Bengt Yhlen

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2010-08-21
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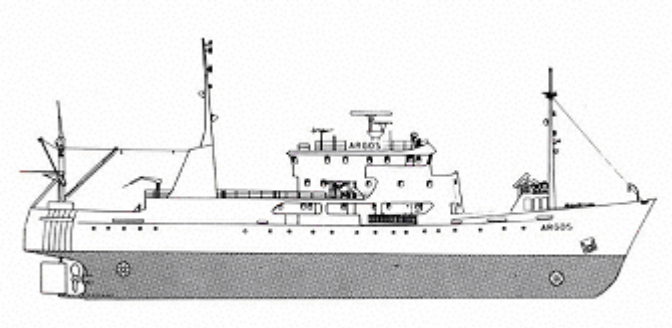
CRUISE REPORT FROM R/V ARGOS



Survey period: 2010-08-16 - 2010-08-21

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 were normal in the Skagerrak, Kattegat and in most of the Baltic Proper. Nutrient levels in surface water were normal throughout the investigated area except in the Arkona Basin where silicate was slightly low.
In the the Baltic Proper oxygen concentrations below 2 ml/l were observed at depths exceeding 55 to 75 meters and at the bottom in weatern part of the Arkona Basin. Hydrogen sulphide was found at the bottom of BY4, in the Western Gotland Basin, deeper than 70-90 meters and in the Eastern Gotland Basin from depths between 125 and 140 meters.
Phytoplankton activity was low in the region and no surface accumulations of cyanobacteria were observed.
A more detailed report on the algae situation can be found at:
http://www.smhi.se/oceanografi/oce_info_data/reports/havmiljoarkiv/oce_reportarcive10.html

Next expedition will take place September 13- 17.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on August 16 and ended in the same port August 21. The winds during most of the expedition were weak to moderate.

The Skagerrak

Surface temperatures were normal for the season and varied between 18.2 and 19.1^{o}C. Surface salinity was below normal in the western part, between 20 and 24 psu, but normal in the central part approx. 30 psu. The surface layer was thin. Halocline began at approx. 6 metres depth. Thermocline was weakly developed, except in the central part.

Nutrient levels in the surface layer showed, for the season, typical values. Inorganic nitrogen components were used, < 0.10 µmol/l, phosphate concentrations ranged from below detection limit (<0.02 µmol/l) to 0.06 µmol/l and silicate between 0.5 and 0.9 µmol/l. Oxygen saturation and fluorescence measurements indicated that the phytoplankton activity was low.

The Kattegat and the Sound

Surface water temperatures were normal, ca. 19.4°C in the Kattegat and 18.4°C in the Sound. Surface salinities were normal, in the Kattegat, between 17 and 18 psu and in the Sound 7.7 psu. Halocline and thermocline began at approx. 10 metres depth.

All nutrients showed normal concentrations. Inorganic nitrogen was below or near the detection limit throughout the area, phosphate in the Kattegat about 0.04 µmol/l and in the Sound 0.23 µmol/l. Silicate concentrations in the Kattegat were between 0.5 and 0.9 µmol/l, and in the Sound 8.9 µmol/l. Phytoplankton activity was low throughout the area.

The lowest oxygen concentrations were measured in bottom waters at Anholt and in the Sound, 2.5 ml/l, corresponding to a saturation of 40%.

Baltic Proper

The surface temperature had returned to normal values, except in the southeastern Baltic where it still was slightly above normal. It varied between 18,7 and 20,8°C. Halocline began at a depth of 35 metres in the Arkona Basin and around 60 metres in the reminder of the area. Thermocline was found shallower at approx. 15 metres.

All nutrients, in the surface layer, showed normal concentrations throughout the area except for silicate which was slightly low in the Arkona Basin. Phosphate varied between 0.06 and 0.08 µmol/l, the sum of nitrite and nitrate under the detection limit (< 0.10 µmol/l), and silicate levels ranged between 5.8 and 9.1 µmol/l.

Phytoplankton activity was low throughout the region and no surface accumulations of cyanobacteria were observed.

In the western part of the Arkona Basin, the oxygen concentration in the bottom water was only 0.27 ml/l, while the eastern part had an oxygen content of 2.13 ml/l. In the rest of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 55 to 75 metres. Hydrogen sulphide was found at the bottom of BY4 , from 70-90 metres in the Western Gotland basin and from 125 to 140 metres in the Eastern Gotland Basin.

PARTICIPANTS

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Bengt Yhlen	Chief scientist	SMHI Oceanographic laboratory.
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Sari Sipilä		-”-
Anna-Kerstin Thell		-"-
Marie Johansen		-"-

APPENDICES

- Track chart
- Table over stations, parameters and sampling depths
- Map showing bottom oxygen concentrations
- Monthly average plots for selected stations
- Profiles for selected stations