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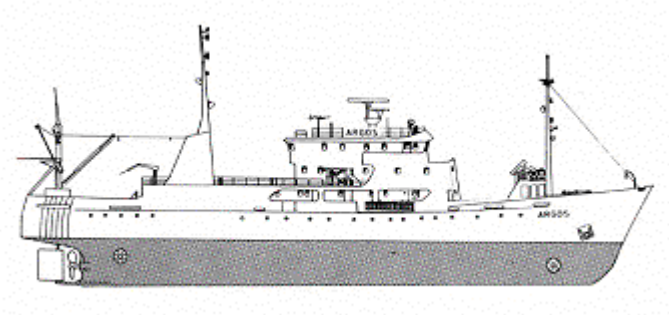
Oceanographical Laboratory

2003-06-10
Dnr: Mg-2003-112

CRUISE REPORT FROM R/V ARGOS



Survey period: 2003-06-02 - 2003-06-07

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

Principal: SMHI

SUMMARY

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

This report is based on preliminary data.

Nutrient concentrations in all areas were normal or slightly lower than normal for the season in all areas.

The deep water of the Bornholm Basin, the Hanö Bight, southeast of Baltic Proper and east of Gotland was well oxygenated. Hydrogen sulphide was present in the northeast and west Gotland basins.

The next expedition is scheduled för July 7 to 12.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on June 2nd and ended in Göteborg on June 7th.
The week started with sunny weather and weak southerly winds, which shifted towards the west. The air temperature was about 18-22°C at daytime during the expedition. A short stop was made in Fredrikshamn during the Tuesday.
Samples for the EU-project HABILE were taken at Fladen, Anholt E (twice) and BY5.
Kristin Andreasson from Botanical Institution at Göteborg University took part in the cruise, with sampling of specimens for her PhD-project.

The Skagerrak

Surface water temperature was higher than normal. It varied between 13.7°C in the coastal area (P2) and about 15.4°C at the central part of the Skagerrak (Å17). The salinity of the surface water varied between 21.1 psu at the coast (Släggö) and 29.6 psu at station Å13. Salinity was 25.7 psu in the central Skagerrak. This is lower than normal.
Nutrient concentrations in the surface layer were normal for the season. Phosphate concentrations were 0.03-0.08 µmol/l. Nitrite+nitrate were highest near the coast: 0.39-0.57 µmol/l. The remaining stations were below the detection limit of 0.1 µmol/l. Silicate concentration was below the detection limit in the whole area.

The Kattegat and the Sound

In the Kattegat and the Sound the surface water temperature was slightly higher than normal. The highest temperature was 15.9°C in the central area (Anholt) and lowest in the Sound, 13.9°C (W Landskrona).
Surface salinity values varied between 19.3 psu in the north (Fladen) and 8.4 psu in the south (W Landskrona). Surface salinity values were lower than normal.
The thermocline and the halocline were found at 15 metres.
Low nutrient concentrations were measured in the whole area. This is normal for the season. The concentration of nitrite+nitrate was below the detection limit of 0.1 µmol/l. Phosphate values varied between 0.04 and 0.10 µmol/l and silicate between 0.1 and 5.5 µmol/l.
An outflow from the Baltic was ongoing during the expedition.

Baltic Sea

Surface water temperature varied from 10,5°C in the north (BY32) to 13.6 °C in the south (BY4).Temperatures in south-eastern and eastern Baltic Proper were higher than normal. Sea surface salinity varied between 6.7 and 7.4. The thermocline was located at a depth of 10-20 metres in the whole area.
The halocline was found at a depth of 20-30 metres in Arkona and at 40-50 metres in the Bornholm Basin. In the central parts of Baltic Proper the halocline was at a depth of 70 metres.

BY1 had a bottom oxygen concentration of 2 ml/l. The reminder of the southern parts, and in the southeast of Baltic Proper, the bottom water layers were well oxygenated.
In the southeast of Baltic Proper (BCSIII-10) the oxygen values had increased to normal values, 4 ml/l. Further north the oxygen concentration was higher than normal in the bottom waters. Both BY10 and Gotlandsdjupet (BY15) showed oxygen concentration over 3ml/l. The previous expedition (week 19) found a layer between 100 and 150 metres, where the oxygen concentration was below 2 ml/l. This layer was still present during this cruise.
Hydrogen sulphide was found in a very thin layer at around 140 metres deep. At stations west and northeast of Gotland the oxygen concentration deeper than 80 metres was below 2 ml/l. Hydrogen sulphide was present at depths from 100-125 metres and down to the bottom.
In the whole area, nutrient values were low. Nitrite+nitrate was near the detection limit of 0.1 µmol/l. Phosphate concentration was between 0.06-0.14 µmol/l and silicate between 5-10 µmol/l. At several stations, the concentrations of phosphate and silicate showed lower values than normal.

PARTICIPANTS

Name		From
Arne Sjöquist	chief scientist	SMHI Oceanographical lab.
Tuulikki Jaako		- ” -
Sara Kollberg		- ” -
Sari Sipilä		- ” -
Bodil Thorstensson		- ” -
Kristin Andreasson	Botanical Inst.	Göteborg University

APPENDICES

Plots

Click on the button to open appendices.
Note that this will only work when connected to Internet!

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