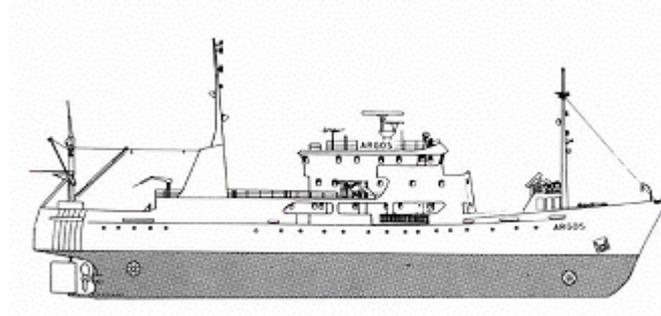


CRUISE REPORT FROM R/V ARGOS



Survey period: 2009-05-11 - 2009-05-16

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 addition, an intercalibration of primary productivity methods was carried out by scientists from four different laboratories. Samples were also taken for the project Bazooqa, to study of the occurrence of the comb jelly Mnemiopsis.

Surface water temperatures were normal throughout the study area. Nutrient concentrations in the surface waters were mostly normal in all areas except for phosphate, which was higher than normal in the Arkona Basin.

The deep water in the Arkona Basin was well oxygenated: 4.7-6.6 ml/l. In the remainder of the Baltic Proper oxygen concentrations below 2 ml/l were observed at depths exceeding 70 to 80 metres. Hydrogen sulphide was found west and east of Gotland, in the west at depths exceeding 100 metres and in the east from 125 metres.

An algal bloom was observed in the deeper layers of the Kattegat and the Sound.

Data presented in this report have been subject to preliminary quality control procedures only. The next expedition is scheduled for June 8th to 13th, 2009.

PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on May 11th and ended in the same port May 16th.

The winds during the expedition were weak to moderate and came from north.

Intercalibration of primary productivity measurements was carried out by scientists from four different laboratories. Samples were taken for the project "Bazooca", using a multinet to study of the occurrence of the comb jelly Mnemiopsis.

The Skagerrak

Surface water temperatures and salinities were normal for the season and varied from 9.9 to 11.4°C and from 25.9 to 29.7 psu respectively, except for at P2 where salinity was higher than normal.

Nutrients concentrations at the surface were normal (low) throughout the area. The sum of nitrite + nitrate was below the detection limit (0.1 µmol/l). Phosphate concentrations were 0.04-0.07 µmol/l and silicate between 0.6 and 1.2 µmol/l; lowest in the centre of Skagerrak, at Å17, and highest at Å15.

Oxygen concentrations in the deep water were good.

Phytoplankton activity, based on fluorescence measurements, was relatively low, with small maxima between 12-20 metres across the whole area,.

The Kattegat and the Sound

Surface water temperature, which varied between 10.3 and 11.8°C, was normal for the season. Lowest temperatures were measured at Läsö E and highest at W Landskrona. Surface salinity varied between 18.9 and 26.7 psu. Salinity in the Sound was 18.2 psu, which was higher than normal. The halocline was found at a depth of about 10 metres.

Surface water nutrient concentrations were normal in the Kattegat and in the Sound. All inorganic nitrogen had been consumed. Phosphate concentrations varied between 0.06 and 0.11 µmol/l and silicate concentrations between 0.7 and 2.5 µmol/l. In the Sound phosphate and silicate concentrations were 0.16 and 3.4 µmol/l respectively.

The lowest oxygen concentration in the bottom water was measured at W Landskrona in the Sound: 4.7 ml/l corresponding to a saturation of 69%.

High (5-7 mg/m³) fluorescence was observed at a depth of 15-20 metres - at the limit of the nutrient rich bottom water - at Anholt E and W Landskrona, indicative of an algal bloom. Secchi depth was 7 metres in the southern Kattegat and in the Sound.

Baltic Proper

Surface water temperatures were normal throughout the study area, and varied between 6.9 and 9.6°C. Surface salinities were between 6.7 and 8.0 psu. The halocline began at a depth of 30 metres in the Arkona Basin, at 50 metres in the Bornholm Basin and at 60 to 70 metres in the remaining parts. A more or less pronounced thermocline was found between 15 and 25 metres.

Surface nutrient concentrations were normal, except for phosphate in the Arkona basin, which at 3 µmol/l was higher than normal. Nitrite and nitrate were below the limit of detection (0.1 µmol/l).

Phosphate was between 0.13 and 0.35 µmol/l and silicate between 6.0 and 13.7 µmol/l.

Oxygen concentration at the bottom in the Arkona Basin was normal and had a concentration of 4.7 to 6.6 ml/l. In the remainder of the Baltic Proper oxygen concentrations below 2 ml/l were observed at depths exceeding 70 to 80 metres. In the Bornholm Basin the lowest oxygen concentration was 0.4 ml/l, which is normal.

Hydrogen sulphide was found west of Gotland at depths exceeding 90 metres and east of Gotland from 125 metres.

Phytoplankton activity, based on fluorescence observations, was low throughout the study area.

Coastal stations

The highest temperature in the Baltic Proper, 9.6°C, was observed in Kalmar Sound. Phosphate concentration was high at 0.35 µmol/l. The highest Skagerrak temperature, 11.4°C, was observed at Släggö, at the mouth of Gullmar fjord. This station also had the lowest Skagerrak salinity: 20.7 psu. N14 outside Falkenberg showed normal values for all parameters.

PARTICIPANTS

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APPENDICES



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