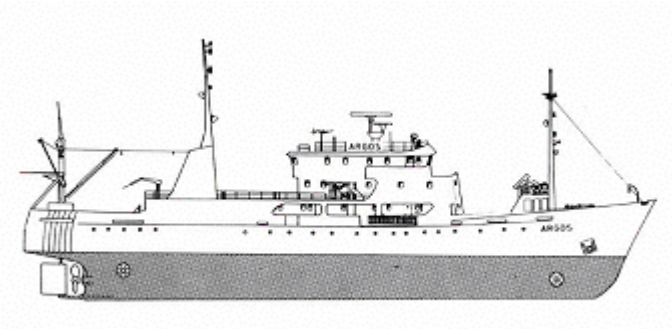
Lars Andersson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2007-05-26
Dnr: Mo-2007-098

CRUISE REPORT FROM R/V ARGOS



Survey period: 2007-05-21 - 2007-05-26

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.

High concentrations of phosphate were measured in the southern Baltic Proper. Also silicate concentrations were elevated, while the nitrogen components showed, for the season, normal values. The spring bloom in Skagerrak and Kattegat was over, while it was still ongoing in the Baltic.

Hydrogen sulphide was present in the western Gotland Basin from a depth of 90 meters and in the eastern Gotland Basin from 125 meters depth.

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

The next expedition is scheduled for June 11 to 16 2007.

Address:
SMHI
Nya Varvet 31
SE-426 71 Vastra Frolunda
SWEDEN

Telephone:
+46 11 4958000
Telefax:
+46 31 7518980

E-mail:
firstname.lastname@smhi.se
WWW:
http://www.smhi.se/

PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on May 21st and ended in the same port on May 26th.
The weather during the expedition was dominated by weak to moderate winds of varying direction. 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, about 11°C throughout the area. Surface water salinity varied from 24.5 along the coast to 29 psu along the Å-transect. Both the thermocline and halocline were weak.
All nutrients were normal for the season in the surface layer. Phosphate varied between 0.02 and 0.07 µmol/l, the sum of nitrite+nitrate was below the detection limit (0.10 µmol/l) offshore and approximately 0.5 µmol/l along the coast. Silicate concentrations varied between 0.2 and 1.7 µmol/l.
Oxygen saturation just over 100% and Secchi depth between 5 and 12 m, together with low nutrient concentrations, indicated that the spring bloom was coming to an end.

The Kattegat and the Sound

Surface water temperatures in the Kattegat were just above 12°C, which is normal for the season. During the expedition, surface temperature increased with two degree, to 14.7°C. In the Sound they were higher ca. 13°C. Surface salinity decreased from 19.5 psu in the north to 8.3 psu in the Sound. The halocline and thermocline were found between 10 and 20 metres.
Surface phosphate and nitrite+nitrate concentrations in the Kattegat were normal for the season. Phosphate concentrations were ca. 0.05 µmol/l and nitrite+nitrate was below the detection limit (0.10 µmol/l), Silicate concentrations were lower than normal, around 1 µmol/l. In the Sound, phosphate and silicate concentrations were higher than normal: 0.26 and 8.8 µmol/l respectively. Nitrite+nitrate concentrations were also below the detection limit.
The lowest oxygen value in the bottom water was measured in the Sound: 2.91 ml/l, corresponding to 60% saturation. Oxygen saturation in the surface layer was 109% in the Sound. It was lower in the Kattegat, at just above 100%. Secchi depth at Anholt E was 8 m and in the Sound 6.5 m.

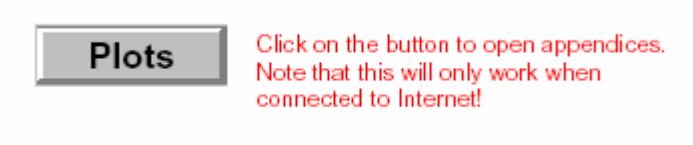
Baltic Proper

Surface water temperature, which was above normal, decreased from 11°C in the south to 8.5°C in the north. In the southeast, temperatures were about 12°C , which is higher than normal. A thermocline had developed and was found between 5 and 10 metres depth.
Surface phosphate concentrations were above normal in the southwest and the northeast, between 0.4 and 0.5 µmol/l. In the remainder of the Baltic Proper concentrations were normal, between 0.1 and 0.3 µmol/l. The silicate values, which varied between 12 and 14 µmol/l, were also higher than normal, except in the southeast where concentrations were about 8 µmol/l. The nitrite+nitrate concentrations were normal, i.e. below the detection limit, except in the north where they varied between 0.12 and 0.22 µmol/l.
In the southern and western areas oxygen concentrations below 2 ml/l were found at depths exceeding 70 metres and in the reminder of the Baltic at depths greater than 80m.
Hydrogen sulphide was found in the Western Gotland Basin from 70 metres to the bottom, and in the Eastern Gotland Basin at depths exceeding 125 metres. Low bottom oxygen concentrations were also measured in the Arkona Basin: at BY2 the concentration was only 2.09 ml/l at a depth of 46 m. High oxygen saturation (130%) in the surface layer indicated that a bloom was ongoing in the southeastern Baltic Proper as well as in the Eastern Gotland Basin.

PARTICIPANTS

Lars Andersson	Chief scientist	SMHI Oceanographic lab
Philip Axe		-”-
Hans Olsson		-”-
Sari Sipilä		-”-
Arne Svensson		-”-

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