Bengt Yhlen

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

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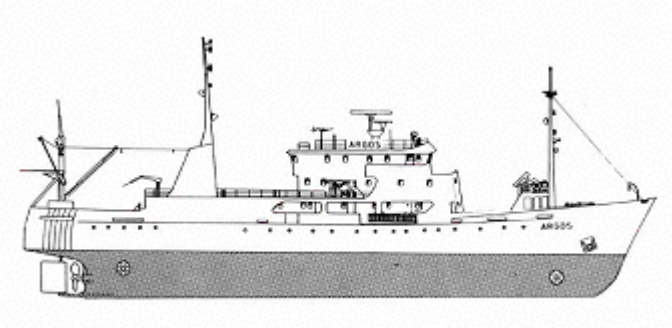
CRUISE REPORT FROM R/V ARGOS



Survey period: 2006-10-02 - 2006-10-24

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

Principal: SMHI and the National Board of Fisheries

SUMMARY

The cruise, part of SMHI´s ordinary monitoring programme, was performed in co-operation with the National Board of Fisheries Baltic International Acoustic Survey (BIAS). It covered the Skagerrak, Kattegat, Sound, Baltic Proper and the Åland Sea.
Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures were several degrees above normal.

Surface nutrient concentrations were mostly normal.

Oxygen concentrations below 2 ml/l were observed at depths exceeding 60 to 80 metres throughout the Baltic Proper and in the bottom water of south-eastern Kattegat and the Sound.

Hydrogen sulphide was found at and below 80 metres in the northern and western Gotland Basins and from 125 to150 metres in the eastern Gotland Basin.

In the northern and western Gotland Basins the oxygen/hydrogen sulphide conditions were the worst ever recorded.

The next expedition is scheduled for November 13 to 17, 2006

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, was performed in co-operation with the National Board of Fisheries Baltic International Acoustic survey (BIAS). It began in Västervik on October 02nd and ended in Göteborg on October 24th. Weekends were spent in Västervik, then twice in Karlskrona.
The cruise was performed under excellent weather conditions. Wind speed seldom exceeded 8 m/s.
For the University of Göteborg (FRISBEE-project), water samples were taken for measurements of oxygen- and carbon isotopes.

The Skagerrak

Surface water temperatures were above normal, c:a 14 °C. The thermocline and halocline coincided at depths lesser than 10 metres.
Surface nutrient concentrations were normal for the season except for elevated silicate levels in the central Skagerrak. They varied between: phosphate 0.14-0.24, silicate 1.7-4.8 and nitrate 0.17-0.57 1µmol/l.

The Kattegat and the Sound

Surface water temperatures in the eastern Kattegat and the Sound were also above normal: c:a 14 °C. Surface salinities were almost 10 psu in the Sound and about 21 psu in eastern Kattegat. The halocline and thermocline were found together and began at depths between 8 to 15 metres.
Surface nutrient concentrations were normal throughout the investigated area. Phosphate and silicate decreased from 0.30 and 9.2 µmol/l respectively in the Sound, to 0.07 and 1.5 µmol/l respectively in northern Kattegat. Nitrate concentrations in the surface water were 0.5 µmol/l in the Sound and below 0.1 µmol/l in the Kattegat.
This year's calm and warm autumn means that oxygen concentrations in bottom water of the south-eastern Kattegat and the Sound continue to decrease. Values just below 2 ml/l were recorded at Anholt and W Landskrona.

Baltic Proper

Surface water temperatures, which varied between 13.7 and 16.8 °C, were several degrees higher than normal for the season. The distinct thermocline began at 20-30 metres and the halocline at 50-60 metres in the northern, western and eastern Baltic. In the south it often began 10 metres shallower.
Phosphate surface concentrations varied between 0.07 and 0.26 mol/l, silicate between 3.0–8.6 µmol/l and nitrate was below 0.10 µmol/l. These concentrations were normal for the season, except for silicate, which was low in south-eastern Baltic. Secchi depths were 7–8 metres.
Oxygen concentrations below 2 ml/l were found at depths exceeding 60-80 metres throughout the Baltic Proper. In the bottom water of the Arkona Basin oxygen values about 2.5 ml/l were recorded. Hydrogen sulphide was found from 80 metres and below in the northern and western Gotland Basin and from 125-150 metres in the eastern Gotland Basin.
In the northern and western Gotland Basins the oxygen/hydrogen sulphide conditions were the worst ever recorded.

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