Bengt Yhlen

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2002-11-16
Dnr: Sh-2002-253

CRUISE REPORT FROM R/V ARGOS

Survey period: 2002-11-11 - 2002-11-16

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

Principal: SMHI

SUMMARY

The expedition was carried out within SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound and the Baltic Proper.
Sea surface temperatures and nutrients levels were mostly normal for the season in all areas.
In the Kattegat the oxygen deficit of this year is over and the concentrations in the bottom water were normal for the season.
In the Arkona Bassin the oxygen situation in the deep water is again normal and a degree of saturation of 70% were recorded. An inflow had reached station BY4 in the Bornholm Bassin where oxygen concentrations at bottom exceeded 2ml/l. In the rest of the Baltic the oxygen situation is still very bad. Hydrogen sulphide were detected from 80 metres in the Bornholm Deep (BY5) and from 100 to 125 metres in the rest of the Baltic. Oxygen concentrations below 2ml/l occurred deeper than 60 to 80 metres in the rest of the Baltic Proper.

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 ordinary monitoring programme, began in Gothenburg on November 23 and ended in Kalmar November 16. During the expedition The weather was mostly cloudy dominated by weak to moderate winds with an easterly component. Sampling for the EU-project HABILE was carried out at once at Fladen, Anholt E and BY5

The Skagerrak

The surface water temperature was lowest along the Swedish coast 5.8°C, slightly under normal values and increased to normal 9.1°C in the central Skagerrak. The thermocline and halocline were both located at a depth of ca. 10 metres in the west and in the central Skagerrak at a depth of approx. 25 metres.
The nutrients in the surface layer were increasing, with winter approaching, and showed for the season normal values: phosphate 0.2 – 0.3, nitrate 1 – 2 and silicate ca. 2 µmol/l.
The lowest oxygen concentration in bottom water was recorded at station Släggö in the entrance of the Gullmar fjord to 3.65 ml/l corresponding to a degree of saturation of 56%.

The Kattegat and the Sound

Surface water temperatures in the Kattegat varied between 6 and 7°C and in the Sound between 7.5 and 8.3°C which is normal for the season. The thermocline and halocline lay both at a depth of approx. 15 metres.
Nutrient concentrations in the surface water were normal for this time of the year. In the Kattegat phosphate concentration was ca. 0.2 µmol/l and in the Sound approx. 0.5 µmol/l. In the Kattegat nitrate was below or near the detection limit 0.10 µmol/l) due to an ongoing bloom. In the Sound the surface nitrate concentration was ca. 2 µmol/l. In the Kattegat the silicate level was about 2 µmol/l and in the Sound 13 µmol/l.
The oxygen deficit of this year in the area is over and the concentrations in the bottom water were normal for the season. The lowest values, ca. 3 ml/l corresponding to a degree of saturation of 50%, were recorded in Skälderviken and in the Sound.

The Baltic Sea

Surface water temperatures were ca. 9°C in the Arkona- and Bornholm- Basins, which is normal and between 7.2 and 6.2°C in the rest of the area, somewhat below normal. In the Arkona- and Bornholm- Basins the thermo- and haloklone coincident at a depth of 40 metres. In the rest of the Baltic a thermocline was situated at a depth of ca. 40 metres and a halocline between 60 and 80 metres.
Phosphate and silicate concentrations were at certain stations above normal and varied between 0.5 to 0.3 and 9 to 12µmol respectively. Nitrate levels were normal for the season and lay between 1 and 2µmol.
In the Arkona Bassin the oxygen situation in the deep water is again normal and a degree of saturation of 70% were recorded. An inflow had reached station BY4 in the Bornholm Bassin where oxygen concentrations at bottom exceeded 2ml/l. In the rest of the Baltic the oxygen situation is still very bad. Hydrogen sulphide were detected from 80 metres in the Bornholm Deep (BY5) and from 100 to 125 metres in the rest of the Baltic and oxygen concentrations below 2ml/l occurred deeper than 60 to 80 metres.

PARTICIPANTS

Name	From

Bengt Yhlen	chief scientist	SMHI Oceanographical lab.
Tuulikki Jaako	-	" -
Hans Olsson	-	" -
Sari Sipilä	-	" -
Sari Sipilä	-	" -
Bodil Thorstensson	-	" -

APPENDICES

Figurer

Klicka på knappen för att öppna bilagor.
Observera att denna länk enbart fungerar
om Ni är uppkopplade mot 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