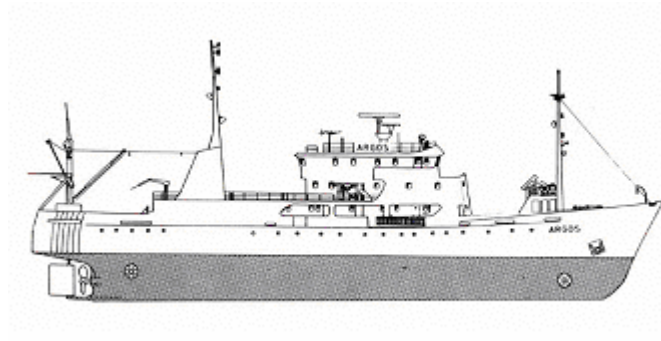


## CRUISE REPORT FROM R/V ARGOS



**Survey period:** 2010-04-12 - 2010-04-17

**Survey area:** The Skagerrak, Kattegat, Sound, and the 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 nutrient concentrations were normal in all areas, with the exception of phosphate, which was elevated in the Sound.

The oxygen concentration in the deep water of Kattegat was slightly lower than normal and the oxygen situation in the Bornholms Basin had worsen compared to previous measurements. In the western and eastern Gotland Basins oxygen concentrations below 2 ml/l were found at depth exceeding 70-80 meters. Hydrogen sulphide was found in the western Gotland Basin from 80-90 meters, while in the eastern Gotland Basin from 125 meters.

The spring bloom in Skagerrak and Kattegat was in its final stage, though the bloom was ongoing in the Baltic Proper.

The next expedition is scheduled for 3<sup>rd</sup> to 8<sup>th</sup> of May.

## **PRELIMINARY RESULTS**

The cruise, part of SMHI's ordinary monitoring programme, began in Gothenburg on April 12<sup>th</sup> and ended in Gothenburg on April 17<sup>th</sup>.

Two scientists from the University of Gothenburg studied the occurrence of the comb jelly *Mnemiopsis*. The weather during the expedition was calm and sunny. During the final day the wind increased to 12-13 m/s from southwest.

### **The Skagerrak**

The temperature and salinity in the surface water were normal for the season and varied between 5.6-6.7 °C and 22.1-30.4 psu respectively. Both the thermocline and halocline were found at 5-10 meters depth. The amounts of nutrients in the surface were low, which is normal for this season. In the offshore areas the phosphate concentration varied between 0.05-0.08 µmol/l and silicate between 0.1-0.2 µmol/l. The sum of nitrate + nitrite was below the detection limit (<0.10 µmol/l). At Släggö, at the entrance to the Gullmar Fjord, the nutrients concentrations were normal but higher than the offshore stations; the phosphate concentrations was 0.16 µmol/l, silicate 6.0 µmol/l and the sum nitrite and nitrate was 2.76 µmol/l.

The phytoplankton activity was generally low in the areas but at P2 a distinct bloom could be found below the halocline at 16-18 meters depth.

### **The Kattegat and the Sound**

The surface water temperature and salinity were normal for the season at all stations except for N14 close to the Swedish coast where the salinity was below normal, 16.3 psu.

The concentrations of phosphate varied between 0.05- 0.27 µmol/l and were above normal in the Sound. The inorganic nitrogen was consumed at all stations and concentrations were found to be around the detection limit. Silicate concentrations were normal at all stations and varied between 0.1 and 3.7 µmol/l, low in the northern parts and high in the sound. The oxygen situation near the bottom was lower than normal in the whole area. The lowest oxygen value, 3.94 ml/l (54 % saturation) was found just below the halocline, at 20 meters depth, in the Sound. In northern Kattegat the phytoplankton activity peaked at 10-20 meters depth, while the spring bloom appeared to be over in remaining areas.

### **Baltic Proper**

Surface water temperatures were normal and varied from 2.0 °C in the north to 4.3°C in the Arkona Basin. The halocline and thermocline began at a depth of 50-60 metres, though somewhat shallower in the Arkona- and Bornholm Basins.

Surface phosphate varied between 0.16 and 0.34 µmol/l, which is normal for the season. The inorganic nitrogen compounds were consumed and were below the detection limit at all stations. Surface concentrations of silicate varied between 2.5 and 9.5 µmol/l, which is normal, except for the Arkona- and western Gotland Basin, where it was below normal.

The bottom water in the Arkona Basin was well oxygenated with concentrations exceeding 6 ml/l. Compared with previous month measurements, the oxygen concentrations in the Bornholm Basin deep water had declined from 2 ml/l to about 1 ml/l. In the western and eastern Baltic Proper the oxygen situation was below normal. Oxygen concentrations below 2 ml/l were found at depths from 70-80 metres. Hydrogen sulphide was found at depth exceeding 80 –90 metres in the western Gotland Basin, while in eastern Gotland Basin hydrogen sulphide began at depths greater than 125 metres.

Fluorescence measurements, oxygen saturation and consumed nitrite and nitrate in the surface layer indicated that the spring bloom was ongoing. The secchi disk depth in the eastern Gotland basin varied between 5-7 meters.

## PARTICIPANTS

Name		From
Martin Hansson	Chief Scientist	SMHI Oceanographic laboratory
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Sara Johansson		-"-
Jenny Lycken		-"-
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Linda Svanberg		-"-

## 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