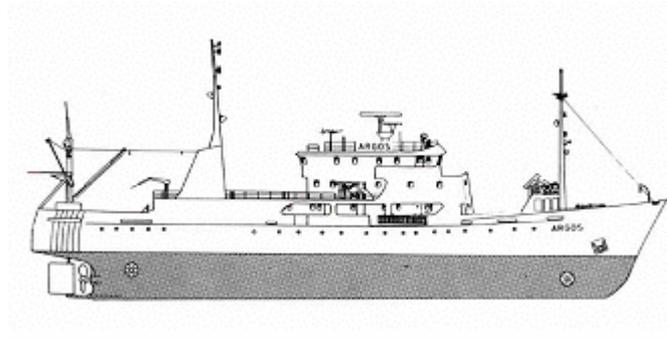


CRUISE REPORT FROM R/V ARGOS



Survey period: 2010-02-14 - 2010-02-21

Survey area: The Skagerrak, Kattegat, Sound, and 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. Winter conditions were mapped in the Baltic Proper.

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

Surface water temperatures were low in Skagerrak and Kattegat but normal in the rest of the area. Surface nutrient concentrations were very low in Skagerrak and Kattegat. Surface nutrient concentrations elsewhere were normal, with the exception of phosphate, which was above normal in the Arkona- and Bornholm Basins, and silicate which was also above normal in the western and northern Baltic.

Oxygen concentrations below 2 ml/l were found at depths exceeding 60-90 metres in the Baltic Proper, except in the Hanö Bight and the Bornholm Basin.

Hydrogen sulphide was found in the eastern -, northern – and western Gotland Basins.

A plankton bloom was ongoing in the Skagerrak and the Kattegat.

The next expedition is scheduled for March 15 to 19, 2010.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on February 14th and ended in Karlskrona on February 21st. Winter conditions were mapped in the Baltic Proper. Two persons from the University of Gothenburg studied the occurrence of the comb jelly *Mnemiopsis*. By direction of Nord Stream AG, currents were measured along a transect in the Bornholm Basin by ADCP.

Winds during the beginning of the expedition were mainly weak to moderate from various directions. During the last days however, the wind increased to gale force, mainly from northeast.

The Skagerrak

Surface water temperatures were very low, below -1°C , throughout the area. Ice was present in the larger part of the area. Surface salinities were also below normal, varying from 22 psu at the coast to only 23 psu in the central part. The halocline and thermocline were very sharp and coincided at a depth of 8-10 metres.

Surface nutrient concentrations were very low: Phosphate concentrations varied from $0.07\ \mu\text{mol/l}$ at the coast to $0.11\ \mu\text{mol/l}$ in the west; silicate concentrations were below the detection limit ($< 0.10\ \mu\text{mol/l}$) except at Släggö in the mouth of the Gullmar Fjord. The sum of nitrite + nitrate was below the detection limit ($< 0.10\ \mu\text{mol/l}$) except at Släggö where the concentration was $0.14\ \mu\text{mol/l}$. A strong phytoplankton bloom was ongoing in or just below the halocline in the whole area.

The Kattegat and the Sound

As in the Skagerrak, surface water temperatures and salinities were below normal. Surface temperatures in Kattegat were below -1°C , while in the Sound they were about -0.3°C . Large areas were ice covered. Surface salinities were low, varying between 19.6 and 20.2 psu. In the Sound, at W Landskrona, salinity was 9.2 psu. The halocline and thermocline both started at ca 8 to 10 metres depth.

Surface nutrient concentrations were very low for the season. Nitrite + nitrate was below the detection limit. Phosphate concentrations varied between 0.07 and $0.10\ \mu\text{mol/l}$ and silicate between 0.1 and $0.2\ \mu\text{mol/l}$. Nutrient concentrations in the Sound were more typical of the season: phosphate 0.67 , silicate $14.3\ \mu\text{mol/l}$ and sum of nitrite + nitrate $3.5\ \mu\text{mol/l}$. A phytoplankton bloom was ongoing in the Kattegat but not in the Sound.

The lowest oxygen concentration in the bottom water was measured at W Landskrona in the Sound: $4.85\ \text{ml/l}$ corresponding to a saturation of 75%.

Baltic Proper

Surface water temperatures were normal or somewhat below normal and varied from 0.1°C in the north to 1.9°C in the central parts. The halocline began at 50 to 75 metres.

Surface phosphate varied between 0.65 and $0.75\ \mu\text{mol/l}$, above normal in the Arkona- and Bornholm Basins but otherwise normal. Surface nitrite + nitrate were normal at between 2.7 and $5.1\ \mu\text{mol/l}$. Surface silicate varied between 10.5 and $16.3\ \mu\text{mol/l}$ - slightly above mean for the season. The bottom water of the Arkona Basin was well oxygenated with concentrations exceeding $8\ \text{ml/l}$. The oxygen situation was also unusually good in the Hanö Bight and Bornholm Basin,.

In the south-eastern parts oxygen concentrations below $2\ \text{ml/l}$ was present at depths exceeding 70-90 metres. In the eastern -, western - and northern Gotland Basins levels below $2\ \text{ml/l}$ were found at depths greater than 60 to 80 metres.

Hydrogen sulphide was found deeper than 90 to 100 metres in the western Gotland Basin. In the northern- and eastern Gotland Basins, hydrogen sulphide began at a depth of 100 and ca. 125 metres respectively.

Phytoplankton activity was low in the whole area.

PARTICIPANTS

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Anna-Kerstin Thell		-"-
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Matilda Haraldsson		University of Gothenburg
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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