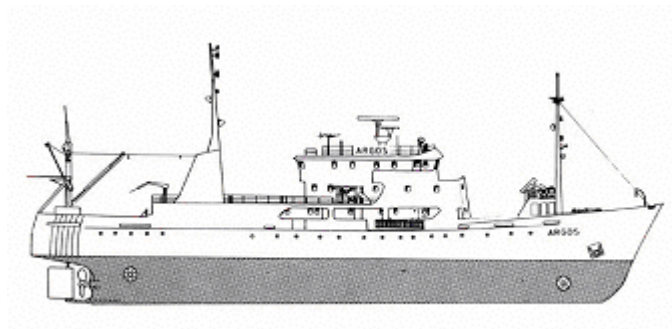


CRUISE REPORT FROM R/V ARGOS



Survey period: 2009-10-04 - 2009-10-10

Survey area: The Skagerrak, Kattegat, Sound and 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 water temperatures were normal in most of the investigated area.

Surface phosphate concentration was above normal in Kattegat, the Sound and in the western and southern part of the Baltic.

In the Arkona Basin, the water below the halocline was well oxygenated with levels round 4 ml/l.

In the rest of the Baltic Proper oxygen concentrations below 2 ml/l were observed at depths exceeding 60 to 70 metres.

In the West Gotland Basin and Northern Baltic Proper, hydrogen sulphide was found below 70-90 metres. In the East Gotland Basin hydrogen sulphide began at depths between 100 and 140 metres. Phytoplankton activity was relatively low in the area.

The next expedition will take place November 9-14.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Nynäshamn on October 13 and ended in Västervik on October 11. A new wave buoy was deployed in the south-eastern Baltic. Weather during the expedition was mostly windy.

The Skagerrak

Surface temperatures were normal for the season and varied between 13.0-13.6°C. Surface salinity was above 32 psu throughout the area, due to strong westerly winds. Stratification was weak. Nutrient concentrations in the surface layer were normal throughout the area. The sum of nitrate and nitrite was below or just over 0.1 µmol/l. Phosphate concentrations varied from 0.06 to 0.16 µmol/l and silicate between 1.2 and 2.1 µmol/l. Chlorophyll fluorescence was low.

The Kattegat and the Sound

Surface water temperatures were also normal for the season here, between 12.8-14.2°C. Due to a westerly gale surface salinities were above normal in Kattegat: 32 psu in the northern part and 23 psu in southern. Salinity in the Sound was normal ca. 16.5 psu. The halocline and thermocline were weakly developed.

All surface nutrients showed normal concentrations with the exception of phosphate, which was somewhat above normal. The sum of nitrate and nitrite was below or just above 0.1 µmol/l in the Kattegat but 0.9 µmol/l in the Sound. In the Kattegat, phosphate was 0.2 µmol/l and silicate ca. 3-4 µmol/l. Phosphate concentration in the Sound was 0.5 µmol/l and silicate 10 µmol/l. Chlorophyll fluorescence was low.

The lowest oxygen concentration recorded was from the bottom water in the Sound, at 2.1 ml/l, which corresponds to a saturation of 30 %.

Baltic Proper

Surface temperatures were normal for the time of year at most stations, varying from 13°C in the south to 10°C in the north. Upwelling at BY4 and the Landsort Deep led to surface temperatures of 7.7°C and 8.2°C respectively. In northern, western and eastern parts of the Baltic there were thermoclines starting at depths between 25-40 metres and the halocline began at depths between 50-70 metres. In the Bornholm and Arkona Basins, thermocline and halocline coincided at 40 and 25-30 metres respectively.

Phosphate concentrations in the surface water varied between 0.62 and 0.17 µmol/l; above normal in the western and southern, normal elsewhere. The sum of nitrite and nitrate in the surface waters was normal, being just above the detection limit (< 0.10 µmol/l) throughout the study area. Silicate levels were above normal in north and west and at BY4, and normal in the remainder of the area with the exception of BCSIII-10, where it was low. Silicate varied between 4 and 13 µmol/l.

Fluorescence measurements indicated that phytoplankton activity was relatively low.

Below the halocline in the Arkona Basin, the water was well oxygenated, with oxygen concentrations round 4 ml/l. In the remainder of the Baltic Proper, oxygen concentrations below 2 ml/l were found below 60 to 70 metres.

Hydrogen sulphide was found below 70 – 90 metres in the West Gotland Basin and Northern Baltic Proper, while in the East Gotland Basin, hydrogen sulphide started below 100 to 140 metres.

Coastal stations

Surface phosphate at Ref M1V1 in the Kalmar Sound was higher than normal, 0.7 µmol/l. Surface salinity at Släggö (at the entrance to the Gullmarfjord) was higher than normal, at 31.8 psu.

PARTICIPANTS

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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