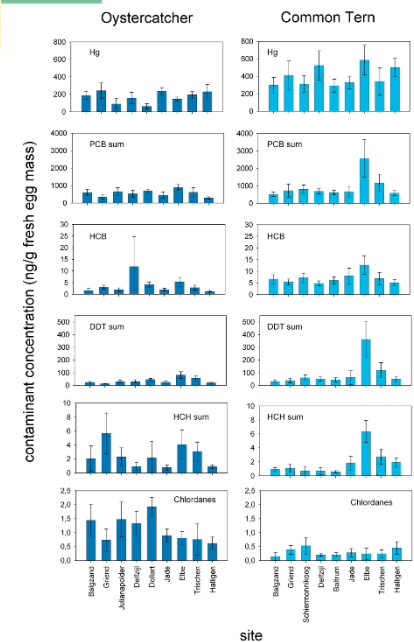


(B) Trends in the different countries compared



# The importance of long-term monitoring programmes for implementing nature conservation policy

Jutta Leyrer – Michael-Otto-Institut im NABU  
 Kim Detloff – Naturschutzbund Deutschland e.V.



# Wadden Sea - UNESCO world heritage site

## Guiding Principle

trilateral policy and management aims

“to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way”.

- management of a large, international area
- detailed knowledge on habitat requirements of species, subspecies and populations AND dynamic processes

# Wadden Sea Trilateral Monitoring Programm TMAP

strategy and vision [excerpt]

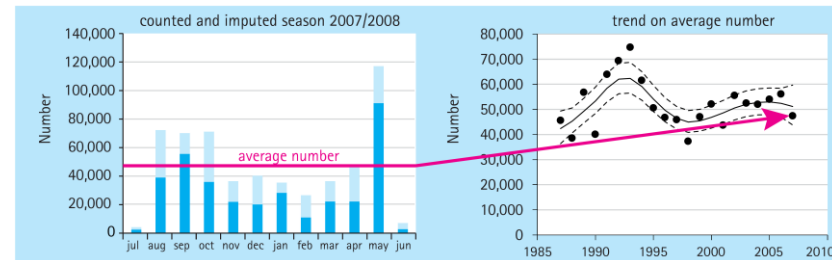
provides

- scientifically sound evidence base for decision making and policy development at all levels
- essential contextual information to support the management of the Wadden Sea as a single ecological entity

[...]

enables

- integrated assessment to be undertaken, which is an essential prerequisite for the application of the ecosystem approach.



© JMBB & JMMB, CWSS

Species	Long-term 27 years trend 1987/1988 - 2013/2014				Short-term 10 years trend 2004/2005 - 2013/2014			
	WS	DK	SH	NL	WS	DK	SH	NL
Great Cormorant	+	+	+	+	+	+	+	+
Eurasian Spoonbill	+	+	+	+	+	+	+	+
Belted Plover	+	+	+	+	+	+	+	+
Brent Goose	+	+	+	+	+	+	+	+
Common Shelduck	+	+	+	+	+	+	+	+
Eurasian Wigeon	+	+	+	+	+	+	+	+
Common Teal	+	+	+	+	+	+	+	+
Mallard	+	+	+	+	+	+	+	+
Northern Pintail	+	+	+	+	+	+	+	+
Northern Shoveler	+	+	+	+	+	+	+	+
Common Eider (Dry land)	+	+	+	+	+	+	+	+
Eurasian Oystercatcher	+	+	+	+	+	+	+	+
Pied Avocet	+	+	+	+	+	+	+	+
Great Frigate Plover	+	+	+	+	+	+	+	+
Kentish Plover	+	+	+	+	+	+	+	+
European Golden Plover	+	+	+	+	+	+	+	+
Grey Plover	+	+	+	+	+	+	+	+
Northern Lapwing	+	+	+	+	+	+	+	+
Red Knot	+	+	+	+	+	+	+	+
Sanderling	+	+	+	+	+	+	+	+
Curlew Sandpiper	+	+	+	+	+	+	+	+
Dunlin	+	+	+	+	+	+	+	+
Ruff	+	+	+	+	+	+	+	+
Bar-tailed Godwit	+	+	+	+	+	+	+	+
Whimbrel	+	+	+	+	+	+	+	+
Eurasian Curlew	+	+	+	+	+	+	+	+
Spotted Redshank	+	+	+	+	+	+	+	+
Common Redshank	+	+	+	+	+	+	+	+
Common Greenshank	+	+	+	+	+	+	+	+
Ruddy Turnstone	+	+	+	+	+	+	+	+
C. Black-headed Gull	+	+	+	+	+	+	+	+
Common Gull	+	+	+	+	+	+	+	+
European Herring Gull	+	+	+	+	+	+	+	+
Great Black-backed Gull	+	+	+	+	+	+	+	+






## Guiding Principle

# Wadden Sea Quality Status Report

“to achieve, as far as possible, a natural and sustainable **ecosystem** in which natural processes proceed in an undisturbed way”.




Introduction



Geomorphology and  
climate



Habitats and communities



Species



Human activities



Pollution

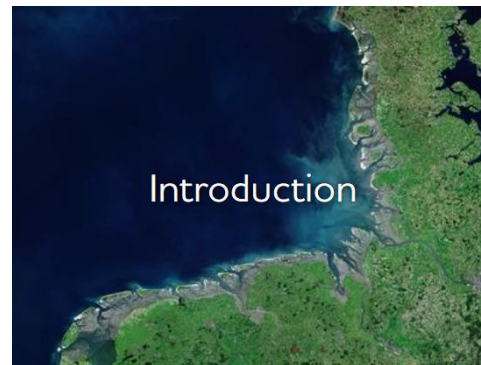


## Wadden Sea Quality Status Report

### Guiding Principle

“to achieve, as far as possible, a natural and sustainable **ecosystem** in which natural processes proceed in an undisturbed way”.

**no synthesis in QSR 2017**



# Wadden Sea Trilateral Monitoring Programm TMAP

strategy and vision [excerpt]

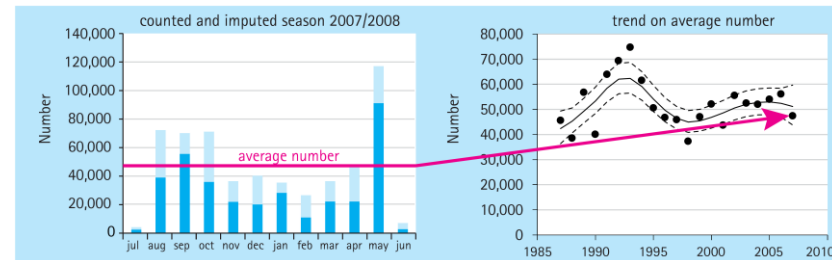
provides

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[...] enables

- integrated assessment to be taken, which is an essential prerequisite for the application of the ecosystem approach.

needs work



© JMBB & JMMB, CWSS

Species	Long-term 27 years trend 1987/1988 - 2013/2014				Short-term 10 years trend 2004/2005 - 2013/2014			
	WS	DK	SH	NW	WS	DK	SH	NW
Great Cormorant	+	+	+	+	+	+	+	+
European Spottedbill	+	+	+	+	+	+	+	+
Belted Plover	+	+	+	+	+	+	+	+
Brent Goose	+	+	+	+	+	+	+	+
Common Shelduck	+	+	+	+	+	+	+	+
European Wigeon	+	+	+	+	+	+	+	+
Common Teal	+	+	+	+	+	+	+	+
Mallard	+	+	+	+	+	+	+	+
Northern Pintail	+	+	+	+	+	+	+	+
Northern Shoveler	+	+	+	+	+	+	+	+
Common Eider (Eider female)	+	+	+	+	+	+	+	+
European Oystercatcher	+	+	+	+	+	+	+	+
Pied Avocet	+	+	+	+	+	+	+	+
Great Frigate Plover	+	+	+	+	+	+	+	+
Kentish Plover	+	+	+	+	+	+	+	+
European Golden Plover	+	+	+	+	+	+	+	+
Grey Plover	+	+	+	+	+	+	+	+
Northern Lapwing	+	+	+	+	+	+	+	+
Red Knot	+	+	+	+	+	+	+	+
Sanderling	+	+	+	+	+	+	+	+
Curlew Sandpiper	+	+	+	+	+	+	+	+
Ruff	+	+	+	+	+	+	+	+
Bar-tailed Godwit	+	+	+	+	+	+	+	+
Whimbrel	+	+	+	+	+	+	+	+
European Curlew	+	+	+	+	+	+	+	+
Spotted Redshank	+	+	+	+	+	+	+	+
Common Redshank	+	+	+	+	+	+	+	+
Common Greenshank	+	+	+	+	+	+	+	+
Ruddy Turnstone	+	+	+	+	+	+	+	+
C. Black-headed Gull	+	+	+	+	+	+	+	+
Common Gull	+	+	+	+	+	+	+	+
European Herring Gull	+	+	+	+	+	+	+	+
Great Black-backed Gull	+	+	+	+	+	+	+	+

Is monitoring alone successful in achieving these goals?

2 examples from the Dutch and German Wadden Sea







# mechanical cockle-dredging in the Dutch Wadden Sea



Image © 2006 Aerodata International Surveys  
© 2006 Europa Technologies

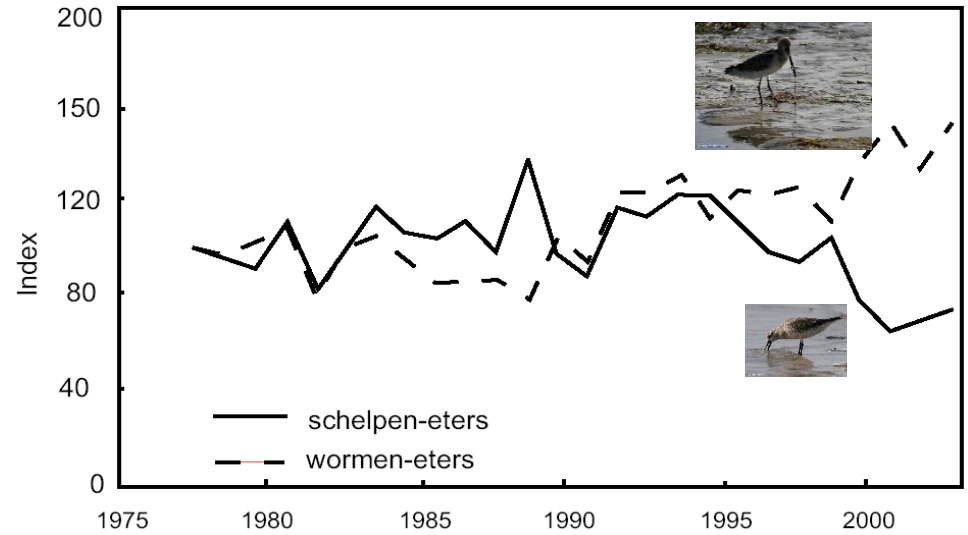
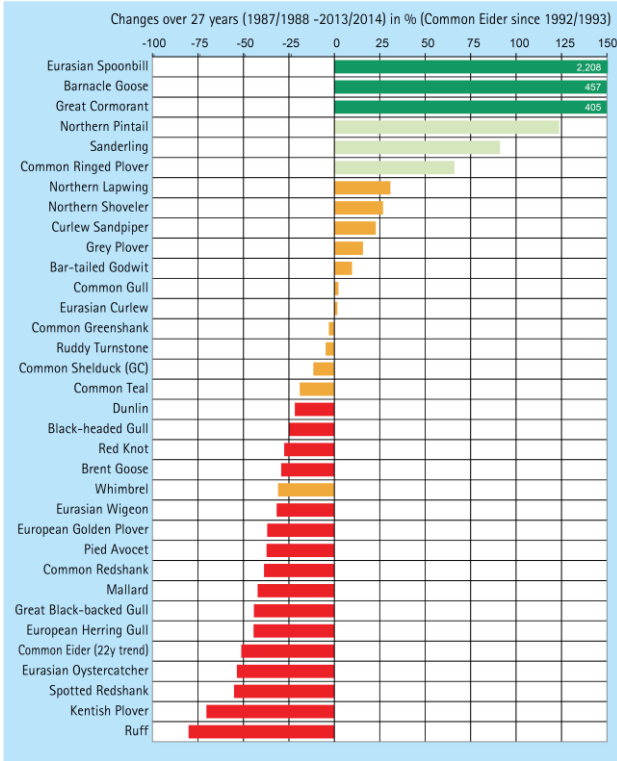
©2006 Google™

Pointer 53°10'43.82" N 4°59'28.24" E elev 0 ft Streaming ||||| 100% Eye alt 2310 ft



# long-term bird monitoring indicated an issue

© JMIMB, CWSS



SOVON, van Rooyen et al. 2005

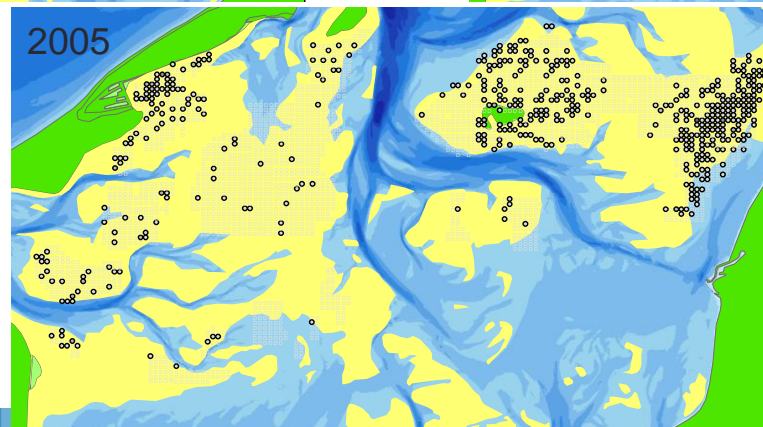
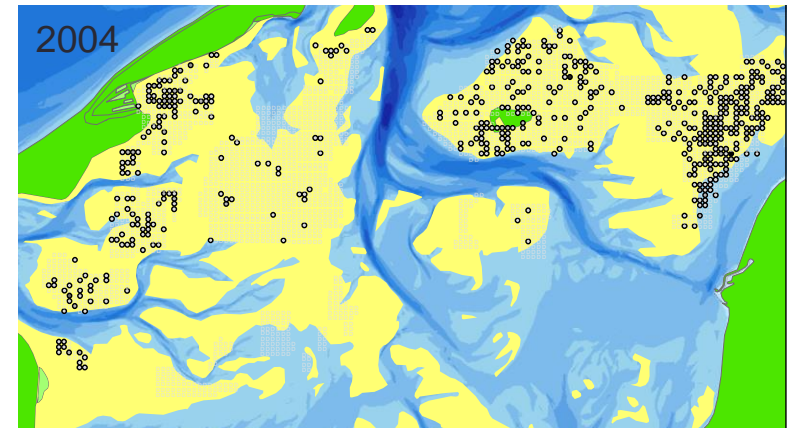
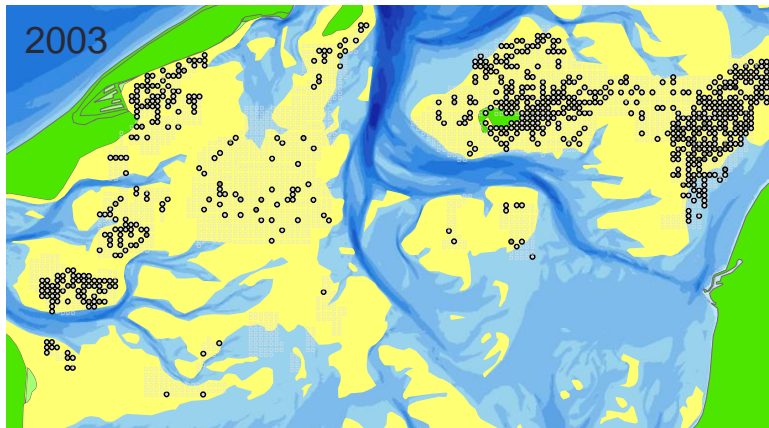
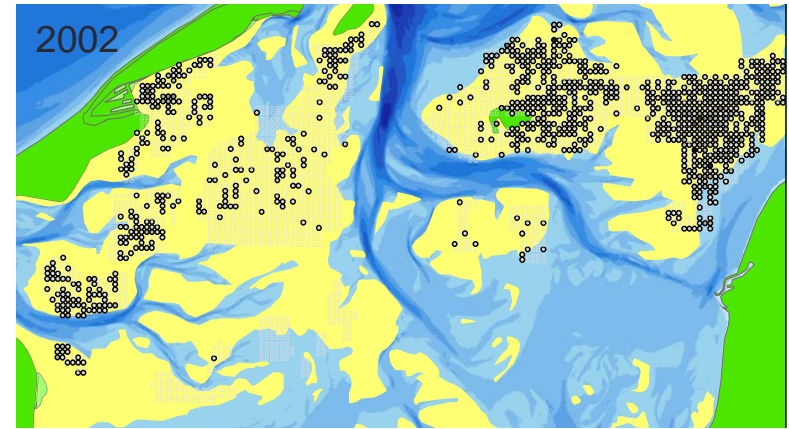
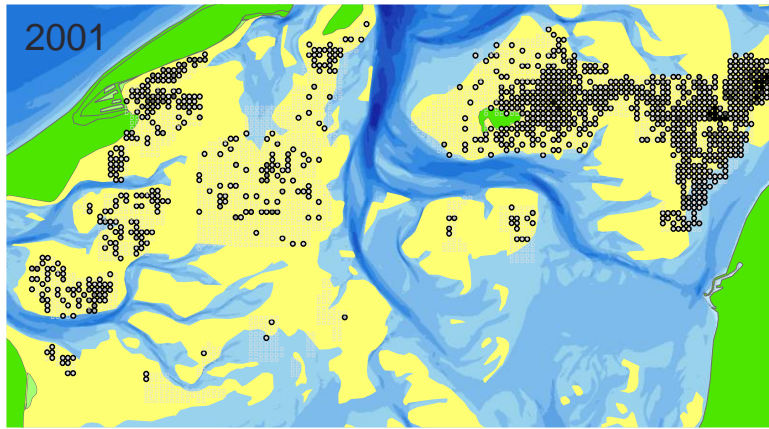


© JvdKam

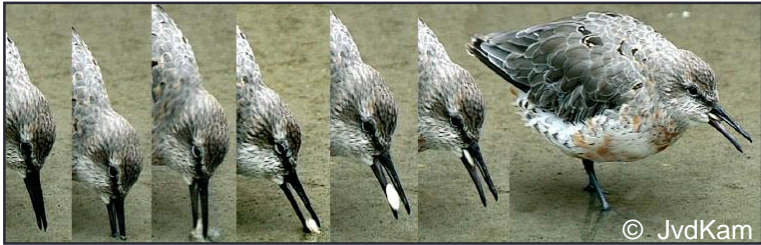




# large-scale benthos monitoring indicated an issue



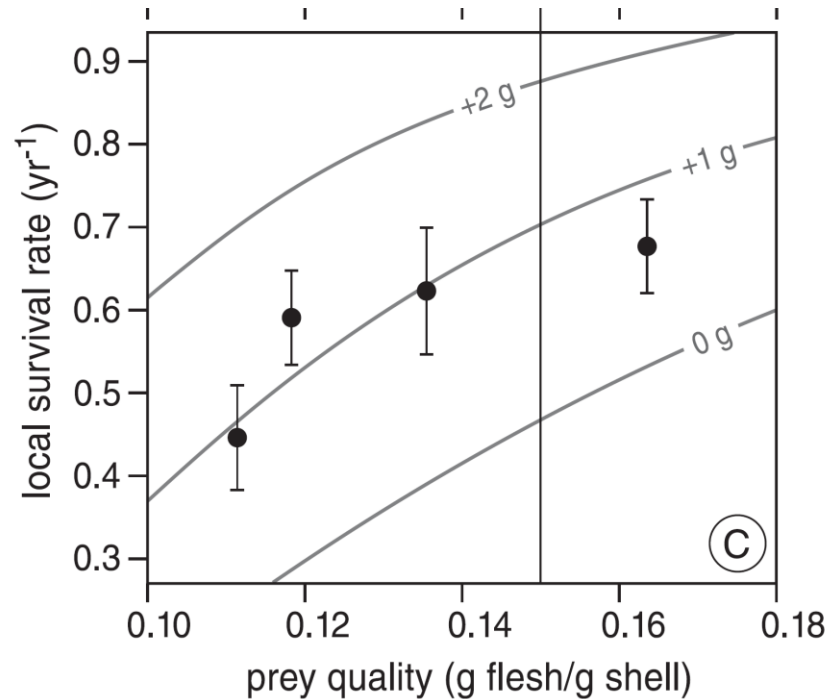
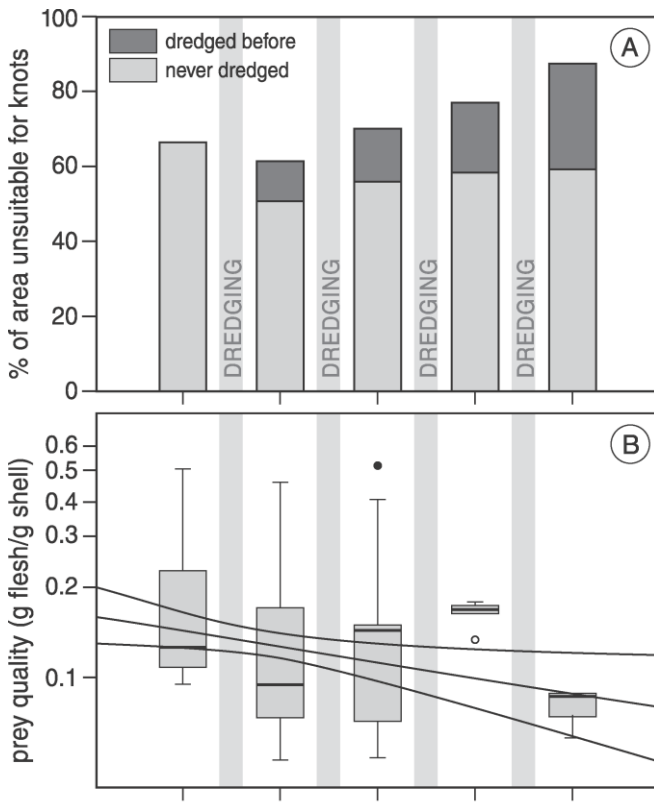
However, „just“ showing a decline was not enough  
 scientific research on foraging ecology was needed



# Shellfish Dredging Pushes a Flexible Avian Top Predator out of a Marine Protected Area

Jan A. van Gils<sup>1,2\*</sup>, Theunis Piersma<sup>1,2</sup>, Anne Dekinga<sup>1</sup>, Bernard Spaans<sup>1</sup>, Casper Kraan<sup>1</sup>

<sup>1</sup> Department of Marine Ecology and Evolution, Royal Netherlands Institute for Sea Research (NIOZ), Texel, The Netherlands, <sup>2</sup> Animal Ecology Group, Centre for Ecological and Evolutionary Studies, University of Groningen, Haren, The Netherlands





the Administrative Jurisdiction Division annulled the applicant association's cockle-fishing licences:  
in the **absence of scientific proof** that such fishing did **not have a significant impact**  
on the natural habitat, they **contravened the Habitats Directive**.



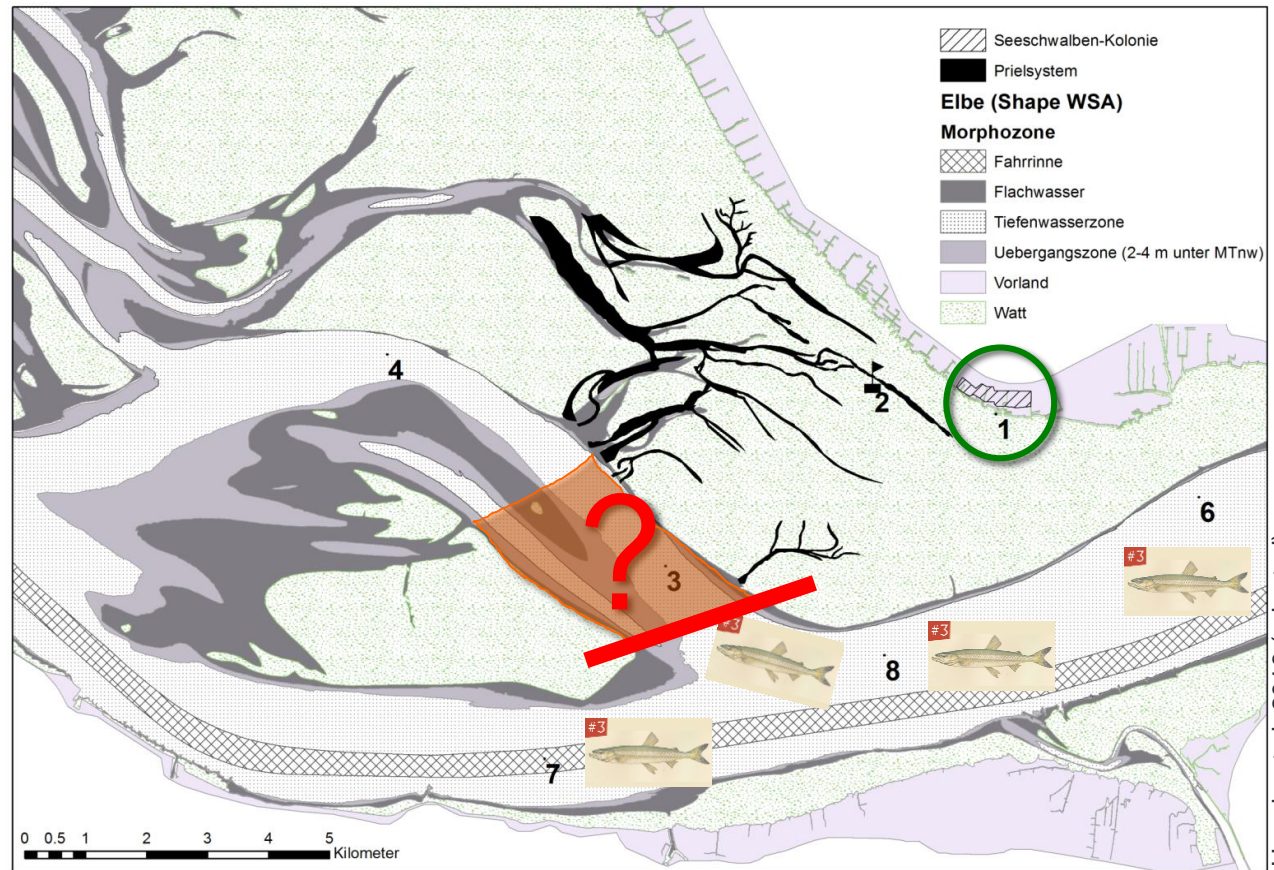
deepening of the shipping channel of the river Elbe







Lea-Carina Mendel



Hennig et al. 2016 (adapted)

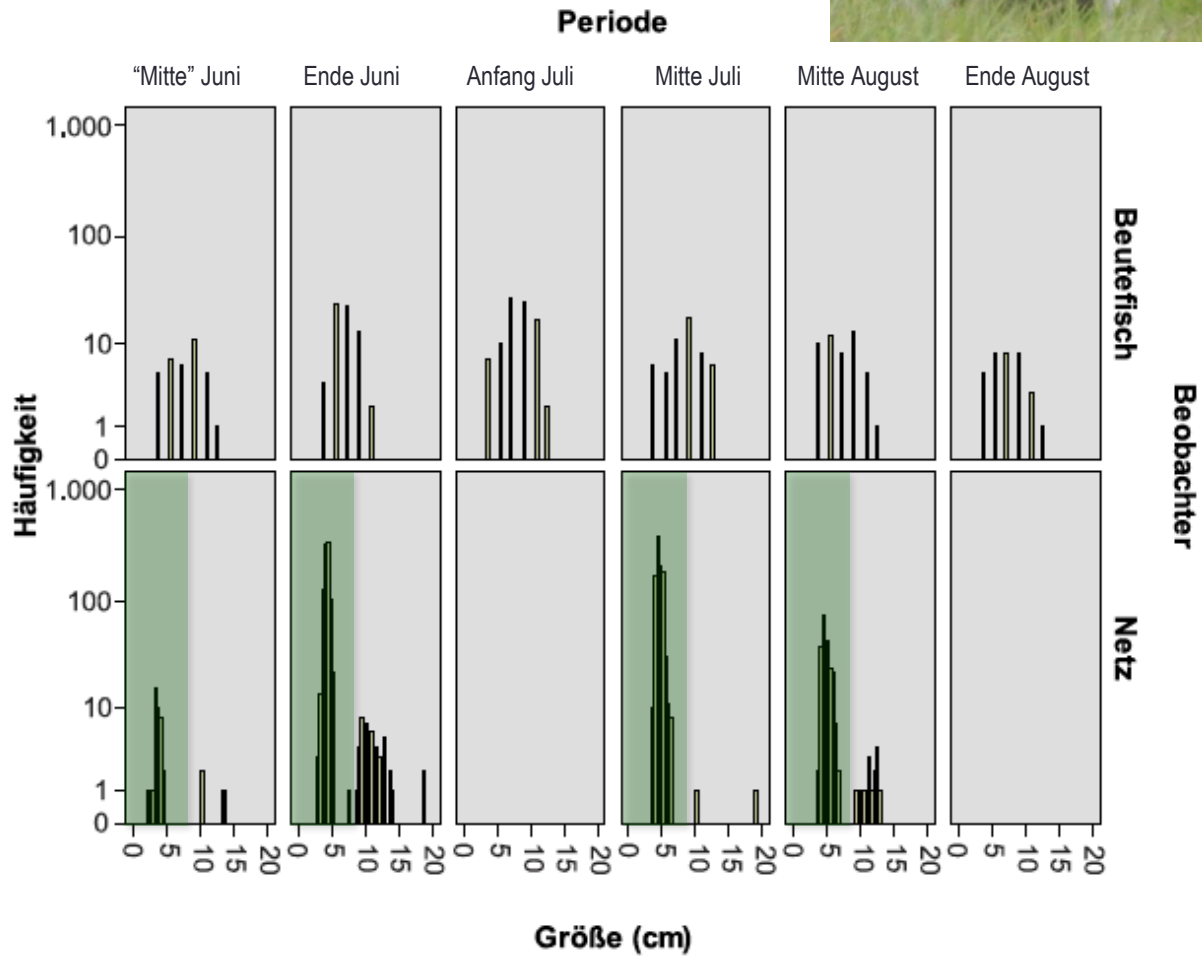


# Flusseeschwalben (*Sterna hirundo* L.) und Stinte (*Osmerus eperlanus* L.) in der Elbmündung - Die einzigartige Bestandsentwicklung und Nahrungsökologie der größten deutschen Flusseeschwalbenkolonie

Veit Hennig, Ronja Heining, Lea-Carina Mendel & Eleonora Tilse

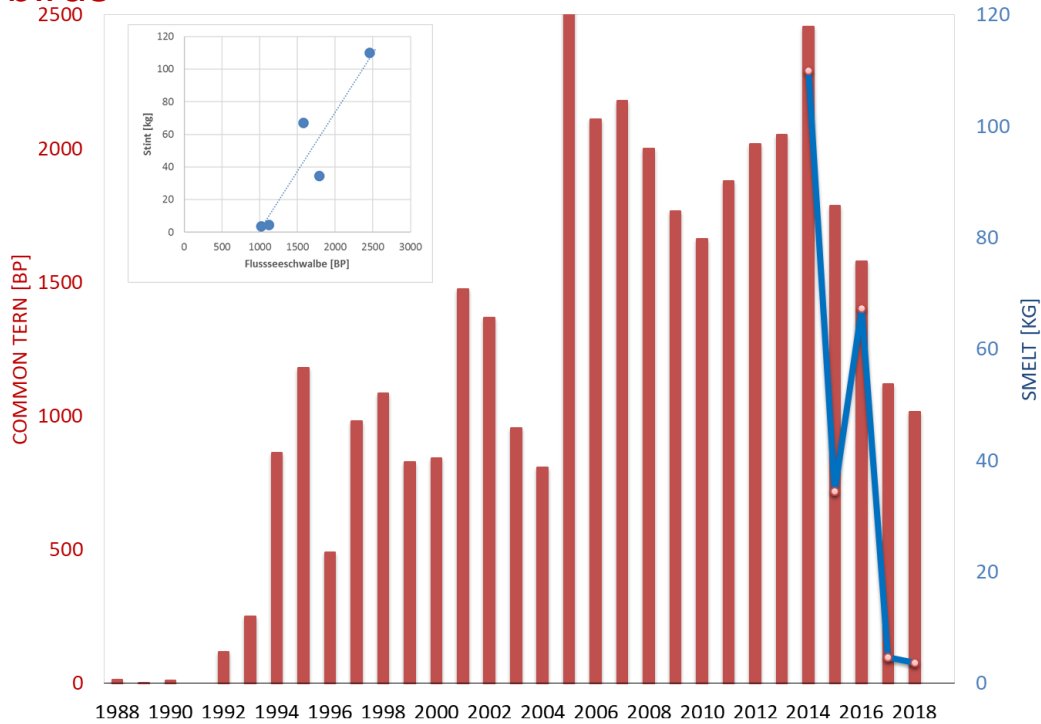


Lea-Carina Mendel



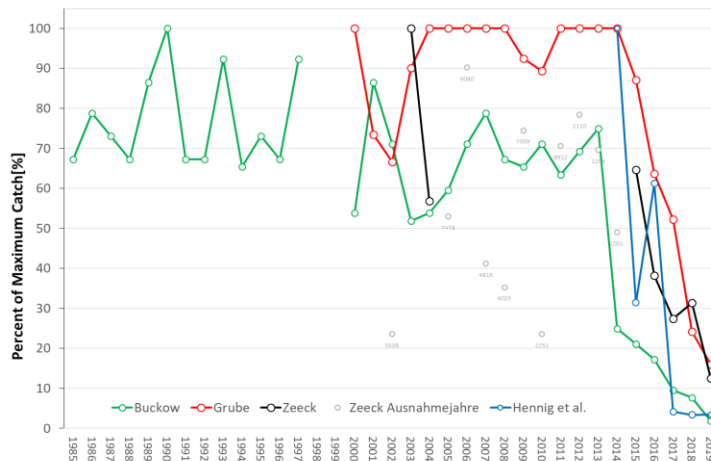


# Long-term monitoring TMAP parameter: breeding birds



Lea-Carina Mendel

monitoring of food resources



© V. Hennig, Uni Hamburg





© V. Hennig



currently, we are struggling to establish a way of recording the effects of the river works for the Wadden Sea mudflats



<https://apps.sentinel-hub.com/eo-browser/>

# Wadden Sea - UNESCO world heritage site

“to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way”.

- ☹️ scientifically sound evidence base for decision making and policy development at all levels
- ☹️ essential contextual information to support the management of the Wadden Sea as a single ecological entity
  - 😊 overview and trends
  - 😊 evaluation of efficiency of measures
  - 😊 integrated assessment when timely analysis is / synthesis is granted
  - 😊 provoke and inspire research questions

most important tool in nature conservation for managers,  
policy makers and conservation NGOs



Monitoring needs accompanying  
scientific research  
to protect the Wadden Sea



thank you