Bodil Thorstensson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2002-07-15
Dnr: Sh-2002-155

CRUISE REPORT FROM R/V ARGOS

Survey period: 2002-07-08 - 2002-07-13

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

Principal: SMHI

SUMMARY

The expedition was performed within SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound and the Baltic Proper.

Surface temperatures in the Skagerrak, the Kattegat and in the Baltic were normal. The nutrients showed, for the season, mostly normal values. The salinity of the surface water in the Skagerrak and the Kattegat was now normal.

Oxygen concentrations below 2 ml/l were found at depths greater than 80 metres in almost the whole Baltic Proper. Hydrogen sulphide was present at depths greater than 125 metres in the eastern Gotland Basin and in the Norrköping Deep, from 100 metres at the Karlsö Deep and from 80 metres in the Bornholm Basin.

Address:
Byggnad 31 Nya Varvet
SE-426 71 Västra Frölunda
SWEDEN

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

E-mail:
shark@smhi.se
WWW:
http://www.smhi.se/sgn0102/nodc/

PRELIMINARY RESULTS

The cruise, part of the SMHI´s ordinary monitoring programme, started in Göteborg on July 8 and ended in the same port July 13. During the expedition it was mostly sunny weather with moderate winds, first southern then eastern. The last days it was almost windless.

Sampling for the EU-project HABILE was carried out at Fladen, Anholt E and at BY5. In the Kattegat, east of Läsö, a CTD-cast was performed for a later comparison (groundtruth) with data from the SEAWATCH automate buoy (N 57° 11.28 E 11° 31.86).

The Skagerrak

The surface water temperatures varied between 15.6° and 16.6°C, which was normal. The higher temperatures were measured at coastal stations. The thermocline and halocline were both close to the surface, at depths less than 10 metres. The surface salinity was now normal, about 29 psu.

The nutrient concentrations in the surface layer were normal for the season, with the exception of nitrate, which showed slightly increased concentrations at coastal stations, 0.4-2 µmol/l. In the central Skagerrak, however, the nitrate concentration was 0.12 µmol/l. Phosphate had concentrations of 0.02-0.08 µmol/l. The silicate concentration was < 0.1 µmol/l, except for the central Skagerrak, where it was 0.5 µmol/l.
The surface layer had a slight super saturation of oxygen. The highest fluorescence was measured in the near of the coast.

The Kattegat and the Sound

Surface water temperatures varied between 16.0° (Drogden E) and 17.0°C (Anholt E), which was normal. In the Kattegat the halocline was located at a depth of less than 10 metres and the thermocline at 20 metres. In the Sound both the thermo- and halocline were at about 13 metres. The surface salinity was now normal, about 20 psu.
The phosphate concentration in the Kattegat was 0.05 µmol/l and in the Sound higher than normal, 0.24 µmol/l. The nitrate concentrations were in the whole area lower than the limit of detection, 0.1 µmol/l. In the Kattegat also the silicate was lower than the limit of detection, 0.1 µmol/l, while in the Sound the level was 9 µmol/l, that is higher than normal.
The lowest oxygen saturation was in the Sound at 20 metres, 54 %, which corresponds to 3.7 ml/l.

The Baltic Sea

Surface water temperatures varied between 15.3° and 17.3°C, which is normal of the season. The lowest temperature was measured at BY1 and at Christiansö, while the northern stations, the Fårö and Norrköping Deep, had the highest temperature. The thermocline was located at 10-20 metres. The halocline was at 15-20 metres in the Arkona Basin, at 45-50 metres in the Bornholm Basin as well as in the Hanö Bight and at 60-70 metres in the deeper parts of the Baltic.
Nutrient concentrations were mostly normal for the season. Phosphate varied between 0.02 and 0.21 µmol/l, while the nitrate concentrations were below the limit of detection (0.10 µmol/l) in almost the whole Baltic and the silicate concentrations were within the interval 6-13 µmol/l.

High fluorescence was measured in the western Gotland Basin and at the Fårö Deep. Here the surface water also had a super saturation of oxygen more than 110 %.

The oxygen situation in the deep waters of the Baltic Proper was still very bad. Oxygen concentrations below 2 ml/l were found at depths from 70-90 metres in the whole area (Norrköping 100 m). Hydrogen sulphide was found at depths from 100 metres at the Karlsö Deep, from 125 at the Norrköping Deep as well as in the Eastern Gotland Basin, and from 80 metres in the Bornholm Basin.

PARTICIPANTS

Name	From
Bodil Thorstensson, chief scientist	SMHI Oceanographical lab.
Tuulikki Jaako	- ″ -
Sari Sipilä	- ″ -
Jan Szaron	- ″ -
Bengt Yhlen	- ″ -
Josefin Ragge, praktikant	

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