

Microbiological condition of sediments and bottom water in the area of Gdańsk Deep in Gulf of Gdańsk

The aim of the study was to:

1. determine the number of selected bacteria in samples of sediments and bottom water
2. measure the temperature, salinity and concentration of dissolved oxygen and hydrogen sulphide in bottom water.

Test material and methods

The tested samples (sediments and bottom water) were collected at 5 sites on 15th of December 2007 from Gdańsk Deep – an area of Gulf of Gdańsk.

5 samples of bottom water and 10 samples of sediments were collected for microbiological testing. Each of these samples were analysed for 12 microbiological markers. Additionally, there were 7 samples of bottom water collected for physicochemical testing. These samples were analysed for 2 physical properties (water temperature and salinity) and 2 chemical properties (concentration of dissolved oxygen and hydrogen sulphide).

Samples of bottom water and sediments were analysed for the following:

- general number of psychrophilic bacteria on Zo-Bella 2216E medium,
- general number of mesophilic bacteria on Zo-Bella 2216E medium,
- most probable number of *Enterobacteriaceae* genus bacteria,
- most probable number of *Escherichia coli* bacteria
- number of intestinal *Enterococci*, by filtration method, using Slanetz-Bartley medium,
- most probable number of *Clostridium perfringens* bacteria, using liquid DRCM medium in anaerobic conditions,
- number of *Vibrio* genus bacteria, by filtration method, using TCBS medium,
- presence of *Salmonella* genus bacteria, using selective – multiplying SF medium, and subsequently Wilson-Blair mediums and Salmonella-Shigella agar; typing of bacteria species was conducted basing on biochemical and serological tests (diagnostic serum),
- number of amylolytic bacteria, on starch agar, after 96 hours of incubation, at 22°C,
- number of proteolytic bacteria, on gelatin agar, after 96 hours of incubation, at 27°C,
- most probable number of ammonifying bacteria in peptone water, after 7 days of incubation, at 27°C,
- most probable number of denitrifying bacteria on Giltay medium, after 7 days of incubation, at 27°C

Samples of bottom water were analysed for physicochemical properties: temperature, salinity and concentration of dissolved oxygen and hydrogen sulphide, using methods recommended for sea water analysis by HELCOM.

