



Bengt Yhlen

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2002-01-18
Dnr: Sh-2002-23

CRUISE REPORT FROM R/V ARGOS

Survey period: 2002-01-11 - 2002-01-17

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.

The temperature as well as nutrient conditions in the surface layer were mostly normal for the season in all areas.

The two minor inflows through the Sound in the beginning of late October and November, 20 and 40 km³ respectively, have reached the Gotland Deep and the bottom water in the Baltic is now oxygenated, even though with low amounts, from the Sound to the Gotland Deep. Oxygen concentrations below 2 ml/l, were found at depths exceeding 70 to 80 metres in the western, eastern and northern Gotland Basins. Hydrogen sulphide was found between 150 to 195 metres in the Gotland Deep and in the northern and western parts of the Baltic Proper at depths from 100 to 150 metres.

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, began in Göteborg January 11 and ended in the same place January 17. The weather was dominated by moderate winds from southwest. Mapping of winter conditions was performed in the Kattegat. The first samplings for the EU-project HABILE were taken.

The Skagerrak

Surface water temperatures varied between 2.5 and 5.2 °C, lowest at the Swedish coast, highest in the central parts. A homogeneous surface layer was present down to a depth of 10 to 20 metres. The nutrients at the surface were mostly normal for the season. Phosphate concentration was about 0.5 µmol/l, silicate varied between 4 and 7 µmol/l and nitrate between 5.5 and 7.5 µmol/l. Station P2 in the southeastern Skagerrak differed with phosphate, silicate and nitrate values around, 0.7, 10 and 11 µmol/l respectively, this also normal, and besides high amounts of ammonium, nitrite, 2 and 1 µmol/l respectively.

The Kattegat and the Sound

Surface water temperatures varied between 4.0 °C and 1.3 °C, coldest in the Sound. In the Kattegat the halocline as well as the thermocline were found at a depth of 10 to 20 meters and in the Sound at 5 meters. The whole of the Sound was stratified. All nutrients showed for the season normal values in the surface layer. Phosphate concentration was 0.5 µmol/l. Silicate was dominated by values around 10 µmol/l. The sum of nitrate plus nitrite was lowest in the southern part of the Sound 3.4 µmol/l and highest in the northwestern part of Kattegatt, 7.1 µmol/l.

The Baltic Proper

Surface water temperatures varied between 4.1 and 2.5 °C, which is normal for the season. Thermocline and halocline were located at the same depth and were found in the Arkona Basin at 40 metres, in the Gotland deep at 80 metres and in the remaining parts at depths between 55 to 70 metres.

In the Arkona and Bornholm Basins the surface salinity and the amount of dissolved inorganic nitrogen were lower than normal. In the rest of the Baltic proper the surface layer showed normal salinity and nutrient concentrations; phosphate 0.4-0.7 µmol/l, nitrate 2.5-4.3 µmol/l and silicate 10-15 µmol/l.

The two minor inflows through the Sound in the beginning of late October and November, 20 and 40 km³ respectively, have reached the Gotland Deep and the bottom water in the Baltic is now oxygenated, even though with low amounts, from the Sound to the Gotland Deep. Oxygen concentrations below 2 ml/l were present below 80 metres in the Hanö Bight and at station BY4 in the Bornholm Basin and at depths exceeding 70 to 80 metres in the western, eastern and northern Gotland Basins, at the Gotland Deep however first from 100 metres.

Hydrogen sulphide was found between 150 and 195 metres in the Gotland Deep, and in the northern and western parts of the Baltic Proper at depths from 100 to 150 metres.



PARTICIPANTS

Name	From
Bengt Yhlen,	chief scientist SMHI Oceanographic lab
Tuulikki Jaako	- " -
Jan Szaron	- " -
Bodil Thorstensson	- " -
Jorge Valderrama	- " -
Bengt Karlsson	disembarked 020112

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