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# BLMP+



*Reorganisation of the german marine environmental monitoring programme  
in the North Sea and the Baltic (BLMP)*

# BLMP+

Monitoring of inorganic and organic pollutants with  
regard to the WFD

27.4.2006  
ZMK

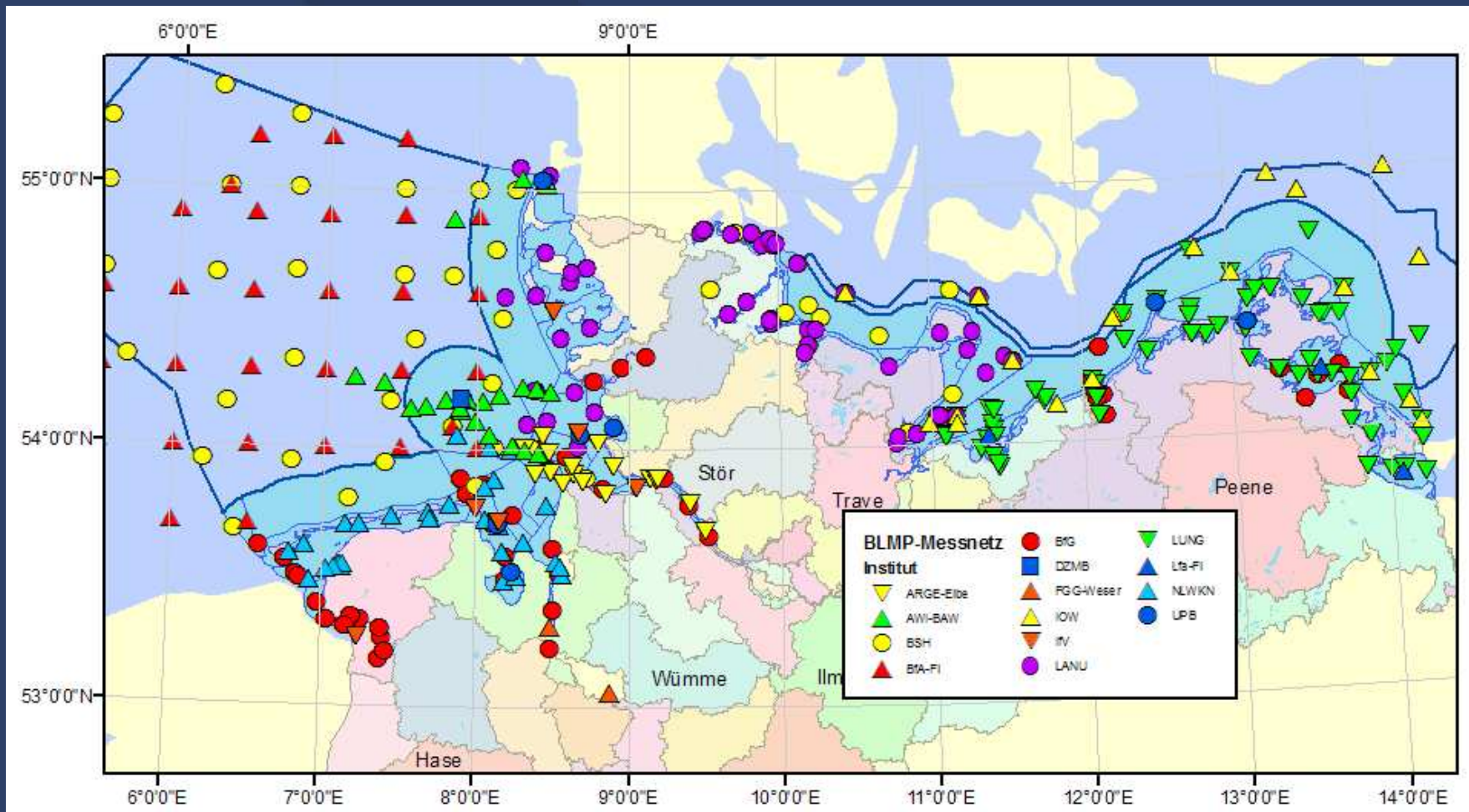


## Topics

1. BLMP in a nutshell
2. BLMP+ in a nutshell
3. Monitoring of inorganic pollutants
4. Monitoring of organic pollutants

# 1. BLMP monitoring stations

Ca. 500 „named“ stations





# 1. „BLMP-Package“

## Biology

- Biological effects
- Species composition (Macrozoobenthos, plankton, ... )

## Chemie

- Organic pollutants in biota, sediment and water
- Inorganic pollutants in biota, sediment and water

## Hydrochemistry

- Nutrients
- Oxygen conditions ( $O_2$ ,  $H_2S$ )
- pH

## Hydrography and hydrology

- Salinity und temperatur
- Hydrology (Runoff)
- Light conditions (turbidity, Secchi)



## 1. Statistics

Element	Number
Stations	500
"Data series"	1.350
Data	28.000 approx.

- The number of samples in different water depths has not been considered.
- Core variables only (In addition: > 15.000 data on main variables, such as temperature, salinity, turbidity, ... and data from automated mooring stations)



## 1. BLMP organisations (admin./research)

ARGE-Elbe: Arbeitsgemeinschaft für die Reinhaltung der Elbe

AWI-BAW: Alfred-Wegener-Institut - Biologische Anstalt Helgoland

Bfa-Fi: Bundesforschungsanstalt für Fischerei

BfG: Bundesanstalt für Gewässerkunde

BSH: Bundesamt für Seeschifffahrt und Hydrographie

DZMB: Dtsch. Zentrum für Mar. Biodiversität (FI Senckenberg)

FGG-Weser: Flussgebietsgemeinschaft Weser (NLWKN)

IfV: Institut für Vogelkunde

IOW: Institut für Ostseeforschung Warnemünde

LANU: Landesamt für Natur und Umwelt

Lfa-Fi: Landesforschungsanstalt für Landwirtschaft und Fischerei MV

LUNG: Landesamt für Umwelt, Naturschutz und Geologie

NLWKN: Nieders. Landesb. für Wasserwirtsch., Küsten- und Naturschutz

UPB: Umweltprobenbank (Umweltbundesamt)



## 2. BLMP+

Reorganisation of the BLMP with regard to recent directives such as WFD and habitats directive:

- Monitoring requirements
- Reporting requirements

Step 1: Analysis of the BLMP and other Monitoring programmes, such as TMAP

Step 2: Analysis of the directives with regard to monitoring requirements

Step 3: Synthesis

Further information:

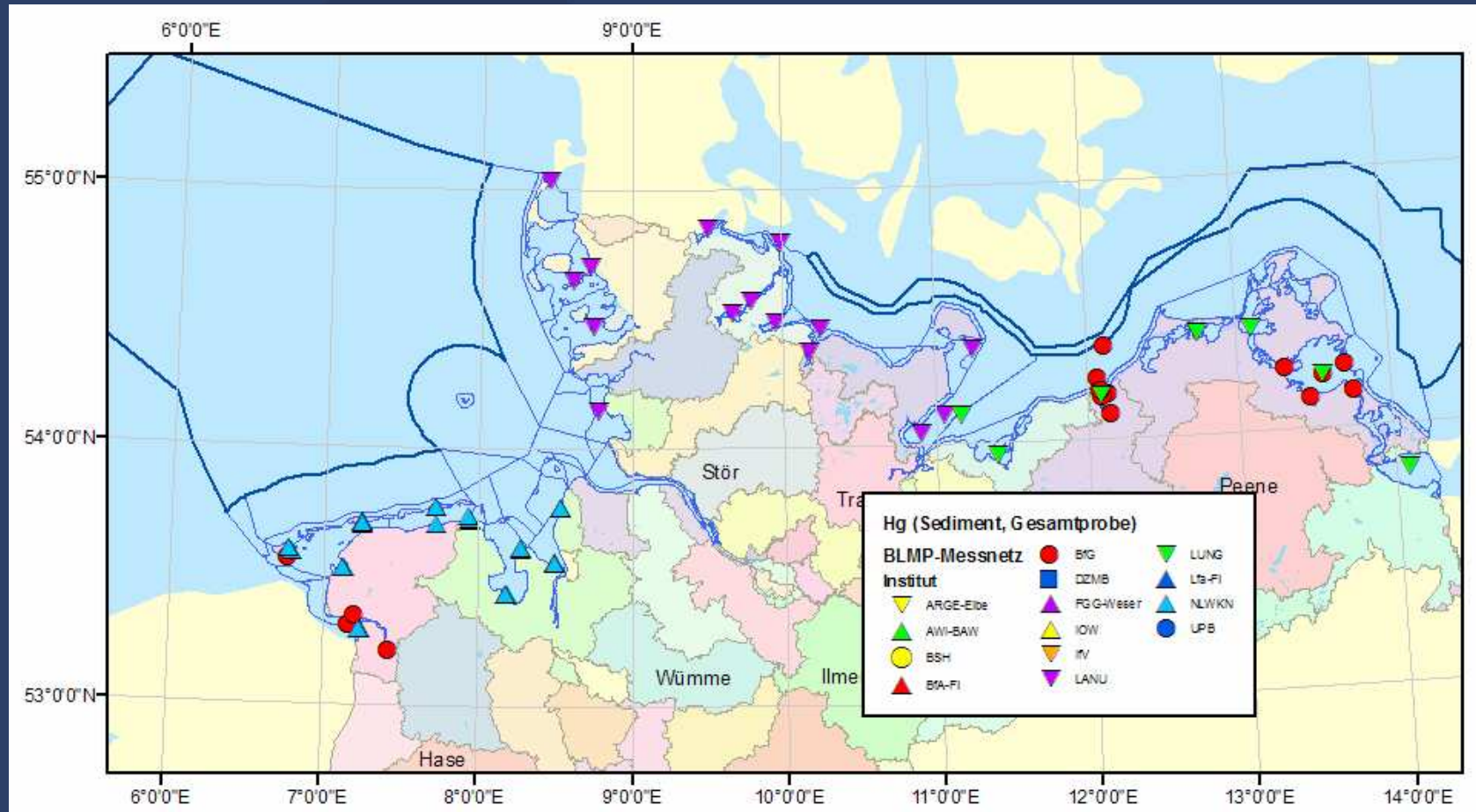
[www.brockmann-consult.de/blmpplus](http://www.brockmann-consult.de/blmpplus)

### 3. Inorganic pollutants



Matrix	Submatrix	Ag	As	Ba	Cd	Co	Cr	Cu	Fe	Hg	Me-Hg	Mn	Ni	Pb	S	Se	Sn	Tl	V	Zn	
Sediment	< 20 µm	x	x		x		x	x	x	x		x	x	x			x			x	
	< 2000 µm	x	x		x		x	x	x	x		x	x	x			x			x	
Water	Filtrate		x		x		x	x	x	x		x	x	x						x	x
	Susp. Matter		x		x		x	x	x	x		x	x	x						x	x
	Total		x		x		x	x	x	x		x	x	x							x
F. vesiculosus			x	x	x	x	x	x	x	x		x	x	x	x	x		x		x	
M. edulis			x		x	x	x	x		x	x		x	x		x				x	
C. harengus	Liver				x			x						x						x	
	Muscle									x											
G. morhua	Liver				x			x						x						x	
	Muscle									x											
L. limanda	Liver		x		x		x	x						x						x	
	Muscle							x		x										x	
P. flesus	Liver		x		x		x	x		x				x						x	
	Muscle							x		x										x	
P. fluviatilis	Muscle				x			x		x				x						x	
Z. viviparus	Liver				x	x		x						x							
	Muscle		x					x		x				x		x		x			
S. hirundo	Egg									x											
L. argentatus	Egg		x					x		x				x		x		x			
H. ostralegus	Egg									x											

### 3. Hg in sediments (< 2000 $\mu\text{m}$ )





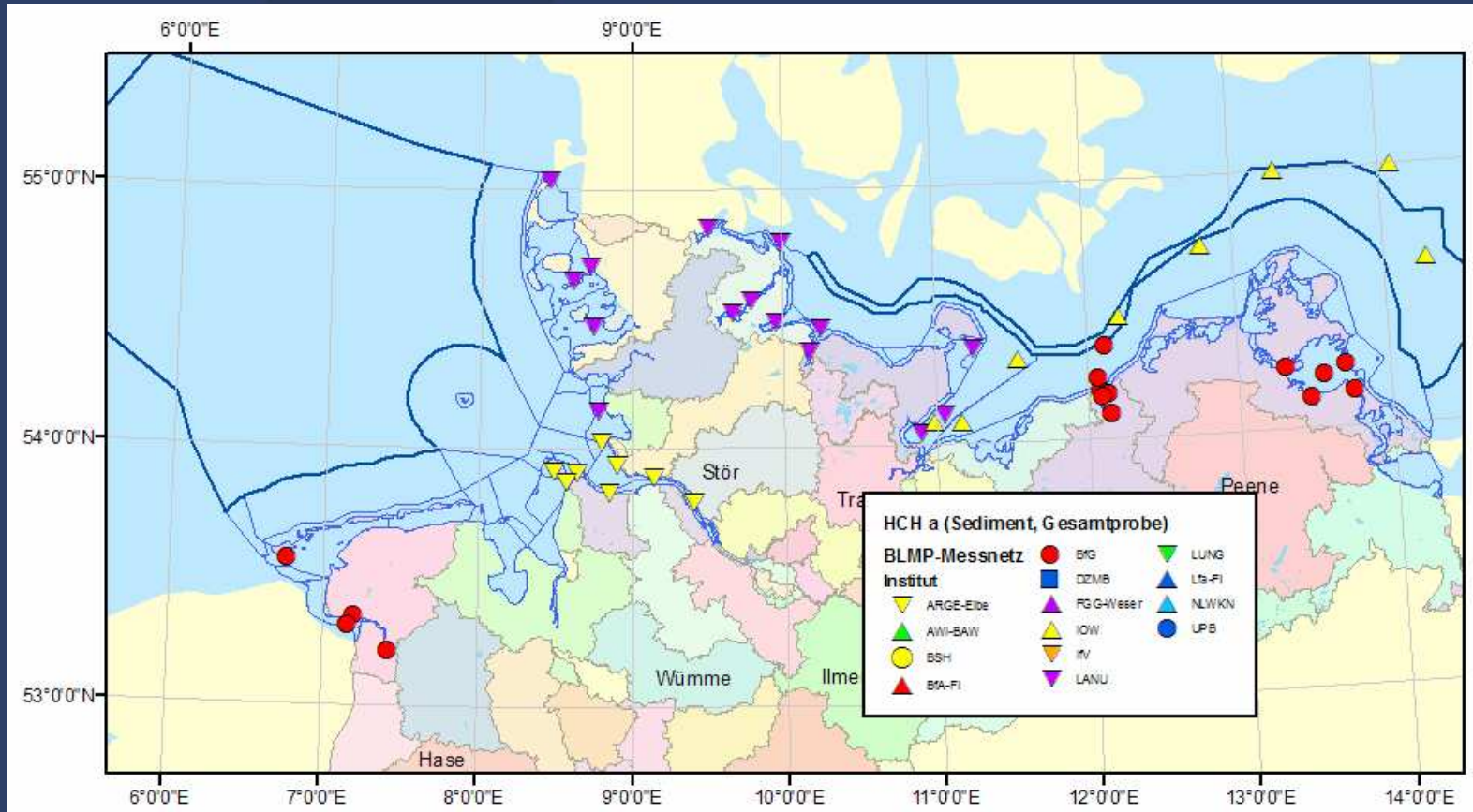
### 3. Organic pollutants

140 substances in water, sediment, macroalgae, mussels, fish and birds

Matrix	Wasser	Sediment	Blasentang - F. vesiculosus	Muschel M. edulis	Fisch Clupea har.	Fisch Gadus mor.	Fisch Limanda lim.	Fisch P. flesus	Fisch P. fluviatilis	Fisch P. platessa	Fisch Z. viviparus	Fischeier	Flusseeeschwalbe - S. hirundo	Austernfischer - H. ostralegus	Vogel L. argentatus
15 Einzelverbindungen		X													
16 Verbindungen		X													
1-OH-Phenanthren							X								
1-OH-Pyren							X								
2,4-DDT					X	X	X			X					
4,4"-DDE					X	X	X			X					
4,4"-TDE (= 4,4"-DDD)					X	X	X			X					
9 (JAMP)		X													
Acenaphthen		X													
Acenaphtylen		X													
Ag		X													
Aldrin											X				
alkyl Naphthaline	X	X													
alkyl Phenanthrene	X	X													
alpha-/beta-/gamma-HCH											X				
Anthanthren			X	X											
Anthracen		X													
Benzo(a)anthracen		X	X	X											



# 3. Alpha-HCH in sediments (< 2.000 µm)





## 4. Perspectives

- Collecting supplemental metadata (9 JAMP PAH, PCBs, DDTs, ...)
- Validation of metadata (HCH a and alpha-HCH, 20µm and 20 µm, ...)
- Analysis will be finished in May 2006