

Report from SMHI's monitoring cruise with KBV001 Poseidon



Survey period: 2013-07-30 - 2013-08-02
Survey area: Skagerrak, Kattegat and the South-Western part of the Baltic Proper
Principal: SMHI and the Swedish Agency for Marine and Water Management

SUMMARY

The expedition was part of the Swedish regular marine monitoring programme and covered Skagerrak, Kattegat and the south-western part of the Baltic Proper. Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures were somewhat above normal for the season in all investigated areas. All nutrients in the surface layer had low concentrations which is normal for the season. The oxygen condition in the Kattegat bottom water was good while the concentrations had decreased somewhat since the previous expedition in the southern Baltic Sea.

The next expedition is planned to take place August 12-15.

PRELIMINARY RESULTS

The cruise began in Göteborg on July 30th and ended in the same port on August 2nd. Winds during the expedition were weak to moderate, mainly from west. Air temperature varied between 17 and 20°C.

The Skagerrak

Surface water temperatures were somewhat above normal for the season and varied from 18.7 to 20.5°C, highest close to the coast. Surface salinities were between 22 and 30 psu. Halocline and thermocline coincided and were found at depths between 5 and 15 metres.

In the surface layer, all nutrients showed normal values for the summer season. Phosphate concentrations varied from below detection limit (0.02 µmol/l) to 0.04 µmol/l. The sum of nitrite+nitrate was below detection limit (0.10 µmol/l) in the whole area, while the concentrations of silicate varied between 0.1-0.9 µmol/l, highest at the coast. Unusually high concentrations of phosphate (0.57 µmol/l) and silicate (7.9 µmol/l) were found at 30 metres depth, at the station P2 in the south-eastern area.

Phytoplankton activity, based on fluorescence measurements and oxygen saturation, were detected in thin layers at intermediate depths between 25 and 30 meters.

The Kattegat and the Sound

Also in this area, surface water temperatures were somewhat above normal. In Kattegat it varied between 19.5 and 20.5°C, while it in the Sound was 18.8°C. Surface salinity, in Kattegat, increased from 19.5 psu in the south to ca. 24.5 psu in the north. In the Sound surface salinity was ca. 10 psu. Thermocline and halocline coincided and were, in Kattegat, found at 15 meters depth. In the Sound, several water masses were present, with a shallow thermocline/halocline at a depth of 5 meters and a secondary thermocline/halocline at a depth of 10-15 meters.

All nutrients showed, for the season, normal values in the surface water. Inorganic nitrogen was below the detection limit in the whole area. Phosphate concentrations varied from below detection limit to 0.04µmol/l in Kattegat, while it was 0.20µmol/l in the Sound. Silicate concentrations in Kattegat were 1 µmol/l and in the Sound 7.6 µmol/l.

Oxygen conditions in the deep water were relatively good. The lowest value was found in the bottom water at the station Anholt E in the southern Kattegat, 4.05 ml/l which corresponds to an oxygen saturation of about 60%.

Some phytoplankton activity was registered at 15 to 25 meters depth.

The southern part of the Baltic Proper

A distinct thermocline was found between 10 and 20 meters depth. The temperature in the surface layer was about 19°C, which is just above normal for the season. Surface salinity was normal, 7.3 psu. The halocline was found at 35 meters depth in the Arkona Basin and at 50-70 meters in the Bornholm Basin as well as in the Hanö Bight.

All nutrients in the surface layer showed, for the season, normal concentrations. Phosphate concentration was about 0.11 µmol/l, the sum of nitrite + nitrate was totally depleted at all stations visited, while silicate concentrations varied between 7.8 and 8.8 µmol/l.

The oxygen concentrations in bottom water of the Arkona and Bornholm Basins had decreased since the last visit and was now around 1.5-2 ml/l and just below 1 ml/l respectively. The oxygen concentration in the Hanö Bight bottom water was 0.3 ml/l.

Cyanobacteria were found in the surface layer of the Bornholm Basin and the Hanö Bight, but no surface accumulations were seen.

PARTICIPANTS

Anna-Kerstin Thell	cruise leader	SMHI Oceanographic lab.
Lars Andersson		- ” -
Kristin Andreasson		- ” -
Ann-Turi Skjevik		- ” -
Karin Wesslander		- ” -

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