

Report from the SMHI monitoring cruise with KBV001 Poseidon



Survey period: 2013-10-06 - 2013-10-09
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 the Skagerrak, the 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 normal for the season in all investigated areas. All nutrients in the surface layer were low and had increased since the last observation, which is normal for the season. The oxygen conditions in the Kattegat bottom water were relative good. The oxygen condition had improved in the Arkona Basin, which can be an effect of the inflow in the beginning of September. In the Bornholm Basin and the Hanö Bight the oxygen conditions had not changed since last expedition. Still no hydrogen sulphide was present.

The next expedition is planned to take place October 25-28, when the Baltic Proper will be investigated.

PRELIMINARY RESULTS

The cruise began in Göteborg on October 6th and ended in the same port on October 9th. Winds in the beginning of the expedition were high from the west and decreased to moderate from south west in the end. The air temperature varied between 13 and 16°C.

The Skagerrak

The surface temperatures were at normal levels, between 13.0 and 14.7°C, lowest close to the coast. Surface salinities showed highest levels in the western parts, 32 psu and lowest levels close to the coast, 23 psu. The halocline was located between 5 and 20 metres depth in the area, except in the south where it was weak and close to the coast where it was around 30 meter. The thermocline was located at 60 to 100 metres depth in the western parts, while it was situated 30 to 50 meters near the coast.

In the surface layer all nutrients exhibited normal concentrations for the season and had increased some since the last observation. Though silicate were a bit higher than normal. Phosphate concentrations varied between 0.11 and 0.33 µmol/l and the sum of nitrite plus nitrate were between 0.10 and 1.00 µmol/l. The silicate concentrations varied from 2.5 to 4.6 µmol/l.

The plankton activity, based on fluorescence measurements, was rather low, and could mainly be noticed at depths between 0 and 20 metres.

The Kattegat and the Sound

Just as observed in the Skagerrak area, the surface temperatures of the Kattegat were normal for the season, between 13.0 and 13.5°C. The surface salinity in the Kattegat was normal for the season, decreasing from 20.7 psu in the north to 14.1 psu in the Sound. The halocline in the Kattegat was located at 15 to 20 metres depth, while the thermocline reached from 20 to 50 meters. In the Sound the halocline and the thermocline coincided at 10 metres depth.

In the Kattegat the sum of nitrite+nitrate was below the detection limit, <0.10 µmol/l, while the concentration in the Sound was 0.24 µmol/l. Phosphate concentration varied from 0.12 to 0.21 µmol/l. The silicate concentrations were higher than normal also in the Kattegat and varied between 3.9 and 7.7 µmol/l, highest in the Sound.

The oxygen conditions in the deep water were relatively good. The lowest concentration measured was 2.83 ml/l, corresponding to a saturation of 46%, in the bottom water of the Sound.

The plankton activity that was seen, based on fluorescence measurements, was situated between 0 and 20 meters.

The southern part of the Baltic Proper

The surface temperatures were normal for the season, 12.8-14.2°C. The thermocline was located at depths of 30-40 metres and the halocline was located at 30-60 metres depth in the measured area. In the surface waters, all nutrients were found to be at concentrations that were normal for season. The phosphate concentration varied between 0.11 and 0.24 µmol/l, while nitrite and nitrate still were below detection limit at all stations. The silicate concentrations varied between 6.5 and 9.7 µmol/l.

In the Arkona Basin, the bottom water concentrations were higher than the previous expedition, 3.1 ml/l. No change of the oxygen condition in the Bornholm Basin and the Hanö Bight. There was an water inflow through the Sound during the expedition.

In the surface layer, certain plankton activity was detected in the whole 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