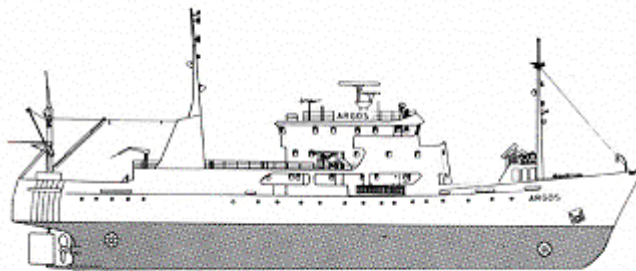


## CRUISE REPORT FROM R/V ARGOS



**Survey period:** 2004-10-18 - 2004-10-22

**Survey area:** The Skagerrak, the Kattegat, , the Sound, and the Baltic Proper

**Principal:** SMHI

### SUMMARY

*The expedition was part of SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound, and the Baltic Proper.*

*Data presented in this report have been subject to preliminary quality control procedures only.*

*The bottom water oxygen concentrations in Kattegat Proper were not alarming low. The oxygen concentration at W Landskrona was from 25 metres and deeper 2.25 ml/l, corresponding to 38 % saturation.*

*In the Baltic oxygen concentrations below 2 ml/l were found at depths exceeding 60 to 80 metres.*

*Hydrogen sulphide was found at BY15 (Gotland deep) below 225 metres, intermediate at BY20 ( Fårö deep) between 80 and 100 metres, in the western Gotland Basin at depth exceeding 70 metres, and in the Bornholm Basin near the bottom at the station BY4.*

*In the Skagerrak and in the north of Kattegat the silicate values were low and lower than normal, respectively. In the Baltic the phosphate and silicate concentrations were higher than normal.*

*Next expedition is scheduled for November 8 to 13, 2004.*

## **PRELIMINARY RESULTS**

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg October 18 and ended in Karlskrona October 22.

During the first days of the expedition the wind was moderate and came from the north. Then there followed sunny weather with weak winds. In the northern Baltic there was a low pressure with increasing southern winds. This had as a result that sampling at the Norrköping deep failed because of high waves.

One more person joined to test the new CTD-sond and to arrange computers and other technical equipment.

Extra sampling was performed to estimate the uncertainty of measurements.

### **The Skagerrak**

Surface water temperature varied between 11.6 and 11.8°C. The thermo- and halocline were at 10-15 metres. Surface salinity at Å17, 27 psu, was lower than normal. The nutrient concentration was normal of the season. The nitrite-nitrate concentration was between 0.2-0.55 µmol/l and the silicate concentration between 0.5-1.5µmol/l. The concentration of silicate was relatively low. The phosphate concentration was about 0.2µmol/l. At the coastal station Släggö in the middle of Skagerrak the higher nutrients were analysed. The oxygen situation was normal. At Släggö, however, the bottom water had a higher oxygen concentration than normal, 5.5 ml/l, which gives a saturation of 91 %.

### **The Kattegat and the Sound**

Surface water temperatures were between 11.1 and 11.5°C in the Kattegat Proper and between 10.6 and 10.9°C in the Sound. Surface salinities decreased from 23 psu in the northern Kattegat to 14 psu at W Landskrona. The thermocline and halocline, that means a steep change of temperature and salinity, respectively, began at a depth of 15 metres in the northern Kattegat, 8 metres at Anholt E and near the surface in the Sound.

Phosphate concentrations in the surface water varied between 0.15 and 0.4 µmol/l, nitrite- nitrate concentrations between < 0.1 and 0.8µmol/l and the concentration of silicate between 0.6µmol/l and 10.2µmol/l. At Fladen the silicate concentration was lower than normal. It can be a consequence of a bloom of diatoms. (In the Skagerrak the silicate concentration also was low.) The higher nutrient values were from W Landskrona.

The recording of chlorophyll fluorescence showed some pikes at Anholt E and Läsö, which indicates some activity of phytoplankton.

At W Landskrona the oxygen concentration from 25 metres and deeper was 2.25 ml/l, which corresponds 38 % saturation. In the Kattegat the bottom water had oxygen concentrations more than 3 ml/l. At Fladen it was almost higher than normal, 5.3 ml/l.

### **Baltic Proper**

Surface water temperature varied between 9.5 and 11.5°C. The lowest temperature was measured in the Hanö Bight and was lower than normal. The thermocline was at a depth of 20 to 30 metres and in the eastern Gotland Basin a little deeper. The halocline began at 30 metres, in the eastern Gotland Basin at 55 metres, however.

Surface phosphate concentrations were higher than normal 0.3-0.55µmol/l. Nitrite-nitrate concentration was normal, 0.15-0.3µmol/l. Silicate surface concentrations were between 7.9 and 12.3 µmol/l, higher than normal except for southwestern and southeastern Baltic.

Oxygen concentrations below 2 ml/l were measured at depths exceeding 60 to 80 metres.

Hydrogen sulphide was found at BY15 (Gotland deep) below 225 metres, intermediate between 80 and 100 metres at BY20, Fårö deep, in the western Gotland Basin at depth exceeding 70 metres, and in the Bornholm Basin near the bottom at the station BY4.

## **PARTICIPANTS**

Name		From
Bodil Thorstensson	Chief scientist	SMHI Oceanographic lab.
Lars Andersson		-    -"    -
Eva Nyberg		-    -"    -
Arne Sjöquist		-    -"    -
Jan Szaron		-    -"    -
Anna-Kerstin Thell		-    -"    -

## **APPENDICES**

- Track chart
- Table over stations, parameters and sampling depths
- Map showing bottom oxygen concentrations
- On way data of temperature and salinity from a depth of ca. 4 m.
- Monthly average plots for selected stations
- Profiles for selected stations