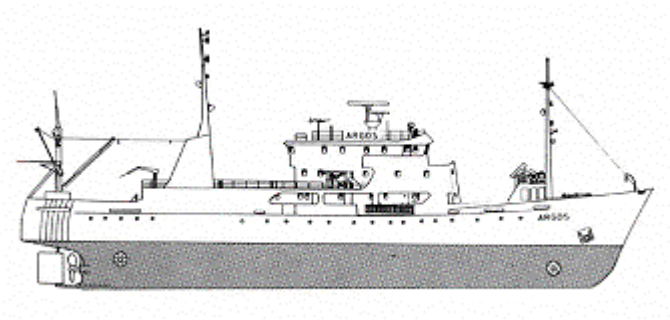
Lars Andersson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2005-02-27
Dnr: Mo-2005-51

CRUISE REPORT FROM R/V ARGOS



Survey period: 2005-02-21 - 2005-02-27

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. Mapping of winter conditions was performed in the Baltic Proper.

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

Very high surface phosphate concentrations were measured in the Baltic Proper. Silicate concentrations were also enhanced there, while levels of nitrogen compounds were normal. Nutrient concentrations in the Skagerrak-Kattegat area were normal or almost normal. The spring bloom in the Skagerrak-Kattegat area was just starting.

In the Baltic Proper oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 100 metres. Hydrogen sulphide was found in the bottom waters of the Gotland Deep(BY15), Landsort Deep (BY31)and Norrköping Deep(BY32).

Next expedition is scheduled for April 4 to April 9, 2005.

Address:
Nya Varvet 31
SE-426 71 Vastra Frolunda
SWEDEN

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

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

PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg February 20 and ended in Kalmar February 27. Mapping of winter conditions took place in the Baltic Proper. North-easterly winds dominated during the expedition. During the first days they were moderate to fresh and then increasing to strong for two days. These were followed by a calm day, before increasing to strong for the rest of the week.

The Skagerrak

Surface water temperatures were normal in the investigated area. They varied between 2.10°C in the south-east to 3.97°C in the central parts. Surface salinities were below normal (23 to 29 psu), lowest in the south-east, highest in the central. Stratification was rather weak. The halocline was found at a depth of 5 to 15 metres.
Surface nutrient concentrations were normal for the season, except for nitrogen, which showed lower than normal values at stations close to the coast. Phosphate was between 0.4 and 0.6 µmol/l and silicate from ca. 8.5 at the coast to 6.5 µmol/l further west. Surface nitrate concentrations were normal in the central parts, ca. 8.5 µmol/l and somewhat below normal (5.5 to 7.5 µmol/l) at the coast.
The chlorophyll fluorescence showed some marked peaks in the surface layer in the eastern parts, indicating that the spring bloom could be in an early phase.

The Kattegat and the Sound

Surface water temperature in the Kattegat varied between 1.6 och 1.8 °C and in the Sound ca 2.0 °C, which is normal for the season. Surface salinities in the Kattegat were lower than normal, just above 20 psu, in the Sound ca. 8.5 psu.
Surface nutrient concentrations were normal for the season. Phosphate concentrations were ca. 0.35 µmol, silicate between 6 and 8 µmol and nitrate + nitrite about 4 µmol. In the Sound phosphate and silicate concentrations were higher than normal, ca 0.8 and ca 15 µmol respectively while nitrate + nitrite were normal about 3 µmol.
The lowest oxygen value in the bottom water was measured at W Landskrona in the Sound, 5.88 ml/l corresponding to a saturation of 79%.
The chlorophyll fluorescence was very high in the surface layer, indicating that the spring bloom was in progress also here.

Baltic Proper

Surface water temperature varied between 2.4 and 3.2°C, normal for the season. Thermocline and halocline were found at the same depth and began in the Arkona Basin at 40 metres. In the reminder of the Baltic stratification began at a depth of 60 to 80 metres.
Surface phosphate concentration continues to increase and is now very high. It varied between 0.8 and 1.3 µmol/l, which is more than double normal winter values at most stations. Silicate concentrations are also above normal at all stations. They varied between 12 and 21 µmol/l. Nitrate + nitrite concentration in the surface was normal, between 2.5 and 6 µmol/l.
In the Arkona Basin, oxygen conditions were good. In the remainder of the Baltic Proper oxygen concentrations below 2 ml/l were found at depths exceeding 70 to 100 metres. Hydrogen sulphide was found in the deep waters at the Gotland Deep(BY15), Landsort Deep (BY31) and Norrköping Deep (BY32). Phytoplankton activity was very low and secchi depth up to 16 metres were measured in the north-eastern parts.

PARTICIPANTS

Name		From
Lars Andersson	Chief scientist	SMHI Oceanographic lab.
Tuulikki Jaako		-”-
Arne Sjöquist		-”-
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