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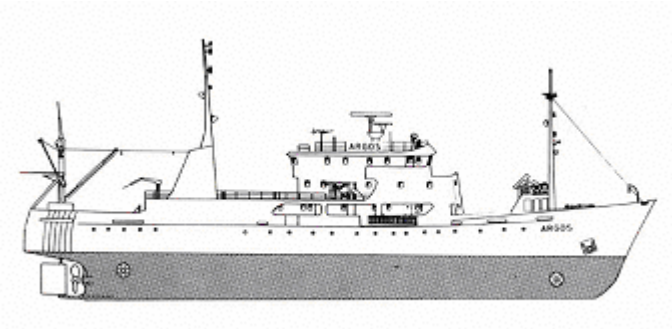
CRUISE REPORT FROM R/V ARGOS



Survey period: 2007-02-19 - 2007-02-25

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. Mapping of winter conditions was performed in the Baltic Proper.

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

High concentrations of phosphate were measured in the surface water of the southern Baltic. Silicate concentrations were also enhanced while nitrogen showed normal values. On the West-Coast nutrients concentrations, except for silicate, were normal or close to normal. Silicate concentrations in the Skagerrak were higher than normal for the season. The spring bloom in the Skagerrak coastal areas and in the Kattegatt were just at the beginning, while winter conditions prevailed in the Baltic.

In the Baltic Proper oxygen concentrations were below 2 ml/l at depths exceeding 80 metres. Hydrogen sulphide was found in the eastern, northern and western Gotland Basin.

The next expedition is scheduled for March 18 to 24 2007.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg February 19 and ended in Karlskrona February 25. Mapping of winter conditions was performed in the Baltic Proper.
During the first days of the expedition, in the Skagerrak and Kattegat, winds were weak and the temperature just above 0°C. In the Baltic, wind speed increased and temperature fell down to minus 7°C. The wind increased further, causing severe ship icing. Due to this the expedition had to be aborted and the Bornholm basin and the south-eastern Baltic Proper could not be visited.
Water samples were taken for analysis of oxygen- and carbon isotopes for the University of Göteborg (FRISBEE-project).

The Skagerrak

Surface water temperatures were normal for the season and varied from just below 3 °C at the entrance of the Gullmar Fjord to 5.3 °C in the central parts. The lowest surface salinity, 20 psu was measured in the south-east. The salinities along the coast varied between 22 and 23 psu, while it in the western parts were 33 psu.
Surface phosphate and nitrate concentrations were normal for the season. Phosphate varied between 0.6 and 0.7 µmol/l and nitrite-nitrate around 10 µmol/l. Silicate concentrations at the mouth of the Gullmar Fjord was 11 µmol/l, which is normal for this area. In the remaining parts it varied between 9 and 11 µmol/l, which is clearly higher than normal. The chlorophyll fluorescence indicated some phytoplankton activity above halocline in the eastern parts.

The Kattegat and the Sound

Surface temperatures varied between 3.3 and 4°C, slightly above normal. Surface salinities were clearly below normal and decreased from 20 psu in the north to ca. 12 psu in the south and just below 9 psu in the Sound. The halocline was located at a depth of 10 meters.
All nutrients showed concentrations above normal in the surface layer. Phosphate around 0.7 and silicate between 14 and 15 µmol/l. Nitrite+nitrate varied between 6 and 10 µmol/l, lowest in the Sound.
The lowest oxygen value in the bottom water was measured in the Sound, 5.81 ml/l corresponding to a saturation of about 80%.
Similar to the Skagerrak, phytoplankton activity occurred in the surface layer, while the activity in the Sound was very low.

Baltic Proper

Surface water temperature was slightly above normal and decreased from 4°C in the south to just below 2°C in the north.
Phosphate concentrations were high above normal in the Arkona Basin and in the Hanö Bight, 0.86 to 1.01 µmol/l. In the other areas concentrations varied between 0.65 and 0.9 µmol/l. Also silicate showed increased concentrations in the Arkona Basin and Hanö Bight, between 12.5 and 16.5 µmol/l. In the remainder of the Baltic Proper these concentrations varied between 10.5 and 17.5 µmol/l. The nitrite+nitrate concentrations in the surface showed normal February values, 3.2 to 5.4 µmol/l.
In the whole area oxygen concentrations below 2 ml/l were found at depths exceeding 80 metres. Hydrogen sulphide was found from 100 metres in the western Gotland Basin. In the northern Gotland Basin hydrogen sulphide began at depths exceeding 80 to 100 metres and in the eastern Gotland Basin deeper than 125 to 150 meters.
Phytoplankton activity was very low.

PARTICIPANTS

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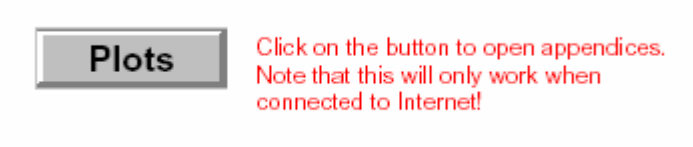
APPENDICES



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