Lars Andersson

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Oceanographical Laboratory

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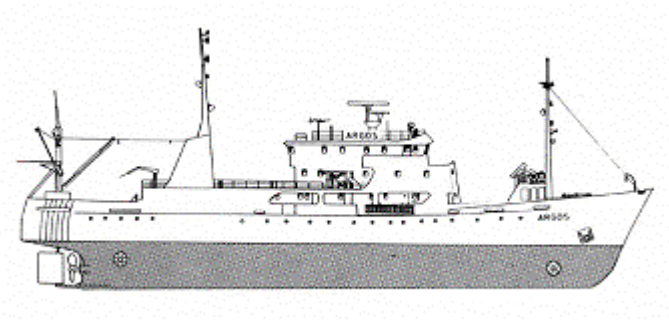
CRUISE REPORT FROM R/V ARGOS



Survey period: 2004-05-10 - 2004-05-15

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.

All nutrients showed for the season normal surface koncentrations, with the exception of phosphate that in the western Gotland Basin were clearly above normal.
Oxygen concentrations below 2 ml/l were found in the whole Baltic Proper at depths exceeding 70 to 80 metres. Hydrogen sulphide was found at the Gotland Deep and in the Western Gotland Basin, at depths exceeding 90 metres.

The next expedition is scheduled for June 7 to 12, 2004.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on May 10 and ended in the same port on May 15. The winds during the expedition varied from weak to moderate mainly from north.

The Skagerrak

Surface water temperatures varied around 12.5°C, clearly higher than normal for the season. Surface salinity varied between 16 and 21 psu, below normal. Thermocline and halocline were found at the same depth: 5 – 10 metres.
Surface phosphate concentrations varied between 0.04 and 0.07 µmol/l, nitrite and nitrate were below detection limits (<0.02 and <0.10 µmol/l respectively) while silicate varied between 0.2 and 1.7 µmol/l, highest in the coastal area. High concentrations of nitrite and nitrate, 0.3 and 5.2 µmol/l was found in an intermediate layer at station Å17 in central Skagerrak. Oxygen saturation in the surface waters was ca. 105%, while enhanced fluorescence and oxygen saturation of 110-125%, was found at intermediate layers at 10-15 metres depth.

The Kattegat and the Sound

Surface water temperatures were between 12 and 13°C, which is above normal for this time of year. The thermocline was found at the same depth as the halocline 5-10 metres. At Drogden East, at the southern entrance to the Baltic, the water was strongly stratified, with 7 psu at the surface and 24.5 psu at the bottom, at 10 metres.
All nutrients showed, for the season, typical surface water concentrations, phosphate 0.05 µmol/l, nitrite and nitrate below detection limit, and silicate 0.5 µmol/l. In the Sound, phosphate and silicate concentrations were higher 0.14 and 2.8 µmol/l respectively.
As in Skagerrak fluorescence and oxygen saturation showed the were highest values at a depth of 10-15 metres. At the station W Landskrona in the Sound fluorescence was enhanced from 15 metres to the bottom.
Bottom oxygen levels were normal for the time of year in the whole area.

Baltic Proper

Surface water temperature varied from 7°C in the north to 9.5°C in the south, typical for the season. The thermocline was found at 5-15 metres and the halocline at 40 – 50 metres in the south and at 60 – 80 metres in the remaining parts.
The inflow in the beginning of 2003 has now reached the northern Baltic Proper, and phosphate rich deep water have been lifted up in the surface layer. Phosphate concentrations in the Western Gotland Basin are much higher than normal, while nitrogen and silica showed normal values. In the Eastern Gotland Basin, as well as in the southern parts all nutrients showed, for the season, normal or below normal concentrations.
Secchi depth varied between 4 and 8 metres and the spring bloom was over.
In the Arkona Basin, bottom water oxygen conditions were good. In the rest of the Baltic Proper however, oxygen concentrations were below 2 ml/l at depths exceeding 70 to 80 metres. Hydrogen sulphide was found at BY15 (Gotland deep) at 240 metres and in the western Gotland Basin at depths exceeding 90 metres.

PARTICIPANTS

Name		From
Lars Andersson	Chief scientist	SMHI Oceanographic lab.
Tuulikki Jaako		-“-
Sari Sipilä		-“-
Bodil Thorstensson		-“-
Bengt Yhlen		-“-
Linda Svanberg		Trainee
Stina Lindqvist		-”-

Plots

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

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