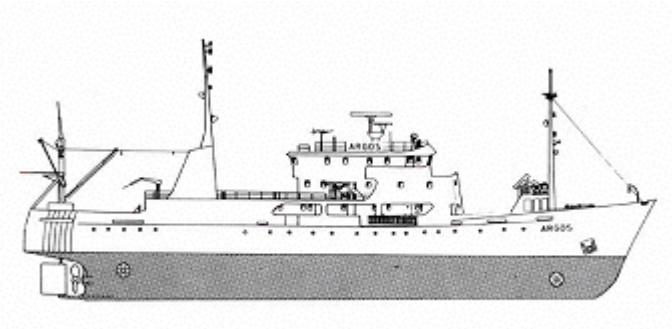
Bengt Yhlen

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2007-01-22
Dnr: Mo-2007-10

CRUISE REPORT FROM R/V ARGOS



Survey period: 2007-01-15 - 2007-01-21

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, Kattegat, Sound and Baltic Proper. Mapping of winter conditions was performed in the Kattegat and the Sound.
Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures were above normal in all areas.
Surface salinities were high in the Kattegat and the Sound and an inflow to the Baltic occurred the week before the expedition.

In the Southern Baltic Proper concentrations of phosphate were raised in the surface water. Otherwise, nutrient concentrations at the surface were normal in all areas.
The spring bloom had not begun.

In the Baltic Proper oxygen concentrations were below 2 ml/l at depths exceeding 55 to 80 metres. Hydrogen sulphide was found in the eastern, northern and western Gotland Basin.

The next expedition is scheduled for February 19 to 25 2007.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on January 15th and ended at the same place January 21st. Mapping of winter conditions was performed in the Kattegat and the Sound.
The day before the expedition storm "Per" passed through the investigation area. The weather during the expedition was windy, with wind speeds seldom below 10 m/s. During the last 24 hours a new storm arrived and the Å-transection in the Skagerrak could not be sampled.
Water samples were taken for analysis of oxygen- and carbon isotopes for the University of Göteborg (FRISBEE-project). For QUASIMEME, 240 litres of Baltic surface water were sampled.

The Skagerrak

Only 3 stations close to the coast could be sampled. Surface water temperatures were above normal: about 7°C in the sea and 6°C in the entrance of Gullmar fjord. Surface salinities outside the islands were above 30 psu and the stratification weak.
Surface nutrient concentrations were normal for the season, except for silicate which was high in the entrance of the Gullmar fjord. Phosphate was about 0.6 µmol/l, silicate c:a 10 µmol/l in the sea and 23 µmol/ in the entrance of the Gullmar fjord. Nitrate was between 10 and 14 µmol/l.
In the entrance of the Gullmar fjord, where a pronounced halocline began at a depth of 10 metres, some phytoplankton activity above halocline occurred.

The Kattegat and the Sound

Surface water temperature was between 6 and 8°C, several degrees above normal for the season. Surface salinities, which were much higher than normal, decreased from ca 33 psu in the north to 22 psu in the southern part of the Sound. Stratification was weak. A 15 km^3 inflow to the Baltic occurred the week before the expedition.
Surface nutrient concentrations at the frequent stations in the eastern part of the Kattegat were normal for the season. Phosphate concentrations in the area were about 0.6, silicate between 8 and 13 and nitrate between 6 and 13 µmol/l.
The lowest oxygen concentration in the bottom water was measured in Laholm Bay: 5.3 ml/l corresponding to a saturation of 80%.
Phytoplankton activity was low.

Baltic Proper

Surface water temperature was above normal for the season. It decreased from 7°C in the south to 5°C in the north.
Surface salinity in the Arkona Basin was extremely high as a result of the storm Per.
In the southern and south-eastern Baltic surface phosphate concentrations were above normal: between 0.6 and 0.8 µmol/l. In the remainder of the Baltic Proper these concentrations were normal: between 0.6 and 0.7 µmol/l. The nitrate and silicate concentrations in the surface showed normal January values: 4.3 to 2.6 and 8 to 14 µmol/l respectively.
The bottom water of the Arkona Basin was well oxygenated with concentrations of about 5 ml/l.
In the remainder of the Baltic Proper oxygen concentrations below 2 ml/l were found at depths exceeding 55 to 80 metres.
In the Western Gotland Basin at the Karlsö Deep (BY38) hydrogen sulphide was found from 70 metres and below and from 100 metres at BY32. In the northern Gotland Basin, hydrogen sulphide began at a depth of 125 metres in the Landsort Deep (BY31) and at 90 metres in the northeast (BY29). In the northern part of the eastern Gotland Basin (BY20) hydrogen sulphide was found from 90 to 100 metres and then from 150 metres to the bottom. In the central and southern parts of the East Gotland Basin, hydrogen sulphide was found from a depth of 140 metres and below.
Phytoplankton activity was very low.

PARTICIPANTS

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Jan Szaron		-”-
Anna-Kerstin Thell		-”-
Bodil Thorstensson		-”-

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