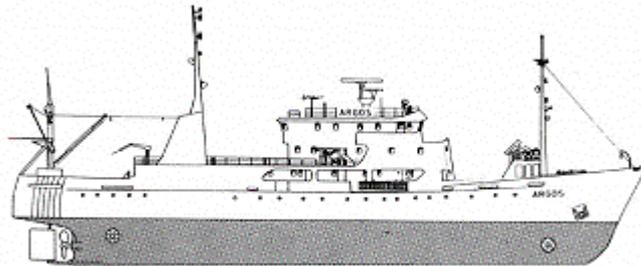


## CRUISE REPORT FROM R/V ARGOS



**Survey period:** 2005-04-04 - 2005-04-09

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

**Principal:** SMHI

### SUMMARY

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

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

*Phosphate concentrations in the Baltic Proper remain much higher than normal for the season. Silicate measurements also showed high levels there, while nitrate levels were normal. Nutrient concentrations in the Skagerrak, Kattegat and Sound were normal.*

*In the Baltic Proper oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 90 metres. Hydrogen sulphide was found in the eastern Gotland Basin from 195 metres and in the western Gotland Basin from 150 metres at the Norrköping Deep, though no hydrogen sulphide was found at the Karlsö Deep.*

*The next expedition is scheduled for April 25 to April 30, 2005.*

## **PRELIMINARY RESULTS**

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on April 4 and ended at the same place April 9. Southerly and southwesterly winds of moderate strength together with broken cloud, were the dominating weather during the expedition.

### **The Skagerrak**

Surface water temperatures were normal and varied between 4.5 and 5.6°C. The lowest was measured near the coast and the highest at Å15. Surface salinities were lower than normal at the near-coast stations. P2 had the lowest value: 17.25 psu. Here the stratification was at 10 metres. In the centre of the Skagerrak the maximum came at 5 metres.

Surface phosphate and silicate concentrations were normal for the season. Phosphate varied between 0.04 and 0.08 µmol/l and silicate had concentrations of 0.1- 0.3 µmol/l. Nitrate concentrations were below the limit of detection, 0.10 µmol/l, at all station with the exception of Släggö, where the concentration was 0.4 µmol/l.

At stations near the coast relatively high chlorophyll fluorescence was recorded at a depth of 20 meters, which indicates phytoplankton activity. This can also be noticed through the supersaturation of oxygen, about 110 %, at these depths. Secchi depth was estimated to be 7-8 metres.

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

Surface water temperature in the Kattegat was between 4.6 och 4.9°C, and 4.4°C at Drogden in the Sound. Surface salinity at Fladen in the Kattegat was lower than normal, 16.7 psu, and in the Sound somewhat higher than normal, 15.1 psu.

Surface nutrient concentrations in the Kattegat and Sound were normal for the season. Phosphate concentrations were 0.06 and 0.22 µmol/l in the Kattegat and Sound respectively. Silicate concentrations were 0.2 µmol/l in the Kattegat and 5.3 µmol/l in the Sound. Nitrate concentration was below the limit of detection, 0.10 µmol/l, throughout the region.

Oxygen values showed supersaturation in the surface water. The halocline was at a depth of 5-10 metres. The fluorescence maximum was below this at 20 metres. At Anholt E the highest fluorescence value was recorded. Secchi depth was 6 - 7.5 metres.

### **Baltic Proper**

Surface water temperature varied between 2.4 and 3.2°C, which is normal for the season. In the Arkona Basin the halocline was found at 40 metres. In other regions stratification began at depths of 55 to 80 metres. The thermocline was weak to non-existent in Arkona. In the western Gotland Basin, and also partially in the eastern, the thermocline was forming at a depth of 20-25 metres. In the surface layer primary production led to relatively high fluorescence values. Secchi depth was 6-7 metres.

Surface phosphate concentration is still very high, despite the beginning algae bloom. It varied between 0.6 and 0.8 µmol/l. Silicate concentrations are also above normal at all stations, between 12 and 16 µmol/l. Nitrate + nitrite concentration in the surface water was below the limit of detection, 0.10 µmol/l, which is normal.

In the Arkona Basin, oxygen conditions were good. In the remainder of the Baltic Proper oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 90 metres. Hydrogen sulphide was found from 195 metres in the eastern Gotland Basin and in the western Gotland Basin from 150 metres in the Norrköping Deep. At the Karlsö Deep no hydrogen sulphide could be found. This could be explained by the transport of oxygenated water from the South, as a result of the January 8<sup>th</sup> hurricane.

## **PARTICIPANTS**

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## **APPENDICES**

- Track chart
- Table over stations, parameters and sampling depths
- Map showing bottom oxygen concentrations
- Monthly average plots for selected stations
- Profiles for selected stations