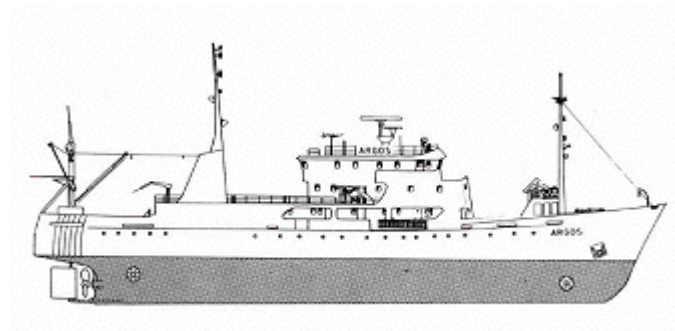


## CRUISE REPORT FROM R/V ARGOS



**Survey period:** 2005-07-11 - 2005-07-16

**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.*

*Large amounts of blue-green algae were observed in the eastern and western Gotland Basins and north of Gotland.*

*In the Arkona and Bornholm Basins surface phosphate and silicate concentrations were still high.*

*In the southern Kattegat and the Sound, high phosphate and silicate concentrations were recorded in the out-flowing water from the Baltic.*

*Oxygen concentrations below 2 ml/l were found at bottom in the Arkona Basin, and at depths exceeding 70 – 80 metres in the remainder of the Baltic.*

*Hydrogen sulphide was found in the bottom water in the Bornholm Basin, in the eastern and 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 8 to 13, 2005.*

## PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Gothenburg on July 11 and ended in the same port on July 16. A high-pressure area with weak, variable winds dominated the weather during the expedition.

### The Skagerrak

Surface water temperatures were above normal throughout the investigated area. They varied between 18 °C at Å17 and 21 °C at the coast. Surface salinities were lower than normal, between 18 and 24 psu, at the coast, and normal, ca. 30 psu in the central parts.

All nutrients in the surface waters had been consumed.

Relatively high peaks of chlorophyll fluorescence were recorded at depths between 20 and 25 metres in the layer adjacent to the nutrient rich deep water. In the surface layer the plankton flora was dominated by the diatom *Proboscia alata* followed by the dinoflagellates *Ceratium tripos* and *Prorocentrum micans*. A few potentially toxic dinoflagellate species (*Dinophysis acuminata*, *D. norvegica* and *Phalacroma rotundatum*) were observed in very low numbers. Secchi depths were ca 10 metres.

### The Kattegat and the Sound

Surface water temperatures exceeded 20 °C. Surface salinities were normal in the north and below normal in the southern Kattegat and the Sound. The halocline was found at 10 to 15 metres.

Surface nutrient concentrations in the northern Kattegat were almost zero. In the southern Kattegat and the Sound, high phosphate and silicate concentrations (for the season ) were recorded in the out-flowing water from the Baltic. At the end of the week surface salinity and nutrient concentrations were normal at Anholt E.

Relatively high peaks of chlorophyll fluorescence were recorded at depths between 20 and 25 metres. The plankton flora in the surface layer had the same composition as the samples from Skagerrak. In the fluorescence maximum a large number of the potentially toxic dinoflagellate *Dinophysis acuminata* were observed. The Secchi depths were ca 8 metres.

The lowest bottom water oxygen concentration was found at Anholt: 4.52 ml/l. This corresponds to a saturation of 64%.

### Baltic Proper

Surface water temperature, which varied between 19.7 and 21.9°C, was high for the season. The halocline began at 35 metres in the Arkona Basin, at 50 – 60 metres in the Bornholm Basin and at 70 metres in the reminder of the Baltic. The thermocline was shallow.

Large amounts of blue-green algae were observed in the eastern and western Gotland Basins and north of Gotland. Secchi depth was only 3 – 4 metres and oxygen levels in the surface water were severely supersaturated.

In the Arkona and Bornholm Basins, where the blue-green algal bloom not was in progress, surface phosphate and silicate concentrations were still high, about 0.4 and 10 – 14 µmol/l respectively and Secchi depths 7 – 9 metres. In the reminder of the area the surface nutrient concentrations were normal for the summer, i.e. phosphate .0.1 and silicate 7 – 10 µmol/l. Nitrate concentrations in the surface water were below 0.10 µmol/l throughout the Baltic Proper.

Oxygen concentrations below 2 ml/l were found at bottom in the Arkona Basin, and at depths exceeding 70 – 80 metres in the reminder of the Baltic. Hydrogen sulphide was found 70 - 80 metres and deeper in the Bornholm Basin, deeper than 150 – 185 metres in the eastern Gotland Basin and from 125 metres in the western Gotland Basin.

## **PARTICIPANTS**

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## **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