

# Assessment of cumulative impacts in HOLAS II

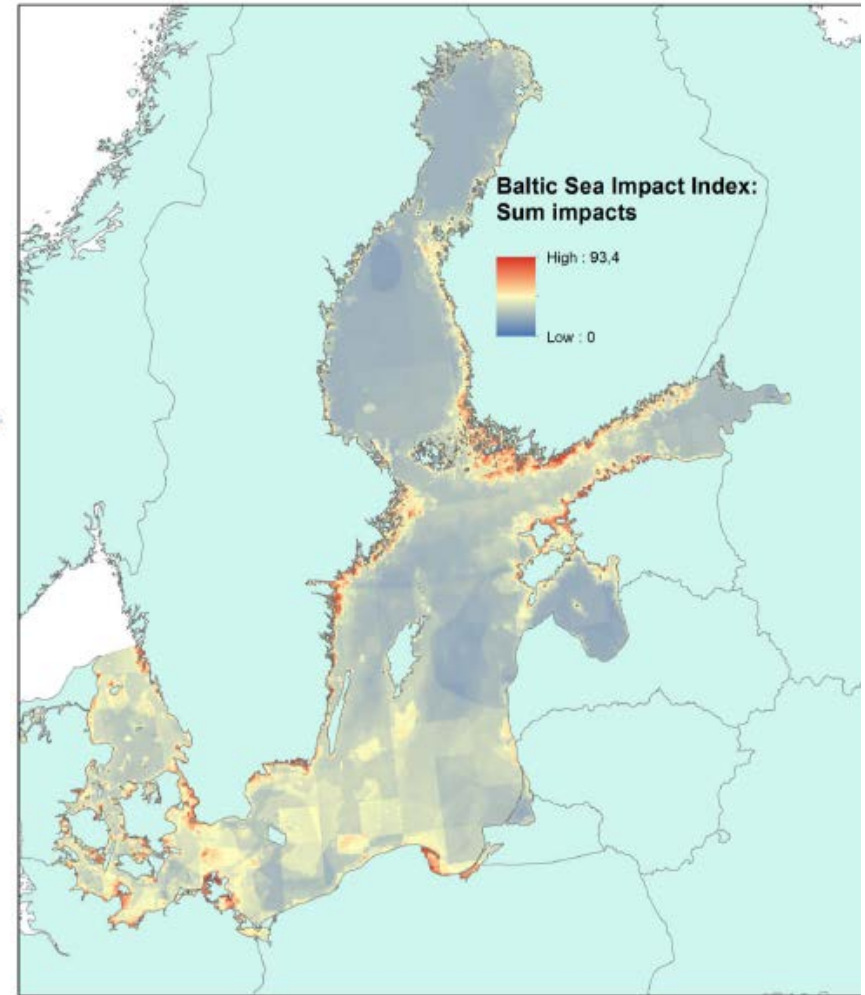
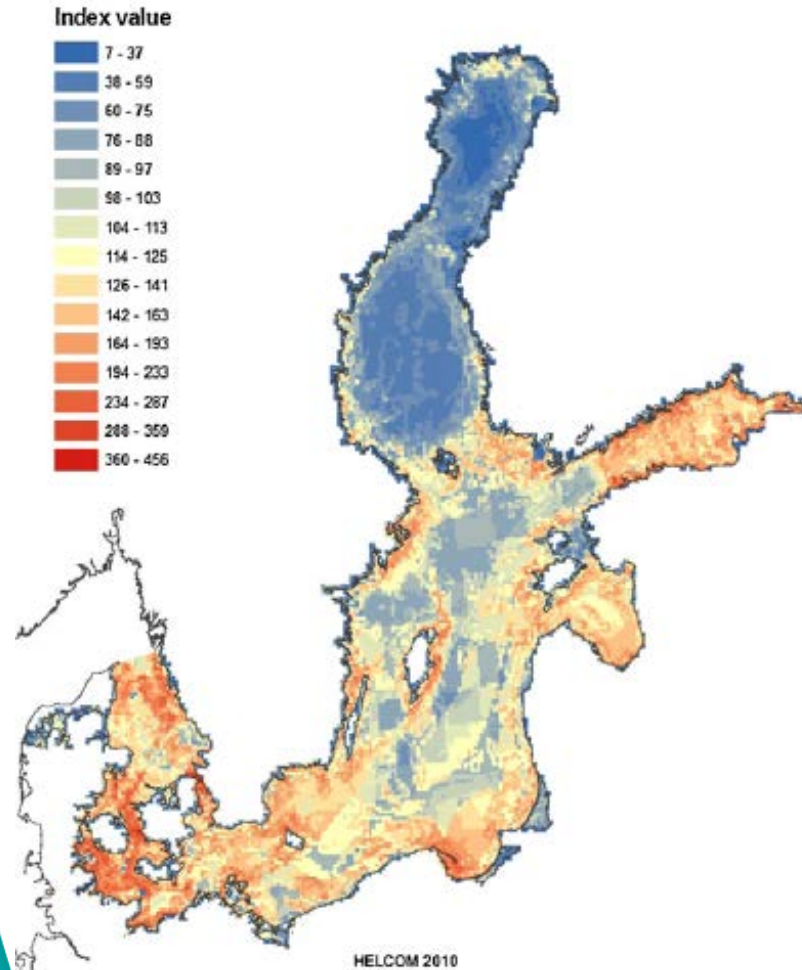
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HELCOM State & Conservation 6/2017, Uppsala

## What is new in the HOLAS II assessment of cumulative impacts?

- **Much more ecosystem sensitivity: 14 → 40 species and habitats included.**
- **Pressures more systematic: MSFD compliance.**
- **More structured process to estimate sensitivity scores.**

# Comparing HOLAS I and II

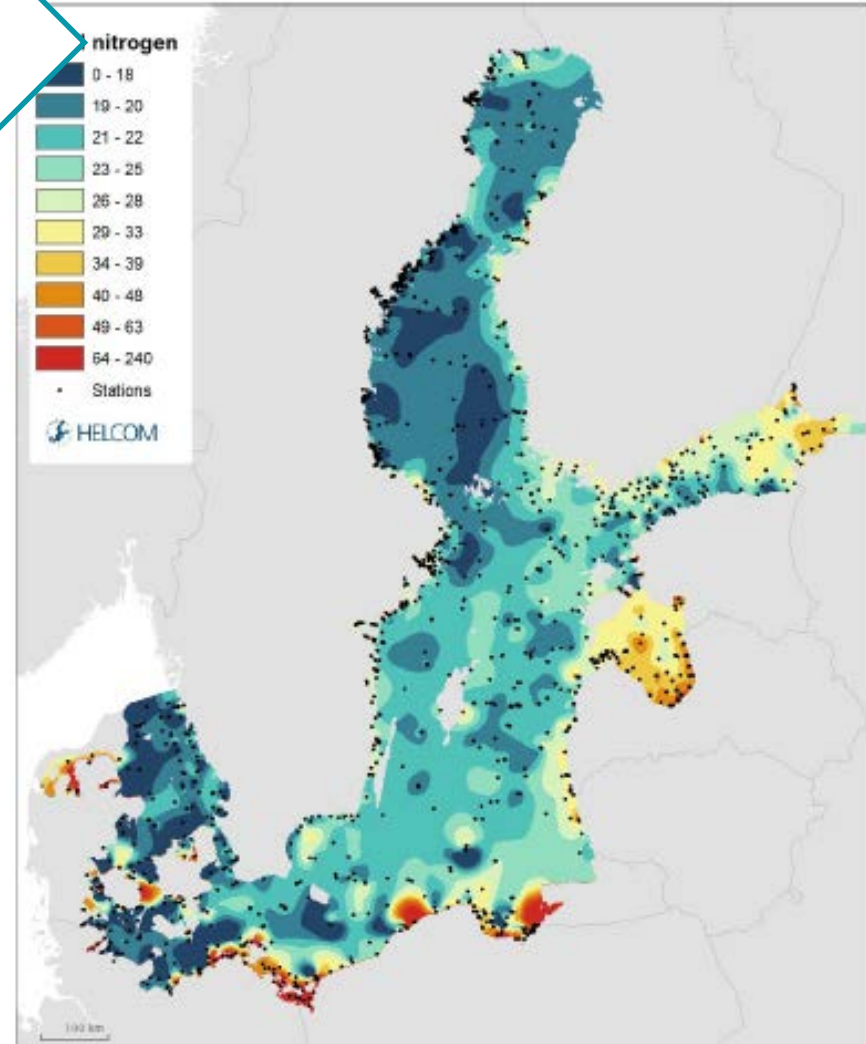
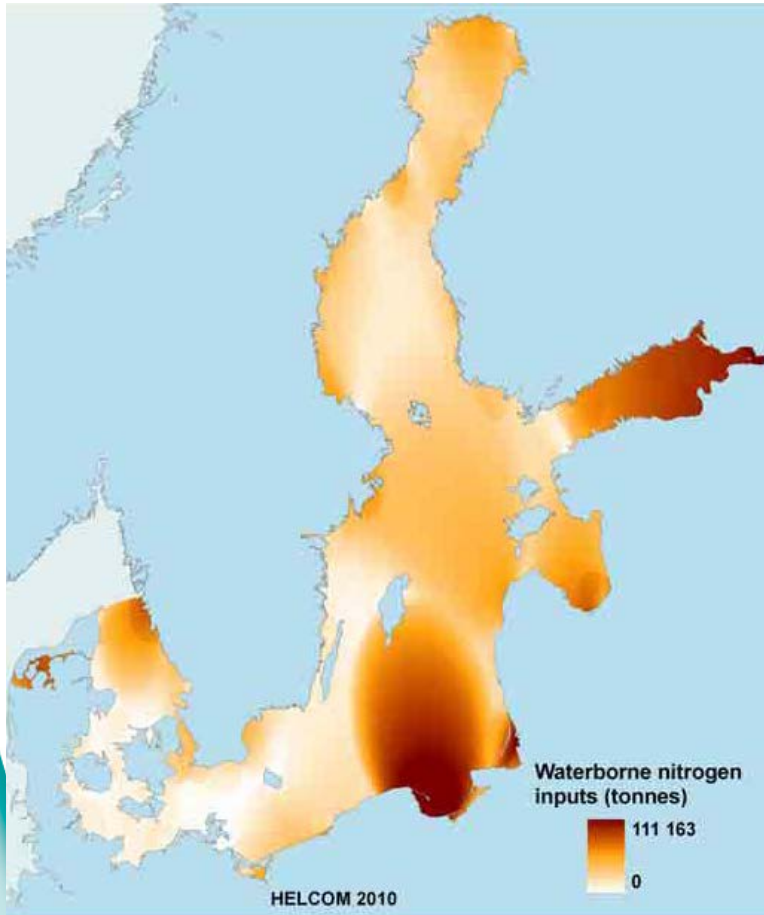


HELCOM HOLAS I (2010)

HELCOM HOLAS II (2017)

# New approach to estimate nutrients

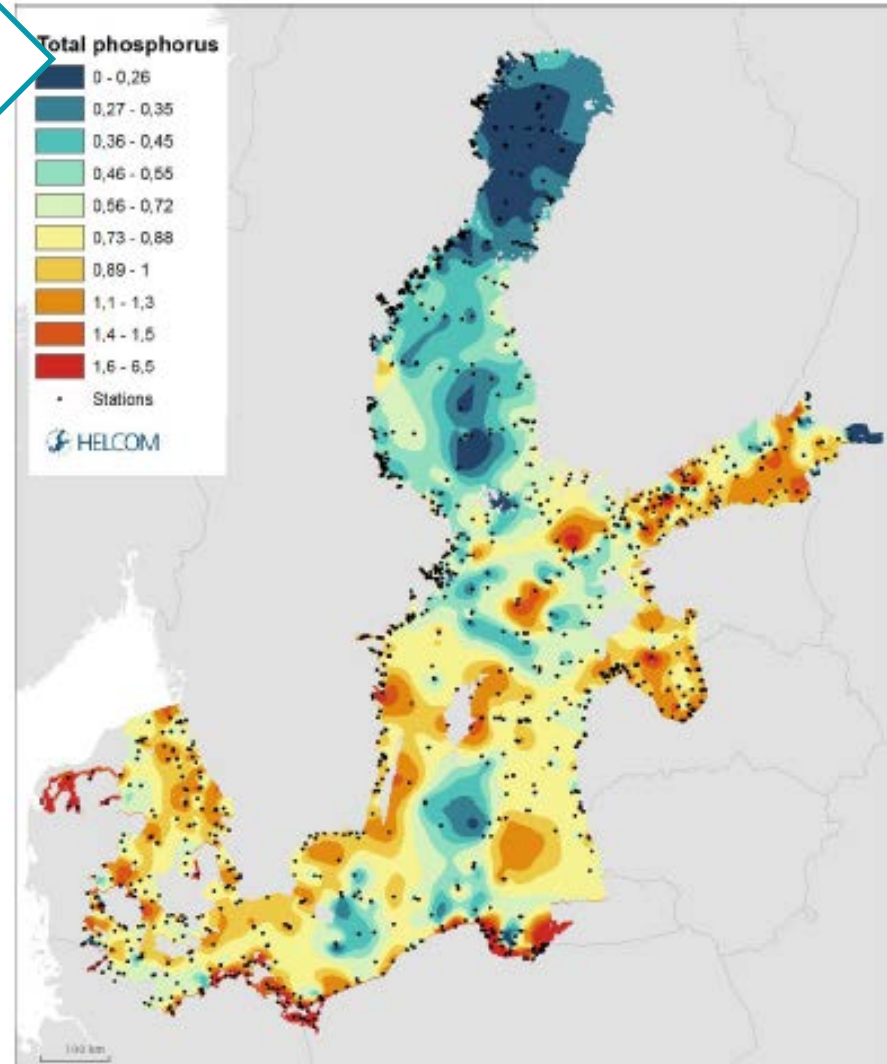
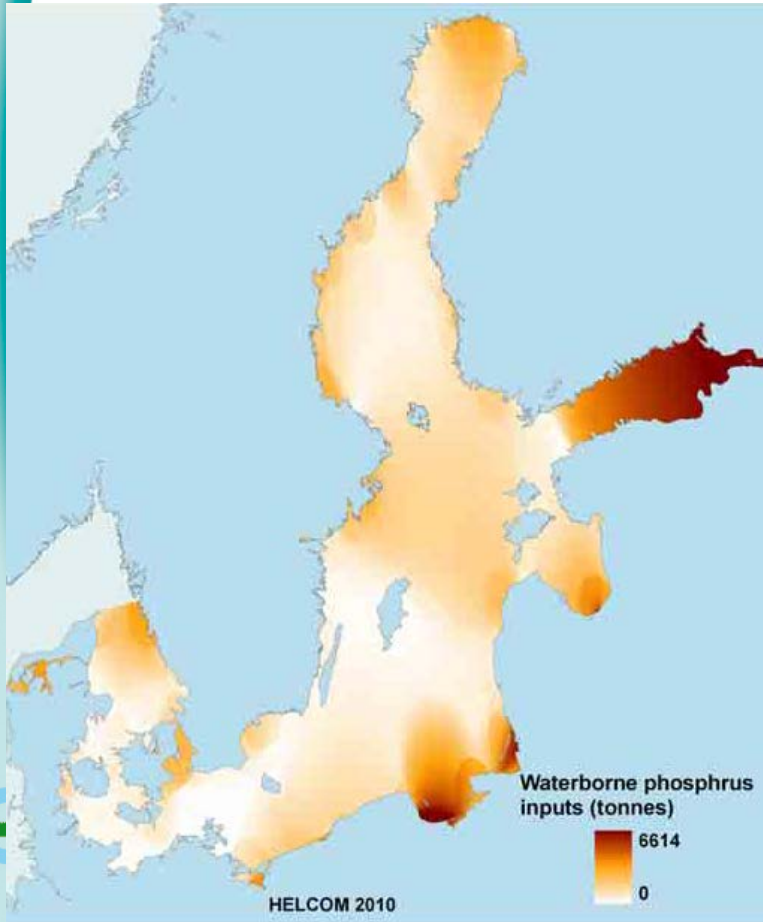
NITROGEN





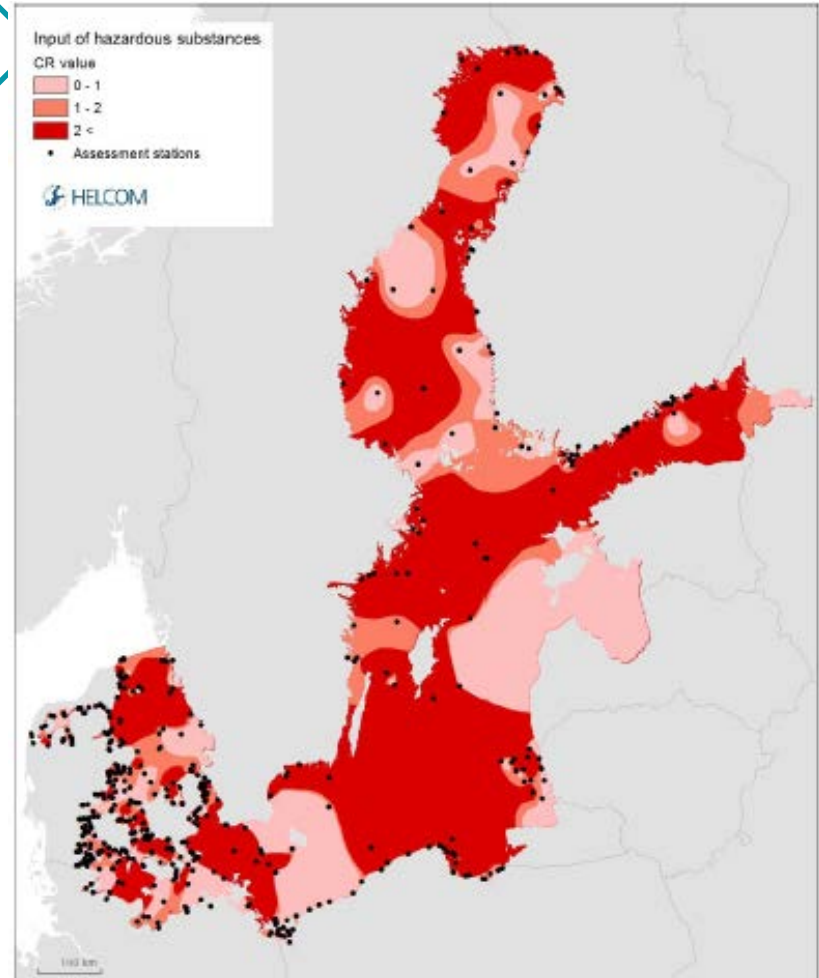
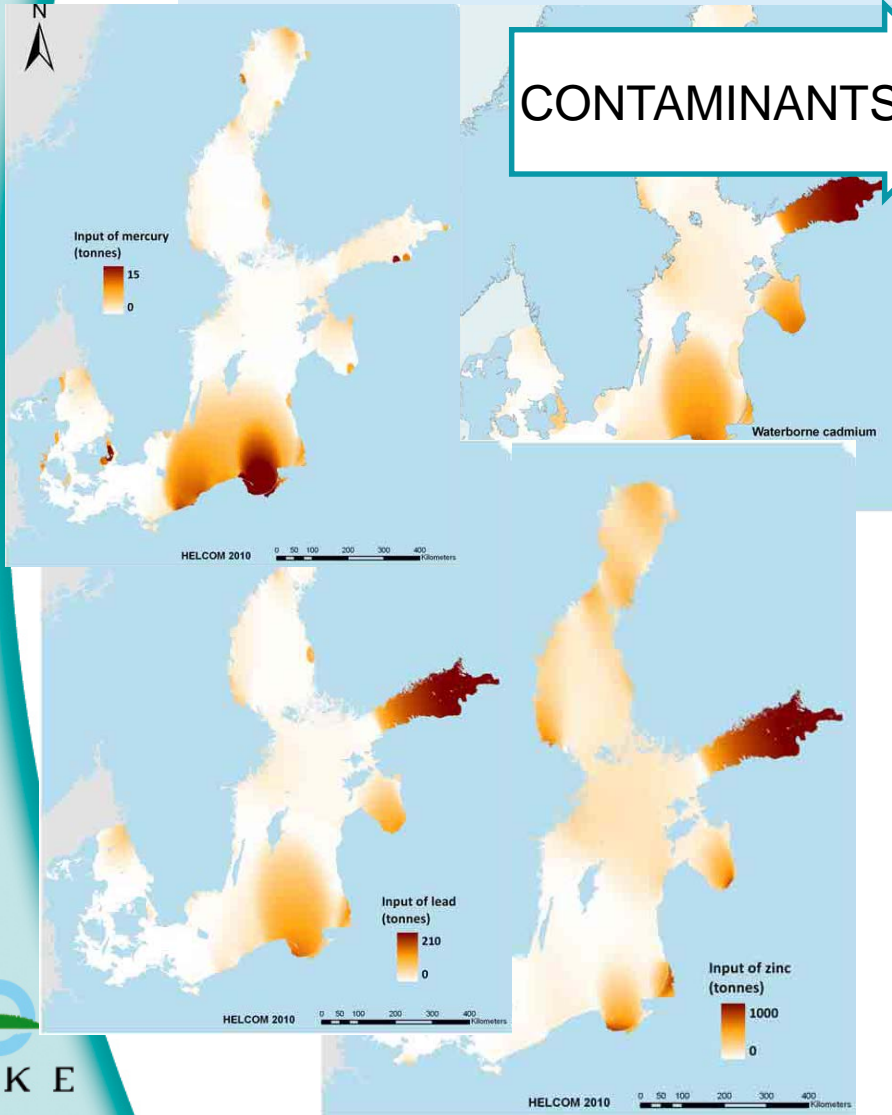
# New approach to estimate nutrients

PHOSPHORUS



# ... and contaminants

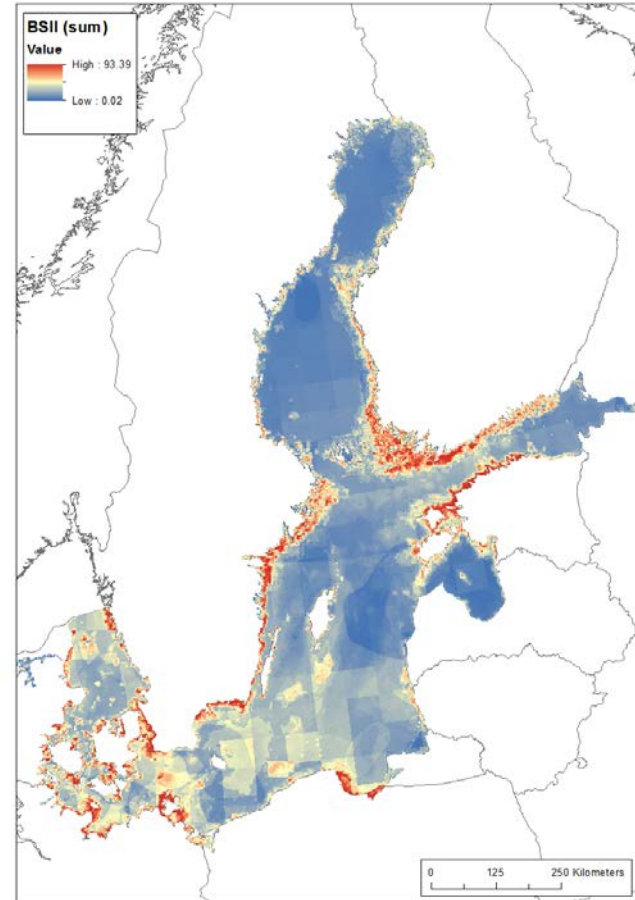
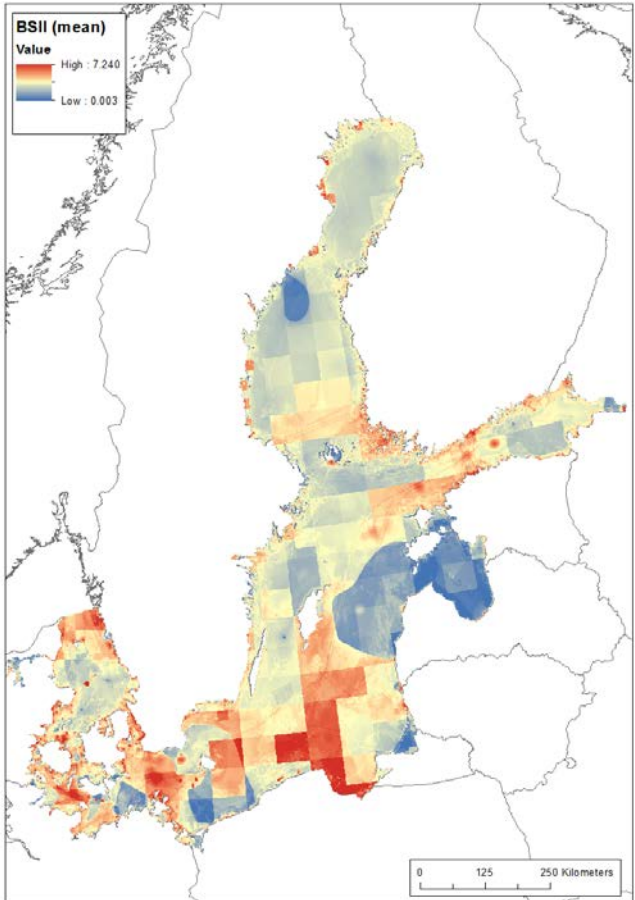
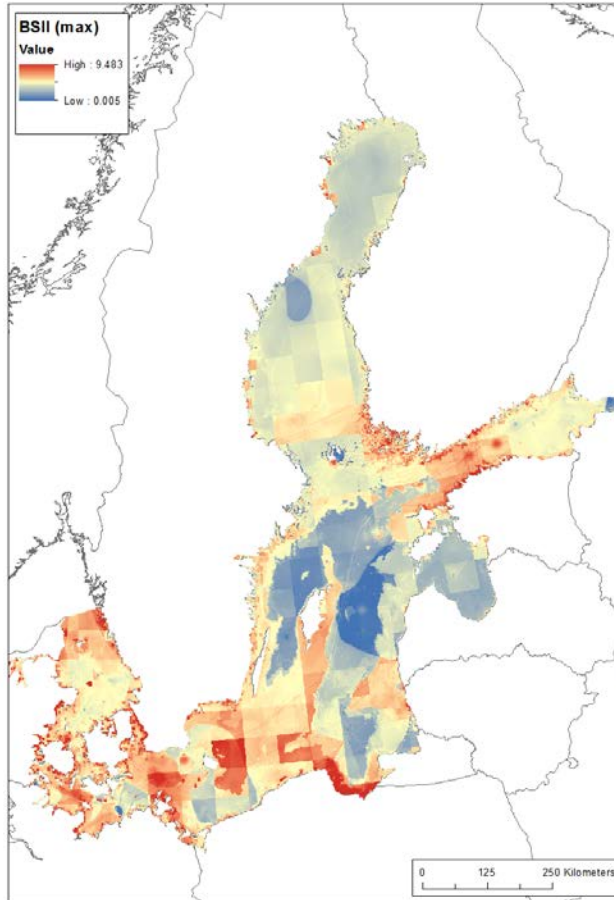
## CONTAMINANTS



MAX

MEAN

SUM



## The new sensitivity scores

### **Expert survey:**

All sensitivity scores were evaluated!  
Comparison with the literature review.  
Almost all the sensitivity scores follow the expert review.

### **Modified according to the literature review:**

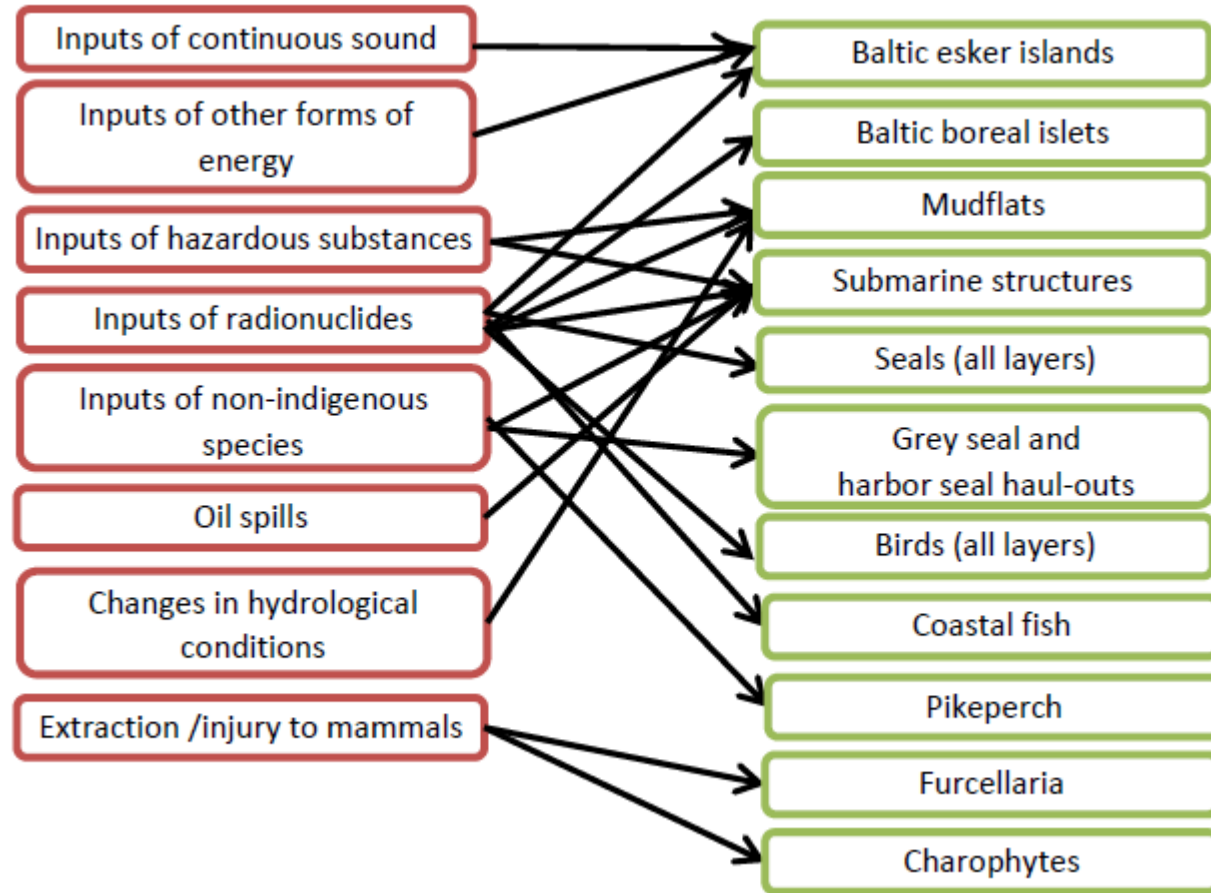
Physical loss of demersal fish spawning areas  
Introduction of non-indigenous species



# Confidence in the BSII assessment text

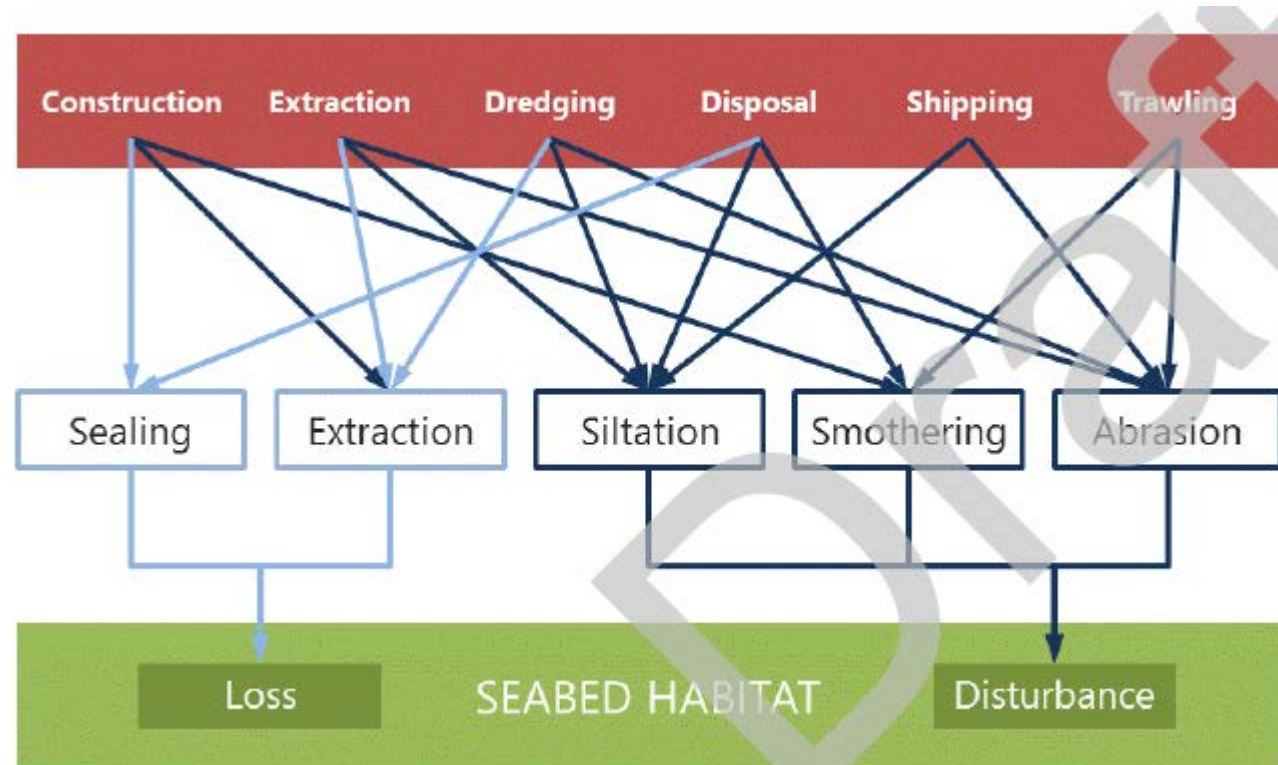
## HOW TO SHOW CONFIDENCE:

- Describe sensitivity per pressure
- Describe sensitivity per ecosystem component
- Describe it in the summary report text.



# Seabed physical loss and disturbance

- Following the definition of MSFD ANNEX III
- Following the intersessional discussion among the HOLAS core group



## Revised figure 4.7.5

	Circalittor	Circalittor	Circalittor	Circalittor	Infralittor	Infralittor	Infralittor	Infralittor
Arkona Ba	100	100	100	100	100	99	98	98
Bay of Me	100	100	100	100	100	100	98	99
Bornholm	81	77	100	96	92	93	98	92
Bothnian	39	31	13	46	90	91	93	95
Bothnian S	48	21	15	48	88	88	85	100
Eastern Go	40	56	46	60	79	84	73	87
Gdansk Ba	0	100	69	69	2	72	76	92
Great Belt	100	100	100	99	98	100	100	99
Gulf of Fir	41	57	43	35	77	93	86	80
Gulf of Rig	97	57	17	57	94	94	95	95
Kattegat	100	99	98	99	95	91	76	90
Kiel Bay	100	100	100	100	100	100	100	100
Northern	27	26	25	8	76	87	81	94
The Quark	91	54	14	28	93	94	92	98
The Sound		95	100	100	98	99	100	100
Western C	51	17	16	51	92	83	84	92
Åland Sea	53	73	59		93	93	95	98