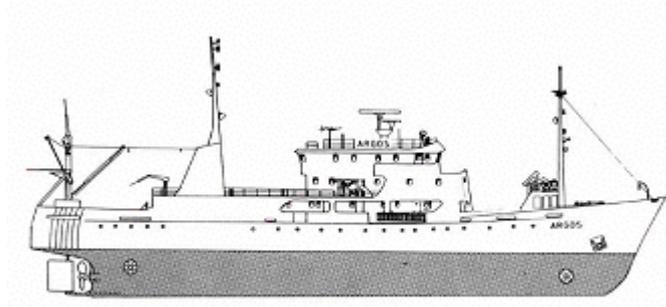


CRUISE REPORT FROM R/V ARGOS



Survey period: 2009-11-29 - 2009-12-10

Survey area: The Skagerrak, Kattegat, Sound, Baltic Proper and the Gulf of Bothnia.

Principal: SMHI

SUMMARY

The expedition was part of SMHI's regular marine monitoring programme and covered the Skagerrak, Kattegat, Sound, Baltic Proper and Gulf of Bothnia. This report is based on preliminary, part-quality controlled data.

Surface water temperatures in the Skagerrak and the Kattegat and the Baltic were normal.

Surface nutrient concentrations above the halocline in the Kattegat were low, due to an ongoing bloom. Enhanced surface phosphate concentrations were recorded in most parts of the Baltic Proper.

An inflow through the Sound, calculated to 35 km³, occurred from November 15th to December 1st, giving bottom oxygen concentrations in the Arkona Basin above 6 ml/l, and above 3 ml/l in the Hanö Bight and in the western part of the Bornholm Basin. Oxygen concentrations below 2 ml/l were observed at depths exceeding 60 to 70 metres in the remainder of the Baltic.

Hydrogen sulphide was found in the Western Gotland Basin from 80 to 90 metres and below, in the northern Gotland Basin from 100 to 125 metres and in the eastern Gotland Basin from about 125 metres and below.

The next expedition is scheduled for January 17-24, 2010.

PRELIMINARY RESULTS

The cruise, part of the SMHI's ordinary monitoring programme, began in Karlskrona on November 29th and ended in Gothenburg on December 10th. The weekend was spent in Norrtälje.

A scientist from Uppsala University Department of Earth Sciences collected samples for determination of radioactive iodine in the Gulf of Bothnia. Two scientists from the University of Gothenburg studied the occurrence of the comb jelly *Mnemiopsis*.

High pressure weather prevailed during the expedition giving moderate to weak winds. Air temperatures varied from -1 to 8°C.

The Skagerrak

Surface water temperatures were normal for the time of year, varying from 8.4°C in the central parts to 7.0°C in the coastal areas. Surface salinity decreased from 31.8 psu in the central parts to 23.2 psu at the entrance of Gullmar Fjord.

Surface nutrient concentrations were normal along the Å-section. Phosphate was 0.6-0.4 µmol/l, nitrite+nitrate 3.9-2.2 µmol/l and silicate 5.9-3.3 µmol/l. High ammonium concentrations were measured above halocline and high nitrite levels were recorded in the intermediate water. At P2, in the south-eastern part, surface nutrient concentrations were lower due to an ongoing bloom.

The Kattegat and the Sound

Surface water temperatures were also normal in this area at ca. 6.5°C. Surface salinities were 20 to 22 psu in the Kattegat and 9 psu in the Sound.

Due to an ongoing bloom, low surface nutrient concentrations were recorded above the halocline in the Kattegat. Surface phosphate concentration was about 0.2 µmol/l, nitrite+nitrate 0.2 to 0.5 µmol/l and silicate 1.2-2.0 µmol/l. Surface nutrient concentrations in the Sound were normal: phosphate 0.6 µmol/l, nitrite+nitrate 4.0 µmol/l and silicate 11.7 µmol/l.

The bottom water in Kattegat is now well oxygenated. Bottom oxygen concentrations in the Sound have increased to 4.8 ml/l.

The Baltic Proper

Surface water temperature varied from 6.8 to 7.8°C, which is normal for the season. The halocline and thermocline coincided and started at 30 to 60 metres.

Surface phosphate concentrations varied between 0.4 and 0.6 µmol/l. They were enhanced in the whole area, especially in the Bornholm and Arkona Basins. Silicate concentrations in the surface water were somewhat enhanced in western and northern Gotland Basins but normal in the remainder of the Baltic. They were from 7.7 to 12.8 µmol/l. Concentrations of nitrite+ nitrate in the surface layer were normal, from 1.5 to 2.8 µmol/l throughout the area.

An inflow through the Sound, calculated to 35 km³, occurred between November 15th and December 1st. It was observed in the Arkona Basin, where bottom oxygen concentrations were above 6 ml/l, as well in the Hanö Bight and in the western part of the Bornholm Basin, where bottom oxygen concentrations exceeded 3 ml/l. Oxygen concentrations below 2 ml/l were observed at depths exceeding 60 to 70 metres in the remainder of the area.

Hydrogen sulphide was found in the Western Gotland Basin from 80 to 90 metres and below, in the northern Gotland Basin from 100 to 125 metres and in the eastern Gotland Basin from about 125 metres and below.

The Gulf of Bothnia

Surface water temperatures in the Bothnian Sea varied between 4.5 and 6.1°C and in the Bothnian Bay between 3.7°C and 4.6°C. Surface water salinity in the Bothnian Sea was between 5 and 5.7 psu and in the Bothnian Bay ca. 3 psu.

Surface water in the Bothnian Sea had a phosphate concentration of 0.2-0.3 µmol/l, nitrate+nitrite concentrations of 1.4-3.1µmol/l and silicate concentrations of 10.8-22.3 µmol/l. The Bothnian Bay had lower phosphate concentrations and higher nitrate concentrations > 0.1 and 4.0-5.5µmol/l, respectively. Silicate concentrations were 33-35 µmol/l.

The lowest oxygen concentration at the bottom was recorded at MS6, in the middle of the Bothnian Sea, with 4.6 ml/l corresponding to 53% saturation.

A historical comparison of values from December at selected stations does not show any alarming changes.

PARTICIPANTS

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APPENDICES



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