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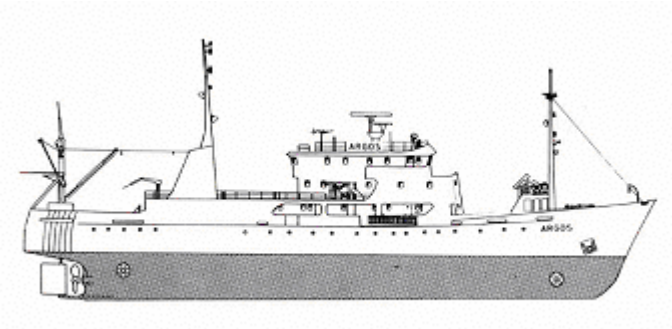
CRUISE REPORT FROM R/V ARGOS



Survey period: 2008-02-18 - 2008-02-24

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.

The water temperature was to some extent elevated in the north Baltic Proper. Nutrient concentrations were normal in most basins with the exception of the southern and eastern parts of the Baltic Proper where phosphate showed elevated concentrations. The spring blooms had not started in the Baltic Proper, while it was in an initial phase at some stations in Skagerrak and Kattegat.

Oxygen concentrations lower than 2 ml/l were present in the whole Baltic Proper however the oxygen situation was good in the Arkona Basin, Hanö Bight and in the western parts of the Bornholm Basin due to an inflow that occurred earlier this year. Hydrogen sulphide occurred in the Gulf of Gdansk and in the Eastern, Northern and Western Gotland Basin,

The next expedition is scheduled for March 13-17, 2008.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on February 18th and ended in Kalmar February 24th. Mapping of winter conditions was performed in the Baltic Proper. During the first half of the expedition, wind speed varied between 5 and 10 m/s, mainly from west or south. During the later part the wind speed increased to 10-20 m/s mainly from southwest. Sampling for national screening of substances according to the water framework directive was carried out in Skagerrak and Kattegat. Participants from the Umeå University performed tests on bacterial respiration and water samples were also collected for QUASIMEME.

The Skagerrak

The surface temperature was normal and increased from 3.9 °C at Släggö to 6.0°C in central parts of Skagerrak. Low salinities, 16.3-25.6 psu, were measured at P2, Å13 and Å15. The stratification was weak with the only exception of the central parts were the stratification was more developed. Nutrient concentrations were normal in the monitored region. The sum of nitrite+nitrate decreased from 12.7 along the coast to 6.5 µmol/l at the offshore stations. Concentration of phosphate was 0.6 near the coast and 0.5 µmol/l in the central parts. Silicate concentrations higher than normal, 10 µmol/l, were measured at Å15 where also low salinities were observed. In the remaining parts silicate concentrations were normal and varied from 5.8-19 µmol/l. Phytoplankton activity was high at P2 and Å16. At the remaining stations the phytoplankton activity was low.

The Kattegat and the Sound

The water temperatures, which were normal, varied from 2.9-3.9°C, lowest near the coast and highest in the north. Surface salinities were normal except from station N14 were the salinity was much lower than normal, 14.6 psu. The salinity in the Sound increased from 9.8 psu in the central parts to 10.5 psu in the south. The halocline was found at 10-30 meters depths in the Kattegat and from 10-15 meters depth in the Sound. The sum of nitrite+nitrate and phosphate were normal. Nitrite+nitrate was highest at N14, 8.0 µmol/l and lowest in the Sound, 5.1 µmol/l. Phosphate concentrations varied from 0.54-0.69 µmol/l. In the Kattegat concentrations of silicate were still higher than normal, 11-17 µmol/l, highest at N14. Also in the Sound concentrations of silicate were high, 14 µmol/l. The lowest oxygen concentration in the bottom water was found at Anholt E, 6.1 ml/l, which corresponding to a saturation of 88 %. The spring bloom was in an initial phase, since fluorescence maxima was noted at intermediate depths at Anholt E and W Landskrona. At the other stations phytoplankton activity was low.

Baltic Proper

The surface temperatures varied between 3.7-4.2°C and were somewhat above mean in the northern parts but normal in the other areas. The salinity was normal in the whole area and varied from 7.2-9.1 psu. Halocline and thermocline were found at depths between 60 and 80 meters, deepest in the northern parts. The halocline in Arkona Basin was weakly developed. The amounts of phosphate showed slightly elevated levels in the southern, south-eastern parts and in the Eastern Gotland Basin, while concentrations of nitrite+nitrate was lower than normal in almost all parts of the monitored area. Phosphate varied between 0.64-0.86 µmol/l, nitrite+nitrate from 2.3-5.8 µmol/l and silicate between 10-19 µmol/l.
During January an inflow through the Sound of about 30km^3 occurred to the Baltic. The deep water in the Arkona Basin and Hanö Bight was well oxygenated with concentrations exceeding 5 ml/l. The inflow had reached the western parts of the Bornholm Basin, while the eastern parts still suffered from low oxygen levels. In the remaining parts of the Baltic Proper oxygen concentrations below 2 ml/l were found at depth exceeding 65-85 meters. Hydrogen sulphide was found in the Western Gotland Basin and in the Gulf of Gdansk at depth over 90-100 meters and in the Northern and Eastern Gotland Basin from 125-150 meters depths. The phytoplankton activity was low.

PARTICIPANTS

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Lars Andersson	Chief scientist	SMHI Oceanographic laboratory.
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Satyanarayan Panigrahi		-“-

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