

CRUISE REPORT FROM KBV001 POSEIDON



Survey period: 2011-06-17 - 2011-06-23

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 normal in most areas, with the exception of silicate that showed levels below normal in the main part of the Baltic Proper.

The oxygen conditions in the bottom water of the Arkona Basin were very variable while concentrations between 0.9 and 3.4 ml/l. Elsewhere in the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 50-70 metres.

Hydrogen sulphide was found in the Eastern - and Western Gotland Basins.

The next expedition is scheduled for July 10 to 15, 2011.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on June 17 and ended at the same place June 23.

Winds during the expedition were fresh to moderate, mainly from southwest. Air temperature varied between 12 and 15 degrees Celsius.

The Skagerrak

Surface water temperatures were normal and varied from 15.5°C at the coast to 13.3°C in the central parts. Surface salinities were also normal, varying from 24.5 psu in the southeast to 30 psu in the west. The halocline and thermocline coincided at a depth of 15 to 20 metres in the central parts while they were weakly developed the remaining areas.

Surface nutrient concentrations showed typical values for the season: phosphate concentrations varied from below detection limit (<0.02 µmol/l) to 0.04 µmol/l, silicate between 0.1 and 1.2 µmol/l and the sum of nitrite + nitrate was below detection limit (<0.10 µmol/l) in the whole area.

Fluorescence measurements and oxygen saturation indicated that plankton activity was relatively low except close to the coast.

The Kattegat and the Sound

Also in this area surface water temperatures were normal, varying from 15°C in the north to 16°C in the south (16.8°C in the Sound). Surface salinity increased from 18.8 psu in the south to 20.5 psu in the north, while it was about 11.4 psu in the Sound. The halocline and thermocline were both found at a depth of 15 metres in the Kattegat and at 10 metres in the Sound.

Surface nutrient concentrations were mostly normal both in the Kattegat and in the Sound: phosphate varying between 0.02 and 0.06 µmol/l, silicate between 0.7 and 3.1 µmol/l and nitrite + nitrate below detection limit.

The lowest oxygen concentration in the bottom water was measured in the central part of the Sound: 4.9 ml/l corresponding to a saturation of 68%.

Peaks in fluorescence were found at a depth of 20 metres at some stations.

Baltic Proper

Surface water temperatures were normal for the season and varied from 12.9°C in the northwest to 15.3°C in the Arkona basin. Surface salinity was normal, varying from 6.7 psu in the north to 7.3 psu in the south. The thermocline was found at depths between 10 and 20 metres. The halocline began at a depth of 40 metres in the Arkona Basin and at 50 to 70 metres in the remaining areas. Surface phosphate concentrations were normal, varying between 0.07 and 0.20 µmol/l. Surface nitrite + nitrate were also normal, below detection limit in the whole study area. Surface silicate was slightly below normal in the main part of the area, 3.8-7.8 µmol/l.

The oxygen conditions in the bottom water of the Arkona Basin were variable, at the station BY1 a value as low as 0.9 ml/l was measured, while the concentration at station BY2 was 3.4 ml/l. In the remainder of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 80 metres. In the Bornholm Basin, hydrogen sulphide was detected in the bottom water at station BY4. Hydrogen sulphide was also found deeper than 90 metres in the Western Gotland Basin and from 140 to 150 metres in the Eastern Gotland Basin.

Fluorescence measurements together with oxygen saturation indicated that a bloom was ongoing in the surface layer.

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