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CRUISE REPORT FROM R/V ARGOS

Survey period: 2003-02-17 - 2003-02-24

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. Winter nutrient conditions in the Baltic Proper were mapped.

Nutrient concentrations were normal for the season in most areas, with the exception of the Eastern and Northern Gotland Basins where phosphate and silicate showed elevated levels.

After the latest inflow to the Baltic in January, the deep waters of the Arkona Basin, Bornholm Basin and the major part of the Hanö Bight were now well oxygenated. A thin layer of oxygen rich water was also detected in the south-eastern Baltic Proper. Hydrogen sulphide was present in the Eastern, Northern and Western Gotland Basins.

The next expedition is scheduled to March 24 to 28.

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PRELIMINARY RESULTS

The cruise, part of SMHI's ordinary monitoring programme, began in Göteborg on the 17th of February and ended in the same port the 24th the same month. One of the purposes was to map the winter nutrient concentrations in the Baltic Proper.
The weather was dominated by high pressure, with weak winds of varying directions. Ice was present in the northern part of the Baltic Proper and sampling at the station BY27 had to be cancelled due to heavy pack ice.
Sampling for the EU-project HABILE was carried out once at Fladen and twice at Anholt E.

The Skagerrak

Surface water temperatures varied from 0.5 °C in the coastal areas to ca. 3 in the central part. The halocline was located at a depth of ca. 10 metres.
Nutrient concentrations in the surface layer showed typical winter values, phosphate 0.5 µmol/l, nitrite+nitrate 6-7.5 µmol/l, and silicate 5-9 µmol/l. Somewhat elevated fluorescence values together with a slight oxygen oversaturation, in the coastal zone, indicated the beginning of a spring bloom.

The Kattegat and the Sound

Surface temperature was about 0.5 °C in the whole area. Surface salinities were lower or much lower than normal, due to a strong outflow from the Baltic. The sum of nitrite+nitrate as well as phosphate showed typical winter values, while due to the low salinity, silicate showed elevated levels, 13-16 µmol/l.
The lowest oxygen value was measured at W Landskrona in the Sound, 4.60 ml/l corresponding to a saturation of 65 %.
No signs of spring bloom were seen at the first visit Feb. 18, while there was a strong bloom going on Feb 23.

The Baltic Sea

Surface temperature varied from 2 °C in the south to -0.15 in the north. The halocline was located at a depth of 40 metres in the southern parts, while it was found at a depth of 80 to 100 metres in the central and northern parts.
The sum of nitrite+nitrate showed typical winter values 3.5-4.5 µmol/l. Phosphate and silicate concentrations were normal in the southern and western parts, 0.5 and 13 µmol/l, while concentrations in the eastern and northern areas were higher 0.7 and 15.5 µmol/l respectively.
The effects of the inflow of saline, oxygen rich water during January, could be seen in the Arkona and Bornholm Basins as well as in parts of the Hanö Bight. The lowest oxygen value, 1.76 ml/l in the south was measured in the central Hanö Bight, while values in the remaining parts of the area were around 6 ml/l.
In the south-eastern part of the Baltic, oxygen concentrations varied between 0.3 and 3.2 ml/l. In the Eastern, Northern and Western Gotland Basins, oxygen values below 2 ml/l were present below 70 to 90 metres, while hydrogen sulphide was present at depths exceeding 125 to 150 metres.

PARTICIPANTS

Name	From
Lars Andersson, chief scientist	SMHI Oceanographical lab.
Jonas Henriksen	- ″ -
Tuulikki Jaako	- ″ -
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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