Lars Andersson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

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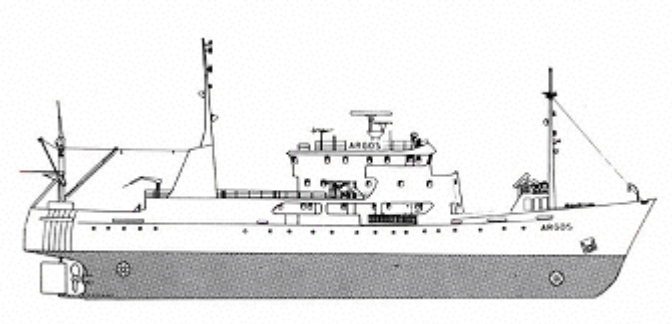
CRUISE REPORT FROM R/V ARGOS



Survey period: 2010-01-10 - 2010-01-16

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. Winter conditions were mapped in the Kattegat and the Sound.

Data presented in this report have been subject to preliminary quality control procedures only.

Surface water temperatures were low in the Kattegat but normal in the remainder of the area.
Surface nutrient concentrations were normal in most areas, except for phosphate, which was higher than normal in the Bornholm Basin, and silicate, that also was above normal in the Bornholm Basin and in the western and northern Gotland Basins.
The bottom water of the Arkona Basin was well oxygenated, while elsewhere in the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 50-70 metres.
Hydrogen sulphide was found in the eastern -, northern – and western Gotland Basins.

The next expedition is scheduled for February 21 to 26, 2011.

Address:
Sven Källfelts Gata 15
Nya Varvet 31
SE-426 71 Vastra Frolunda
SWEDEN

Phone:
+46 11 495 80 00
E-mail:
Lars.S.Andersson@smhi.se

E-mail:
shark@smhi.se
WWW:
http://www.smhi.se/

PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on January 10th and ended at the same place January 16th. Winter conditions were mapped in the Kattegat and the Sound. Turbidity was measured at four stations south of Gotland on behalf of NordStream AG. Winds during the expedition were mainly moderate to strong from a range of directions. Air temperature was around zero Celsius.

The Skagerrak

Surface water temperatures were normal and varied between 1 and 4°C. Surface salinities were also normal, from 31 psu in central parts to almost 33 in the Jutland current. The halocline and thermocline coincided at a depth of 20 metres in the central parts while they were very weakly developed or missing in the remaining areas.
Surface nutrient concentrations showed typical winter values: phosphate concentrations varied between 0.5 and 0.7 µmol/l, silicate between 3.7 and 7.3 µmol/l and the sum of nitrite + nitrate from 5.4 to 8.4 µmol/l. Fluorescence measurements and oxygen saturation indicated that plankton activity was low.

The Kattegat and the Sound

Surface water temperatures were normal or slightly below normal, varying from –0.4 to 1.4°C. Surface salinity increased from 20 psu at Kullen in the south to 24 psu in the north. In the Sound it varied from 8.6 at Drogden to 18.4 psu in the northern part. The halocline and thermocline were both found at 15 to 20 metres in the Kattegat and at 8 to 10 metres in the Sound.
Surface nutrient concentrations were mostly normal both in the Kattegat and in the Sound: phosphate varying between 0.45 and 0.62 µmol/l, silicate between 7.4 and 12.6 µmol/l and nitrite + nitrate between 3.9 and 5.6 µmol/l.
The lowest oxygen concentration in the bottom water was measured in the central part of the Sound: 4.2 ml/l corresponding to a saturation of 63%.
Phytoplankton activity was also low in this area.

Baltic Proper

Surface water temperature was somewhat below normal for the season and varied between 0.7 and 2.9°C. Surface salinity was normal, varying from 6.5 psu in the north to 7.8 psu in the south. Halocline and thermocline both began at a depth of 40 metres in the Arkona Basin and at 50 to 70 metres in the remaining areas.
Surface phosphate was higher than normal in the Bornholm Basin, at 0.7 µmol/l, but elsewhere it was normal, about 0.6 µmol/l. Surface nitrite + nitrate were normal and were between 2.4 and 4.3 µmol/l in the whole study area. Surface silicate was slightly above normal in the Bornholm Basin, at 13.2-13.6 µmol/l; in the Landsort Deep and in the western Gotland Basin, 13.4-16.0 µmol/l. Elsewhere, concentrations were normal at 7,7-11,5 µmol/l.
The bottom water of the Arkona Basin was well oxygenated with concentrations exceeding 6 ml/l. In the remainder of the Baltic Proper, oxygen concentrations below 2 ml/l were found at depths exceeding 50 to 70 metres.
Hydrogen sulphide was found deeper than 100 metres in the western Gotland Basin. In the northern Gotland Basin, hydrogen sulphide began at a depth of 125 to 150 metres and in the eastern Gotland Basin at ca. 125 metres.
Phytoplankton activity was low in the whole area.

Coastal stations

At Släggö, in the mouth of the Gullmar fjord, nutrient concentrations in the surface layer were just below normal. This, and fluorescence measurements, indicated that a bloom just started. In the southern part of Kalmar Sound, at station Ref M1V1, surface temperature was below normal while nutrient concentrations were above mean for the season.

PARTICIPANTS

Name		From
Lars Andersson	Chief Scientist	SMHI Oceanographic laboratory
Sari Sipilä		-”-
Anna-Kerstin Thell		-”-
Bodil Thorstensson		-”-
Bengt Yhlen		-”-

APPENDICES

Plots

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