



# Baltic Sea LME and Eutrophication

# BSRP

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## **Baltic Sea: Main Characteristics**

- Semi-enclosed brackish water area
- Persistent vertical layers
- Residence time of water : 25yrs
- Renewal of bottom-water: unpredictable - often stagnation periods
- Plants/animals: low numbers - stressed
- Large catchment area with land use activities strong effect on water quality - population - 85 million



# *Major Threats to the Baltic Sea Large Marine Ecosystem*

## **1 Human behavior in the BSLME**

**1 Eutrophication**

**2 Overfishing**

**3 Toxins**

**4 Invasive species**



# *The Baltic LME concept*

Strengthening technical capacity

**Land**

**Coastal**

**Marine**

Training farmers  
Grant/Credit on-farm investments. Salmon river rest.  
Modeling water quality and nutrient transport

CZM  
Fish/envionm.  
Toxins/impact  
COMBINE

Ships of Opportunity  
Joint integrated ass. surveys  
Ecosystem Health parameters  
Strengthening technical capacity, WS.s  
Upgrade laboratories and ships  
Improve scientific/and political coordination

C1

C2

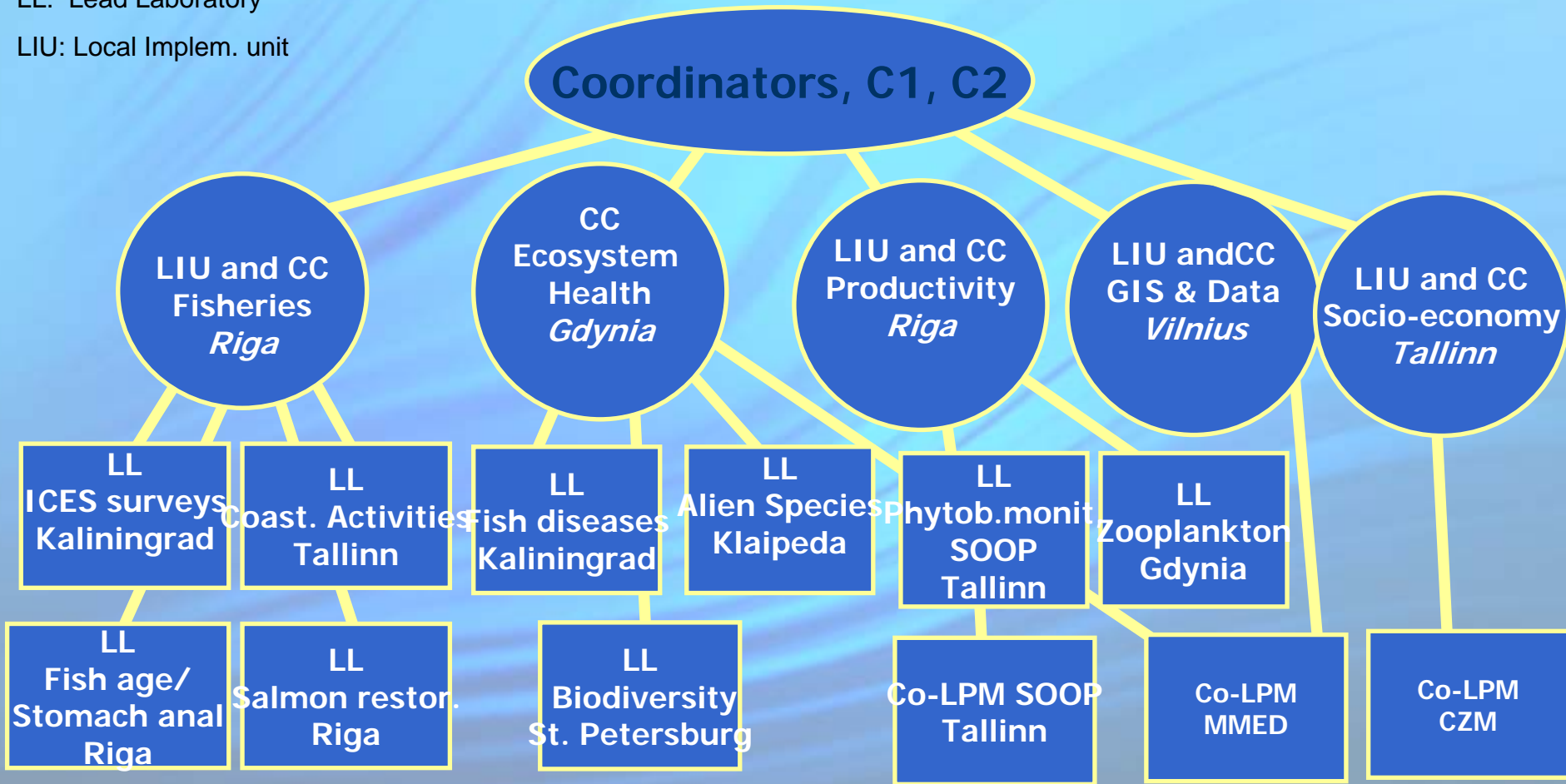


# Working Structure

CC: Coordination Centre

LL: Lead Laboratory

LIU: Local Implem. unit



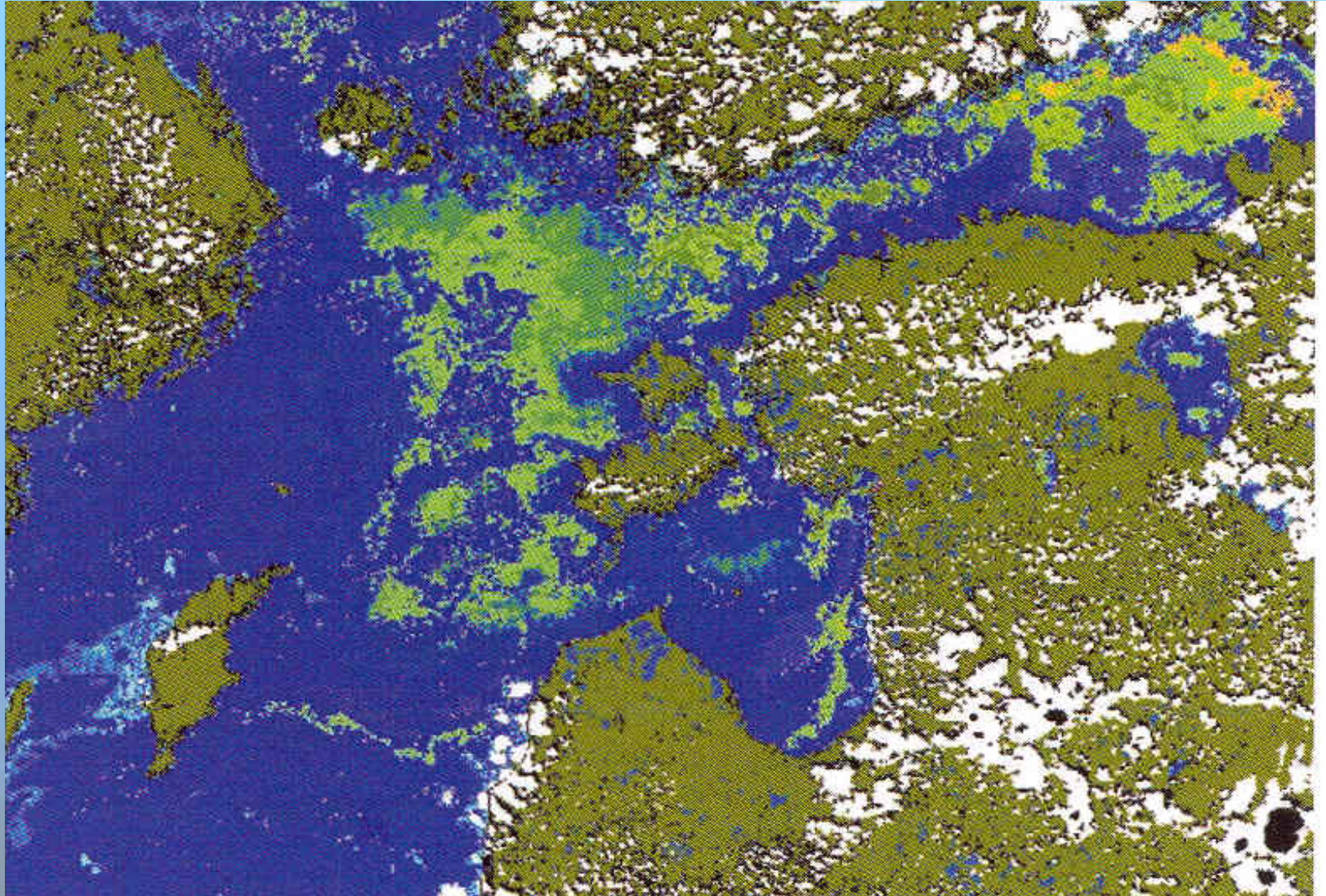
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Institutes in Denmark, Finland, Germany, Sweden and USA







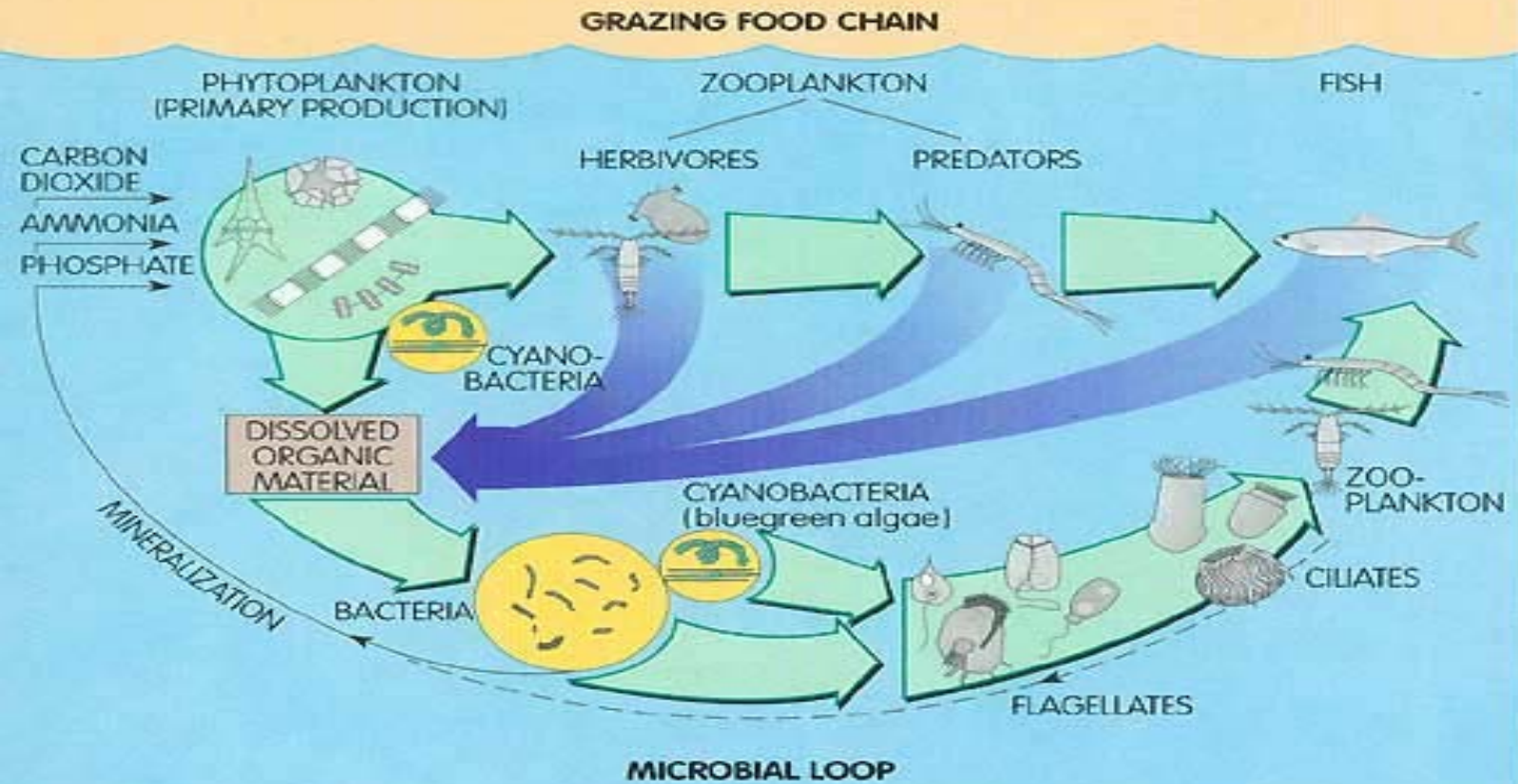




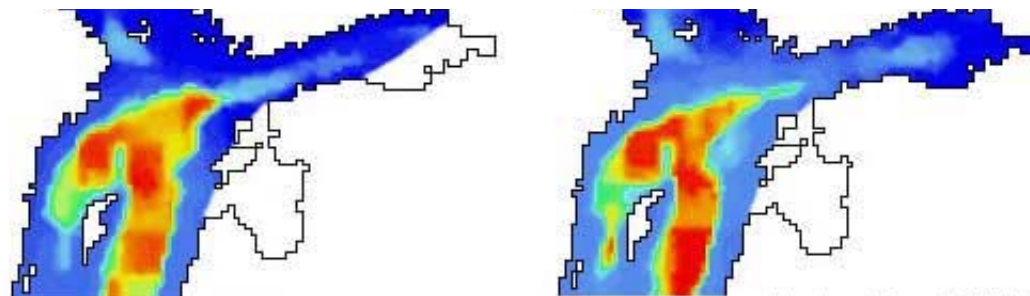
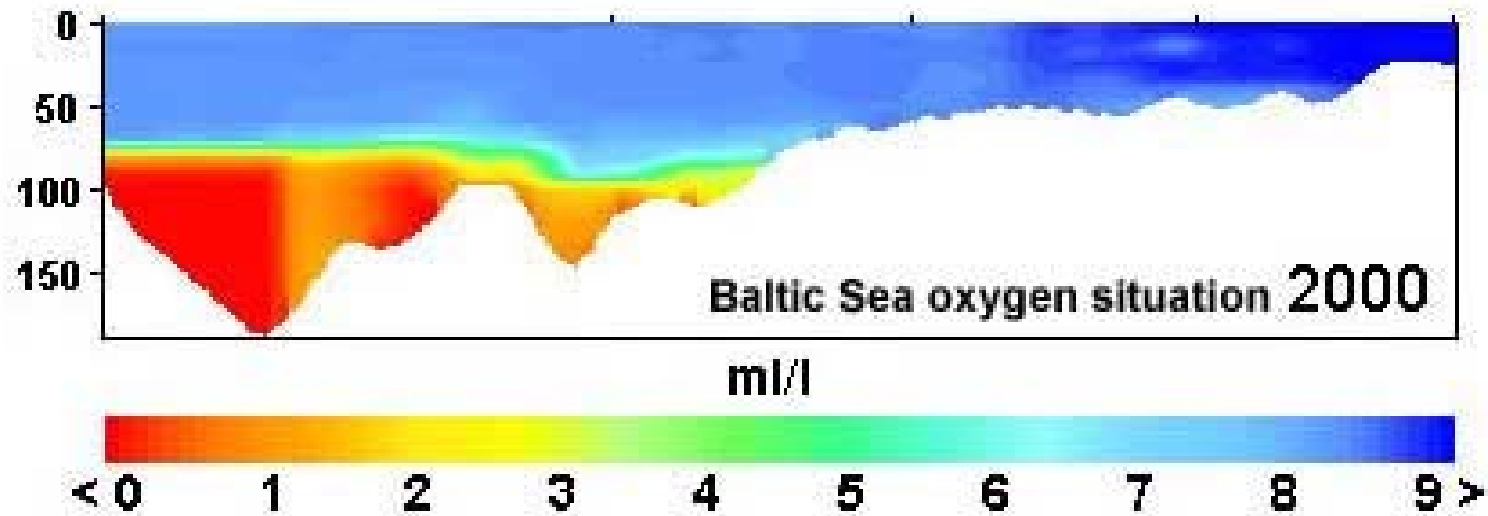
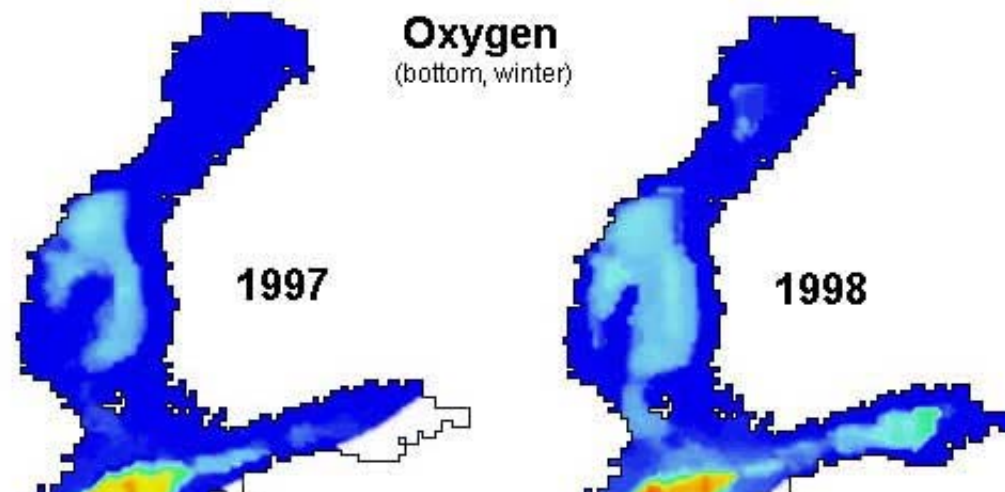


# BSLME Food chain

■ OPEN SEA AND DEEP, SOFT BOTTOM ECOSYSTEMS, B: THE STRUCTURE



### Oxygen (bottom, winter)





# Ships of Opportunity, SOOP

Alg@line - an operational monitoring system of the Baltic Sea which provides information about the state of the Baltic Sea, and its recent changes

## Equipment onboard the ship:

- flow through fluorometer
- thermosalinograph
- GPS navigator
- computer
- refridgerated water sampler

## [Detailed instrument list](#)

## Measured parameters while the ship is moving:

- latitude and longitude (spatially 100 – 200 m accuracy)
- time (date and time)
- in vivo* chlorophyll *a* fluorescence
- salinity
- temperature

## Measured parameters at laboratory:

- chlorophyll *a*
- phytoplankton species composition and relative abundances
- phosphate and total phosphorus
- ammonium, nitrate and total nitrogen
- silicate
- partly turbidity







# BOING Newsletter

Baltic On-Line Interactive Geographical  
and Environmental Information Service

Issue 1

September 2000

## Baltic Eutrophication Goes On-line

To put it shortly - that's it!

Eutrophication in the Baltic Sea will be the focus of the **Baltic On-line Interactive Geographical and Environmental Information Service (BOING)**, a 2-year demonstration project under the EU INFO2000 programme. The project will demonstrate different ways that the Internet can be used to disseminate public sector information about nutrient loads to and eutrophication in the Baltic Sea.

A prototype model for using Internet technology in state-of-the-environment reporting will be developed. There will be a strong focus on interactive tools and services allowing customised access to various eutrophication-related databases. Another cornerstone of the information service will be the **DPSIR** framework (see page 2).

The project originated in a Call for Proposals issued by the Commission of the European Communities (CEC) in 1998 concerning the better use of public sector information for the benefit of European citizens. Public sector information may be defined as data, databases and information that are collected and maintained predominantly by public funding sources. In the case of eutrophication, this concerns national and international databases based on publicly-funded monitoring. The CEC identified the underuse of Internet technologies as one of several factors preventing the optimal use of public sector information.

The **BOING** project partners consist of UNEP/GRID-Arendal (Norway), the Finnish Institute for Marine Research and the Department of Systems Ecology at Stockholm University (see page 6 for contact information). Project development will be done in co-operation with the Helsinki Commission (HELCOM), the European Environment Agency (EEA) and the Swedish Marine Research on Eutrophication (MARE) project; direct support from **three user consultation groups** representing the educational, scientific and decision-making communities will also be provided.

The **BOING** prototype will be launched in the summer of 2001; in the meantime, 3 more newsletters will be produced. To ensure that you will receive notification of future issues by e-mail, please send a blank e-mail message to the **BOING** news distribution list: [join-boing-announce@lists.grida.no](mailto:join-boing-announce@lists.grida.no) or visit the project homepage at <http://www.grida.no/boing>.

Interested in the use of the Internet for environmental reporting in the Baltic Sea region? We look forward to hearing from you!

Sincerely,

Sindre Langaas  
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BOING Project Co-ordinator

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# HELCOM:

# EQO:s

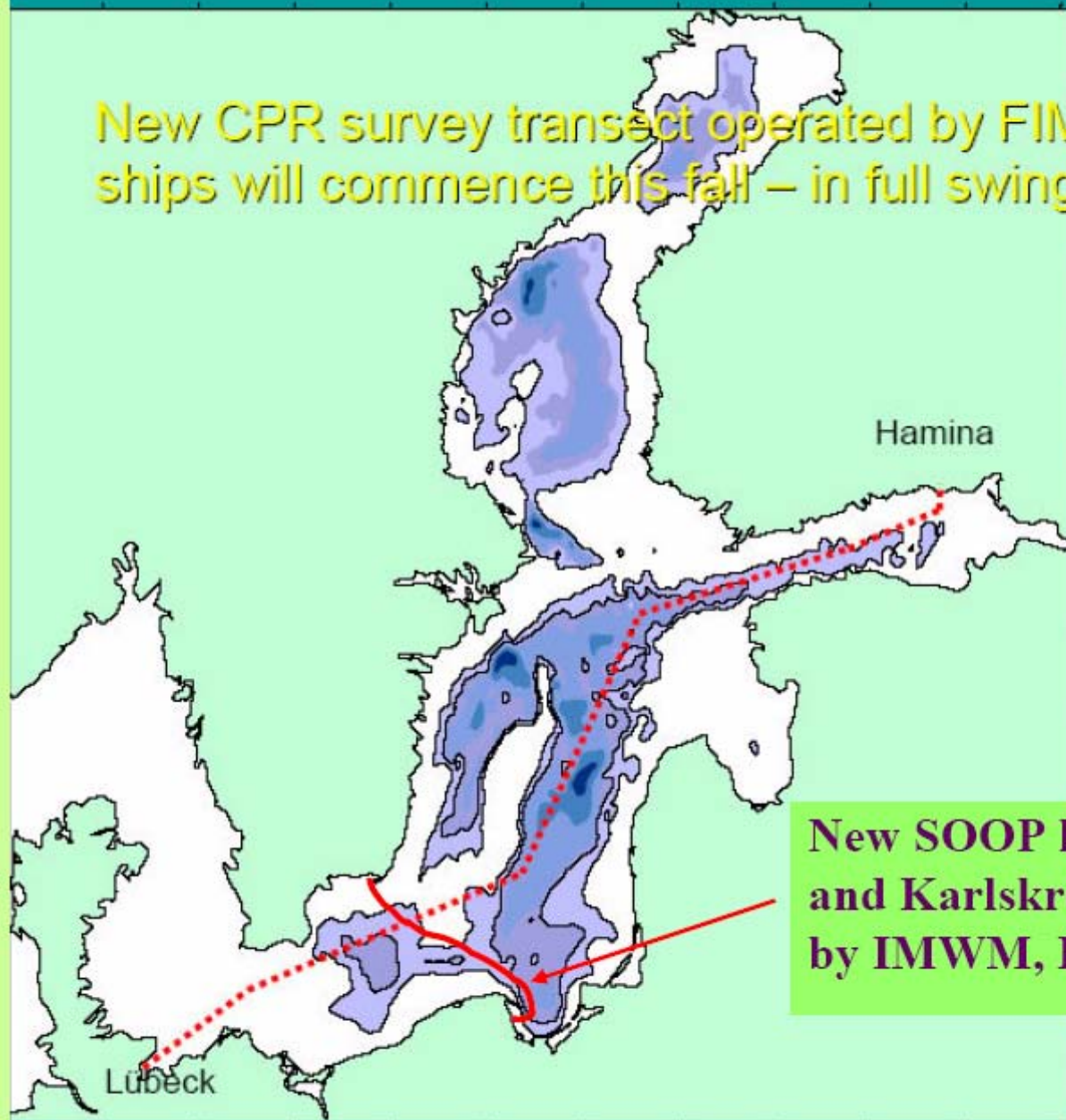
# Eutro (indic)

# MARE





New CPR survey transect operated by FIMR on Transfennica ships will commence this fall – in full swing in 2005



**New SOOP line between Gdynia and Karlskrona will be operated by IMWM, Poland**



## Eutrophication -- interventions:

- Agriculture
- **Climat change**
- **Water inflow**
- Fisheries
- Transportation
  
- BSLME :
- *Monitoring/assessments*
- *Integrations*
- *HELCOM Action Plan*



# **BSRP Component 1**

## **Reports and presentations**

### **on the web:**

**[www@ices.dk](http://www@ices.dk)**