

CRUISE REPORT FROM KBV001 POSEIDON



Survey period: 2011-10-14 – 2011-10-20

Survey area: The Skagerrak, the Kattegat, the 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 the Baltic Proper. Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures as well as surface salinities were at normal levels for the season in the whole investigated area.

Surface nutrient concentrations were mainly normal in most areas.

Oxygen concentrations below 2 ml/l were found at depths exceeding 70-80 metres in the Baltic Proper, and at one station in the Arkona Basin.

Hydrogen sulphide was present in the eastern- and western Gotland Basins as well as in the Bornholm Basin and the Hanö Bight. For the first time since the late 1980s SMHI also measured hydrogen sulphide at the station BCSIII-10 in the south-eastern part of the Baltic Proper.

The next expedition is scheduled for November 15 to 20, 2011.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on October 14 and ended at the same port October 20.

Winds during the beginning of the expedition were moderate and increased too strong during the later part. The directions were mainly between west and southwest. Air temperature varied between 7 and 10 degrees Celsius. Thanks to the crew on KBV001 POSEIDON for great help during the expedition.

The Skagerrak

Surface water temperatures were normal and varied from 14°C at the coast to 12°C in the central parts. Surface salinities varied from normal 22 psu in the southeast to 32.3 psu, somewhat above normal, in the more westerly parts. The halocline and thermocline coincided at a depth of 10 to 20 metres in the central parts while they were found shallower closer to the coast.

Surface nutrient concentrations, which had increased since the last expedition in September, showed typical values for the season in the central parts, while they were clearly elevated closer to the coast. Phosphate concentrations varied from 0.04 µmol/l in the west to 0.23 µmol/l at the coast, silicate between 1.7 to 5.0 µmol/l. The sum of nitrite + nitrate was below detection limit (<0.10 µmol/l) in the central parts and at a level of 2 µmol/l in the southeast.

The Kattegat and the Sound

Also in this area surface water temperatures were normal, about 12.5°C (10.4°C in the Sound).

Surface salinity varied between 22.2 and 25.6, while it was 9.9 psu in the Sound. The halocline and thermocline coincided at a depth of 10 to 25 metres in the Kattegat and at 15 metres in the Sound.

Surface nutrient concentrations were mostly normal both in the Kattegat and in the Sound: phosphate varying between 0.11 and 0.21 µmol/l (in the Sound 0.46 µmol/l), nitrite + nitrate from below detection limit to 0.18 µmol/l (0.42 µmol/l in the Sound). Silicate was somewhat elevated and varied between 4.9 and 6.1 µmol/l (in the Sound 12.1 µmol/l).

The lowest oxygen concentration in the bottom water was measured in the central part of the Sound, 2.1 ml/l corresponding to a saturation of 34%.

Baltic Proper

Surface water temperatures were normal for the season and varied between 10.4 and 12.6°C. Also surface salinities were normal, varying from 6.6 psu in the north to 7.7 psu in the south. The thermocline was found at depths between 20 and 40 metres. The halocline began at depths between 25 to 40 metres in the Arkona Basin and at 40 to 60 metres in the remaining areas.

All nutrients showed, for the season, almost normal values, with the exception for one station in the western Gotland Basin (BY38) where all parameters showed elevated levels. Surface phosphate concentrations varied between 0.11 and 0.39 µmol/l (BY38 0.45 µmol/l). Surface nitrite + nitrate were below detection limit, with the exception for BY15, 0.29 µmol/l and BY38, 0.14 µmol/l. Silicate varied between 6.6 and 10.3 µmol/l (BY38 12 µmol/l).

The oxygen conditions in the bottom water of the Arkona Basin were variable, at the station BY1 good conditions prevailed, 5.9 ml/l, while the concentration at station BY2 was only 1.8 ml/l. In the remainder of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 80 metres. Hydrogen sulphide was present in the Bornholm Basin and Hanö Bight from 80 metres, deeper than 70 to 100 metres in the western Gotland Basin and from 100 to 130 metres in the eastern Gotland Basin. For the first time since the late 1980s, hydrogen sulphide was also measured in the bottom water at station BCS III-10 in the south-eastern area.

PARTICIPANTS

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APPENDICES



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