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CRUISE REPORT FROM R/V ARGOS

Survey period: 980921-980925

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. Surface temperatures varied between 13 and 15 degrees C. Nutrient concentrations were normal for the season in all areas. High fluorescence values were measured in the frontal zone between Skagerrak and Kattegat as well as in the northern part of the Sound. Hydrogen sulphide was found at depths greater than 70 meters in the southern Baltic and at depths greater than 120-150 meters in the eastern Gotland Basin.

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

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PRELIMINARY RESULTS

The expedition, which was a part of the SMHIs ordinary monitoring programme, began in Göteborg on the 21th of September and ended in Västervik on the 25th. During the main part of the expedition the winds were weak with varying directions.

The Skagerrak

The surface water temperature was about 15°C in the whole area. The halocline was located at a depth of 15 meters except at station HS5 where the whole water column was homogeneous with a salinity of 33.5 psu. The whole surface layer was emptied of nitrogen, while phosphate concentrations varied between .07 and .20 µmol/l, with the lowest values in the central parts. Silicate was found in concentrations between .4 and 1.5 µmol/l. Very high fluorescence values were measured in the frontal zone between the Skagerrak and the Kattegat. At station P2 in the southeastern part an oxygen saturation value of 123% was measured at a depth of 10 meters, coinciding with a high fluorescence peak.

The Kattegat and the Sound

As in the Skagerrak, surface water temperature was around 15°C. In the northern part the halocline was located at a depth of 10 m and in the southern part at 15 m. Nitrite and nitrate concentrations in the surface layer were close to or below detection limits (.02 and .10 µmol/l res.), phosphate varied around .10 µmol/l and silicate between 3 and 5 µmol/l. In the Sound there was a strong two-layer stratification, with salinity of 8 psu in the surface and 32 psu in the deep water. Silicate concentration was ca. 11 µmol/l while the rest of the nutrients showed the same values as in the Kattegat. In the northern part of the Sound high fluorescence values were measured.
The lowest oxygen concentration measured in the Kattegat bottom water was 1.62 ml/l (26% saturation) at Kullen. At station W Landskrona in the Sound, oxygen concentrations below 15 m were ca. 1.5 ml/l corresponding to a saturation of approximately 20%.

The Baltic Sea

The thermocline was located at depths between 15 and 20 meters and the surface water temperature varied between 13.5 and 15°C. All nutrients showed, for the season, typical values, i.e. nitrite and nitrate around detection limits, phosphate between .08 and .014 µmol/l and silicate between 6.5 and 10 µmol/l.
Low oxygen concentrations (<2 ml/l) were found at depths greater than 40 m at station BY2 in the Arkona and at depths greater than 60 m in the Hanö Bight and Bornholm Basin. In the central and northern parts of the Baltic Proper values below 2 ml/l were found at depths exceeding 80 meters. Hydrogen sulphide were present in the Hanö Bight and the Bornholm Basin at depths greater than 70 m, and in the Eastern Gotland Basin from 125-150 meters and downwards.

PARTICIPANTS

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Lars Andersson, chief scientist	SMHI Oceanographic Services.
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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