

Willow mattress for protecting a tidal creek breach at Hanskalbsand



Key Data

Measure-ID	Hne007re_01_01
Estuary	Elbe
Waterway	Hahnöfer Nebelbe (0703)
Chainage	Km 6,7 - 7,0
Bank side	Right

Contact

WSA Elbe-Nordsee, branch office
Wedel: abz-wedel@wsv.bund.de

Available documentation

Not specified

DESCRIPTION OF THE MEASURE

Living measure

Sprouting willow mattress

Dead wood measure

Toe protection

Bank protection required due to:

Storm surges

Reason for implementing the measure

Bank protection: bank erosion (without erosion scarp) up to vegetation line

Development and maintenance of measure

The first section was constructed in 2005. It soon became apparent that the willows only sprouted permanently at an elevation of approx. 1 m above mean high water. Significant growth was already evident after two months, and the first pruning was carried out after five years. In 2008, another section was secured with willow mattresses at tidal creek mouth and expanded in 2016/2017 to also protect the upper bank areas. The willow mattresses are fulfilling their purpose, and a strong willow population has developed. The measure is maintained irregularly by pruning every 4-5 years and, where necessary, selective replanting with cuttings.

MATERIAL

Material input

Living fascine bundles: length = 2.5-3 m, diameter = 0.3-0.5 m; fascine bundles: length = 5-6 m; wire and piles

Live materials used

Rootable willow cuttings
Origin: from own stock, regional

Brushwood material

Living willow
Origin: from own stock

Pile material

Willow, spruce
Origin: from own stock, regional

EXPENDITURE

Work days/person	not specified
Number of persons	not specified
Construction period	2005 and 2008

Boundary conditions

CHARACTER OF WATER BODY



Type of water body

Tidal creek

Characteristic water levels*

Mean tidal range	3,4 m
Mean high water	1,92 m
Mean low water	-1,47 m

Mean Water Salinity Classification**

Limnic

* from measurements over the period 01.01.2010-31.12.2019 at the Schulau gauge

** from measurements over the period 01.01.2008-31.12.2017 at the position D1 Hanskalbsand

CHARACTER OF THE RIPARIAN ZONE



River bend

Undercut bank

Slope inclination

Not specified

Dominant soil type

Not specified

Pollutant load

no information

Natural structures below mean high water

Not specified

Natural structures above mean high water

Not specified

Vegetation cover

Not specified

Land use

No grassland use
Camping tolerated

PROPERTY DATA



Land owner (bank)	German Federal Waterways and Shipping Administration (WSV)
Land owner (foreshore)	German Federal Waterways and Shipping Administration (WSV)
Lease	Not specified

NATURE CONSERVATION



Special Protection Area under the Birds Directive

No

Special area of conservation under Habitats Directive

Lower Elbe (DE2018331)

Natural habitat type under Habitats Directive

Estuaries_Sandflats, mudflats or flats of mixed substrate not covered by sea water at low tide (1130_1140)

Nature conservation area

Elbe and Islands (ni_NSG LÜ 00345)

Legally protected biotopes

(Bundesnaturschutzgesetz)
Reed beds_mudflats

Specially protected plants

Not specified

Specially protected animals

Not specified

SHIPPING TRAFFIC



Navigation by ships

Freight shipping, recreational shipping

Location in relation to navigation channel

Facing the navigation channel

Speed limit

10 kt (Area of buoy 119/Hn1 to buoy 125)

Shipping traffic parameters*

Number of ships/year	184
Mean distance between passing ships and shoreline	317 m
Ship dimensions**	Length > 40 m Width > 9 m

*source: AIS data analysis from 2019

**10 % of the largest passing ships