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Oceanographical Laboratory

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CRUISE REPORT FROM KBV001 POSEIDON

Survey period: 2011-07-10 - 2011-07-15

Survey area: The Skagerrak, the Kattegat, the Sound, and the Baltic Proper

Principal: SMHI

SUMMARY

The expedition was part of SMHI's 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.

In the Skagerrak and the Kattegat surface water temperatures showed levels above normal and surface salinities showed levels below normal. Surface water temperatures as well as surface salinities were at normal levels for the season in the Baltic Proper.
Surface nutrient concentrations were normal in most areas, with the exception of silicate that showed levels above normal levels in the Skagerrak and the Kattegat and levels below normal in the main part of the Baltic Proper.
Oxygen concentrations below 2 ml/l were found at depths exceeding 60-80 metres in the Baltic Proper.
Hydrogen sulphide was found in the Eastern - and Western Gotland Basins and in some part of the Hanö Bight.
Blooms of cyanobacteria in the surface layer took place in part of the Baltic Proper.

The next expedition is scheduled for August 1 to 6, 2011.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on July 10th and ended at the same place July 15th.
Winds during the expedition were weak to moderate, except in the end when the wind increased to near gale. Air temperature varied between 12 and 20 degrees Celsius.

The Skagerrak

Surface water temperatures were slightly above normal near the coast and normal in the western part of the area and varied from 19.4°C to 17.1°C. Surface salinities were slightly below normal in the whole area and varied from 20.2 psu in the southeast to 31.4 psu in the west. The halocline and thermocline coincided at a depth of 5 to 15 metres in the areas.
Surface nutrient concentrations showed typical values for the season, except for the coastal silicate that was slightly above normal. Phosphate concentrations varied from below detection limit (<0.02 µmol/l) to 0.04 µmol/l, silicate between <0.1 and 1.8 µmol/l and the sum of nitrite + nitrate was below detection limit (<0.10 µmol/l) in the whole area.
Fluorescence measurements indicated that a bloom was ongoing in the pycnocline in the central part.

The Kattegat and the Sound

Surface water temperatures were slightly above normal except in the Sound were the temperatures was normal and varied from 19.5°C to 16.7°C. Surface salinity increased from 16.7 psu in the east to 19.2 psu in the north, while it was about 8.0 psu in the Sound. The halocline and thermocline were both found at a depth of 10 metres in the whole area.
Surface nutrient concentrations were mostly normal both in the Kattegat and in the Sound: phosphate varying between 0.05 and 0.14 µmol/l, silicate between 2.1 and 5.5 µmol/l and nitrite + nitrate below detection limit.
The oxygen situation was normal for the season. The lowest oxygen concentration in the bottom water was measured in the central part of the Sound: 4.1 ml/l corresponding to a saturation of 57%.
Oxygen saturation and fluorescence measurements indicated that the plankton activity was low.

Baltic Proper

Surface water temperatures were normal for the season and varied from 17.5°C to 18.9°C. Surface salinity was normal and varied from 6.6 psu in the north to 7.4 psu in the south. The thermocline was found at depths between 20 and 30 metres. The halocline began at a depth of 40 metres in the Arkona Basin and at 50 to 70 metres in the remaining areas.
Surface phosphate concentrations were normal, varying between 0.05 and 0.09 µmol/l. Surface nitrite + nitrate were also normal, below detection limit in the whole study area. Surface silicate was slightly below normal in the main part of the area, 4.4-7.6 µmol/l.
The oxygen conditions in the bottom water of the Arkona Basin were variable. At the station BY1 a value as low as 0.5 ml/l was measured, while the concentration at station BY2 was 2.5 ml/l. In the remainder of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 60 to 80 metres.
In the Hanö Bight hydrogen sulphide was detected in the bottom water. Hydrogen sulphide was also found at depths from 70 to 90 metres in the Western Gotland Basin and from 140 to 150 metres in the Eastern Gotland Basin.
Blooms of cyanobacteria in the surface layer took place in the Baltic Proper except for the Arkona Basin.

PARTICIPANTS

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Anna-Kerstin Thell	Chief Scientist	SMHI Oceanographic laboratory
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Sari Sipilä		-”-
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Bengt Yhlen		-”-

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