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CRUISE REPORT FROM R/V ARGOS

Survey period: 2000 10 02 - 2000 10 06

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

Principal: SMHI

SUMMARY

The expedition was performed within SMHIs regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound, and the Baltic Proper. There was an enlarged sampling in the south-eastern Kattegat to examine the oxygen of the bottom water. The water near the bottom of Laholmsbukten and Skälderviken had an oxygen content of 0.10 and 0.38 ml/l respectively. In the Sound there was less than 2 ml/l from 15 meters and deeper at W Landskrona.
Surface temperatures varied between 13.4 and 15.1°C. Nutrient concentrations were normal for the season. Hydrogen sulphide was present in the bottom water in the Bornholm Basin, Hanö Bight and the eastern and western Gotland Basins.
Some of these results indicate that the oxygen situation is worse than normally for the season.

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PRELIMINARY RESULTS

The expedition, which was a part of the SMHI ordinary monitoring programme, began in Göteborg on the 2nd of October and ended in Västervik on the 6th of October. Because low oxygen concentrations newly had been found in the Kattegat, an increased sampling in the Southeast Kattegat was done during this expedition. The weather was in the beginning featured by a high pressure in the east. Weak winds from the northeast dominated, which soon changed direction and turned to the southwest and later to the southeast. Most of the time the weather was partly cloudy.

The Skagerrak

The surface temperatures varied between 13.4 and 13.7°C. The thermocline was located at depths of 50 to 70 metres, and the halocline at 5 to 15 meters. The salinity of the surface was about 20 psu, which is somewhat lower than normal. The reason was a stable high pressure in the east, which had pressed the surface water out of the Baltic.
The oxygen saturation of the bottom water at those stations, which were near the coast, was 72 and 73%. The nutrients had concentrations within a normal variation.

The Kattegat and the Sound

The surface water temperatures were between 13.4°C and 13.6°C. The thermocline had mainly been equalized with exception of Laholmsbukten and Skälderviken, where it was situated at a depth of about 10 metres. The halocline was between the depths 10 and 15 metres at Fladen and Anholt E, somewhat more near the surface at the other stations. The salinity of the surface was still lower than normally in the Kattegat, 16 psu, but in the Sound, however, enhanced values were recorded (16-17 psu). This later depended on an inflow to the Baltic, when the high pressure eastwards was weakened. Also the bottom layer in the Sound had a high salinity, e.g. the water from a depth of 2 metres in Oskarsgrundet had the salinity of 32 psu.
The oxygen concentration of the inner parts of Laholmsbukten and Skälderviken had further lower values on comparison with the sampling one week earlier, that is 0.10 and 0.38 ml/l in the bottom water. At the station W Landskrona in the Sound the oxygen concentration was less than 2 ml/l from 15 metres and deeper.
The nutrients of the surface water were normal for the season with exception of the silicate value at Fladen, that still was higher than usual (5.6 µmol/l). From 5 metres and down below the halocline at W Landskrona all nutrients had high concentrations, especially ammonia, 1.6 µmol/l, and silicate, 23 µmol/l.

The Baltic Sea

Surface temperatures varied from 13.5°C to 15.1°C. In the south of the Baltic the temperature was somewhat higher than normally. The thermocline was at a depth of 30 to 40 metres, while the halocline was deeper, 50-70m.
The oxygen concentration less than 1 ml/l there was from 60m in the Hanö Bight, from 70m in the Bornholm Basin, from 80m in the Norrköping Deep and from 90m in the eastern Gotland Basin together with the Karlsö Deep. Hydrogen sulphide was shown at a depth of 70 metres in the Hanö Bight, from about 80 metres in the Bornholm Basin, from 100m in the Karlsö Deep, from 125m in the Fårö Deep, from 140m in the Gotland Deep and from 175m in the Norrköping Deep. Some of these results indicate that the oxygen situation is worse than normally for the season. The level of the nutrient concentrations was normal.

PARTICIPANTS

Name	From
Bodil Thorstensson, chief scientist	SMHI Oceanographical lab.
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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