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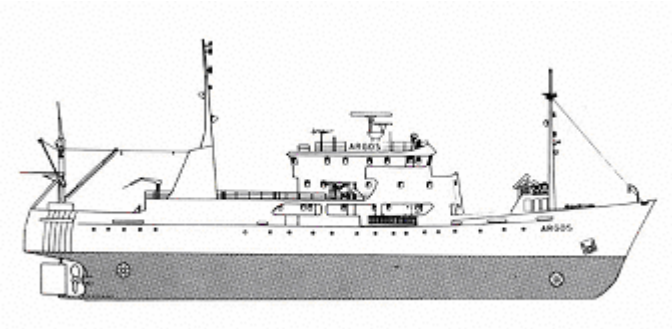
CRUISE REPORT FROM R/V ARGOS



Survey period: 2006-02-27 - 2006-03-05

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, Kattegat, Sound and Baltic Proper. Mapping of winter conditions took place in the Baltic Proper.

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

High surface phosphate concentrations were measured in the southern part of the Baltic Proper. Silicate concentrations were also enhanced there, while levels of nitrogen compounds were normal or somewhat below normal. Nutrient concentrations in the Skagerrak-Kattegat area were normal or almost normal. The spring bloom in the Skagerrak coastal area and in the Kattegat area was almost over, while winter conditions prevailed in the Baltic.

In the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 100 metres. Hydrogen sulphide was found in the bottom waters of the Eastern, Northern and Western Gotland Basins.

The next expedition is scheduled for March 27 to March 31, 2006.

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The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on February 27th and ended in Kalmar on March 5th. Mapping of winter conditions took place in the Baltic Proper. During the first days the winds were moderate to fresh. During the rest of the expedition they were weak to moderate.

The Skagerrak

Surface water temperatures were somewhat below normal in the investigated area. They varied between 1.1 and 2.4°C. Surface salinities were below normal, from 22.6 to 26.2 psu, lowest in the south-east, highest in the central Skagerrak. Stratification was rather weak close to the coast but much stronger in the central parts. The halocline was found at a depth of 5 to 10 metres.
Surface nutrient concentrations were considerably below what is normal for the season. Nitrate was below the detection limit (<0.10 µmol/l) except in the coastal zone where concentrations varied between 0.6 and 0.23 µmol/l. Phosphate varied from 0.14 to 0.20 µmol/l and silicate from ca. 1.7 at the coast to 0.8 µmol/l further west. Chlorophyll fluorescence was very high in the central parts, as well as in an intermediate layer at a depth of 10 metres at station P2 in the south-east. Close to the coast, fluorescence was considerably lower.

The Kattegat and the Sound

Surface water temperatures in the Kattegat were also below normal, at around 0.7 °C, and in the Sound ca. 0.9°C. Surface salinities varied between 19 and 22 psu in the Kattegat, and were ca. 8.5 psu in the Sound.
Surface nutrient concentrations were below normal for the season in the Kattegat. Phosphate concentrations were ca. 0.2 µmol, silicate varied between 0.8 and 2.5 µmol and nitrate concentrations were around detection limit (< 0.10 µmol/l). In the Sound phosphate and silicate concentrations were higher than normal, ca. 0.7 and ca. 15 µmol/l respectively, while nitrate was normal, at about 4 µmol.
Bottom water was well oxygenated. The lowest oxygen value in the bottom water was measured at W Landskrona in the Sound, 4.95 ml/l corresponding to a saturation of 74%.
The chlorophyll fluorescence was relatively high in the surface layer, indicating that the spring bloom was ongoing. Secchi depth at Anholt E was only 5 metres. In the Sound, however, where surface water consisted of Baltic water, a winter situation prevailed and fluorescence was low.

Baltic Proper

Surface water temperature varied between 0.6 and 2°C, which is slightly below normal for the season. Thermocline and halocline were found at the same depth and began in the Arkona Basin at 30 metres. In the reminder of the Baltic stratification began at a depth of 50 to 60 metres.
Surface phosphate concentrations in the southern parts were also enhanced this winter, while in the other areas they were close to normal. Phosphate varied between 0.6 and 0.8 µmol/l. Silicate concentrations were also above normal in the southern parts, and close to normal in the rest of the Baltic. They varied between 10 and 15 µmol/l. Nitrate + nitrite concentration in the surface were normal or below normal, between 1.5 and 5 µmol/l.
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 100 metres. Hydrogen sulphide was found in the deep waters of the Eastern, Western and Northern Gotland Basins, Phytoplankton activity was very low and Secchi depths up to 16 metres were measured in the north-eastern parts.

PARTICIPANTS

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Lars Andersson	Chief scientist	SMHI Oceanographic lab.
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Arne Sjöquist		-”-
Bodil Thorstensson		-”-
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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