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Lars Andersson

Swedish Meteorological and Hydrological Institute
Oceanographical Laboratory

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CRUISE REPORT FROM R/V ARGOS

Survey period: 20010226-20010304

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

Principal: SMHI

SUMMARY

The expedition was performed within SMHIs regular marine monitoring programme and covered the Skagerrak, the Kattegat, the Sound, and the Baltic Proper.
Mapping of winter nutrient conditions in the Baltic Proper was performed.
The nutrients showed typical winter concentrations in all areas. A tendency for a beginning spring bloom was visible in the Kattegat, while there were no signs of biological activity in the other basins.
Hydrogen sulphide was detected in the Hanö Bight, the Bay of Gdansk and in the eastern, northern and western Gotland Basins. Oxygen concentrations below 2 ml/l were found at depths greater than 70 metres in the whole Baltic Proper. The oxygen conditions in the deep water are now, with the exception of the Bornholm Basin, the worst since the beginning of the 80ths.

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 expedition, which was a part of the SMHI ordinary monitoring programme, began in Göteborg on the 26th of February and ended in Karlskrona on the 4th of March. Mapping of winter nutrient conditions in the Baltic Proper was performed. The weather was dominated by weak to moderate winds of varying direction.

The Skagerrak

Surface water temperatures varied from 1.7 °C at the Swedish coast to 3.7 °C in the central parts. The stratification was weak and no clear halocline or thermocline was present. Nutrient concentrations in the surface layer were typical for the season, phosphate 0.5-0.8 µmol/l, nitrate 8-12 µmol/l and silicate 6-10 µmol/l. Oxygen saturation in the surface layer was just below 100% and there were no signs of a spring bloom.

The Kattegat and the Sound

The temperature in the surface layer varied around 2 °C, which is normal for the end of February. The halocline was located at a depth of 15 metres in the Kattegatt, while there were two distinct haloclines in the Sound, at 15 and 20 metres respectively. A strong outflow of surface water from the Baltic resulted in lower salinities than normal in the Sound and the southern Kattegat. All nutrients showed normal winter values, phosphate 0.4-0.6 µmol/l, nitrate 5-7 µmol/l and silicate 6-12 µmol/l. Oxygen showed a weak super-saturation which, in combination with some peaks in fluorescence, indicated that the spring bloom was about to start. The lowest oxygen value in the deep water was found in the Sound, 5.11 ml/l corresponding to a saturation of 75%.

The Baltic Sea

Surface water temperatures varied from 2 °C, in the northern Baltic Proper up to 3.4 °C in the southern part. The surface water was homogeneous in temperature down to a depth of 50 metres while the halocline was found at depths varying between 40 and 70 metres. Phosphate concentrations varied from 0.3 µmol/l in the north-west to 0.7 µmol/l in the south, nitrate between 3 and 4 µmol/l in the whole area and finally silicate from 8 µmol/l in the eastern parts to 14 µmol/l in the western parts, which is normal for the season.
The surface water was slightly under-saturated with oxygen and the fluorescence was low, indicating that there was no bloom going on.
Hydrogen sulphide was present in the Hanö Bight at a depth of 77 metres and in the Bay of Gdansk at depths greater than 100 metres. In the eastern and western Gotland Basins, hydrogen sulphide was found at depths greater than 125 metres while in

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

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Telefax:
+46 31 7518980

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

the northern basin it was found already at 95 metres depth. Oxygen concentrations below 2 ml/l were generally found at depths greater than 70 metres.

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SE-426 71 Västra Frölunda
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shark@smhi.se
WWW:
http://www.smhi.se/sgn0102/nodc/

PARTICIPANTS

Name	From
Lars Andersson, , chief scientist	SMHI Oceanographical lab.
Bertil Håkansson	- ” -1
Tuulikki Jaako	- ” -
Bodil Thorstensson	- ” -
Jorge Valderrama	- ” -
Bengt Yhlen	- ” -

APPENDICES

Figurer

Klicka på knappen för att öppna bilagor.
Observera att denna länk enbart fungerar
om Ni är uppkopplade mot 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

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