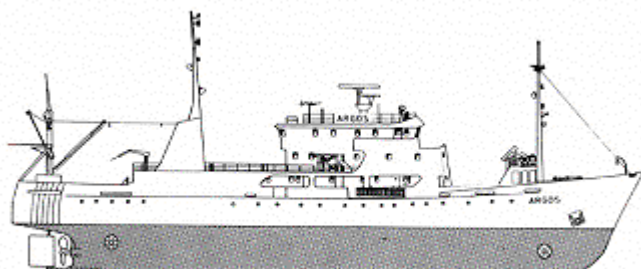


CRUISE REPORT FROM R/V ARGOS



Survey period: 2004-06-28 - 2004-07-03

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. The cruise included preliminary tests of a new conductivity-temperature-depth measurement instrument (CTD).

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

Nutrient concentrations in the surface waters were normal for the season almost everywhere. The exception was phosphate which, south-east of Öland, was clearly above normal.

Oxygen concentrations below 2 ml/l were found in the whole Baltic Proper at depths exceeding 70 metres.

Hydrogen sulphide was found at the Gotland Deep and in the Western Gotland Basin.

The next expedition is scheduled for July 26 to 31, 2004.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on June 28 and ended in the same port on July 3. The winds during the expedition were weak, and mainly from the south-west.

The Skagerrak

Surface water temperatures varied around 14°C, which is normal for the season. Surface salinity was high: over 30 psu in the open sea. Thermocline and halocline were at the same depth: between 5 and 15 metres.

Nutrient concentrations in the surface were normal for the season. Phosphate concentrations varied between 0.04 and 0.11 µmol/l and silicate between 0.4 and 1.1 µmol/l. Nitrite and nitrate were below detection limits (<0.02 and <0.10 µmol/l respectively).

The fluorescence was low. The CTD-fluorometer identified small peaks of activity in the halocline.

The Kattegat and the Sound

Surface water temperatures were between 14 and 15°C, normal for this time of year. Surface salinity was also normal: 20 psu in the Kattegat, 9 psu in the Sound. The thermocline and halocline both began at the same depths, between 5 and 15 metres.

All nutrients showed typical surface water concentrations for the season. Phosphate concentration was ca. 0.05 µmol/l, nitrite and nitrate were below the detection limit, and silicate 0.8 µmol/l. In the Sound, phosphate and silicate concentrations were higher 0.14 and 5.6 µmol/l respectively.

The fluorescence was low without pronounced peaks.

The bottom water was well oxygenated in the whole area. The lowest level recorded was in the Sound, 3.9 ml/l corresponding to 58% saturation.

Baltic Proper

Surface water temperature varied between 12 and 14°C, which is typical for the time of year. The higher temperatures were found in the north. The surface temperature extended down to a depth of 10 to 20 metres. The halocline began at between 20 and 40 metres in the south, and at 60 metres in the eastern Baltic and west of Gotland.

The autumn 2002 – spring 2003 inflows led to the uplifting of phosphate-rich deep water to the surface – particularly in the north and east of the Baltic Proper. This phosphate rich surface water was identified in earlier cruises. Due to counter-clockwise water circulation, this water is now found south east of Öland, where phosphate concentrations of 0.4 µmol/l were recorded. In the remainder of the Baltic, phosphate concentrations were normal i.e. 0.1 to 0.2 µmol/l. Silicate surface concentration was ca 6 µmol/l in the Arkona and Bornholm Basins, somewhat below normal. In the rest of the Baltic it varied between 10 and 12 µmol/l, above normal for the area west of Gotland and normal east of Gotland. The surface nitrate was consumed in the whole area.

In the south-eastern part of the Baltic (BCSIII-10) a *Dinophysis* bloom was ongoing. A cyanobacterial bloom had started both west and east of Gotland. This was dominated by the genus *Aphanizomenon* but also contained some *Nodularia*.

In the Arkona Basin, bottom water oxygen conditions were good. In the rest of the Baltic Proper however, oxygen concentrations were below 2 ml/l at depths exceeding 70 metres.

Hydrogen sulphide was found at BY15 (Gotland deep) below 235 metres (the deepest 10 metres of the profile) and in the western Gotland Basin at depths exceeding 90 metres in the northern part and 60 metres in the southern.

PARTICIPANTS

Name		From
Bengt Yhlen	Chief scientist	SMHI Oceanographic lab.
Philip Axe		-"-
Martin Hansson		-"-
Eva Nyberg		-"-
Bodil Thorstensson		-"-
Arne Sjöquist	Disembarked in the Sound	-"-
Sofia Carlsson	Trainee	

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