

CRUISE REPORT FROM R/V ARGOS

Survey period: 2002-04-15 - 2002-04-20

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 and nutrient concentrations in the surface layer were normal for the season in most areas. The surface salinity on the West-Coast was 10 to 15 psu lower than normal. High nitrate concentrations were measured in the Arkona Basin, two times normal winter values. The spring bloom of phytoplankton was at its end on the West Coast while it was still ongoing in the Baltic Proper.

Oxygen concentrations below 2 ml/l was found at depths greater than 70 to 80 metres in the whole Baltic Proper. Hydrogen sulphide was present at depths greater than 125 metres in the eastern Gotland Basin from 100 metres at the Karlsö Deep and from 175 metres at the Norrköping Deep.

PRELIMINARY RESULTS

The cruise, part of the SMHI ordinary monitoring programme, began in Göteborg on April 15 and ended in the same port April 20. The weather during the first part of the expedition was dominated by moderate winds from north and northeast, while the later part was dominated by weak wind of varying directions.

Sampling for the EU-project HABLE was carried out at Fladen and at Anholt E.

The Skagerrak

The surface water temperatures varied between 6.2 and 6.6°C, highest near the coast and the lowest in the central parts. The halocline was close to the surface at depths less than 10 metres, and the surface salinity extremely low, 10 to 15 psu lower than normal.

The nutrient concentrations in the surface layer were normal for the season. Phosphate concentrations were 0.05-0.1 µmol/l, nitrate from below detection limit (0.10 µmol/l) in the central parts to 4.2 µmol/l in the south and silicate from 0.3 to 3 µmol/l, highest in the coastal zone. The spring bloom was still ongoing and oxygen saturation in the surface layer varied between 105 and 120%.

The Kattegat and the Sound

Surface water temperatures varied between 5.9 and 6.6°C the lowest temperature was measured in the Sound. The halocline was located at a depth of ca. 10 metres and as in Skagerrak, surface salinity was extremely low.

The nutrient concentrations of the surface water were normal for the season, phosphate 0.02-0.12 µmol/l, highest in the Sound. Nitrate concentrations were below detection limit, 0.1 µmol/l and silicate between 0.6 and 4.3 µmol/l, with the highest value in the Sound. Fluorescence showed low values and the spring bloom was almost over. High nitrate concentrations, ca. 13 µmol/l were measured in an intermediate layer at a depth of 15 to 20 metres at Fladen.

The Baltic Sea

Surface water temperatures varied between 3.4 and 5.1°C, which is normal of the season. The lowest temperature was measured in the northwestern Baltic and the highest at Arkona in the south. The thermocline and the halocline were located at the same depth, in the Arkona Basin at 35 metres, in the western and southern Baltic at 50-60 metres and in the eastern part at 60-70 m.

Nutrient concentrations were normal for the season; phosphate varied from 0.05 µmol/l in the south where the spring bloom was at its end to 0.5 µmol/l in the central parts where the bloom had started, nitrate from below detection limit (0.10 µmol/l) in the south to 0.7 µmol/l and silicate between 3 and 14 µmol/l. At the station BY1 in the Arkona Basin, nitrate concentrations above 6 µmol/l were measured, which is about twice the normal winter values. High fluorescence peaks were found at several stations in the whole area. Oxygen saturation was between 107 and 113%.

The oxygen situation in the deep waters of the Baltic Proper is still very bad. Oxygen concentrations below 2 ml/l were found at depths from 70-90 metres in the whole area. Hydrogen sulphide was found at depths exceeding 100 metres at the Karlsö Deep, from 175 at the Norrköping Deep and from 125 metres in the Eastern Gotland Basin.

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