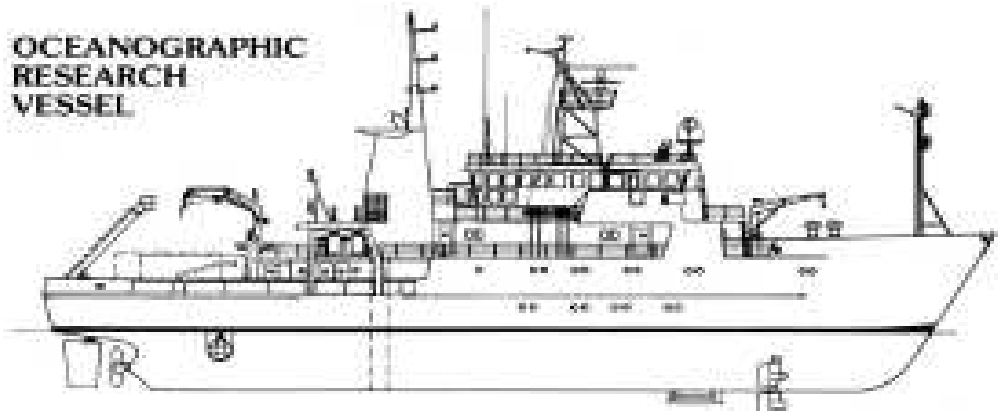
Bengt Yhlen

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

2011-04-14
Dnr: M/Gbg 2011-88

CRUISE REPORT FROM R/V FRANKLIN



Survey period: 2011-04-07 - 2011-04-14

Survey area: The Skagerrak, Kattegat, Sound, and 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 water temperatures were normal in the Skagerrak and Kattegat but somewhat below normal in the Baltic.
Spring bloom was over in the central parts of Skagerrak, in Kattegat and in the Arkona Basin and surface nutrient concentrations were low. In the reminder of the Baltic bloom was in its infancy.
The bottom water of the Arkona Basin was well oxygenated with concentrations exceeding 7.6 ml/l. At the bottom of the Bornholm Deep there was a thin layer of new water with an oxygen content of 4.8 ml/l. In the remaining parts of the Baltic, oxygen concentrations below 2 ml/l were present at depths exceeding 60-75 metres.
Hydrogen sulphide was found deeper than 80 to 100 metres in the western- and deeper than 125 to 145 metres in the eastern Gotland Basins.
The next expedition is not scheduled due to absence of research vessel.

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PRELIMINARY RESULTS

The cruise, part of SMHI´s ordinary monitoring programme, began in Göteborg on April 6th and ended in the same port on April 14th. The cruise used R/V Franklin since all work on R/V Argos has been forbidden due the presence of asbestos on board. Sediment traps were emptied south east of Gotland.
Winds of gale force began the expedition but they were soon moderate to weak.

The Skagerrak

Surface water temperature was normal throughout the area, between 5.0 and 5.9°C. Also surface salinities were normal, between 26 and 31 psu. Halocline began at depths between 15 and 20 metres at the Å-section and at 5 metres at P2.
In the central part spring bloom had just ended, but there was a strong fluorescens peak at 20 meter and the nutrients in the surface were consumed. In the reminder of the area phytoplankton activity was low and phosphate, nitrate and silicate were 0.07, 3.0-4.0 and 1.5-3.2 µmol/l respectively.

The Kattegat and the Sound

As in the Skagerrak, surface water temperatures were normal, between 4.2 och 5:0°C. Surface salinities were normal in the Kattegat between 19.4 och 18.0 psu but above normal in the Sound, 16.6 psu. The halocline began at a depth of 10 to 15 metres. Thermocline was weak.
Surface nutrient concentrations were normal for the season, except for silicate in the Kattegat. Phosphate concentrations were about 0.05 µmol/l. Nitrate in the Kattegat was below the detection limit (0.10 µmol/l) and 0,15 µmol/l in the Sound. Silicate was high in Kattegat, between 6.4 och 7.4 µmol/l, and normal in the Sound 3,7 µmol/l.
Bottom water was well oxygenated, 6 ml/l in open Kattegat and the Sound. The lowest oxygen concentration in the bottom water was measured in the Bight of Laholm, 4.2 ml/l corresponding to a saturation of 60%.
The spring bloom was over.

Baltic Proper

Surface water temperatures were below normal throughout the area and varied from 1.0 northeast of Gotland to 2.9°C in the Arkona Basin. Halocline and thermocline coincided and began at depths from 45 to 65 metres except for the Arkona Basin where halocline began at 20 meter and thermoclin was weak.
In the Arkona Basin and in the Sound of Kalmar where spring bloom was ongoing, surface nitrogen components were consumed and phosphate (0.06-0.14 µmol/l) and silicate (0.3-1.3 µmol/l) were low. In the Hanö Bight the bloom had just started and surface phosphate, nitrate and silicate were 0.4, 0,9 and 11 µmol/l respectively. In the reminder of the area where bloom was in its infancy surface concentrations were: phosphate 0.6, nitrate 2.4-3.9 and silicate 11.2-14.6 µmol/l.
The bottom water of the Arkona Basin was well oxygenated with concentrations exceeding 7.6 ml/l. At the bottom of the Bornholm Deep there was a thin layer of new water with an oxygen content of 4.8 ml/l. In the remaining parts, oxygen concentrations below 2 ml/l were present at depths exceeding 60-75 metres.
Hydrogen sulphide was found deeper than 80 to 100 metres in the western- and deeper than 125 to 145 metres in the eastern Gotland Basins.

PARTICIPANTS

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Jenny Lycken		-"-
Anna-Kerstin Thell		-”-
Bodil Thorstensson		-"-

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