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Influence of the chronic anthropogenic pollution of the superficial sea-waters on microbe communities structure and state

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Today the increasing anthropogenic pollution of the coastal sea-areas, especially in big port cities, is a problem of great importance for the whole world. It's known that one of the most important components of the sea ecosystem are microorganisms. They play a tremendous role in the circulation of matter.

The increasing anthropogenic pollution of the coastal sea-waters can upset the dynamic balance of the microbe communities. That can lead to the changes in structural and functional bonds in the sea ecosystem. That is why the microbe communities structure and state evaluation is essential for determining functioning stability of the microorganisms, which is the aim of the research.

The research has shown an abrupt increase of all eco-trophic bacteria groups in polluted sea-waters (in contrast to unpolluted waters). Besides, the structure of the microbe community, where the character of pollution is a determinant, has changed fundamentally. Thus, man-caused pollution led to the domination of the hydrocarbon- and phenol oxidizing bacteria, domestic wastewater pollution contributed to the development of the quick growing allochthonous microflora. Biogenic pollution has caused increase of number of microorganisms taking part in nitrogen and phosphorus turnover (in comparison with unpolluted areas).

However in summer time the restorative processes were slowed down, which was accompanied by accumulation of biogenic and organic matter and was a consequence of sea-waters' eutrophication, especially in the areas of sewage water discharge. It was caused by heat pollution of the bay which led to the abrupt increase in num-

ber of bacterial plankton (2×10^8 cells/ml) and to the critically low content of oxygen (1,8 – 3 mg/l). In winter season, when low temperatures hampered the growth of allochthonous microflora, the number of indigenous microorganisms taking part in nitrogen and phosphorus turnover has increased abruptly.

Low physiological activity of bacteria in summer and high activity in winter period has also proven that. The opposite results were received for unpolluted waters of the area under research.

Thus, the character of the anthropogenic pollution of the coastal sea-waters influences greatly not both the structure and state of microorganisms.