Lars Andersson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

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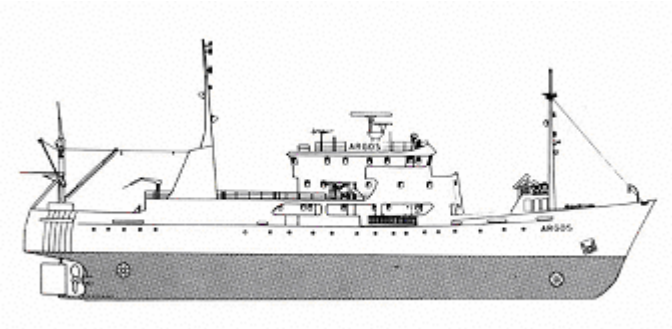
CRUISE REPORT FROM R/V ARGOS



Survey period: 2007-09-24 - 2007-09-29

Survey area: The Skagerrak, the Kattegat, the Sound, the Baltic Proper and the Bothnian Sea

Principal: SMHI

SUMMARY

The expedition was part of SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound, the Baltic Proper and parts of the Bothnian Sea.

High concentrations of phosphate and silicate were measured in the surface waters of the southern Baltic Proper. The nitrogen components showed normal values in the whole investigated area. On the west coast, nutrients showed for the season normal values, with the exception of the Sound where phosphate and silicate were elevated.

Oxygen levels in the deep waters of southeastern Skagerrak and southern Kattegat were below normal for the season. In the Baltic hydrogen sulphide was present in the Hanö Bight, Bornholm Basin and in the eastern and northern Gotland Basins.

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

The next expedition is scheduled for late October to the beginning of November, 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 September 24th and ended in Sundsvall on September 29th.
During the first day a fresh breeze from east to southeast prevailed. The following days the winds were weak to moderate, mainly from southwest to north. The air temperature varied between 9 and 17 °C.

The Skagerrak

Surface water temperatures were just below the seasonal average and varied between 13.0 and 14.3°C. Surface water salinity was higher than normal at all stations: 26.8 psu at Släggö and increasing westwards, reaching 32.3 psu at Å16. Both thermocline and halocline were well developed in the central parts, where they were found at a depth of 20 to 30 metres. In the coastal areas they were located much deeper, between 50-80m and were considerably weaker.
All nutrients concentrations were normal for the season in the surface layer: Phosphate varied between 0.03 and 0.10 µmol/l. The sum of nitrite+nitrate was below the detection limit (<0.10 µmol/l). Silicate concentrations varied between 0.7 and 1.8 µmol/l. At Släggö, at the mouth of the Gullmar fjord, high concentrations of nutrients were observed in the deep water and oxygen concentrations (2.9 ml/l) were considerably lower than normal. Also at the station P2 in the southeast, oxygen content in the deep water was clearly below normal, at only 3.8 ml/l.

The Kattegat and the Sound

Surface water temperatures in the Kattegat were normal (14.5°C). Surface salinity decreased from 26 psu in the north to 20 psu in the south. In the Sound the salinity was ca. 9 psu. The halocline was found between 10-20m. The thermocline was weak and located much lower, between 20 and 40m.
All nutrients concentrations were normal for the season in the Kattegat surface water: Phosphate concentrations were 0.10 µmol/l and nitrite+nitrate values were below the detection limit, while silicate varied between 1 and 2 µmol/l. In the surface water of the Sound, phosphate concentrations were 0.6µmol/l and silicate 13 µmol/l. These values are higher than normal. Nitrite+nitrate was below the detection limit (<0.10 µmol/l).
Unusually low oxygen concentrations were measured in the southern Kattegat (1.6 ml/l) and in the Sound (1.1 ml/l), corresponding to an oxygen saturation of 26 and 17% respectively.

Baltic Proper

Surface water temperature was normal for the season (11.7-15.2°C). The thermocline was found at a depth of app. 30m, except in the Arkona Basin where it had almost disappeared. The halocline was found at depth of 60-75m, except in the Arkona Basin were it was shallower, at about 30-35m.
Surface phosphate concentrations remain elevated in the Arkona and Bornholm Basins (0.27-0.43µmol/l). In the remaining areas concentrations varied between 0.08-0.13 µmol/l.
Silicate values were normal (ca. 7.5 µmol/l) except in the southwest where they were elevated: 9-11 µmol/l. The nitrite+nitrate concentrations were normal, i.e. below the detection limit (0.10µmol/l).
In the whole Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 65 m. In the Arkona Basin oxygen concentrations varied between 2.8-3.2 ml/l in the deep water. In the Bornholm Basin as well as in the Hanö Bight, hydrogen sulphide was found at depth exceeding 80-90 m. In the Eastern Gotland Basin, hydrogen sulphide was found at depth exceeding 125m, though hydrogen sulphide was present already at depth of 85 metres at the Fårö Deep (Station BY20). Similarly, in the northern Baltic Proper, hydrogen sulphide was observed at depths exceeding 90 metres.

PARTICIPANTS

Lars Andersson	Chief scientist	SMHI Oceanographic lab
Kerstin Andreasson		-”-
Philip Axe		-”-
Sari Sipilä		-”-
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