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Thorstensson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2010-06-05
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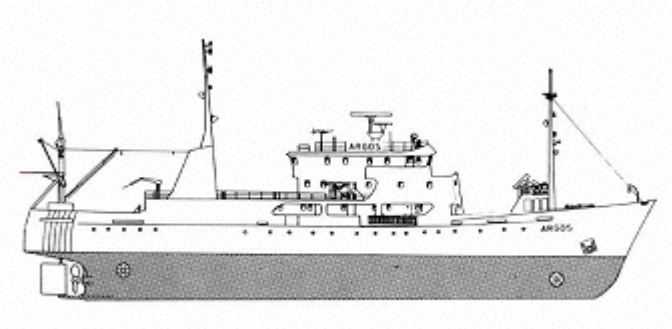
CRUISE REPORT FROM R/V ARGOS



Survey period: 2010-05-31 - 2010-06-05

Survey area: The Skagerrak, Kattegat, Sound, and the 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.

Surface nutrient concentrations were normal in all areas .

The oxygen concentration in the deep water of the southern Kattegat and in the Sound was slightly lower than normal. In the western and eastern Gotland Basins oxygen concentrations below 2 ml/l were found at depth exceeding 70-80 meters. Hydrogen sulphide was found in the western Gotland Basin from 80-90 meters, while in the eastern Gotland Basin from 135 meters.
A bloom of the coccolithophoride algae *Emiliania huxleyi* was observed in the Skagerrak.

The next expedition is scheduled for 28th of June to 3rd of July.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Gothenburg on May 31st and ended in Gothenburg on June 5th. The weather during the expedition was sunny with weak winds. During the expedition frequent samples for analysis of microscopic antropogenic particles were taken by Fredrik Norén. Mainly samples were taken of surface water, at some stations also of deeper water. A number of blank samples were taken onboard with filtered water.

The Skagerrak

The temperature and salinity in the surface water were normal for the season and varied between 12-12.9 °C (the temperature of the Gullmar fjord was 14.3°C) and 22.5-29.5.4 psu respectively. Both the thermocline and halocline were found at 5-10 meters depth. The amount of nutrients in the surface were low, which is normal for this season. Phosphate concentration varied between 0.02 to 0.04 µmol/l and silicate between 0.1-0.4 µmol/l with exception of Släggö in the Gullmar fjord, where the silicate concentration was higher than normal, 3.9 µmol/l. The sum of nitrate + nitrite was below the detection limit (<0.10 µmol/l).
A bloom of the coccolithophoride algae *Emiliania huxleyi* was noticed at P2 and more central of the Skagerrak. The highest fluorescence was recorded at the station Å13 near the coast. Secchi depth varied between 4-8 metres.

The Kattegat and the Sound

The surface water temperature and salinity were normal for the season. The temperature was slightly higher of 12°C in the Kattegat and 11.5°C in the Sound. The corresponding values for salinity were 13.6-17.4 psu and 8.6 psu respectively. Thermo-and halocline began at 10-15 metres. The concentrations of phosphate varied between 0.05- 0.06 µmol/l with the value 0.12µmol/l in the Sound.. The inorganic nitrogen was consumed at all stations and concentrations were found to be around the detection limit. Silicate concentrations were normal at all stations and varied between 1 and 2.9 µmol/l, and for the Sound 5.9 µmol/l.
The oxygen situation near the bottom was lower than normal in the southern Kattegat and in the Sound. The lowest oxygen value was found in the Sound below the thermocline from 20 metres and to the bottom 3.20 ml/l corresponding to a saturation of 47 %. Secchi depth was 7 metres.

Baltic Proper

Surface water temperatures were slightly lower than normal for the season mainly in the southern Baltic. There was a variation from 6.7°C in the Bornholm Basin to 9.9°C at BY32 west of Gotland. In the Kalmar Sound the surface water temperature was over 10°C. The halocline began at a depth of 50 metres, though somewhat shallower in the Arkona- and Bornholm Basins, 25-30 metres. At these depths the thermocline was found.
Surface phosphate varied between 0.07 and 0.22 µmol/l, which is normal for the season. Nitrate and nitrite was consumed and was below the detection limit at all stations, <0.10µmol/l. Surface concentrations of silicate varied between 6.2 and 9.4 µmol/l.
The bottom water in the southwestern Baltic had an oxygen concentration of 3 ml/l, which is lower than normal. Oxygen concentrations below 2 ml/l were found at depths from 70-80 metres. Hydrogen sulphide was found at depth exceeding 80 –90 metres in the western Gotland Basin, while in eastern Gotland Basin hydrogen sulphide began at depths greater than 135 metres.
The secchi disk depth showed 7-10 meters.

PARTICIPANTS

Name		From
Bodil Thorstensson	Chief Scientist	SMHI Oceanographic laboratory
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Kristin Andreasson		-”-
Martin Hansson		-"-
Bengt Yhlen		-”-
Fredrik Norén		N-research
Filippa Fransner		University of Gothenburg

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