

CRUISE REPORT FROM R/V ARGOS

Survey period: 981207-981212

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

Principal: SMHI

SUMMARY

The expedition was performed within SMHI's regular monitoring programme and covered the Skagerrak, the Kattegat, the Sound and the Baltic Proper. The weather during the expedition started with strong winds from the north. Then the weather was calm and sunny. The last day again there was windy weather. The winds came from southeast.

The surface water temperatures were between 4.6 and 6.4°C in the Baltic, between 1.8-2.8°C in the Sound and in the Kattegat and between 3.1-5.5°C in the Skagerrak.

Oxygen concentrations below 2 ml/l were found at 70 m or deeper in the southeastern Baltic, in the Bornholm Basin and Hanö Bight, at 80 m or deeper in the East Gotland Basin and at the Karlsö Deep. Hydrogen sulphide was present from 150m in the East Gotland Basin, from 80m in the Bornholm Basin and in the Hanö Bight at 79 m. The bottom water had 50% oxygen saturation in the station W Landskrona. In the Baltic surface water the phosphate concentrations were between 0.30-0.45 µmol/l and the nitrate concentrations were of the level 2.0-2.9 µmol/l. The nitrate values of the Kattegat and the Sound were between 3.7-5.1 µmol/l and those of the Skagerrak were between 4.6-5.8 µmol/l.

A detailed algal report is available on <http://www.smhi.se/sgn0102/nodc/reports/> for the survey period.

PRELIMINARY RESULTS

The expedition, which was part of SMHI's regular marine monitoring programme, started in Kalmar the 7th of December and ended in Göteborg the 12th of December. Sampling was done at the station 441 Stevns klint for the "Kontroll- och Styrgruppen för Öresundsförbindelsen". During the first part of expedition in the western and northern Baltic the wind from the north was strong with a velocity up to 18 m/s. In the eastern Baltic the wind was moderate and the weather cloudy. Calm and sunny weather was developed during the expedition in the southern Baltic. The last day again there was windy weather. The winds came from southeast.

The Skagerrak

The surface water temperatures varied between 3.1 and 5.5°C. The highest value of this interval was given by measurements at the stations HS5 and Å16. Also the concentrations of nitrite and ammonia respectively of the surface water at these stations were the same, approximately 1.2 resp. 1 µmol/l. These values were the highest measured in the region during this expedition. The nitrate concentrations were within the interval 4.6-5.8 µmol/l.

The Kattegat and the Sound

The surface water temperatures varied between 1.8 and 2.8°C. The lowest temperature was registered at Kullen and the highest at Läsö ränna. In the whole area there was an upper layer of 10 m, that had a much lower temperature and salinity than the lower layer.

At W Landskrona the oxygen saturation was 50% of the bottom water. The concentrations of nitrate for the Sound and the Kattegat were almost twice those of the Baltic, 3.7-5.1 µmol/l.

The Baltic

The surface water temperatures in the Baltic were between 4.6 and 6.4°C. The highest value was measured in the northern Baltic. The thermo- and halocline at BY29 were pronounced and had a depth of 75 m, while those in the southern Baltic had a depth of about 40 m. Hydrogen sulphide was sampled in the Bornholm Basin at Christiansö and the Bornholm Deep at 80 m, in the eastern Gotland Basin at BY10, the Fårö Deep and the Gotland Deep, from 140, 150 and 170 m respectively. At the station Hanö Bight hydrogen sulphide was found at the deepest sampling, 79 m.

The limit of an oxygen concentration < 2 ml/l was at 80 m in the eastern Gotland Basin, the Karlsö and Bornholm Deep, at 70 m in the southeastern Baltic, Christiansö and the Hanö Bight.

The phosphate concentration in the surface layer was between 0.30-0.45 µmol/l. The concentration of nitrate was varying between 2.0-2.9 µmol/l with one exception for 441 Stevns klint, where the concentration was 4 µmol/l. Even the concentration of nitrite here was higher in comparison with the variation of the ordinary stations, that is 0.50 µmol/l compared with 0.05-0.25 µmol/l.

PARTICIPANTS

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APPENDICES

- Track chart
- Table of stations, parameters and sampling depths
- Map showing bottom oxygen concentrations
- Depth profiles of selected stations
- Monthly average and presently observed values of selected stations