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Report from SMHIs monitoring cruise with KBV 002 Triton

Survey period: 2013-04-04 - 2013-04-10
Survey area: The Skagerrak, Kattegat, Sound and 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, the Sound and the Baltic Proper.
Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures were somewhat below normal in the whole investigated area. All nutrients showed concentrations typical for the season in the Skagerrak and Kattegat, while they in the Baltic Proper were above normal.

The bottom water in the Arkona Basin was well oxygenated. Oxygen concentrations below 2 ml/l were found at depths exceeding 80 to 90 metres in the main part of the area.
Hydrogen sulphide was measured in the Eastern and Western Gotland Basins from a depth of 125 metres.

The next expedition is planned to take place May 23 to 30.

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PRELIMINARY RESULTS

The cruise, part of the Swedish regular marine monitoring programme, began in Visby on April 4 and ended in the same port April 10.
Winds during the expedition were week to moderate, mainly from west to north. Air temperature varied from 0.5 to 4.5 °C.

The Skagerrak

Surface temperatures were just below normal and varied from 2.5 to 3.8°C. Also, surface salinities were below normal varying from 23.3 to 25.3 psu, lowest in the west and highest in the southeast. Halocline and thermocline coincided and were found at depths between 5 and 20 metres.
All nutrients showed, for the season normal values in the surface layer. Phosphate concentrations were between 0.05 and 0.11 µmol/l. The sum of nitrite + nitrate was below detection limit (0.10 µmol/l), except in the southeast where 0.42 µmol/l was measured. Concentrations of silicate were below detection limit in the whole area.
Plankton activity, based on fluorescence measurements and oxygen saturation, were relatively high in the surface layer and distinct peeks were detected at depths between 10 and 30 metres.

The Kattegat and the Sound

Also in this area, surface temperatures were below normal for the season, in Kattegat between 2.1 and 2.5°C, while it in the Sound was 2.8°C. Surface salinities showed normal values, between 19 and 20 psu, except in the north were it was lower than normal, ca. 18 psu. In the Sound, surface salinity was 15 psu. Thermocline and halocline were both found at 10-15 meters depth in Kattegat, while they in the Sound were found between 5 and 10 meters.
In Kattegat, all nutrients, in the surface layer, showed normal values for the season. Inorganic nitrogen was below detection limit (0.10 µmol/l). Phosphate concentration was 0.08 µmol/l, while silicate varied between 0.1 and 0.4 µmol/l. In the Sound, phosphate was 0.23 µmol/l, silicate 4.4 µmol/l, while nitrogen was below detection limit.
Oxygen conditions in the deep water were good. The lowest value measured was found in the bottom water in the Sound, 4.98 ml/l, corresponding to a saturation of 72 %.

Baltic Proper

Surface water temperatures were slightly below normal for the season and varied between 1.5 and 1.8°C. Surface salinities were normal, increasing from ca. 6.8 psu in the northwest to 7.4 psu in the south. The thermocline and halocline coincided and was found at 40 metres depth in the Arkona Basin, at ca. 60 metres in the Bornholm Basin and Hanö Bight and at 60 to 80 metres in the remaining areas.
All nutrients in the surface layer showed, for the season, concentrations above normal, except for at station BY1, where the spring bloom had started and nutrients had been partly consumed. Concentrations of nitrite+nitrate were normal or just above normal, between 0.5 and 3.4 µmol/l. Phosphate varied between 0.4 and 0.6 µmol/l, and silicate between 8 and 14 µmol/l.
The bottom water in the Arkona Basin was well oxygenated, with concentrations over 7.5 ml/l. Also in the Bornholm Basin the oxygen situation was good, with concentrations above 3.5 ml/l. In the Hanö Bight the bottom water oxygen concentration was down to 1.54 ml/l, corresponding to approx. 20% saturation. Oxygen concentrations below 2 ml/l were measured at depths exceeding 80 to 90 metres in the Eastern and Western Gotland Basins, were also hydrogen sulphide was present from a depth of 125 metres. The inflow of deep water that was registered in January could now be traced at station BY10 in the southern part of the Eastern Gotland Basin.
Plankton activity was low, except for in Arkona where the spring bloom just had started.

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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