

CRUISE REPORT FROM KBV001 POSEIDON



Survey period: 2012-01-09 - 2012-01-16

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

Principal: SMHI

SUMMARY

The expedition was part of SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound and parts of the Baltic Proper. The winter pool of nutrients were mapped in the Kattegat and the Sound.

Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures were higher than normal in parts of the Baltic Proper. Concentrations of inorganic nitrogen were mainly normal, with the exception of some areas in Skagerrak where they were somewhat elevated. Phosphate values were normal in Skagerrak and Kattegat but higher than normal in the Baltic. Silicate showed concentrations high above normal in all areas.

The bottom waters of the Arkona Basin, the Hanö Bight and the Bornholm Basin were well oxygenated, due to the minor inflows that occurred in December. Oxygen concentrations below 2 ml/l were found at intermediate depths in the Bornholm Basin and in the Eastern Gotland Basin.

The next expedition will hopefully take part in February.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on January 9th and ended in the same port January 16th. Winter nutrient conditions were mapped in the Kattegat and the Sound. Winds during the expedition were moderate to strong from various directions. Air temperature was around 5°C. Due to bad weather conditions and an accident the expedition had to be shortened and no stations in the Western or Northern Gotland Basins were visited.

The Skagerrak

Surface water temperatures were normal and varied between 4.5 and 7.5°C. Surface salinities were also normal, varying between 31 to 34.5 psu. The halocline and thermocline coincided at a depth of 10 to 20 metres and were relatively weakly developed.

Phosphate concentrations in the surface water showed typical winter values, about 0.5 µmol/l. The sum of nitrite + nitrate varied from 5 to 10 µmol/l, somewhat above normal in the westernmost parts. Concentrations of silicate were clearly elevated in the main parts, between 4 and 11 µmol/l.

The Kattegat and the Sound

Surface water temperatures were slightly above normal, varying from 4.5 to 6°C. Surface salinity increased from 20 psu in the south to 30 psu in the north, while in the Sound it varied between 11 and 13 psu. The halocline and thermocline were both found at 10 to 20 metres in the Kattegat and at 15 metres in the Sound.

Phosphate as well as nitrite+nitrate concentrations in the surface layer showed typical winter values. Phosphate varied between 0.5 and 0.7 µmol/l, while the sum of nitrite and nitrate was in the interval 4 to 10 µmol/l, lowest in the Sound and highest in the northern Kattegat. Silicate concentrations on the other hand were clearly enhanced, between 10 and 18 µmol/l.

Oxygen conditions in the deep water were good. The lowest oxygen concentration in the bottom water was measured at the station Stora Middelgrund in the Kattegat, 6.4 ml/l corresponding to a saturation of about 90%.

Baltic Proper

Only the southern part and the Eastern Gotland Basin were visited during the expedition. Surface water temperature was somewhat above normal for the season and varied between 4.5 and 5.1°C. The thermocline was missing or very weakly developed. Surface salinity varied from ca. 7 psu in the east to somewhat above normal, 8.9 psu in the southwest. The halocline began at a depth of 40 metres in the Arkona Basin and at 50 to 80 metres in the remaining areas.

Concentrations of nitrite+nitrate in the surface layer were normal, between 2 and 3.2 µmol/l.

Surface phosphate and silicate were clearly elevated, varying between 0.7 and 0.9 µmol/l and 12 to 15.5 µmol/l respectively.

The bottom water of the Arkona Basin, the Hanö Bight and the Eastern Gotland Basin were well oxygenated, as a result of the inflows that occurred in December. Oxygen concentrations below 2 ml/l were measured at intermediate depths, between 60 and 80 metres in the Bornholm Basin, as well as at depths exceeding 70 metres in the remainder of the investigated areas.

Hydrogen sulphide was found in the bottom water at the station BCS III-10, in the south-eastern part, as well as at depths exceeding 90 to 125 metres in the eastern Gotland Basin.

PARTICIPANTS

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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