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Report from SMHIs monitoring cruise with KBV 002 Triton

Survey period: 2013-06-17 - 2013-06-20
Survey area: 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 south-eastern, western and eastern part of the Baltic Proper. Data presented in this report have been subject to preliminary quality control procedures only.

The surface water temperatures were normal in the investigated area, except for in the south-eastern Baltic were the temperature was slightly above normal. The surface salinity in the north-western part was slightly lower than average, in the remaining areas close to normal. In the surface all nutrient concentrations were as expected for this time of year, except for the lower than normal silicate in the eastern Gotland Basin. At depths greater than 80 metres the oxygen concentrations dropped below 2 ml/l in the major part of the area, except for in the very south-east. In the eastern Gotland Basin hydrogen sulphide was observed from about 125 metres depth, and in the western part already from 90 metres and below. The hydrogen sulphide concentrations in the deep water were still high, though not as elevated as observed during the preceding expedition. In the south-eastern part, at station BCS III-10, a relatively strong bloom, supposedly consisting of cyanobacteria, was observed. Fluorescence measurement indicated plankton activity in the whole area.

Next expedition is planned for week 26, and will cover the Skagerrak, Kattegat, Sound and the south-western Baltic Sea.

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PRELIMINARY RESULTS

The cruise, part of the Swedish regular marine monitoring programme, began in Slite on the island of Gotland on 17th June and ended in Oskarshamn on 20th June.
Winds were weak during the expedition, mainly coming from the south-west. Air temperature varied from 13.5 to 16.4 °C.

Baltic Proper

The surface water temperatures varied from 12.5 to 16 °C, and a thermocline was found at around 20 metres depth. The surface temperatures were, though, normal for the time of year, except for the almost 16 degrees observed in the south-east, were also a relatively strong bloom of cyanobacteria was observed in the surface. The surface salinities were also normal, and were generally found to be between 6.5 and 7 psu. In the north-west, however, the salinity was slightly lower than normal, at around 6.2 psu. A secondary thermocline and the halocline coincided at around 60-70 metres depth, though around 10 metres deeper in the south-east.
The concentrations of phosphate and nitrite+nitrate in the surface water were normal for the season. Nitrite+nitrate were still below detection limit (0.10µmol/l) in the surface at all stations. In the eastern and western Gotland Basins the phosphate concentrations were low, though the phosphate was not totally consumed, and the concentrations varied from 0.05 to 0.08 µmol/l. The concentrations of silicate varied from 4.9 to 9.2 µmol/l, and were generally lower than normal, in particular in the eastern Gotland Basin.

In the eastern Gotland Basin oxygen concentrations were below 2 ml/l from 80 metres, whereas hydrogen sulphide was found below 125 metres depth. In the western Gotland Basin hydrogen sulphide was found already at 90 metres depth. The situation was better in the far south-east, and at station BCS III-10 the oxygen concentration did not drop below 3 ml/l at any depth. The concentrations of hydrogen sulphide were higher than normal in the bottom water of the eastern and western Gotland Basins, though not as high as found during the preceding expedition. The inflow of deep water registered in January could explain the obvious, though not very strong, improvement of the oxygen conditions in the eastern Gotland Basin.

A relatively strong bloom, supposedly caused by cyanobacteria, was underway at station BCS III-10 in the south-eastern part of the investigated area. Characteristic streaks and flocculations in the surface were observed around the sampling station. Extra surface samples were collected for further investigation. Fluorescence measurement indicated plankton activity in the whole area.

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PARTICIPANTS

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APPENDICES

Plots

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