

Bodil  
Thorstensson

Swedish Meteorological and Hydrological Institute  
Oceanographical Laboratory

2001-05-18  
Dnr: Sh-2001-106

## CRUISE REPORT FROM R/V ARGOS

**Survey period:** 20010513-20010517

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

**Principal:** SMHI

### SUMMARY

*The expedition was performed within SMHI's regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound, and the Baltic Proper.*

*The temperature was normal, however in the higher region within normal values of the Skagerrak and the Kattegat.*

*Nutrient concentrations in the surface layer were normal for the season in all areas, except the silicate concentration of the Baltic that was slightly lower.*

*Hydrogen sulphide was present at depths greater than 125 metres in the eastern and western Gotland Basins and in the Hanö Bight from 70 metres. Oxygen concentrations below 2 ml/l was found at depths greater than 80 metres in the whole Baltic Proper.*

*High fluorescence peaks were measured in the Sound and in the southern Kattegat.*

**Address:**  
Byggnad 31 Nya Varvet  
SE-426 71 Västra Frölunda  
SWEDEN

**Telephone:**  
+46 11 4958000  
**Telefax:**  
+46 31 7518980

**E-mail:**  
shark@smhi.se  
**WWW:**  
<http://www.smhi.se/sgn0102/nodc/>

## **PRELIMINARY RESULTS**

The cruise, part of the SMHI ordinary monitoring programme, began in Västervik on the 13<sup>th</sup> of May and ended in Göteborg on the 17<sup>th</sup>. The weather was fine during most of the expedition with sunshine and weak winds. Temporarily there was some fog and low temperature for the season, and there was some rain on the last day of the cruise.

### **The Skagerrak**

Surface water temperatures varied between 10.9 and 11.8°C. At some parts of the Å transection the surface temperature was somewhat higher than normal, while the salinity was somewhat lower, 20-25 psu.

The thermocline and halocline were both located at a depth of about 5 metres. Nutrient concentrations were normal for the season. The nitrate had a variation between the limit of detection and 0.4 µmol/l, phosphate between the limit of detection and 0.04 µmol/l, and silicate between 1-2 µmol/l. High fluorescence was measured at the Swedish coast in the mouth of the Gullmar's fjord.

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

Surface water temperatures varied between 12.0 and 12.7°C, which is above average in May. The thermocline and halocline were both located at a depth of 7-8 metres, somewhat more shallow at Anholt E.

The nutrient concentrations were normal. Nitrite and nitrate were in the range of the limit of detection, phosphate, 0.03-0.05 µmol/l, and silicate varied between 2.4 and 4.8 µmol/l. At W Landskrona in the Sound, however, the phosphate values were higher, 0.14 µmol/l. Here as well the higher silicate concentration was measured.

At Anholt E a high fluorescence maximum was recorded at a depth of 10-15 metres and another maximum, even higher, in the Sound at 15 metres. Here at W Landskrona algae (macro?) were adhered to the sampler from the depth of 15 metres.

The lowest oxygen concentration of the deep water was measured at W Landskrona in the Sound, 4.50 ml/L, which gave a saturation of 64 %.

### **The Baltic Sea**

Surface water temperatures varied from 6.0 °C in the northern part of the Baltic Proper to 11.1 °C in the south (Arkona). The thermocline was located at 10-15 metres, in the southern Baltic, however, at about 5 metres. The halocline was still at 60 metres, and in the south at 30 or 45 metres.

High fluorescence values were measured in the western Gotland Basin and at the Fårö Deep.

Hydrogen sulphide was present in the eastern and western Gotland Basins at depths greater than 125 metres and in the Hanö Bight from 70 metres, where the bottom layer was distinct separated from the upper. The temperature was higher and the concentration

---

of phosphate and silicate was very high. At station BY 10 in the eastern Gotland Basin the oxygen condition of the bottom water was much better than the last month and the water of all depths was oxygenated. The limit of an oxygen concentration below 2 ml/l was found at depths greater than 80 metres in the whole Baltic Proper.

Nitrite and nitrate concentrations were normal for the season. That means, near or below the limit of detection, 0.02 resp. 0.1  $\mu\text{mol/l}$ . The concentration of phosphate was also of a normal level between 0.1 and 0.2  $\mu\text{mol/l}$ . Silicate concentrations between 6 and 8  $\mu\text{mol/l}$  were lower than normally.

## **PARTICIPANTS**

Name	From
Bodil Thorstensson, chief scientist	SMHI Oceanographical lab.
Jonas Henriksen	- " -
Elisabeth Sahlsten	- " -
Sari Sipilä	- " -
Jan Szaron	- " -

## **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
-