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Oceanographical Laboratory

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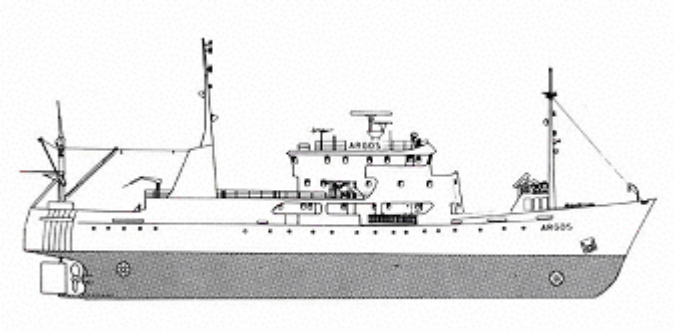
CRUISE REPORT FROM R/V ARGOS



Survey period: 2007-06-11 - 2007-06-16

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.
In all regions the surface water temperatures were over the normal.
In some regions in the southern Baltic and in the Sound the concentration of phosphate was higher than normal. Also silicate concentrations were elevated, while the nitrogen components showed, for the season, normal values. The nutrients in the Skagerrak and Kattegat had normal concentrations except some high silicate values.
No surface accumulation of algae bloom could be seen. Algae presence, however, could be observed in the eastern and partly in the western Gotland Basin. In the southern Baltic Secchi depth was 8 metres and rare algae occurrence.
Hydrogen sulphide was present in the western Gotland Basin from a depth of 80 meters, in the eastern Gotland Basin from 140 metres depth and from a depth of 85 metres in the Bornholm Basin.

Data presented in this report have been subject to preliminary quality control procedures only.

The next expedition is scheduled for July 9 to 14 2007.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on June 11th and ended in the same port on June 16th.
During the first half of expedition the weather was very hot with an air temperature of 19-24°C. After this the temperature decreased some degrees gradually down to 13°C. There were weak to moderate winds of western to southwestern direction during almost the whole expedition.
On commission of National Environmental Protection agency the monitoring programme has been enlarged from now on. There will be two more coast stations, N14 near Falkenberg and Ref.M1V1 in the Kalmar Sound. Haul for zooplankton usually has been done at Anholt E. Now this will be done at further 7 stations (8 in winter).
With this expedition the sampling of water for analyses of oxygen- and carbon isotopes for the University of Göteborg (FRISBEE-project) was ended.

The Skagerrak

Surface water temperatures were much over normal. The temperature was 17.9°C at the outer part of the Å-transect and increased to 20.5°C at the coast in the south. The surface salinity was normal in the central Skagerrak (Å 17), 30 psu, while salinities of the remaining Skagerrak were lower than normal and at Å15 much lower than normal, 17.7 psu. Oxygen minima of 80 % saturation were found at a depth of 20-30 metres at e.g. Å 15 and Släggö. The sudden temperature increase partly explains the supersaturation of oxygen in surface water.
The phosphate concentrations varied between 0.03 and 0.04 µmol/l and at Å17 the concentration was below the limit of detection, <0.02 µmol/l, and the sum of nitrite+nitrate was below the detection limit (0.10 µmol/l) in the whole area. These nutrients had normal levels, while silicate concentration at P2 and Å15 was higher than normal, 3 µmol/l. Normal silicate level of remaining area was 0.2 -1 µmol/l.
Secchi depth was usually 6 metres, 8 metres at Å17

The Kattegat and the Sound

Surface water temperatures in the Kattegat were much over normal, 19-20°C, and over normal in the Sound, 16°C. Surface salinity in the Kattegat was lower than normal, 14 psu, in the Sound within normal values, 8.4 psu. Halocline was obvious in the Sound at a depth of 5 metres and thermocline at a depth of 10 metres, which lead to a stagnation in the layer below with a considerable decrease of oxygen saturation from 104 to 44 %. The lowest oxygen value in the Sound was 2.12 ml/l corresponding to 31% saturation. It was measured in the bottom water at W Landskrona. In the Kattegat the lowest oxygen value was found in the bottom water at Anholt E, 4.33 ml/l, corresponding to 63% saturation.
Surface phosphate and nitrite+nitrate concentrations in the Kattegat were normal for the season. Phosphate concentrations were 0.08-0.10 µmol/l and C concentrations were below the detection limit (0.10 µmol/l), Silicate concentrations in the Kattegat were higher than normal and varied between 6-8 µmol/l. In the Sound, phosphate and silicate concentrations were higher than normal: 0.38 and 11.5 µmol/l respectively. Nitrite+nitrate concentrations in the Sound were below the detection limit.
Secchi depth at Anholt E and in the Sound was 6 m.

Baltic Proper

Surface water temperature, which was above the normal of the season varied from 14.9°C at Karlsö to 18.4°C in Arkona. Thermocline was found between 5 and 10 metres depth.
Surface phosphate concentrations were above normal in some regions of the southern Baltic(0.33 µmol/l). In remaining areas the concentrations were between 0.06 and 0.13µmol/l. Also the silicate concentrations, which varied between 8 and 13.5 µmol/l, were higher in the southern and northern Baltic. The nitrite+nitrate concentrations were normal and were below the detection limit, 0.10 µmol/l.
In the western and eastern Baltic oxygen concentrations below 2 ml/l were found at depths exceeding 70 metres and in the southern Baltic at depths greater than 80m.

Hydrogen sulphide was found in the Western Gotland Basin from 80 metres to the bottom, in the Bornholm basin from 85 metres and in the Eastern Gotland Basin at depths exceeding 140 metres. Low bottom oxygen concentrations were also measured in the Arkona Basin at BY1, the concentration was only 1.31 ml/l at a depth of 46 m.
No surface accumulation of algae bloom could be observed. Algae presence could be seen in the eastern and partly in the western Gotland Basin with a Secchi depth of 5-6 metres there. In the southern Baltic Secchi depth was 8 metres and rare algae occurrence.

PARTICIPANTS

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Martin Hansson		-”-
Johan Håkansson		-”-
Hans Olsson		-”-
Sari Sipilä		-”-

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