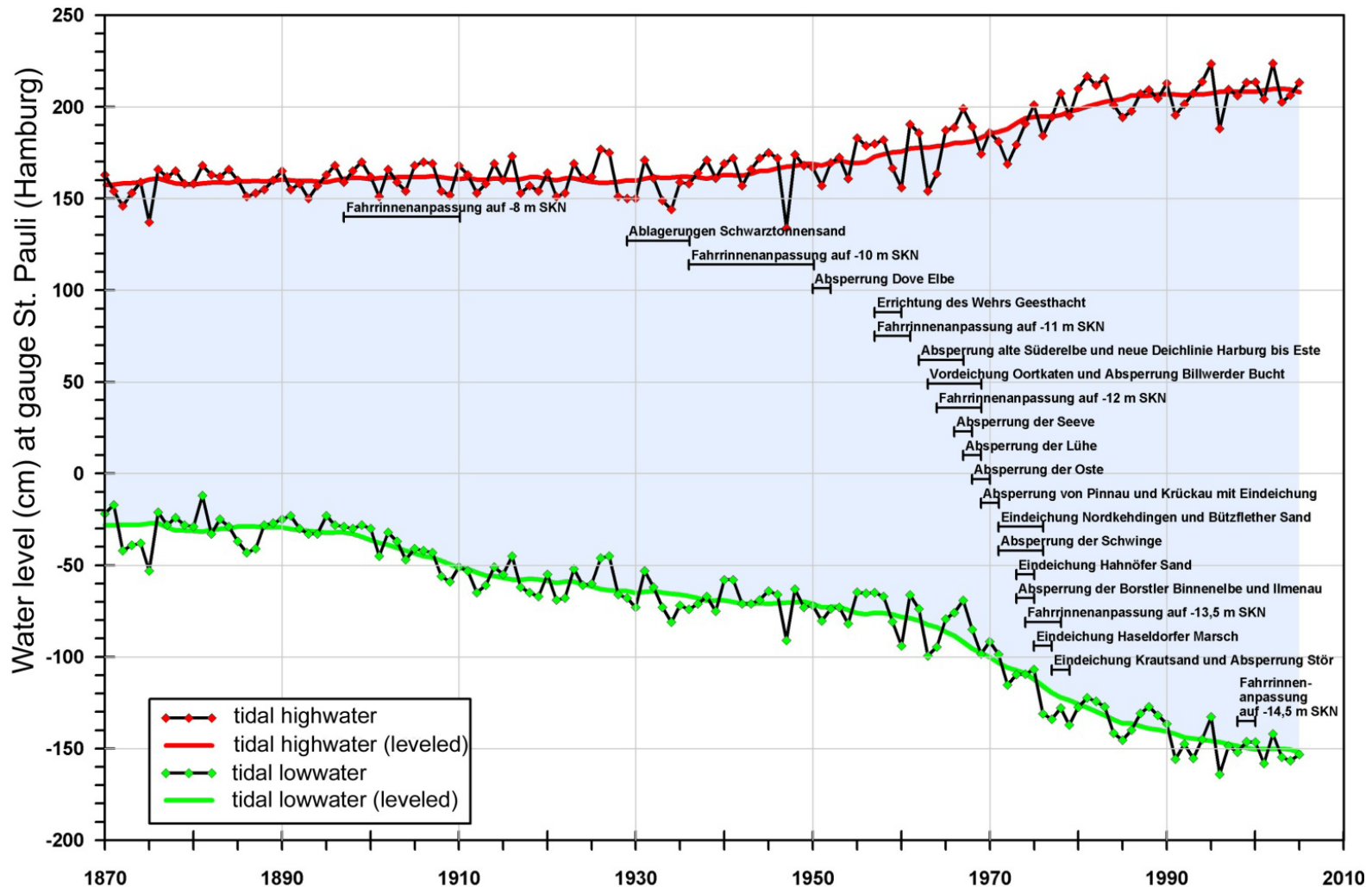
WFD

Waterway

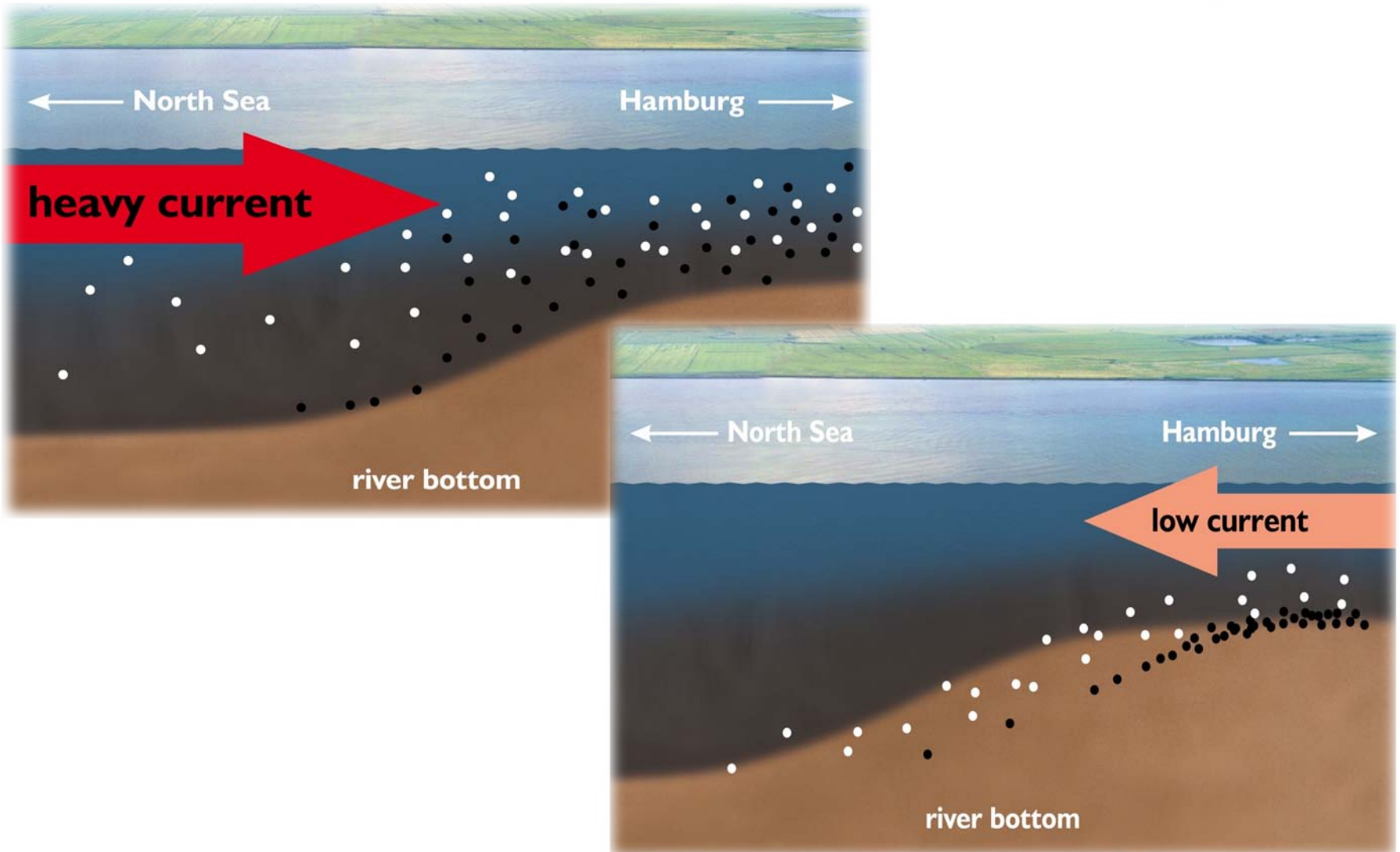
Federal Administration

HPA

# Changing Estuary: Tidal Range and Measures



# Changing Estuary: Tidal Pumping



# Changing Estuary: Tidal Pumping



silting up of anabranches and embankments



more sedimentation in port and fairways



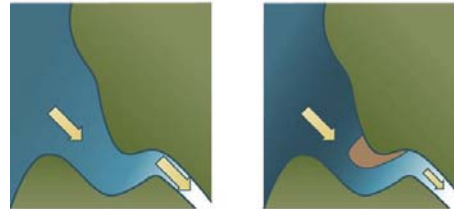
# Fixing the Estuary: The Tidal Elbe Concept

Concept for a sustainable development  
of the Tidal Elbe River as an artery  
of the metropolitan region Hamburg and beyond

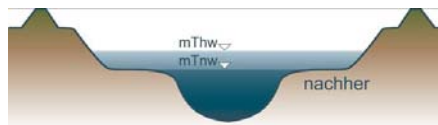
A contribution for discussion by Hamburg Port Authority and  
the Federal Administration for Waterways and Navigation



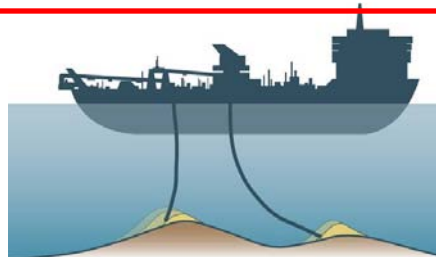
## Three Cornerstones for a Future Action Plan:



1. **Attenuation of Tidal Energy through River Engineering in the Mouth,**



2. **More Room for the River (Tidal Volume) in the upper Part**

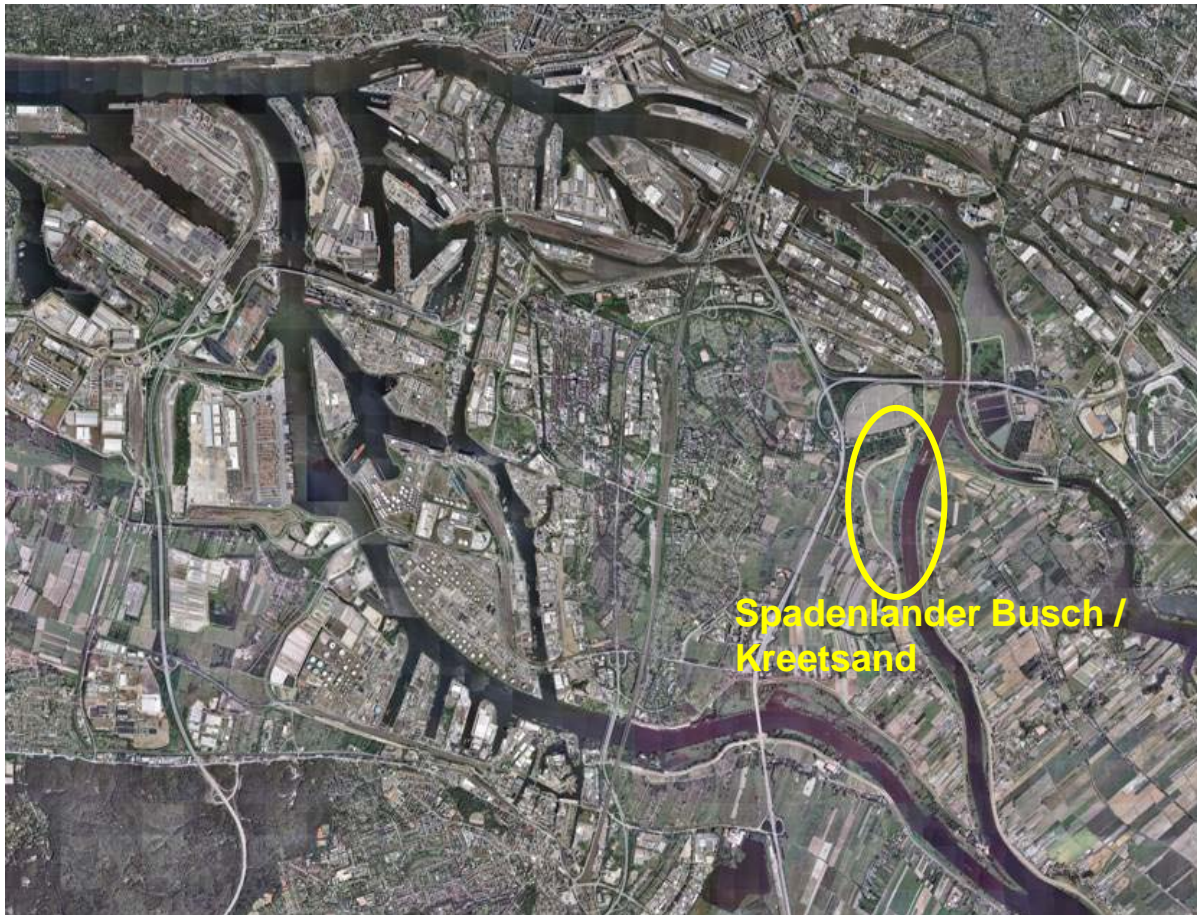


3. **Optimisation of the Sediment-management considering the whole Elbe System**

2006

# Tidal Volume: New shallow water area

## Pilot project **Spadenlander Busch / Kreettsand**



# Tidal Volume: New shallow water area

## Pilot project **Spadenlander Busch / Kreettsand**



- former flushing field (dredged material), dyke foreland (tidal meadow landscape)
- planning area ca. 47 hectares
- dyke realigned in 1999
- mean altitude approx. +5,50 m above sea level



# Tidal Volume: New shallow water area

## Objective



- create new tidal volume suited best to mitigate tidal action
- identify synergies with other concerns (e.g. nature conservation)
- optimize concept (impact / costs, sustainability / maintenance)
- enhance public interest / acceptance for this pilot project

# Planning process

## Examined criteria

### Composition and evaluation of the preferential alternatives

#### Hydraulic

- 2-D-modelling
- evaluation of the flow conditions
- evaluation of the sedimentation process



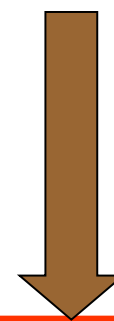
#### Nature protection

- Listing and evaluation of the stock
- Definition of the requirements of compensating measures
- Evaluation of the level of the target function that needs to be reached
- Preliminary environmental review



#### Earth works planning

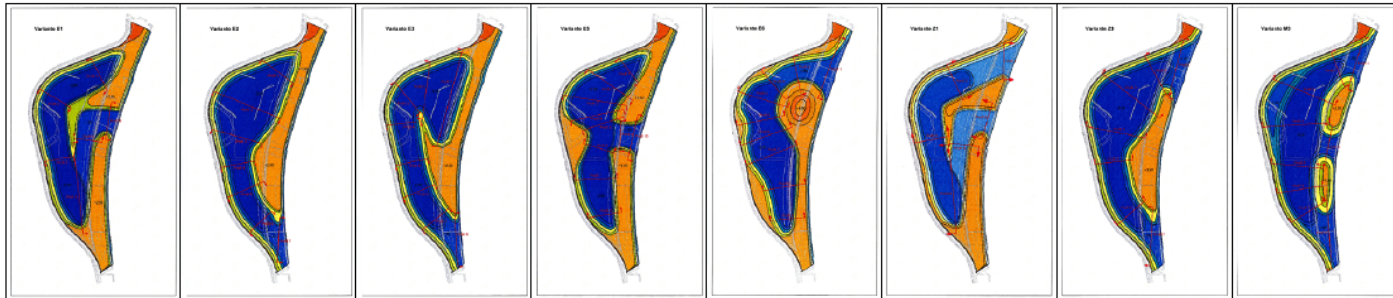
- Soil-mechanical and – chemical examination
- removal, conception of recovery and disposal
- Geotechnical analysis



**Comparison, selection and technical planning of the preliminary design version**

## Selection of the preferential alternatives and modelling

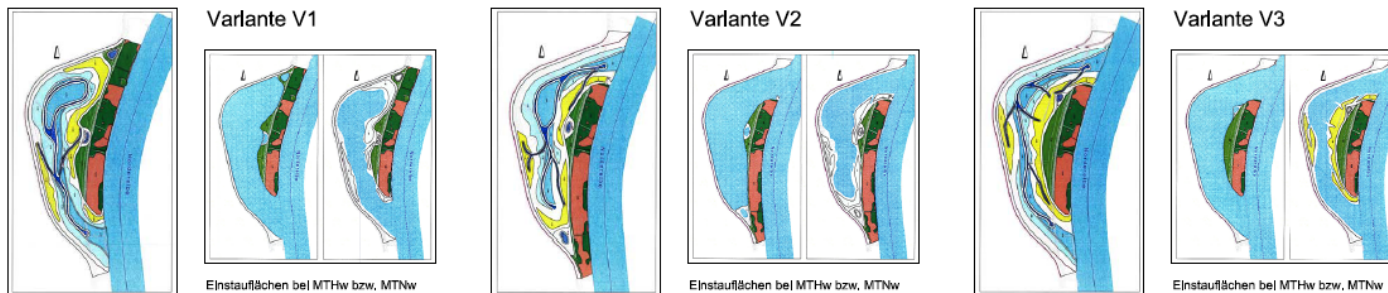
6. Vorauswahl von 8 Varianten im Hinblick auf die zu erwartenden Unterschiede bei der Strömungs- und Sedimentationsmodellierung  
E1, E2, E3, E5, E6, Z1, Z3, M3



7. „Überschlägliche“ Modellierung der vorausgewählten Varianten, Ergebnisdiskussion

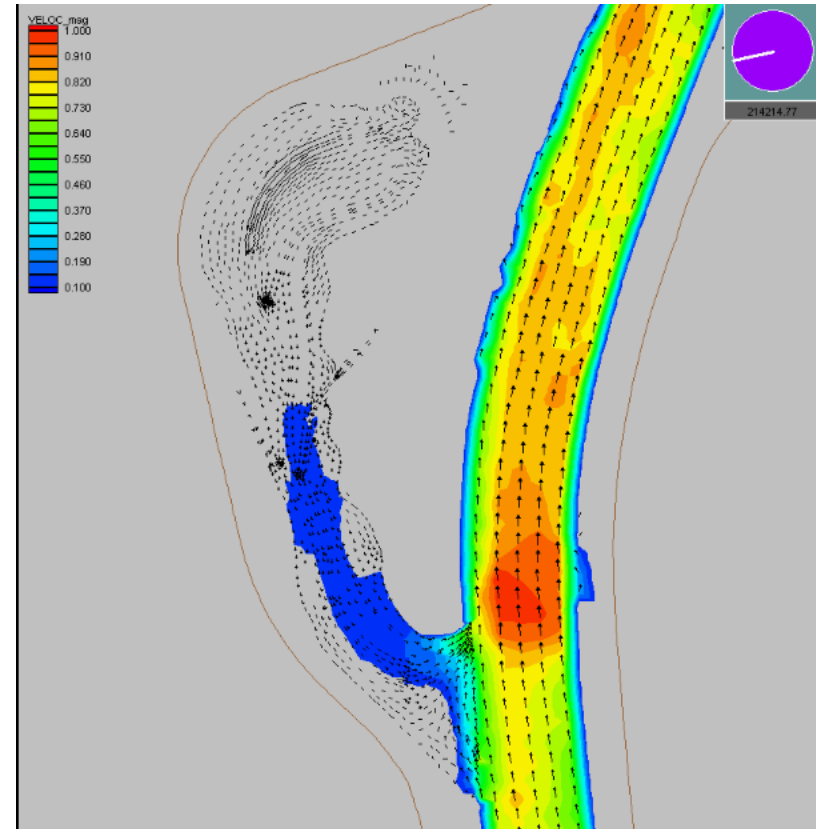
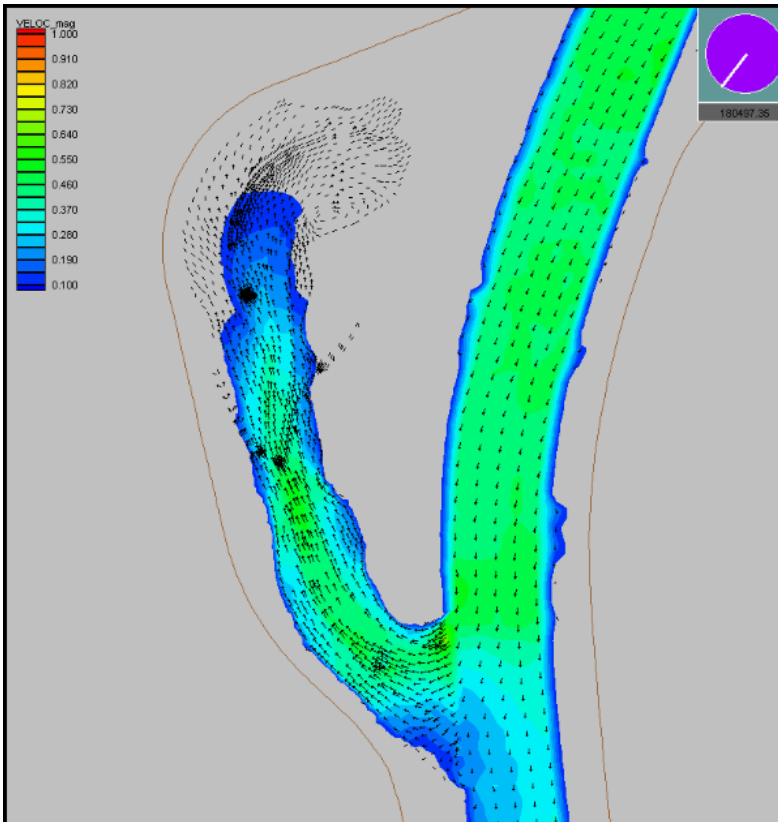
8. Verbal-argumentative bzw. rechnerische Bewertung der Varianten anhand der Kriterien gemäß Punkt 5

9. Auswahl von 3 Vorzugsvarianten



# Planning process

## Current modelling



# Planning process

## Sedimentation analysis



# Advanced intention of the project

## Best possible involvement of all stakeholders

- early and continuous involvement of local inhabitants in the planning process and explanation of the project's overall background
- involvement of other authorities and NGO's to check concerns and ideas in sufficient time before the approval / execution phase
- keep level of information high using different ways of contact (information meetings, letters, emails, presentations at third party events, ...)
- set up a remarkable information point for the time of the execution to promote the project
- think about additional benefits for the people to make them identify themselves with the project site

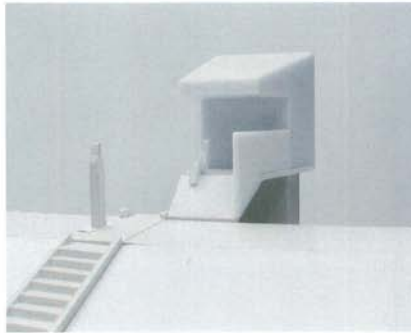
# Advanced intention of the project

Create acceptance and impart knowledge

Modellstudie



Straßenansicht



Blick über Deich



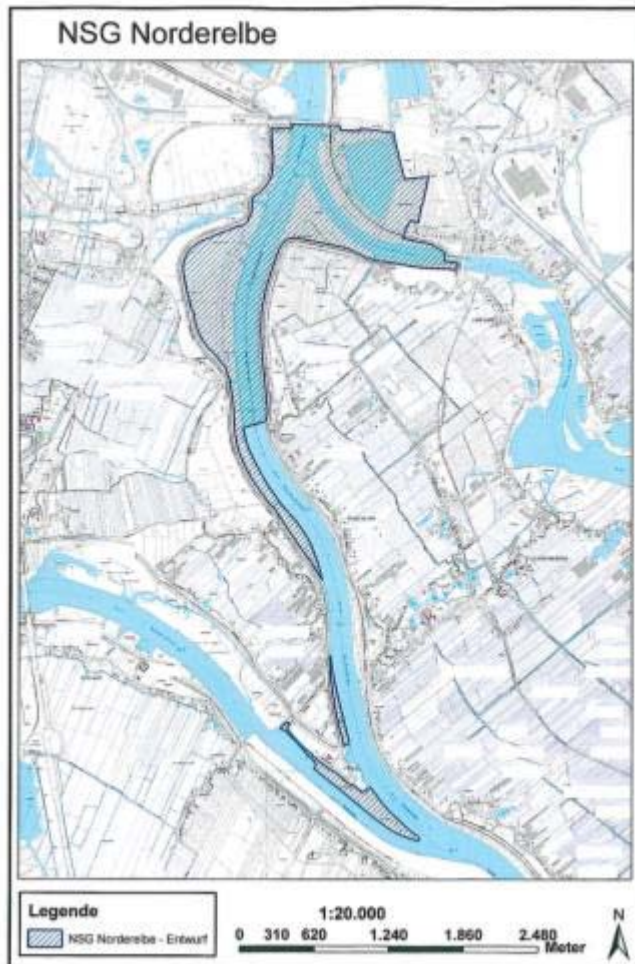
Experience the nature site –

increase awareness of tidal effects –

give understanding of the Tidal Elbe Concept



## Contribution to new Nature conservation area



Prioritised nature function in Kreetzand is, to develop tidal influenced shallow waters with accompanying fresh water mudflats, tidal reeds and alluvial forests with their specific types of plants and animals

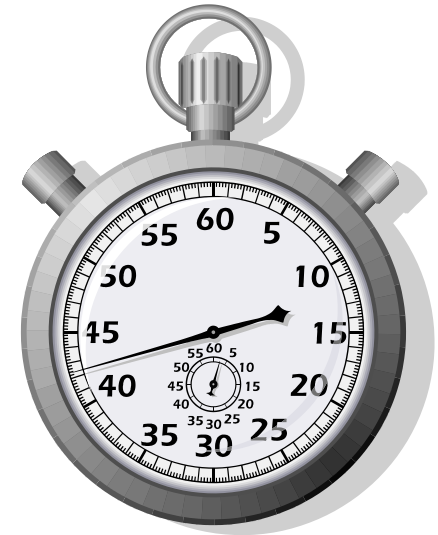




# Tidal Volume: New shallow water area

## The time line

- First considerations for a tidal elbe concept pilot: 2007
- Official project start / beginning of planning: May 2008
- Application for the planning approval: June 2010
- Public hearing: October 2010
- Official approval: April 2012
- Start of construction: July 2012
- Part of the presentation year of the International Building Exhibition (IBA) Hamburg: 2013
- Project completion: 2016



# Kreetsand: Start of construction works - construction of roads for site-traffic



# Kreetsand: Start of construction works - detection of blind shells



6/12/2012 10:28

# Kreetsand: Start of construction works - clearing of vegetation in breach area



# Kreetsand: February 2013 – removal of top soil



# Kreetsand: Aerial view August 2013





# Kreetsand: Certificate of Recognition as “working with nature” project





**Manfred Meine**  
**Tidal Elbe Project**  
**manfred.meine@hpa.hamburg.de**

**Hamburg Port Authority**  
**Neuer Wandrahm 4**  
**20457 Hamburg**  
**Germany**



[www.tideelbe.de](http://www.tideelbe.de) – [www.hamburg-port-authority.de](http://www.hamburg-port-authority.de) – [www.tide-project.eu](http://www.tide-project.eu)

Photograph: Hagen Stier