Lars Andersson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2011-11-24
Dnr: M/Gbg 2011-200

CRUISE REPORT FROM KBV001 POSEIDON

Survey period: 2011-11-15 – 2011-11-21

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.

Surface water temperatures as well as surface salinities were at normal levels for the season in the whole investigated area.
Phosphate concentrations in the surface layer were mainly normal, while nitrite+ nitrate showed values below normal in most areas. Silicate concentrations were elevated in Skagerrak and Kattegat and below normal for the season in the Baltic Proper.
Oxygen concentrations below 2 ml/l were found at depths exceeding 60-80 metres in the Baltic Proper.
Hydrogen sulphide was present in the eastern– western and northern Gotland Basins as well as in the Bornholm Basin and the Hanö Bight.

The next expedition is scheduled for December 5 to 14, 2011.

Address:
Sven Källfelts Gata 15
Nya Varvet 31
SE-426 71 Vastra Frolunda
SWEDEN

Phone:
+46 11 495 80 00
E-mail:
Lars.S.Andersson@smhi.se

E-mail:
shark@smhi.se
WWW:
http://www.smhi.se/

PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on November 15 and ended at the same port November 21.
The winds during the beginning of the expedition were moderate and increased too strong and then ceased again during the later part. The directions in the beginning were mainly between north and east, and then it turned to south and later to west. Air temperature varied between 5 and 8 degrees Celsius.
Thanks to the crew on KBV001 POSEIDON for great help during the expedition.

The Skagerrak

Surface water temperatures were normal and varied from 8°C at the coast to just below 10°C in the central parts. Surface salinities varied from somewhat below normal, 22.4 psu in the east to normal 32.5 psu, in the more westerly parts. The halocline and thermocline were both rather week and found from the surface down to a depth of 30 metres.
Phosphate concentrations showed normal values and varied from 0.17 to 0.42 µmol/l. The sum of nitrite + nitrate varied from 0.3 µmol/l close to the coast, which is clearly below normal, to 1.7 µmol/l in the westerly parts. Silicate concentrations were clearly elevated in most areas. They increased from normal 3.3 µmol/l in the west, and varied between 9.5 to 10.5 µmol/l in the remaining parts.

The Kattegat and the Sound

Also in this area surface water temperatures were normal, varying between 7 and 8°C. Surface salinity, clearly below normal, varied between 16.2 and 17.9 psu, while it was 8.6 psu in the Sound. The halocline and thermocline coincided at a depth of 15 to 20 metres in the Kattegat and at 5 to 10 metres in the Sound.
Surface nutrient concentrations showed the same pattern as in Skagerrak. Nitrogen concentrations were mostly below normal, while phosphate and especially silicate showed elevated levels. Phosphate varied between 0.4 and 0.5 µmol/l, while nitrite + nitrate from below detection limit (<0.10 µmol/l) to 1.2 µmol/l. Silicate concentrations varied between 13 and 16 µmol/l.
The lowest oxygen concentration was measured at 20 metres depth in the central part of the Sound, 2.61 ml/l corresponding to a saturation of 44%.

Baltic Proper

Surface water temperatures were normal or just above normal for the season and varied between 6.8 and 10.2°C. Also surface salinities were normal, varying from 6.4 psu in Eastern Gotland Basin to 7.4 psu in the Arkoma Basin. The thermocline was found at depths between 40 and 50 metres. The halocline began at depths between 30 to 40 metres in the Arkona Basin and at 50 to 70 metres in the remaining areas.
Phosphate showed, for the season, normal values, while both the sum of nitrite+nitrate and silicate concentrations were below normal. Surface phosphate concentrations varied between 0.2 and 0.5 µmol/l. Surface nitrite + nitrate varied from below detection limit (<0.10 µmol/l) to 1.3 µmol/l, while silicate concentrations varied between 3.5 and 11.0 µmol/l.
The oxygen conditions in the bottom water of the Arkona Basin were good, with values between 2.45 and 4.09 ml/l. In the remainder of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 60 to 80 metres. Hydrogen sulphide was present in the Bornholm Basin from 80 metres and in the Hanö Bight from 70 metres. In the remaining parts of the Baltic Proper it was present, deeper than 80 metres in the Western Gotland Basin and from 80 to 125 metres in the Eastern- and Northern Gotland Basin.

PARTICIPANTS

Name		From
Anna-Kerstin Thell	Chief Scientist	SMHI Oceanographic laboratory
Kristin Andreasson		-”-
Martin Hansson		-”-
Johan Håkansson		-”-
Sara Johansson		-”-

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