

CRUISE REPORT FROM R/V ARGOS

Survey period: 20000709-20000715

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. The surface temperatures were between 14 and 16°C. Nutrient concentrations were normal for the season in mainly all areas.

In the Skagerrak the surface salinity was >30 psu with exception of the easterly station of the Å cross section, where the salinity was 24 psu depending on the transit of the Baltic Current.

Oxygen concentrations below 2 ml/l was found from 70 m in the Bornholm Basin and generally at depths exceeding 80 to 90 metres in the whole Baltic Proper.

Hydrogen sulphide was found in the deep water in the Bornholm Basin and from 125 meter in the Eastern Gotland Basin.

PRELIMINARY RESULTS

The expedition, which was a part of the SMHI ordinary monitoring programme, began in Göteborg on the 9th of July and ended in the same port on the 15th. The weather during the expedition was dominated by winds and rain. The air temperature varied between 13 and 16°C. In the beginning of the expedition the wind was southeasterly with a velocity of about 10 m/s. In the southeastern and eastern Baltic the weather was even more windy. At the Gotland Deep we had a westly wind of 21 m/s together with rain. The last day the summer was seen with some sunshine and a weak wind from southwest.

The Skagerrak

Surface temperature varied from 14.8°C in the southern region to 16.1°C further north in the coastal zone. At Å13 the Baltic Current was traced. There, the surface salinity was only 23.8 psu, while the salinity of the cross section else was >31 psu. The thermo- and halocline of the Å cross section were located at a depth of 10 meters. Though at P2 in the south no stratification could be seen.

At the Å cross section there was an oversaturation of oxygen down to 20 meters and also some maxima of fluorescence somewhat deeper than 20 meters.

The nutrients showed normal concentrations for this time of the year. Nitrate was below the limit of detection (<0.10 µmol/l), phosphate 0.04 µmol/l and silicate below the limit of detection (<0.2 µmol/l) or for coastal water 0.5-1 µmol/l.

The Kattegat and the Sound

Surface temperature in this area was between 15.2°C at W Landskrona in the Sound and 16.0°C at Anholt E. The thermo- and halocline could be seen at about 10 meters. These were most pronounced in the Sound, where the water was strongly stratified. The bottom water of the eastern Kattegat had an oxygen saturation of 65% and that of the Sound 50% or 3.4 ml/l. These values are somewhat lower than normally for the season. The surface water usually has some oversaturation at this time of the year. Here however the saturation was 100%.

In the Kattegat the nutrient levels were typical for the season, nitrate <0.10 µmol/l, phosphate 0.04 µmol/l and silicate 1.5-2 µmol/l, while the phosphate and silicate values of the Sound were slightly higher than normal, that is, 0.2 and 8 µmol/l.

The Baltic Sea

Surface temperature varied from 14.0°C at the Karlsö Deep (the Hanö Bight 13.6°C) to 15.6°C at Arkona. The thermocline was situated at 20 meters.

An oxygen concentration below 2 ml/l was found from 70 meters in the Bornholm Basin and generally from 80 meters and deeper in the whole Baltic Proper. Hydrogen sulphide was present in the Bornholm Basin (90m) and in the eastern Gotland Basin from 125 meters. In the Hanö Bight there was a strong halocline at a depth of 50 meters with an increase of salinity from 9 to 15 psu. In the deep water the oxygen concentration was 0.05-0.15 ml/l.

There was a slight oversaturation of oxygen in a surface layer of 10-20 meters. Peaks of fluorescence were registered in the eastern and western Gotland Basin. At BCS III-10 flocculated plankton could be seen in the haul sample, which indicates an algae bloom of declining. Even in this area all nutrients, in the surface layer, showed for the season typical values, nitrate <0.10 µmol/l, phosphate 0.05-0.10 µmol/l (in the southern Baltic however 0.10-0.20) and silicate 8-10 µmol/l.

PARTICIPANTS

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APPENDICES

- Track chart
- Table over stations, parameters and sampling depths
- Map showing bottom oxygen concentrations
- Monthly average plots for selected stations
- Profiles for selected stations