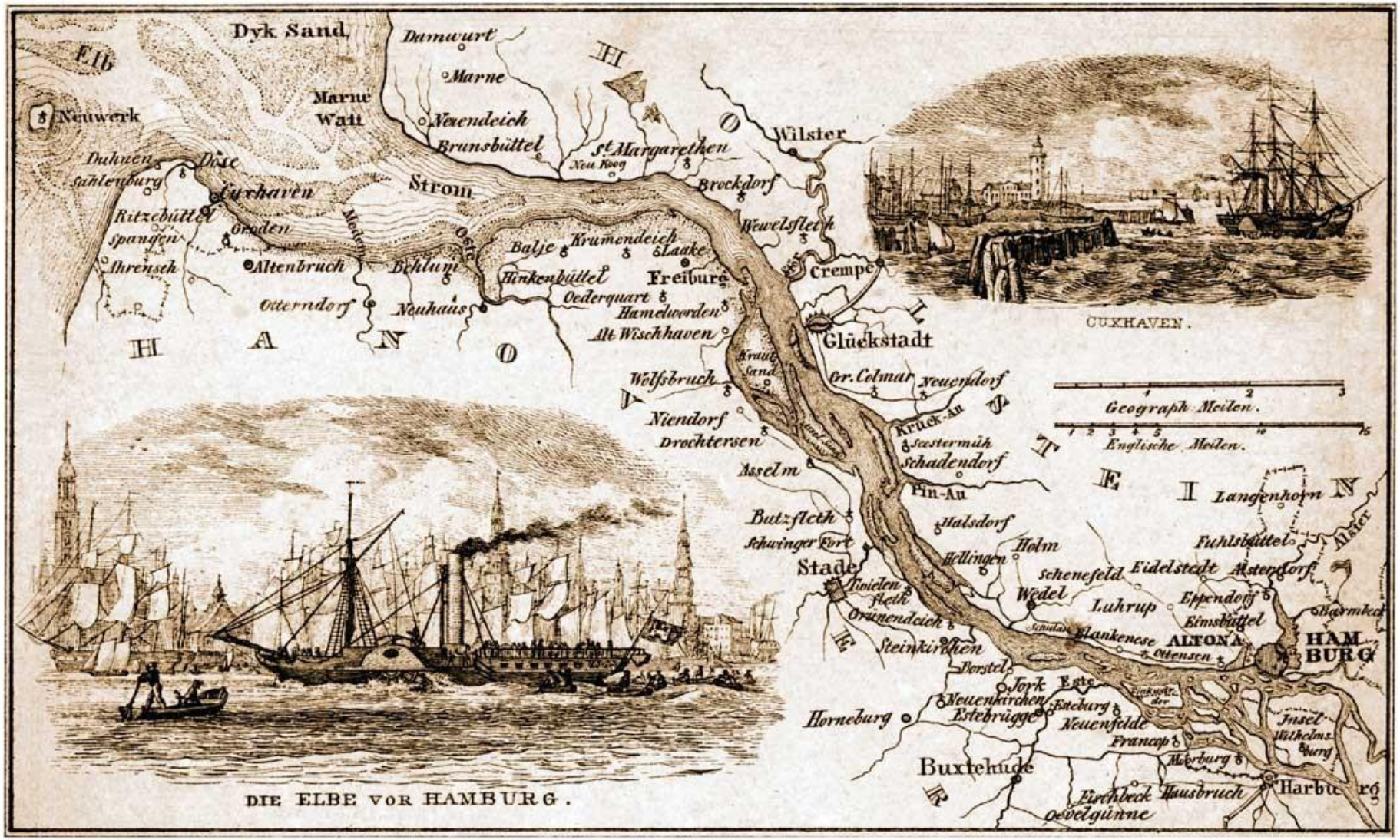
Prof. Dr. Dirk Schubert – HafenCity University Hamburg

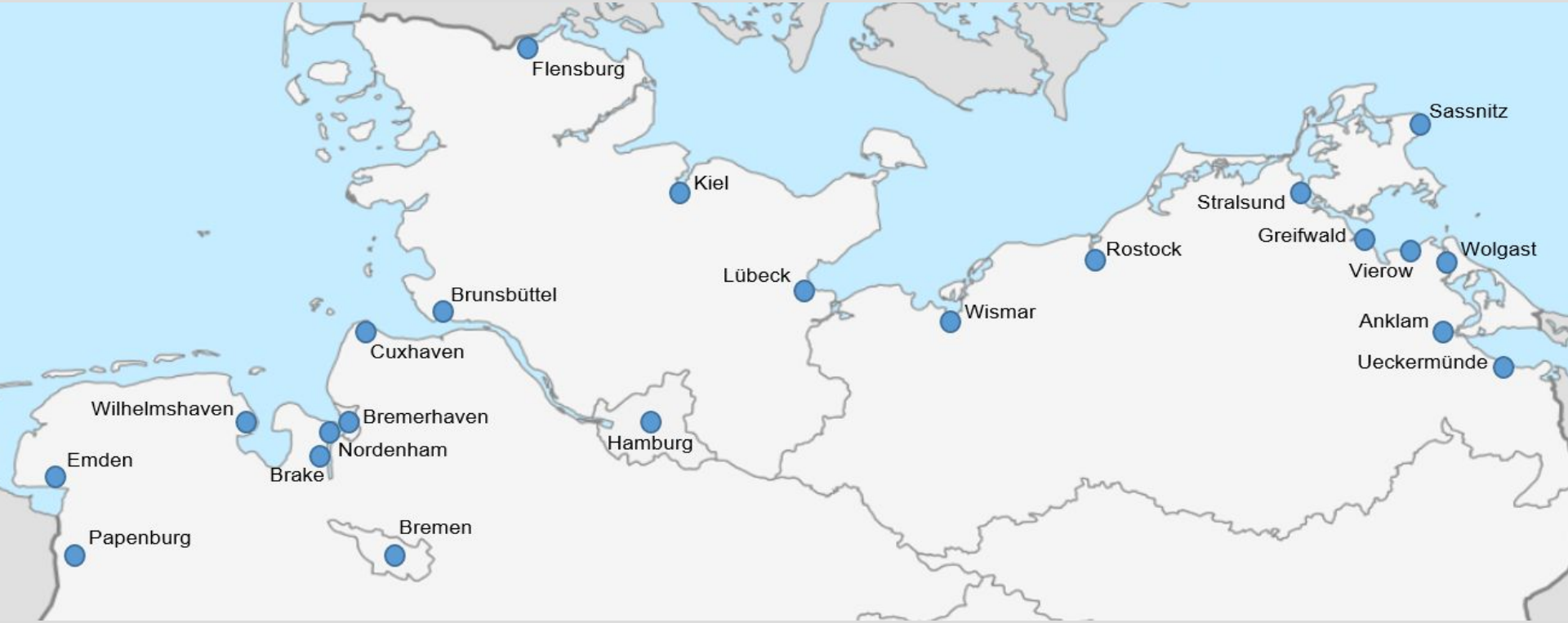
Endless Dredging?

A case study of port city conflicts and the River Elbe

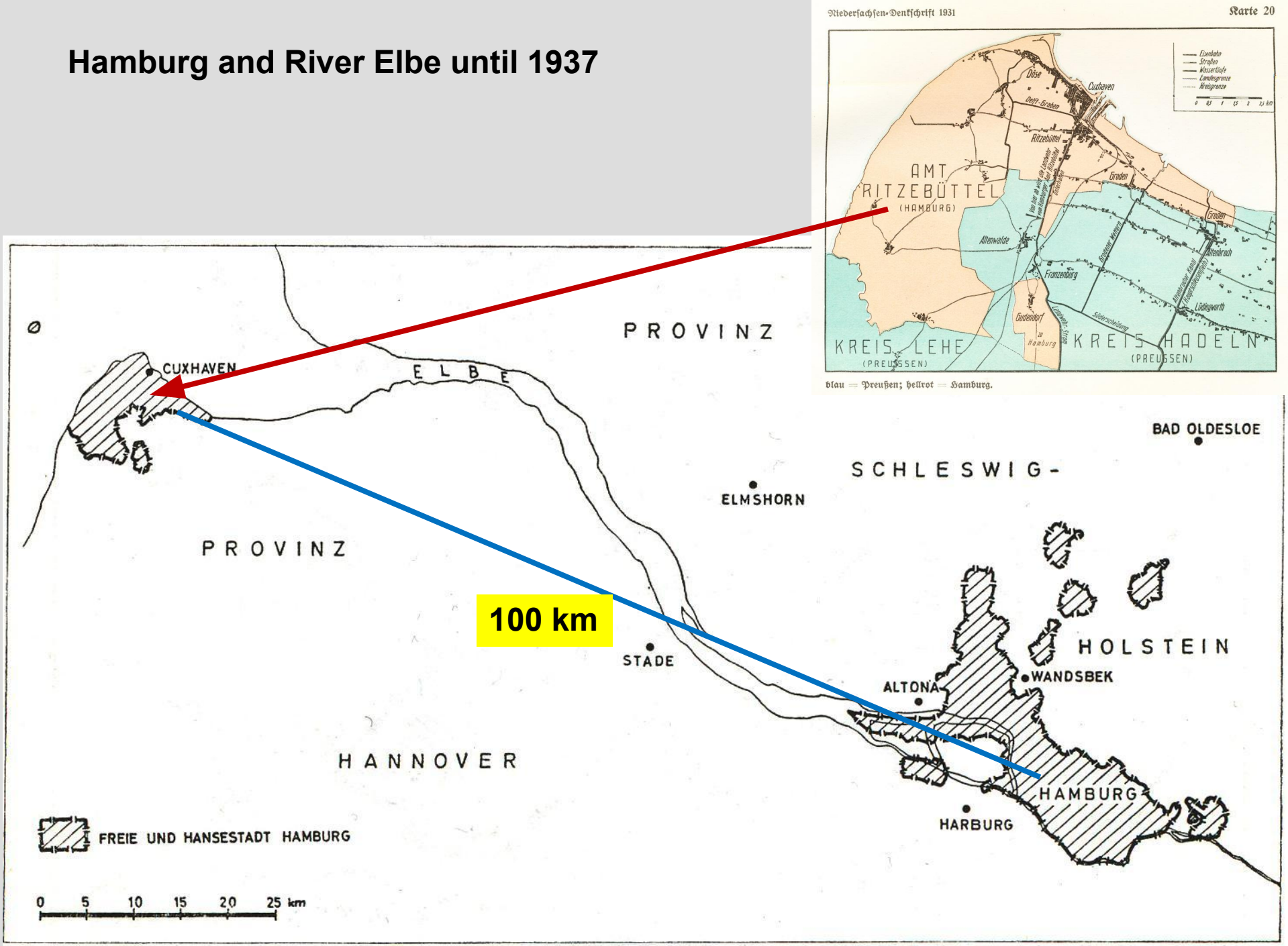


1872 Niewe Waterweg Rotterdam was opened

1872 Kaiserkai opened as intregral part of the open tidal seaport Hamburg


Flensburg
Kiel
Lübeck
Brunsbüttel
Cuxhaven
Wilhelmshaven
Bremerhaven
Nordenham
Brake
Emden
Papenburg
Bremen
Hamburg
Wismar
Rostock
Stralsund
Sassnitz
Greifwald
Wolgast
Vierow
Anklam
Ueckermünde

Hamburg and River Elbe until 1937



Schriftenreihe
der Behörde für Wirtschaft und Verkehr
der Freien und Hansestadt
Hamburg

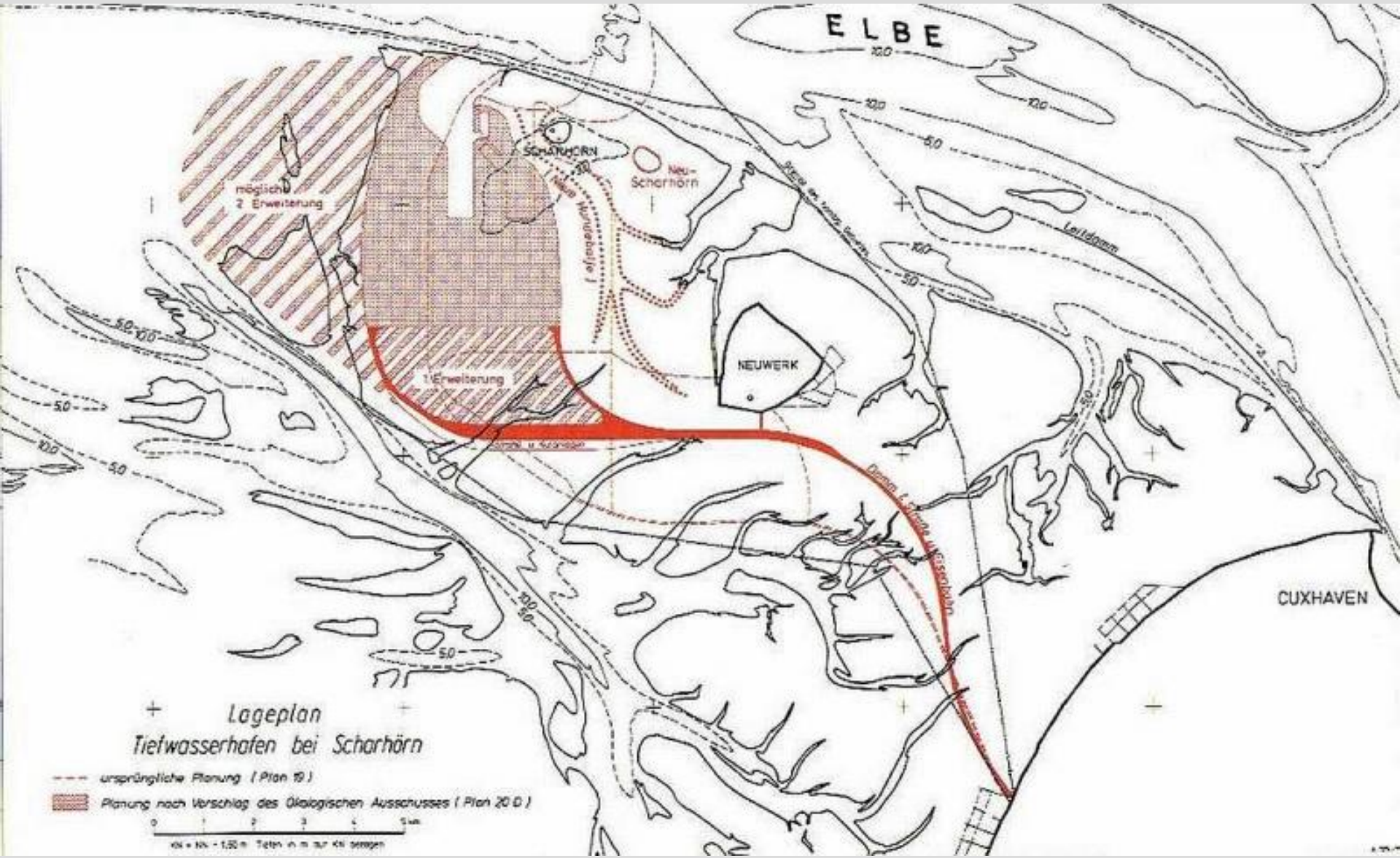
Nr. 10

Dr.-Ing. Hans Laucht

Neuwerk / Scharhörn Industriehafen am tiefen Wasser

Stand der Vorarbeiten
Herbst 1970

Deep-water port Neuwerk-Scharhörn


ELBE
SCHARHÖRN
Neu-
Scharhörn
möglicher
2. Erweiterung
1. Erweiterung
NEUWERK
CUXHAVEN
Lageplan
Tiefwasserhafen bei Scharhörn
ursprüngliche Planung (Plan 19)
Planung nach Vorschlag des Ölabiologischen Ausschusses (Plan 20 D)

(Industrial) deep-water port Neuwerk / Scharhörn

-"Trend to the Sea" - "Void of Space"

-1962 state treaty with Lower Saxony, swap 200 ha Cuxhaven against 90 km2 tidal flats

-1961 research program 5,5 million DM from Senate and Parliament

- Water depths for tankers 21 meters, for ore ships 19 meters

- Deep water port + industries (backlog demand) - 9,500 ha (Maasvlakte 6,000 ha)

- 7,500 ha plan - approx. 6,000 ha land areas

-Water depth 30 meters, 23 meters uncomplicated, up to 29 meters possible

-Construction time 4 years, costs approx. 500 million DM > 13.60 DM/m2 plot price

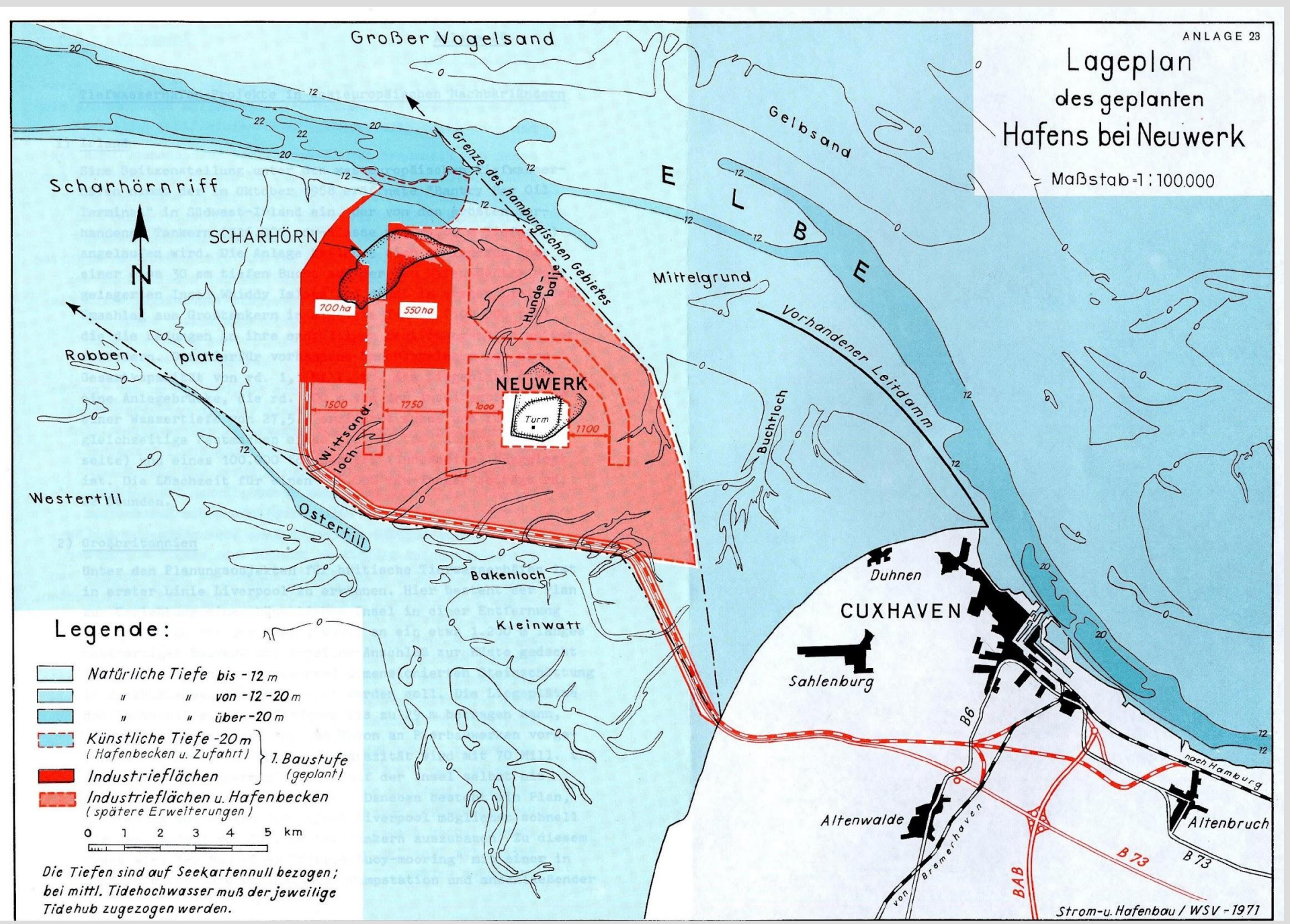
-No use of private land

-Deployment of 15,000 jobs

ANLAGE 23

Lageplan des geplanten Hafens bei Neuwerk

Maßstab 1 : 100.000



- Area unsuitable as container port

- (1968 arrival of first container ship in Hamburg)

- „Limited“ resiliance of the Wadden Sea, ecological problems

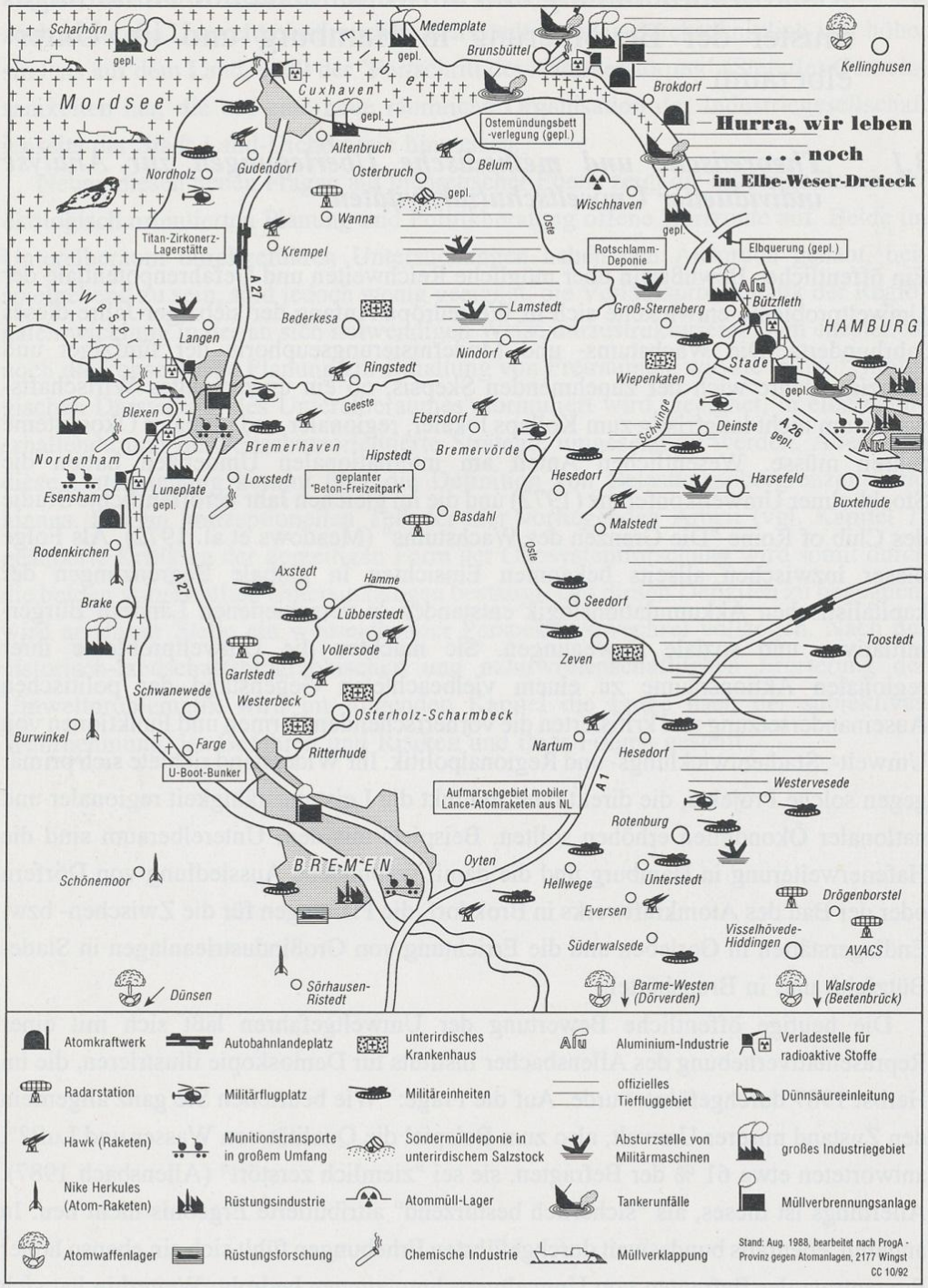
- Risk of suffocation

- Problematic hinterland connections

- Cuxhaven Seaside ressort, Tourism „distance“ to beaches

- 1980 End of planning

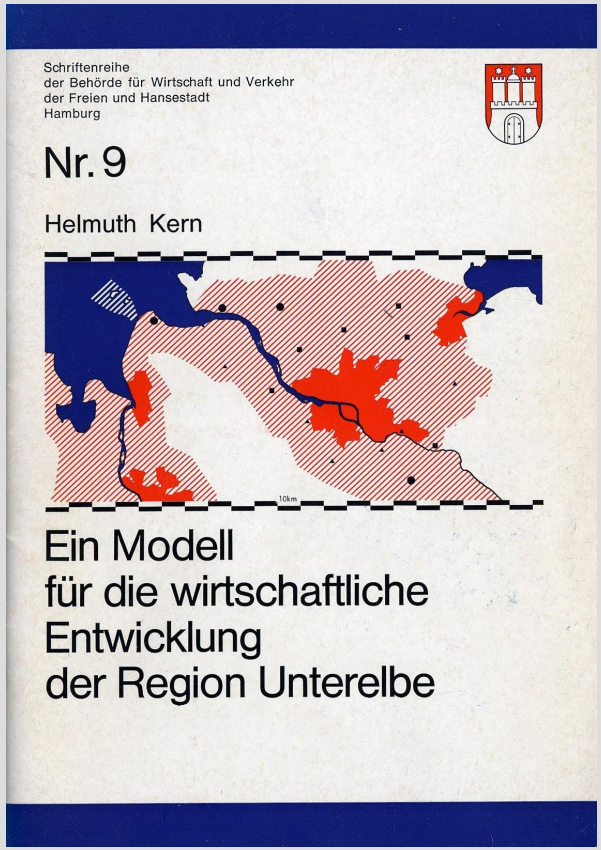
- Growth of the ecological movement

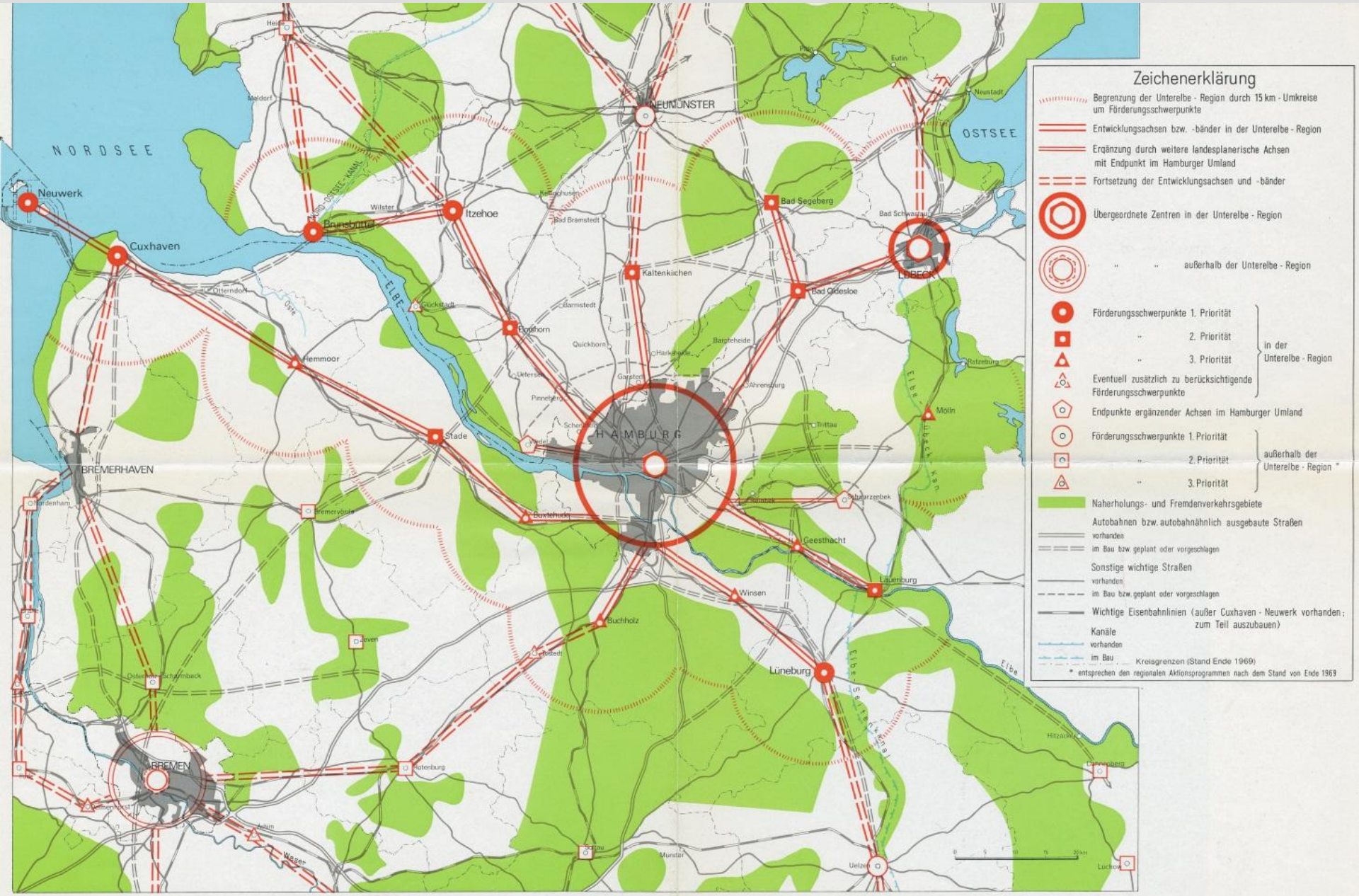


1988

Rapid industrialisation of Weser and Lower Elbe Region

-Cheap electricity
-Nuclear power





Skizze zum Wirtschafts - Entwicklungsmodell für die Region Unterelbe

3. Fassung

1975

Targets

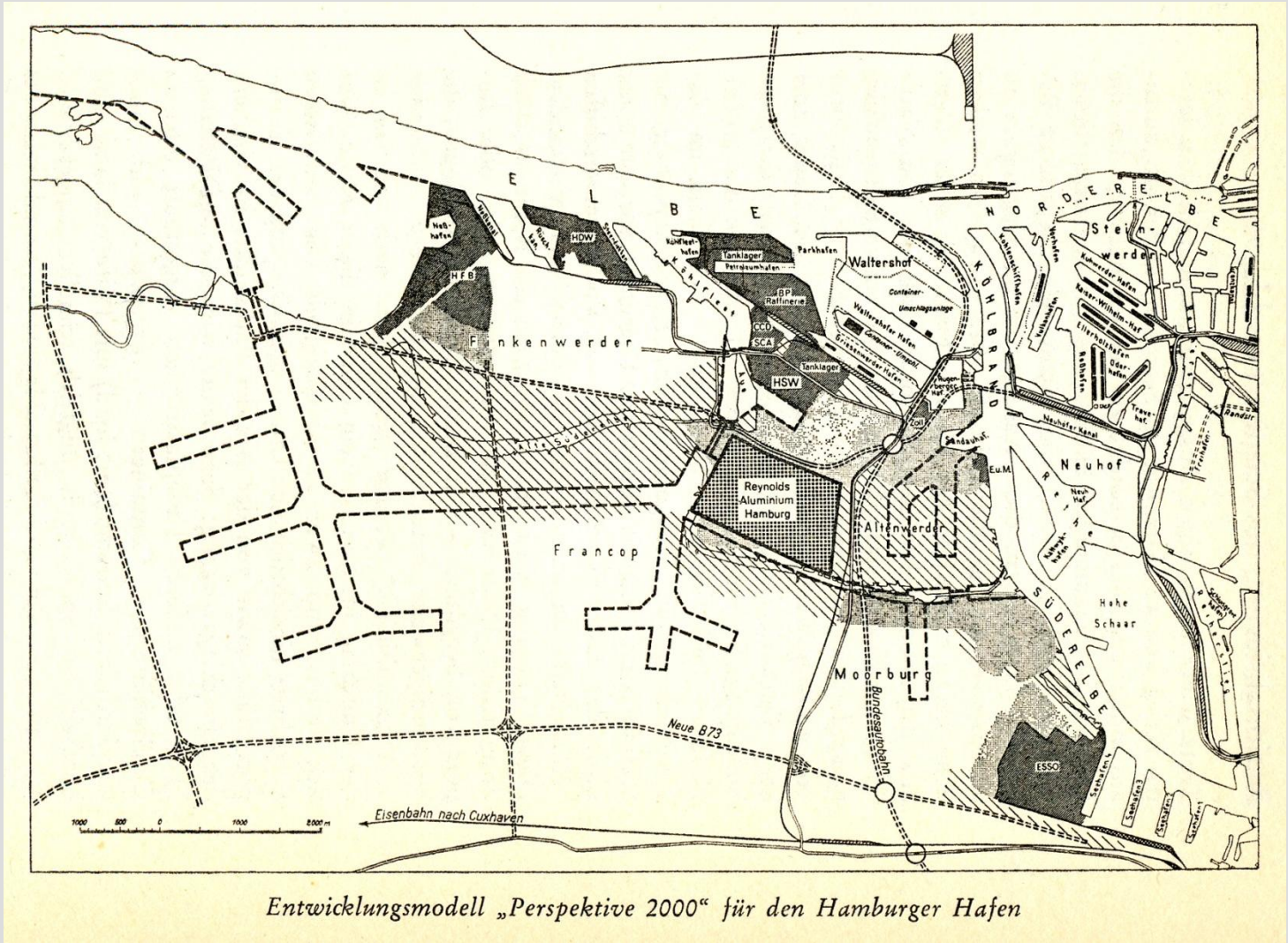
-Regional restructuring policy
-Catch-up industrialisation
-Fourfold increase in industrial employment
-Prototype Rotterdam

Problems – change

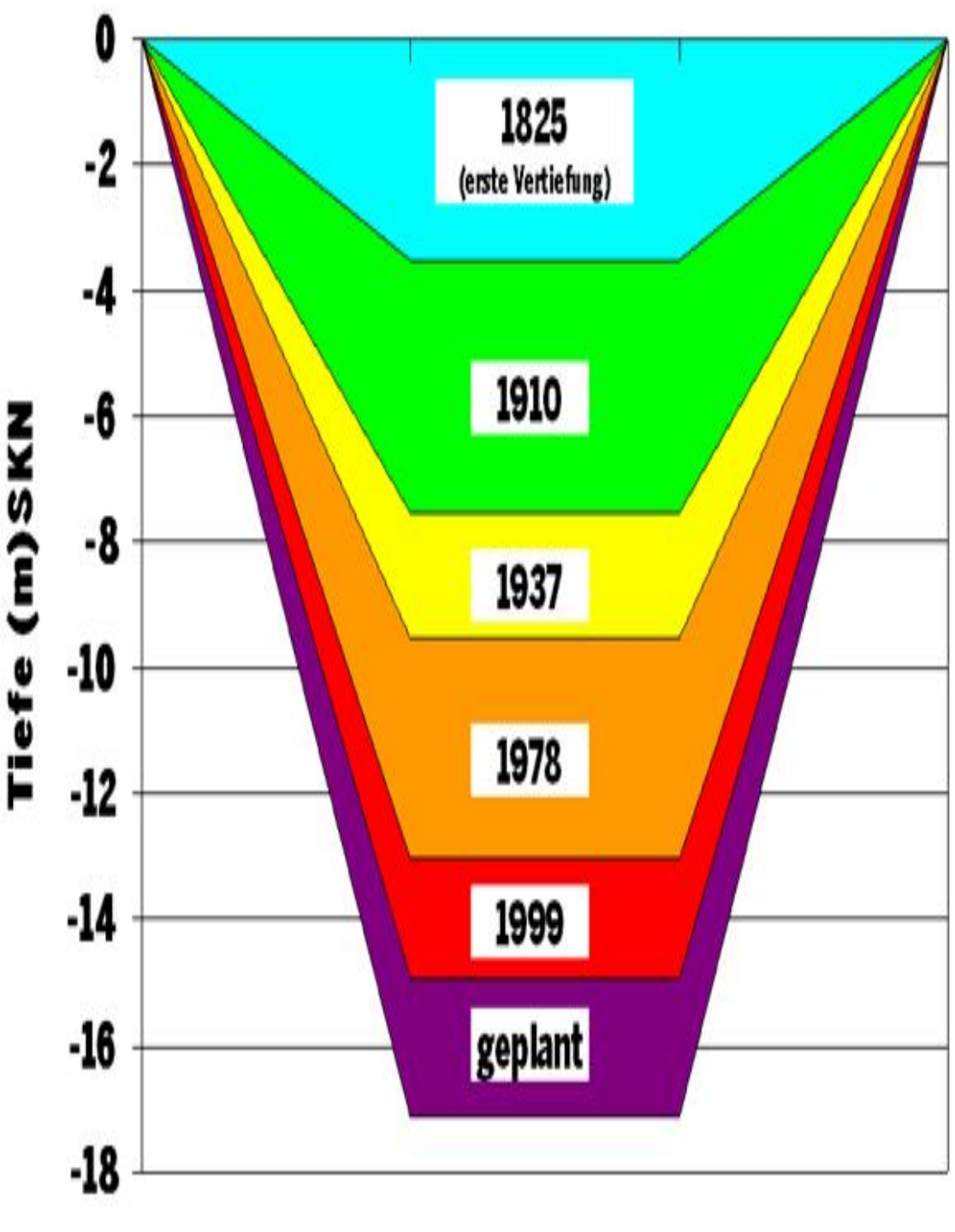
-Caused ecological problems
-Environmental hazards
-„Ecological conflict awareness“
-Regional policy goals missed
-Company restructuring (Dow 1991)

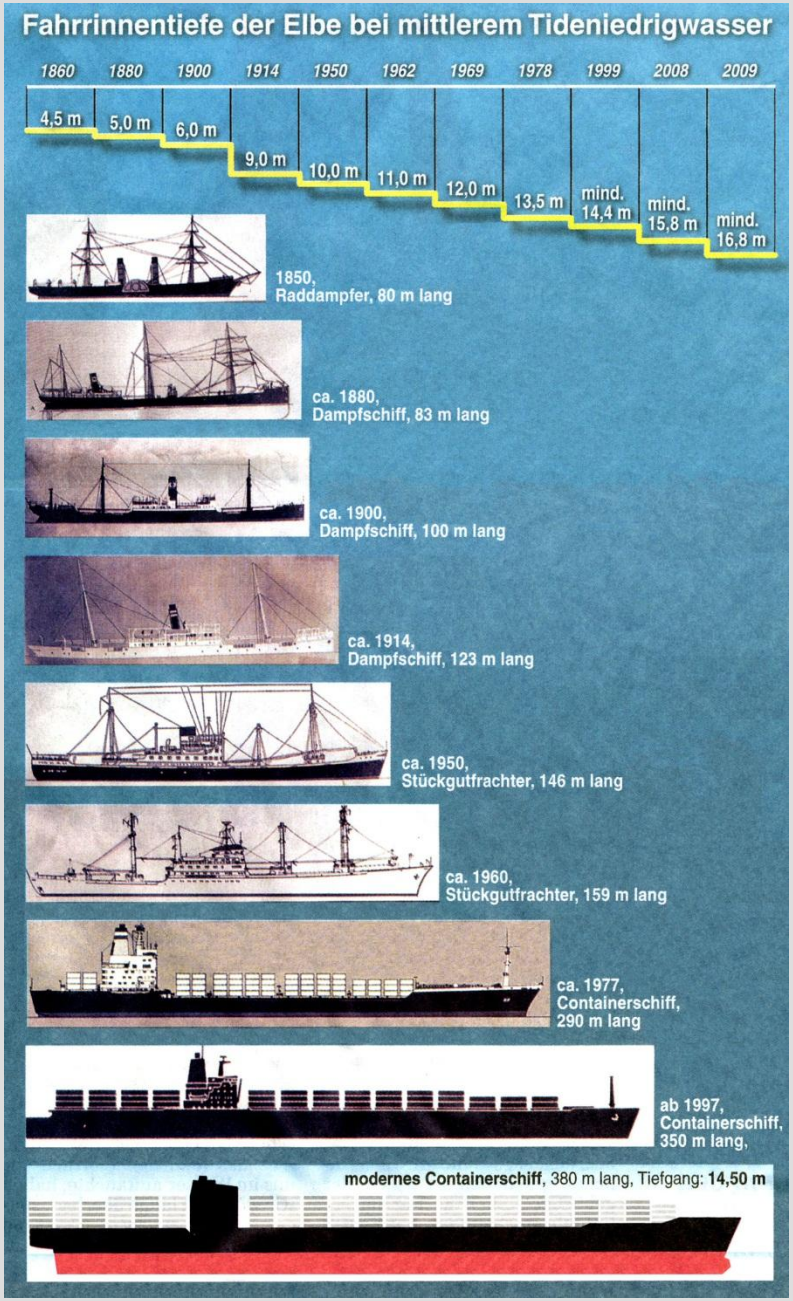
-Coordination requirements from Hamburg
-Pro-active, demanding
-„Supplementary Area“ - hinterland
-Area states reactive

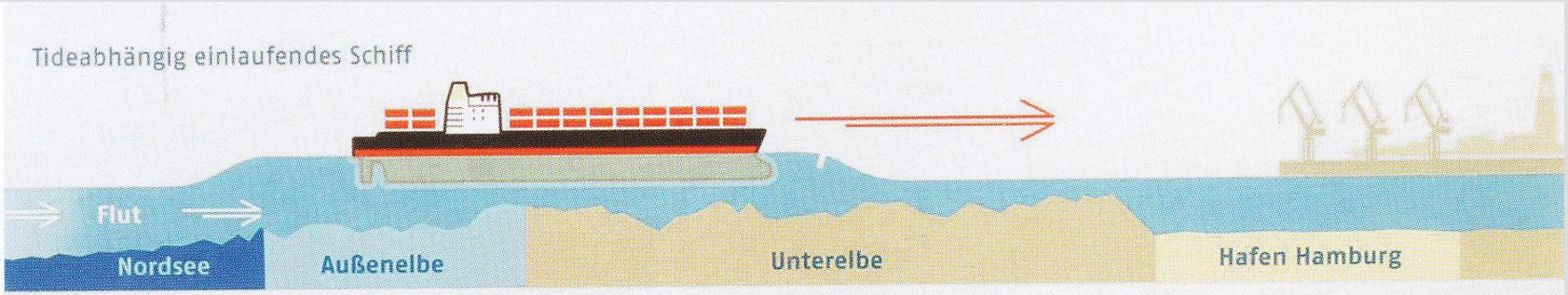
Published in 1970



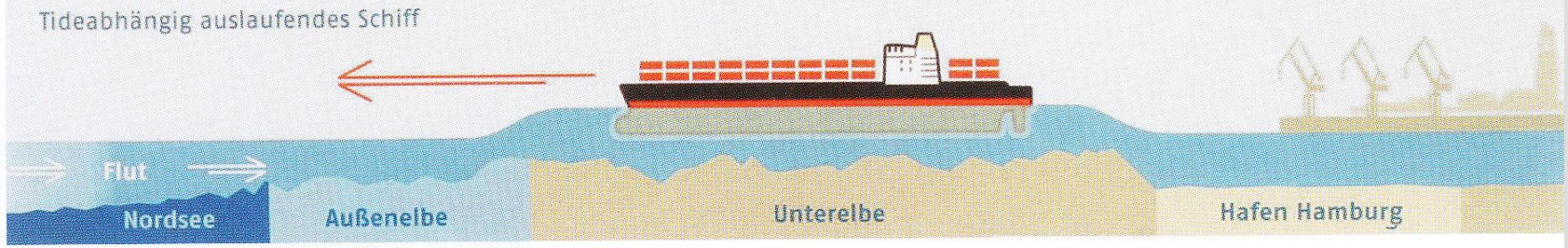
Entwicklungsmodell „Perspektive 2000" für den Hamburger Hafen


Tiefe (m)SKN
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
1825
(erste Vertiefung)
1910
1937
1978
1999
geplant

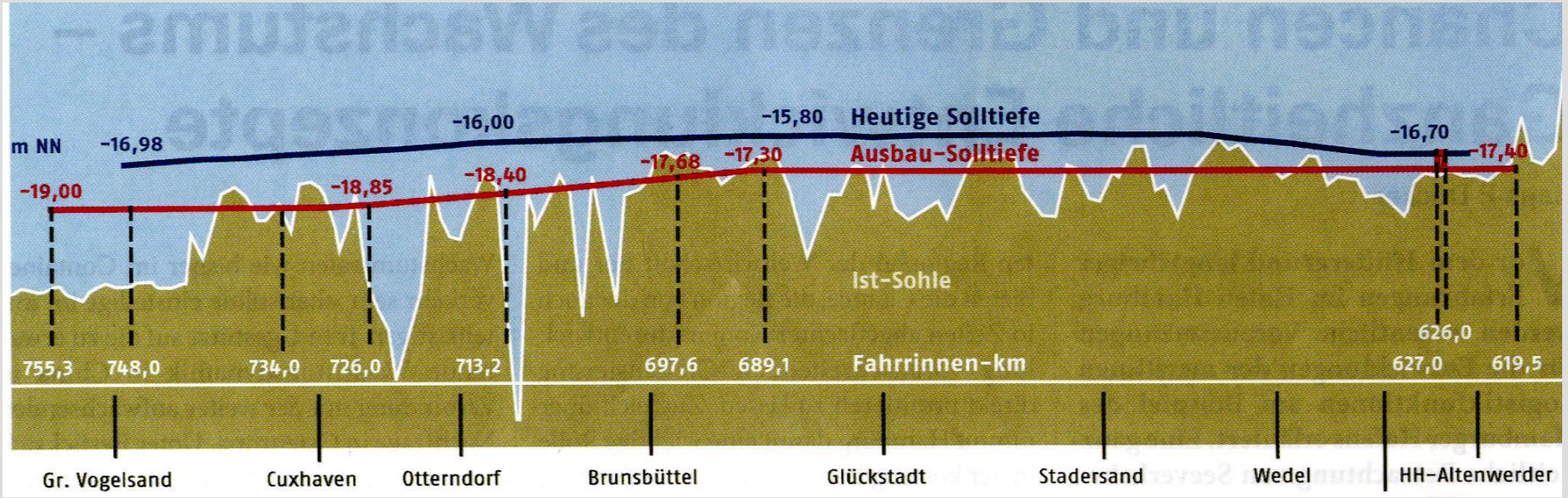

Fahrrinnentiefe der Elbe bei mittlerem Tideniedrigwasser
1860
1880
1900
1914
1950
1962
1969
1978
1999
2008
2009
4,5 m
5,0 m
6,0 m
9,0 m
10,0 m
11,0 m
12,0 m
13,5 m
mind. 14,4 m
mind. 15,8 m
mind. 16,8 m
1850, Raddampfer, 80 m lang
ca. 1880, Dampfschiff, 83 m lang
ca. 1900, Dampfschiff, 100 m lang
ca. 1914, Dampfschiff, 123 m lang
ca. 1950, Stückgutfrachter, 146 m lang
ca. 1960, Stückgutfrachter, 159 m lang
ca. 1977, Containerschiff, 290 m lang
ab 1997, Containerschiff, 350 m lang,
modernes Containerschiff, 380 m lang, Tiefgang: 14,50 m



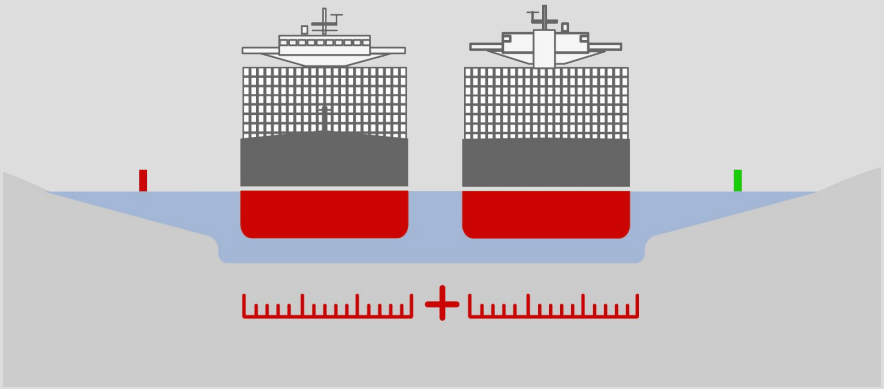
Tides rising and falling for incoming and departing ships

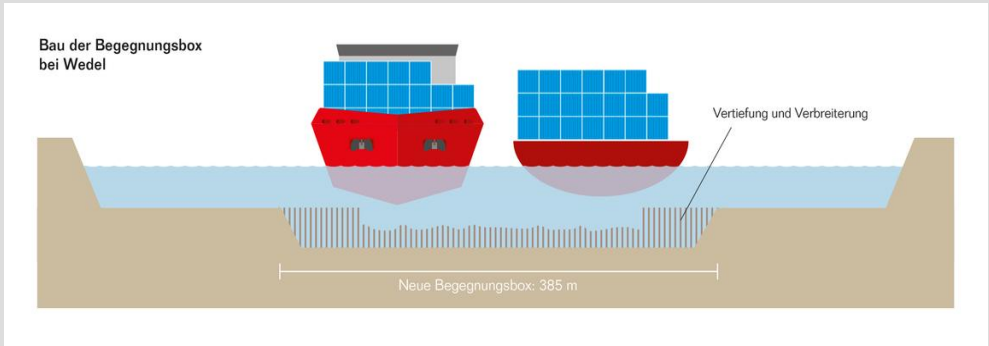


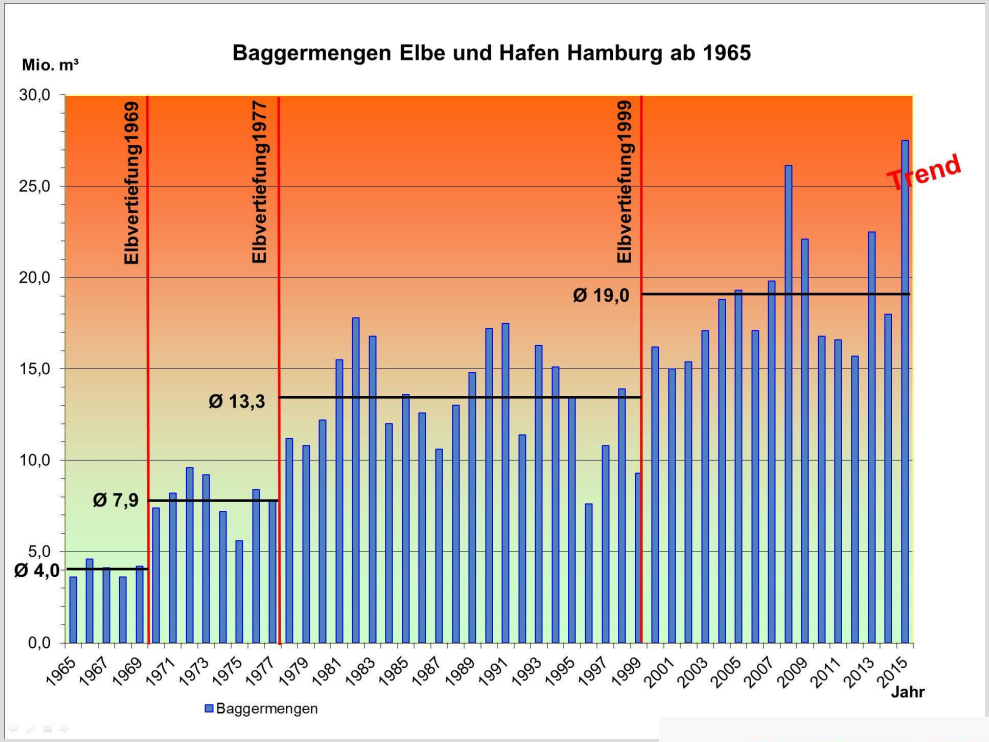
Baggern für Unabhängigkeit: Die Unterelbe ist flacher als der Hafen, sodass Schiffe nur auf der Flutwelle „reiten“ können



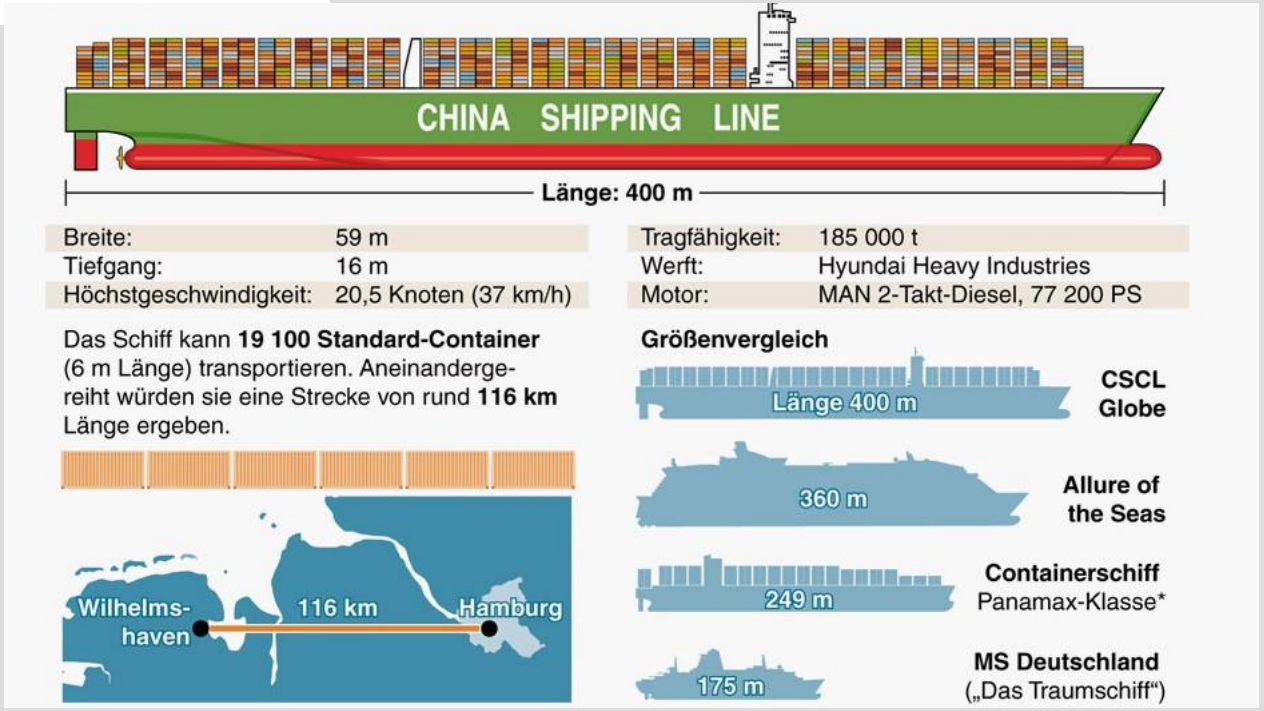
Maximal addierte Schiffsbreite: 90 m







Increasing dredging amounts after Elbe deepenings



In January 2022 the ninth Elbe deepening was finished
Planning started in 2002, final permission 2018
> Providing 13,50 m dephts, flood 14,40 m

2021: Costs for dredging Hamburg Port Authority (HPA) yearly 100 Mio. €
11 Mill. cubic meter dredging material

Pros and cons …

Pro …

- **Bigger ships lesser transport costs**
- **More containers > higher taxes**
- **More containers > more jobs**
- **Containers provide the most ecological way of transport**
- **Transport on sea 0,45 € per km**
- **Transport on land 2,50 € per km**

Con …

-Groundwater sinking > houses sagging > damage
-Salt water entering ground water
-Deepening > stronger flow > higher dikes
-Brackish water zone (where fresh and salte water meet – habitat for animals and plants) reduced


Brunsbüttel
SCHLESWIG-HOLSTEIN
Cuxhaven
Glückstadt
Hamburg
Stade
NIEDERSACHSEN
Geesthacht
Lauenburg
Wasser- und Schifffahrtsverwaltung des Bundes
Freie und Hansestadt Hamburg
Wasser- und Schifffahrtsverwaltung des Bundes


Deiche an der Unterelbe
Brunsbüttel
Cuxhaven
Glückstadt
SCHLESWIG-HOLSTEIN
69 km Deichlinie
Deichhöhe: 6,6–8,7 m
NIEDERSACHSEN
97 km Deichlinie
Deichhöhe: 7,6–8,4 m
Stade
Geesthacht
Lauenburg
HAMBURG
100 km Deichlinie
Deichhöhe: 7,6–9,0 m


A 7
HAMBURG-NORD
EIMSBÜTTEL
Bramfeld
Sturmflut 1962
ALTONA
HAMBURG
A 24
Nienstedten
Altona-Altstadt
Sankt Pauli
Hamm
Elbe
Finkenwerder
HAMBURG-MITTE
A 25
A 7
BERGEDORF
HARBURG
Alvesen
Glüsingen
Fliegenberg
3 km
info.BILD.de | Kartenbasis: Maps4News.com/©HERE


Einigkeit

2022 LNG Terminal for Hamburg?
> 500.000 cubic meter silt to be dredged

SUBVENTIONSWETTLAUF DER HÄFEN

Weitere 1,3 Mrd. Euro Steuergeld für parallele Hafen-Infrastruktur geplant

Der Jade-Weser-Port erhält die höchsten öffentlichen Subventionen

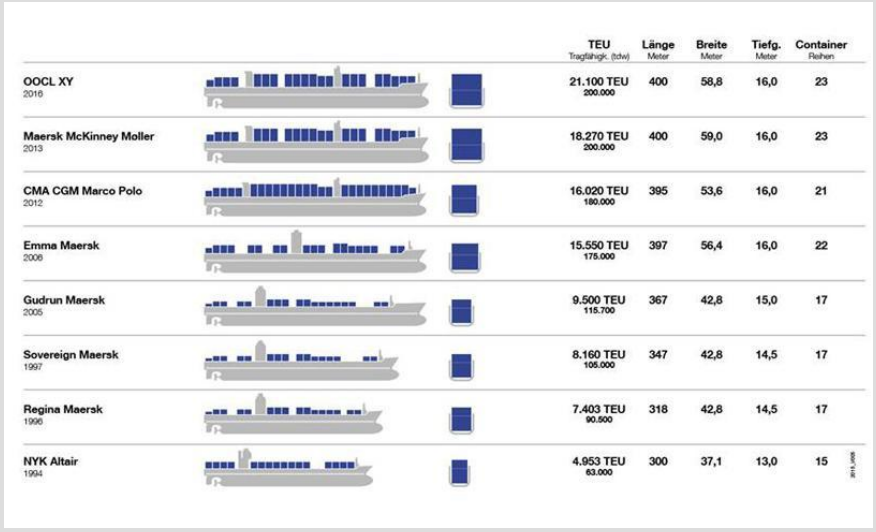
Wilhelmshaven
1,2 Mrd.[1]
+ 100 Mio.[2]
+ ca. 600 Mio.[3]
1,9 Mrd. €

Hamburg
170 Mio.[4]
+ 1 Mrd.[5]
+ ca. 591 Mio.[6]
1,76 Mrd. €

Bremerhaven
48 Mio.[7]
+ 106 Mio.[8]
+ ca. 125 Mio.[9]
279 Mio. €

ABER! — droht jedoch, eine Investitionsruine zu werden.

Der Tiefwasserhafen schlug bis Ende Juni 2013 33.000 statt den geplanten 650.000 Containern um – 350 der 400 Mitarbeiter sind in Kurzarbeit.

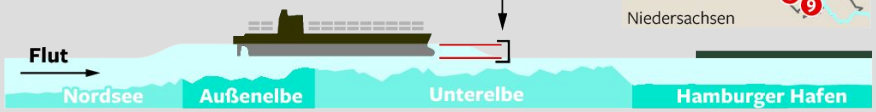


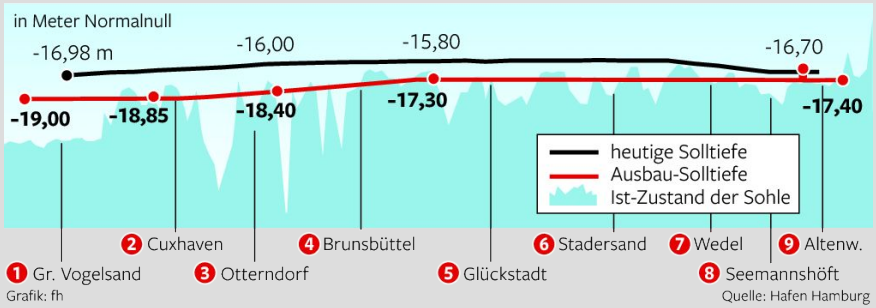
	TEU (Tragfähigk. (tdw))	Länge (Meter)	Breite (Meter)	Tiefg. (Meter)	Container (Reihen)
OOCL XY (2016)	21.100 TEU (200.000)	400	58,8	16,0	23
Maersk McKinney Moller (2013)	18.270 TEU (200.000)	400	59,0	16,0	23
CMA CGM Marco Polo (2012)	16.020 TEU (180.000)	395	53,6	16,0	21
Emma Maersk (2006)	15.550 TEU (175.000)	397	56,4	16,0	22
Gudrun Maersk (2005)	9.500 TEU (115.700)	367	42,8	15,0	17
Sovereign Maersk (1997)	8.160 TEU (105.000)	347	42,8	14,5	17
Regina Maersk (1996)	7.403 TEU (90.500)	318	42,8	14,5	17
NYK Altair (1994)	4.953 TEU (63.000)	300	37,1	13,0	15

Elbvertiefung

Geplante Vertiefung der Fahrrinne

Die Flussvertiefung erlaubtdie **tiden-unabhängige** Fahrt (unabhängig vom Fluthochwasser) für Schiffe mit **13,50 m Tiefgang** bzw. die **tidenabhängige** Fahrt bis **14,50 m Tiefgang**

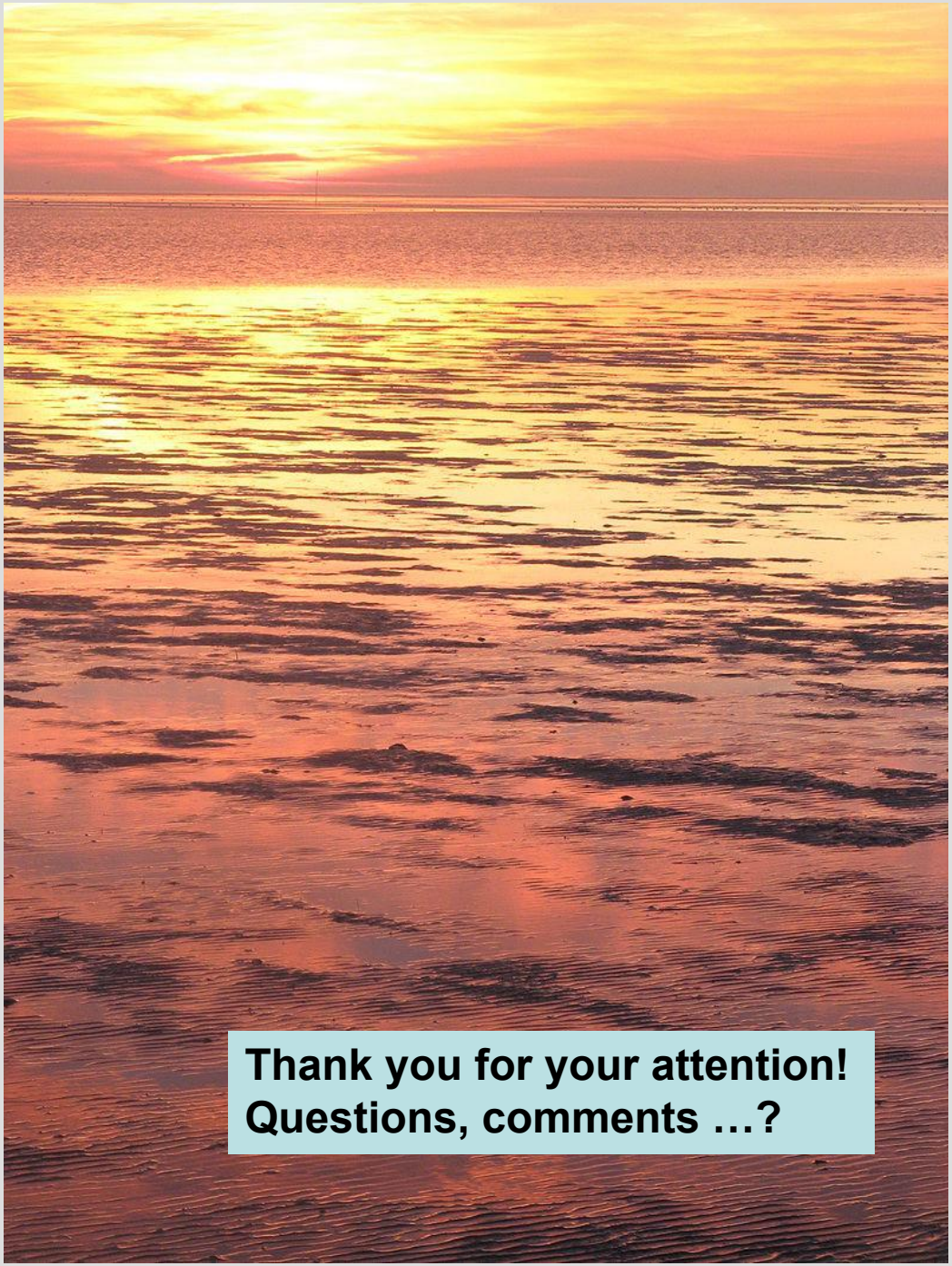




Grafik: fh

Quelle: Hafen Hamburg

The Wadden Sea World Heritage Site since 2009



Thank you for your attention!
Questions, comments …?