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Oceanographical Laboratory

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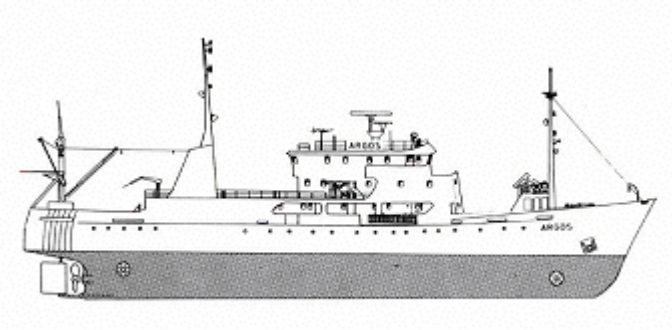
CRUISE REPORT FROM R/V ARGOS



Survey period: 2010-09-13 - 2010-09-19

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.
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 Bornholm Basin where silicate was slightly lower.
In the Baltic Proper oxygen concentrations below 2 ml/l were observed at depths exceeding 40 to 80 meters and at the bottom in the eastern part of Arkona Basin. Hydrogen sulphide was found at the bottom of Bornholm basin, in Western Gotland Basin deeper than 80 meters and in Eastern Gotland Basin deeper than depths between 125 and 135 metres. At Landsort Deep hydrogen sulphide was found from 90 metres and downwards.
Phytoplankton activity was low in the region.
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 October, 3-9.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on September 13 and ended in Härnösand September 19. The winds mainly coming from southwest had a velocity of 10-15 m/s during the expedition. The weather was partly sunny, partly rainy. A wave buoy was deployed in the surface SE Gotland. Since the expedition ended in Härnösand, sampling was also performed at Landsort Deep.

The Skagerrak

Surface temperatures were normal for the season and varied between 15.6 and 16.1°C. Surface salinity was within normal with exception of Å13 (near coast). The salinity here, 20 psu, was just below normal. In the eastern Skagerrak the salinity was between 20 and 24 psu and in the central Skagerrak, circa 30 psu. The surface layer was thin. Halocline and thermocline began at approx. 6 – 10 metres depth.
Nutrient levels in the surface layer showed, for the season, typical values. Inorganic nitrogen components were depleted, < 0.10 µmol/l, phosphate concentrations ranged from 0.04 µmol/l to 0.10µmol/l and silicate between 0.6 and 1.7µmol/l. Oxygen saturation and fluorescence indicated that the phytoplankton activity was low. Secchi depths were about 7 metres.

The Kattegat and the Sound

Surface water temperatures were normal, ca. 15.7-16°C in the Kattegat and 14.9°C in the Sound. Surface salinities were normal, in the Kattegat, between 17 and 20 psu and in the Sound 7.8 psu. Halocline and thermocline began at approx. 10 metres depth. In the Sound the halocline was strong and was at 5-6 metres.
All nutrients showed normal concentrations. Inorganic nitrogen was below or near the detection limit throughout the area, phosphate in the Kattegat about 0.04-0.06 µmol/l and in the Sound 0.24 µmol/l. Silicate concentrations in the Kattegat were between 0.5 and 2.1 µmol/l, and in the Sound 8.8µmol/l. Phytoplankton activity was low throughout the area.
The lowest oxygen concentrations were measured in bottom waters at Anholt 2.32 ml/l corresponding to a saturation of 35% and in the Sound, 1.9 ml/l, with a saturation of 29%.

Baltic Proper

The surface temperature had for the season normal values and varied between 13.9 °(west of Gotland) and 16.2°C. Halocline began at a depth of 35 – 40 metres in the southern Baltic and around 60 metres in the reminder of the area. Thermocline was found at approx. 25 metres.
All nutrients, in the surface layer, showed normal concentrations throughout the area except for silicate which was slightly lower in the Bornholm Basin. Phosphate varied between 0.06 and 0.17 µmol/l, the sum of nitrite and nitrate under the detection limit (< 0.10 µmol/l), and silicate levels ranged between 5.3 and 8.8 µmol/l.
Phytoplankton activity was low throughout the region.
In the eastern part of the Arkona Basin, the oxygen concentration in the bottom water was only 1.38 ml/l. In the rest of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 40 to 80 metres. Hydrogen sulphide was found at the bottom of Bornholm Basin , from 80 metres in the Western Gotland Basin and from 125 to 135 metres in the Eastern Gotland Basin. At the Landsort Deep hydrogen sulphide was found from 90 metres and downwards (459 metres).

PARTICIPANTS

Name		From
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Jenny Lycken		-"-
Sari Sipilä		-"-
Jan Szaron		SMHI Oceanographic unit

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