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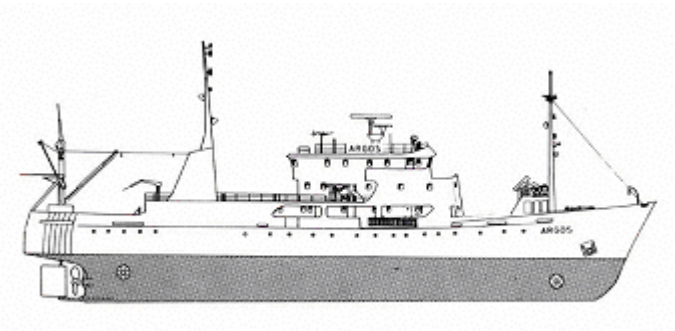
CRUISE REPORT FROM R/V ARGOS



Survey period: 2005-08-29 - 2005-09-03

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

Principal: SMHI

SUMMARY

The expedition took place within 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.

Surface water temperatures were normal for the season in all areas.

Phosphate and silicate concentrations were still enhanced in the Arkona and Bornholm Basins.

Oxygen concentrations below 2 ml/l were observed in the bottom water of the Arkona Basin and at depths exceeding 70 to 80 metres in the remaining parts of the Baltic Proper.
Hydrogen sulphide was present in the bottom water of the Bornholm Basin, Hanö Bight and in the Eastern and Western Gotland Basins.

The next expedition is scheduled for September 26 to 31, 2005.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Gothenburg on August 29 and ended in the same port on September 3. A high-pressure area with weak, variable winds dominated the weather during the expedition, except for the first day when westerly winds of near gale force prevailed.

The Skagerrak

Surface water temperatures were normal throughout the investigated area. They varied between 14.5 °C at Å17 in the central part, to 17.2 °C at the coast. Surface salinities were normal, ca. 24 psu, at the coast and ca. 32 psu in the central parts.
All nutrients in the surface water showed normal concentrations for the season: phosphate 0.03 to 0.14 µmol/l; nitrite+nitrate < 0.10 µmol/l and silicate 0.8 to 3 µmol/l. Highest values were found at the coast.
Peaks of chlorophyll fluorescence were recorded in the surface layer down to 25 metres at the layer adjacent to the nutrient rich deep water.

The Kattegat and the Sound

Surface water temperatures were about 17.3 °C. Surface salinities were normal in the Kattegat and higher than normal in the Sound. The halocline was found at 10 to 20 metres.
In this area, nitrite/nitrate concentrations were below the detection limit (0.10 µmol/l).
Phosphate concentrations varied between 0.05 and 0.14 µmol/l and silicate between 0.1 and 3.7 µmol/l, with the highest values found in the Sound.
Relatively high chlorophyll fluorescence was recorded in the whole surface layer. In the Sound a very strong peak was found at a depth of 8 metres.
The lowest bottom water oxygen concentration was found at the second visit to Anholt E at the end of the expedition, 2.91 ml/l, corresponding to a saturation of ca. 40%.

Baltic Proper

Surface water temperature varied between 15.5 and 17.5°C, which is normal for the season. The halocline began at 35 metres in the Arkona Basin, at 50 – 60 metres in the Bornholm Basin and at ca. 70 metres in the reminder of the Baltic. The thermocline was found at a depth of 20 metres.
In the Arkona and Bornholm Basins, surface phosphate and silicate concentrations were still high, 0.3-0.5 µmol/l and 10 – 12 µmol/l respectively. In the reminder of the area the surface nutrient concentrations were normal for the season, i.e. phosphate 0.1 and silicate 6 – 8 µmol/l. Nitrate concentrations in the surface water were below 0.10 µmol/l, throughout the Baltic Proper.
Chlorophyll fluorescence was detected in the whole surface layer down to 25 metres, at certain locations with very strong peaks.
Oxygen concentrations below 2 ml/l were found in the bottom water in the Arkona Basin (0.43 ml/l at BY1) and at depths exceeding 70 – 80 metres in the reminder of the Baltic. Hydrogen sulphide was found from 80 metres and deeper in the Bornholm Basin and the Hanö Bight, deeper than 125 to 150 metres in the Eastern Gotland Basin and from 80 to 90 metres in the Western Gotland Basin.
The highest hydrogen sulphide concentration ever recorded, 70 µmol/l, was found in the bottom water of the Bornholm Basin.

PARTICIPANTS

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Lars Andersson	Chief scientist	SMHI Oceanographic lab.
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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