

Report from SMHI's monitoring cruise on board KBV001 Poseidon



Survey period: 2012-12-19 to 2012-12-22
Survey area: Skagerrak, Kattegat, the Sound and parts of the southern Baltic Proper.
Principal: SMHI

SUMMARY

The expedition, part of SMHI's regular marine monitoring programme, covered Skagerrak, Kattegat, the Sound and the southern part of the Baltic Proper. Data presented in this report have been subject to preliminary quality control procedures only.

A new agreement with the Swedish Coastguard meant that only the Swedish west coast and south western Baltic Proper (Arkona and Bornholm Basins) were sampled.

In Skagerrak and Kattegat, nutrient conditions were normal for the season, except in the south of Kattegat and the Sound, where phosphate and silicate showed elevated levels. In the investigated parts of the Baltic Proper concentrations of phosphate and silicate were higher than normal, while inorganic nitrogen showed normal values.

Oxygen concentrations below 2 ml/l (hypoxia) were found at depth exceeding 60 metres in the Bornholm Basin as well as in the Hanö Bight.

The next expedition is scheduled in late January.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on December 19th and ended in the same port December 22nd. Winds during this cruise were moderate from northeast or east. Air temperature varied between 2° and -0.5° Celsius.

A new agreement with the Swedish Coastguard means that SMHI's expeditions for the remainder of 2012 will be split, making use of the two ships KBV001 for the west Coast and the south-western parts of the Baltic Proper, and KBV002 for remaining areas.

Skagerrak

Surface water temperatures were lower than normal for the season and varied between 5.2°C in the west and 1.8°C near the coast. Surface salinities were slightly lower than normal in the area and varied from 22 psu to 28 psu, lowest in the southeast and highest in the west. The halocline and thermocline were found between 15 and 20 metres throughout the area.

Nutrient concentrations in the surface layer were typical for the season, except at Å13 where phosphate and nitrogen concentrations were lower than normal. Concentration of phosphate varied from 0.14 to 0.53 µmol/l and the sum of nitrite + nitrate increased from 1.97 in southeast, to 4.37 µmol/l in the west. Silicate concentrations varied between 5.5 µmol/l and 6.5 µmol/l.

Plankton activity, based on fluorescence, indicated that a blooming was ongoing in the south part. Oxygen conditions in the deep water were good in the whole area, the lowest value was measured to 5.2 ml/l.

Kattegat and the Sound

In this area surface water temperatures were normal, between 2.8 and 3.7°C. Surface salinities were 20 psu in the north and 8 psu in the Sound, which is lower than normal. The halocline and thermocline were found between 15 and 20 metres in the Kattegat and in the Sound it was found at 12 metres.

All nutrients, in the surface layer, showed typical values for the season, except for phosphate and silicate concentrations in southern part which were higher than normal. Phosphate concentrations varied between 0.53 and 0.83 µmol/l, silicate between 8.8 and 16.6 and nitrite + nitrate between 2.27 and 4.14 µmol/l.

Plankton activity, based on fluorescence, indicated that a blooming was ongoing in the area. The oxygen situation in the bottom water of Kattegat was good. The lowest value measured was found at an intermediate depth in the Sound, 4.2 ml/l.

Arkona, Hanö Bight and the Bornholm Basin

The temperature in the surface water was typical for the season, varying between 4.2 and 5.1°C. Surface salinities varied between 6.7 and 7.8. The halocline was at 40 meters depth in the Arkona basin and at 40 to 60 meters in the Bornholm Basin and Hanö Bight.

Concentrations of nitrite + nitrate were between 1.38 and 1.93 µmol/l, which is normal. However, both phosphate and silicate showed clearly elevated levels. Phosphate varied between 0.55 and 0.80 µmol/l, while silicate concentrations varied between 13.9 and 15.0 µmol/l.

Oxygen conditions in the bottom water of the Arkona Basin was good, at BY2 the lowest concentration was measured to 5.9 ml/l. In the Bornholm Basin as well as in the Hanö Bight, oxygen was almost depleted in the deep water and concentrations between 0.1 and 0.6 ml/l were measured.

Plankton activity was low in the whole area

PARTICIPANTS

Anna-Kerstin Thell	Cruise leader	SMHI Oceanographic laboratory
Johan Håkansson		- ” -
Sari Sipilä		- ” -
Karin Wesslander		- ” -
Bengt Yhlen		- ” -

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