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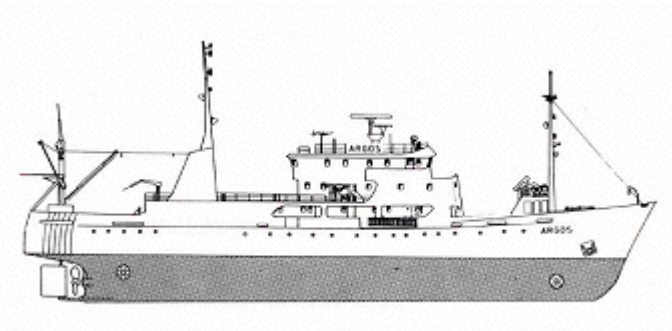
2006-07-15
Dnr: Mo 2006-166

CRUISE REPORT FROM R/V ARGOS



Survey period: 2006-07-10 - 2006-07-15

Survey area: The Skagerrak, Kattegat, Sound, and Baltic Proper

Principal: SMHI

SUMMARY

The expedition took place within 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 temperatures were above normal in the whole area.
A cyanobacterial bloom was ongoing in the Baltic and large surface accumulations of cyanobacteria (blue green algae) were observed in the Arkona and Bornholm Basins and in patches in south-eastern part of the Baltic.
Nutrient concentrations in the surface were normal for the season in the whole area.
In the Arkona Basin and at BCSIII-10, bottom water oxygen conditions were good. Oxygen concentrations below 2 ml/l were found at depths exceeding 70 – 90 metres in the remainder of the Baltic.
Hydrogen sulphide was found at the bottom in the Bornholm Deep, below 150 metres in the eastern and at depths exceeding 80-90 metres in the western Gotland Basins.

A more detailed report on the algal situation can be found at: **Algal report (Pdf)**

The next expedition is scheduled for August 7 to 12, 2006.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Gothenburg on July 10 and ended in the same port on July 15. The expedition started with a fresh breeze from southwest. The rest of the week a high-pressure area with weak, variable winds dominated the weather. For the University of Göteborg (FRISBEE-project), water samples were taken for measurements of oxygen- and carbon isotopes.

The Skagerrak

Surface water temperatures were somewhat above normal throughout the investigated area. They varied between 18.3 °C and 20.2 °C. Surface salinities at the Å-section were around 29 psu. The Baltic current was found closer to the coast. Secchi depths were ca 10 metres in the open sea.
All nutrients in the surface waters were consumed.
Minor peaks of chlorophyll fluorescence were recorded at depths between 20 and 50 metres in the layer adjacent to the nutrient rich deep water. In the surface layer the plankton flora was rather poor. The diatom *Proboscia alata* was the most common species. Among potentially toxic species a few *Dinophysis acuminata, D. acuta, D. norvegica* and *Phalacroma rotundatum* were observed.

The Kattegat and the Sound

Surface water temperatures varied between 18.5 and 20.1 °C, somewhat above normal for the season. Surface salinities were normal in the Kattegat and above normal in the Sound. The halocline was found at 10 metres. The Secchi depths were 9 metres.
Surface nutrients in the Kattegat were used up. In the Sound, low phosphate and silicate concentrations were still available in the surface layer.
Also in this area peaks of chlorophyll fluorescence were recorded in the layer adjacent to the nutrient rich deep water. As compared to the Skagerack area, the plankton flora in the Kattegat and the Sound were more diverse. The diatom *Proboscia alata* dominated and the dinoflagellate genus *Ceratium* was observed, with the specie *C. macroceros* being the most common. Some filaments of the blue-green algae *Anabaena* sp. were present at Anholt E.
The oxygen saturation in the bottom water was not below 62%, corresponding to 4.3 ml/l.

Baltic Proper

Surface water temperature, which varied between 19.1 and 23.2°C, was high for the season. The halocline began at 30 metres in the Arkona Basin, at 40 – 50 metres in the Bornholm Basin and at 70 metres in the reminder of the Baltic. The thermocline was found at a depth of 10 metres. The Secchi depths varied between 2 and 7 metres.
Large surface accumulations of cyanobacteria (blue green algae) were observed in the Arkona and Bornholm Basins and in patches in south-eastern part of the Baltic. They were composed of *N. spumigena*, often entangled with *Anabanena sp*. All the plankton samples taken in the Baltic contained large amounts of blue-green algae. The potentially toxic specie *Nodularia spumigena* dominated in the Arkona and the Bornholm Basins while the non toxic species *Aphanizomenon sp*. and *Anabaena sp*. where more abundant east and west of Gotland.
Surface nutrient concentrations were typical for the summer, i.e. phosphate 0.1; silicate 6 – 9 and nitrate below 0.1 µmol/l. The algae bloom of this year has resulted in normal summer levels of phosphate and silicate above thermocline also in the Arkona and Bornholm Basins where no cyanobacterial bloom went on during 2005.
Oxygen concentrations in the bottom water in the Arkona Basin and at BCSIII-10 were 4 ml/l. Oxygen concentrations below 2 ml/l were found at depths exceeding 70 – 90 metres in the reminder of the Baltic. Hydrogen sulphide was found at the bottom in the Bornholm Deep, below 150 metres in the eastern and at depths exceeding 80-90 metres in the western Gotland Basins.

PARTICIPANTS

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Plots

Click on the button to open appendices.
Note that this will only work when
connected to Internet!

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