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Report of SMHI monitoring cruise from KBV001 Poseidon

Survey period: 2012-08-22 to 2012-08-28
Survey area: The Skagerrak, Kattegat, Sound and Baltic Proper.
Principal: SMHI

SUMMARY

The expedition was part of SMHI's regular marine monitoring programme and covered the Skagerrak, Kattegat, Sound and Baltic Proper. Data presented in this report have been subject to preliminary quality control procedures only.
In the Skagerrak and Kattegat, surface water temperatures were normal and sea surface salinity lower than normal in the north. Sea surface salinity was higher than normal in the Sound. Surface temperatures and salinities were normal for the time of year in the Baltic.
Nutrient concentrations in surface waters were normal in most regions, with the exception of silicate which was higher than normal in the Sound and phosphate which was higher than normal in the southern Baltic.
Oxygen concentrations were close to zero in the Bornholm Basin / Hanö Bight. Oxygen concentrations below 2 ml/l occurred throughout the remainder of the Baltic Proper where depths exceeded 65 – 80 metres. Hydrogen sulphide was found once again in the eastern and western Gotland basins from 90 – 140 metres.
Some phytoplankton activity was seen in the Skagerrak, in the western and eastern Gotland Basins.

The next expeditions are planned for week 37 (14^{th} – 18^{th} September) and week 39 (26^{th} September – 2^{nd} October).

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on August 22nd and ended in the same port August 28th. Due to a severe gale at the beginning of the expedition station Å17 was abandoned. Winds were mainly weak to moderate for the remainder of the expedition. Air temperature varied between 13° and 18° Celsius. As permits to enter Polish waters had not been granted, BY9 was sampled instead of BCS III-10.

Skagerrak

Surface water temperatures were normal for the season and varied from 19.1 to 17.7°C, warmest at the coast. Surface salinities varied from normal in the south to slightly lower than normal in the north and varied from 20.9 to 27.8. The halocline and thermocline were found between 10 and 30 metres throughout the area. Nutrient concentrations were normal for the time of year: Phosphate varied from 0.06 – 0.13 µmol/l; Silicate between 0.3 and 0.7 µmol/l while the sum of nitrite and nitrate was below the limit of detection (< 0.10 µmol/l).
Some phytoplankton activity was observable in the pycnocline of the central Skagerrak.

Kattegat and the Sound

In the Kattegat and Sound, surface water temperatures were normal and varied from 18.7°C in the north to 18.0°C in the south. Surface salinity was lower than normal in the Kattegat, at 17.9 and above normal in the Sound, at 16.7. The thermocline and halocline were coincident and could be found between 10 and 15 metres throughout the area.
Nutrient levels in the Kattegat were normal or below normal, while in the Sound silicate levels were above normal. Phosphate varied from 0.16 µmol/l in the Sound to 0.03 µmol/l in the northern Kattegat. Silicate concentrations increased from <0.1 µmol/l in the northern parts to 2.2 µmol/l in the Sound, while the sum of nitrate and nitrite was below the limit of detection throughout the region.
Oxygen conditions were normal for the time of year. Lowest concentrations were observed in the deep water at Anholt E., with 2.7 ml/l oxygen being equivalent to a saturation of 42%.
Phytoplankton activity was minimal throughout the area.

Baltic Proper

The temperature in the surface water was normal throughout the region and varied from 17.2°C to 18.4°C. Surface salinity was normal for the time of year and increased from 6.1 in the north to 8.1 in the south. The thermocline was found between 15 and 30 metres. The halocline started at 30 to 40 metres deep in the Arkona Basin, and from 50 to 80 metres deep elsewhere.
Phosphate concentrations in surface waters were normal throughout the area with the exception of the southern Baltic where they were higher than normal and varied between 0.05 and 0.37 µmol/l across the whole region. The sum of nitrate and nitrite concentration was normal for the time of year and was below the limit of detection throughout the region. Silicate concentrations were also normal in the region and varied between 8.0 and 10.7 µmol/l.
Oxygen concentrations at the bottom were above 3 ml/l at BY2 in the Arkona Basin, while at BY1 (western Arkona Basin) and in the Hanö Bight / Bornholm Basin, bottom water was barely oxic (0.17 – 1.30 ml/l). In the rest of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 65 – 80 metres, while hydrogen sulphide was found below 90 – 140 metres in the western and eastern Gotland Basins.
Some phytoplankton activity was observable as a fluorescence peak above the thermocline.

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PARTICIPANTS

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Bodil Thorstensson		- ” -
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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