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CRUISE REPORT FROM R/V ARGOS

Survey period: 20010326-20010331

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.
The temperature and nutrient concentrations in the surface layer, were normal for the season in all areas. An intense plankton bloom was ongoing in the eastern Skagerrak, in the Arkona Basin, the Hanö Bight and in an area in the northern part of the western Gotland Basin.
Hydrogen sulphide was present at depths greater than 125 metres in the eastern, northern and western Gotland Basins. Oxygen concetrations below 2 ml/l was found at depths greater than 80 metres in the whole Baltic Proper.

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PRELIMINARY RESULTS

The expedition, which was a part of the SMHI ordinary monitoring programme, began in Göteborg on the 26th of March and ended in the same port on the 31th. The weather during the expedition was dominated by weak to moderate winds of varying direction.

The Skagerrak

Surface water temperatures varied between 2 and 3 °C. The thermocline and halocline were both found at a depth of approximately 10 metres.
Nutrient concentrations were normal for the season, nitrite and nitrate around detection limits (0.02 and 0.10 µmol/l respectively) while there still were small amounts of phosphate, 0.1-0.2 µmol/l, and silicate, 0.2-2.5 µmol/l, with highest values near the coast.

High fluorescence and oxygen saturation, around 115%, was measured at the coast outside Göteborg and in the mounth of the Gullmar fjord.
In the southeastern part of the Skagerrak a maxima of chlorophyll fluorescence was present between 5-11 m with a peak at 6 m. Approximately 1-2 million cells per litre of *Chattonella sp*. was present in the upper layer (in the numbers both regular *Chattonella sp*. and minicells are included).
In the mouth of the Gullmar Fjord high chlorophyll fluorescence was obseved between 5-9 m and *Chattonella sp*. abundance was 8,4 million cells per litre.
In the offshore parts of eastern and central Skagerrak the plankton community was different compared to along the coast. Offshore *Chattonella sp*. was not common whereas diatoms were common. Maxima of chlorophyll fluorescence was mainly found between 0-10 m except at station Å17 where the peak was found at ca 18 m depth. Diatoms were common here, e.g. *Pseudonitzschia sp*.

The Kattegat and the Sound

Surface water temperatures varied around 2.5 °C, which is normal for the end of March. In the northern Kattegat the thermocline and halocline were both located at a depth of 10 metres while they were lower in the southern part, about 20 metres. In the Sound, two distinct water masses were present, separated by a very sharp halocline at a depth of 10 metres.
Also in the Kattegat and the Sound, nutrient concentrations were normal, nitrite and nitrate close to detection limits, phosphate, 0.1-0.4 µmol/l and silicate 0.6-9.5µmol/l. Phosphate and silicate showed the lowest values in the northern parts and the higest in the low salinity water in the Sound. The lowest

oxygen value in the deep water was measured at W Landskrona in the Sound, 5.25 ml/l.

At station Fladen the chlorophyll fluorescence was low and no *Chattonella sp*. were observed. Relatively high chlorophyll fluorescence was observed at 12 m depth at station Anholt E. Here only few *Chattonella sp*. was noted whereas the dinoflagellate *Heterocapsa triquetra* was fairly abundant.

The Baltic Sea

Surface water temperatures varied from 2.1 °C in the nortern Baltic Proper to 3.2 °C in the south. The thermocline and halocline were located at the same depths in most areas and were found at 40 metres depth in the south and 60-70 metres in the central and northern basins. High fluorecence was measured in the Arkona Basin, the Hanö Bight and in an area in the northern part of the western Gotland Basin. Also, in these areas phosphate and nitrite/nitrate concentrations were lowest 0.2-0.3 µmol/l and 0.1-0.3 µmol/l, respectively, while they in the other areas showed concentrations of 0.4-0-5 and 2.5-3.0 µmol/l respectively. Silicate concentrations varied from 7.3 µmol/l to 12.1 µmol/l, lowest in the south, highest in the western Gotland Basin.
Hydrogen sulphide was present in the eastern, northern and western Gotland Basins at depths greater than 125 metres. Oxygen concentrations below 2 ml/l were found at depths greater than 80 metres in the whole Baltic Proper.

PARTICIPANTS

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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