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Paper Abstracts



RESULTS OF INVESTIGATIONS OF MARINE FISH AND BENTHOS COMMUNITY IN WESTERN PART OF THE BLACK SEA (NEAR ZMEINY ISLAND)

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It is known that spatial distributions of hydrobiota in seas are connected with man-made influences and climatic changes. The main goal of investigations was to study connection between hydrobiota's characteristics and hydrological and hydrochemical regime of marine waters in the western part of the Black Sea, especially in the area near Zmeiny Island.

We collected data about fish and benthos communities during 2003-2007. For sampling and processing of fish and benthos samples we used standard fish nets and benthos samplers according to national Ukrainian guidelines and keys. A summary of results of investigations and lists of fish and benthos species for 2003-2007 in the marine area near Zmeiny Island are presented. 49 species of fish and 55 species of benthos were found [1, 3].

The results of study of interconnections between climatic (hydrological) changes and biodiversity of ichthofauna and bentofauna are discussed. It was shown that the main pressure on fish- and benthos communities is exerted by the salinity of marine waters in the area near Zmeiny Island because this area is very much influenced by Danube waters. Sporadic coming of freshwater's fish species (*Silurus glanis*, *Misgurnus fossilis*, *Rutilus rutilus*) and other hydrobionts (*Limnaea sp.*, *Dytiscus marginalis*) was registered near the island in April 2006. This was an example of decreasing salinity during and after big spring flood of the Danube river. In 2007 the flood of Danube was minimal and in spring of 2007 near the island maximal salinity for the last 5 years was registered. In the same time the numbers of typical marine species as *Scorpaena porcus*, *Carcinus mediterraneus*, *Macropipus arcuatus* were very increased. Seasonal changes in abundance and biodiversity have very close connection with water temperature changes as well. When temperature in summer increases from 20 to 28 °C then the numbers of fish species *Belone belone*, *Pomatomus saltatrix*, *Trachurus mediterraneus* increase too. Comparison of biodiversity of areas near Zmeiny Island and near Crimea shows one main difference - near Crimea the biodiversity changes are connected with salinity and temperature changes only, but in the marine area near Zmeiny Island and in the North-Western part of the Black Sea in total the main influence for biodiversity of fish and benthos communities comes from the rivers Danube and Dniester, especially after spring flooding. The results of our investigations are in agreement with the theory of Puzanov who said that process of "Mediterraneanisation" of the Black Sea existed in parallel with process of "Pontisation" of the Black Sea. As example of these processes findings in the north-western part of the Black Sea (some fish species occurrence, such as *Benthophiloides brauneri* [2] and *Benthophilus stellatus* [1]) are discussed.

References

- Zamorov V.V., Snigirev S.M. at all. Demersal fish of coastal water near Zmeiny island. Odessa National University Herald, 2005, Vol. 10, Issue 4, P.236-243. (In Russian)
- Puzanov I.I. Mediterraneanisation of the Black sea fauna and perspectives of its increasing. Zoological Journal. 1967, Vol.46, Issue 9, pp. 1287-1297. (In Russian).
3. Chichkin V.N., Kurakin A.P. Mtilides of Zmeiny island. Scientific issues of Ternopol National Pedagogical University. Biology. 2005, Vol. 4(27). P.2564-266.