

CRUISE REPORT FROM R/V ARGOS

Survey period: 20000514-20000519

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 surface temperatures were higher than normal, on the west coast up to 5 °C above mean for the season. Nutrient concentrations were normal for the season in all areas.

Oxygen concentrations below 2 ml/l was generally found at depths exceeding 80 to 90 metres in the whole Baltic Proper.

Hydrogen sulphide was found in the deep water in the Eastern Gotland Basin.

PRELIMINARY RESULTS

The expedition, which was a part of the SMHI ordinary monitoring programme, began in Göteborg on the 14th of May and ended in the same port on the 19th. The weather was dominated by clear skies and weak winds of varying directions.

The Skagerrak

Surface temperature varied from 11.5 °C in the outer parts, to 13.5 °C in the coastal zone. This is 2-3 degrees warmer than normally. The thermocline was located at a depth of 5 meters and the halocline at 10-15 meters depth. Salinity in the surface layer close to the Swedish coast was unusually low, about 10 psu below the normal. This indicates a large addition of Baltic water. The nutrients showed normal concentrations for this time of the year. Nitrate was below detection limit (<0.10 µmol/l), phosphate 0.10 µmol/l and silicate 1-2 µmol/l. Chlorophyll varied between 1 and 2 µg/l in the surface layer. At station Å17 there was an obvious maximum at 10 meters depth with 5-6 µg/l.

The Kattegat and the Sound

Surface temperature in this area was about 15 °C, which is approximately 5 degrees higher than normal values. As in the Skagerrak, the salinity in the Kattegat surface water was about 10 psu lower than normally. The thermocline and halocline were found at the same depth, about 5 meters. This is an unusually shallow halocline. The nutrient levels were typical for the time of the year, nitrate <0.10 µmol/l, phosphate 0.05 µmol/l and silicate 2-4 µmol/l. Chlorophyll varied between 1 and 2 µg/l in the surface layer. At 10-15 meters depth there were chlorophyll maxima with 3-6 µg/l.

The Baltic Sea

Surface temperature varied from about 11 °C in the south parts, which is much higher than normal values, to about 8 °C in the northeast parts, which is more typical for the time of the year. Also in this area all nutrients, in the surface layer, showed for the season typical values, nitrate <0.10 µmol/l, phosphate 0.10-0.25 µmol/l and silicate 3-15 µmol/l.

Oxygen conditions in the deep water were, as usual, poor. At depths deeper than 80-90 meters the concentrations were below 2 ml/l in almost the entire area. Hydrogen sulphide was present at stations BY15 and BY20 in the eastern Gotland Basin below 130 meters depth. At station BY10 in the eastern Gotland Basin the oxygen minimum (0.96 ml/l) was located at a depth of 90 meters. Below this the concentrations were higher (2.5 ml/l at 144 m depth) which indicates that water from an earlier inflow has reached this area.

In the Arkona Basin and the Bornholm Basin there were large amounts of *Aphanizomenon* sp. Accumulated at the surface, together with *Pinus* pollen. *Dinophysis* spp. were common. The chlorophyll concentrations in the upper 10 meters were here 8-12 µg/l. At the other stations the chlorophyll was in the range of 1-3 µg/l. At the Gotland Deep (BY15) there was a maximum at 5-10 meters depth with about 5 µg/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