

CRUISE REPORT FROM R/V ARGOS

Survey period: 2001-11-12 - 2001-11-16

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 of the surface water in the Skagerrak was some degree higher than normal. The nutrient concentrations were higher than normal in the Kattegat and the oxygen content of the bottom water was lower.

Nutrient conditions and surface water temperatures were normal for the season in the Baltic.

Hydrogen sulphide was found in the Bornholm, Karlsö and Norrköping Deep from 80-90 meters and from 150 meters in the Landsort Deep, while an inflow of saline water had reached Christiansö and the bottom water was oxygenous.

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PRELIMINARY RESULTS

The cruise, part of the SMHI ordinary monitoring programme, began in Göteborg on the 12th of November and ended in Västervik the 17th of the same month. The expedition started after a day with strong winds. Before then there was a period of some weeks, when the wind sometimes had gale force. This resulted in an inflow to the Baltic, which was calculated to 20 km³ during week 40 and 40 km³ during week 44 and half of the week 45. The weather was sunny with an air temperature of 6°C and the wind was northwestern with a weak to medium strength during the first part of the week. In the southeastern Baltic the expedition was affected by a low pressure from northwest. The barometric pressure had been as high as 1032 hPa. The wind-force increased and in a short time it had reached gale force with squalls of 35 m/s. Because of this the expedition had to change route, why some stations east and northeast of Gotland had to be cancelled. Some of them can be visited during week 47.

The instrument CTD, which measures temperature, salinity and fluorescence vertically in situ, did not function during the first days.

The Skagerrak

Surface water temperatures varied between 9.7°C and 11.2°C. The lowest temperature was measured in the central part of the Skagerrak and it was within a normal level, while the other temperatures were higher than normal with the highest temperature in the mouth of the Gullmar's fjord.

The phosphate concentrations were 0.2-0.5 µmol/l. The highest concentration was measured in the mouth of the Gullmar's fjord and this was higher than normal. Here aswell the highest nitrate concentration was found. Nitrate varied between 1.6 and 5 µmol/l. The silicate concentration was within normal values, 1.3-5.6 µmol/l.

The Kattegat and the Sound

Surface water temperatures varied between 6.9°C (W Landskrona) and 9.9°C (Fladen). The oxygen situation has been better in the Sound because of the saline inflows. The oxygen concentration of the bottom water was 3.2 ml/l at W Landskrona. In the Kattegat the concentration of oxygen was lower than normal, 3.4-4.3 ml/l. The concentration of phosphate at Fladen, 0.5 µmol/l, and W Landskrona, 0.2 µmol/l, was higher and lower respectively than normal. The nitrate concentration was higher than normal in the Kattegat, 2-3 µmol/l. Nitrate- and silicate values of the Sound were almost lower than normal, 1.6 and 5.7 µmol/l respectively. In the Kattegat there was a normal silicate level, 2.6-3.9 µmol/l.

The Baltic Sea

Surface water temperatures varied between 6.2°C and 9.3°C, which is normal. The lowest temperature was measured in the western Baltic and the highest at Arkona. In the Hanö Bight, the Norrköping, the Karlsö and the Bornholm Deep the oxygen content was <2ml/l from a depth of 70 meters, in the southeastern Baltic and at the Landsort Deep from a depth of 80 meters and at

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Christiansö only at the level of 80 meters, as the inflows of saline water into the Baltic after having passed BY1 and BY2 reached Christiansö with oxygenous bottom water. In the Bornholm, Norrköping and Karlsö Deep there was hydrogen sulphide from 80-90 meters and at the Landsort Deep from 150 meters.

The nutrients were normal for the season. The phosphate concentration varied between 0.2-0.3 $\mu\text{mol/l}$, the nitrate concentration between 0.5-1.2 $\mu\text{mol/l}$ and the silicate concentration 6.8-8.6 $\mu\text{mol/l}$.

PARTICIPANTS

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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
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