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It is obvious that during monitoring planning first of all the intensity of matter-energy exchange between land and sea on different parts of coast should be analyzed. The more intensive such exchange the more attention should be paid to this part of coast and more frequently observation should be made on it.

The second aspect concerns time. If the intensity of matter exchange is high as in the case of natural complexes with highly intensive and intensive bi-directional flows then observation should be made more frequently (e.g. every month). If the exchange has low intensity then coastal processes aren’t active and observations should be made rarely (e.g. every quarter).

The next aspect concerns function. The intensification of matter exchange is observed during a period of high wave activity especially during storms (for the Black Sea coast it is a cold part of the year from November till March). In such case the observation should be made more frequently then in the period of low wave activity (mainly from April till October). Besides this if inside uniform part of a coast the local parts with active exogenous processes are exists then key-points of observations should be placed on them.

In this paper only common scheme of monitoring organizing is described. To organize monitoring of concrete coast this scheme should be detailed.

References

Biodiversity of Ichthyofauna in the Coastal Waters of the Zmiinyi Island

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Zmiinyi Island is the unique natural complex in the North-Western Black Sea. Its coastal waters are notable for their significant biodiversity, which had formed the basis for General Zoological Protected Area of national significance establishing in the area in 1998. The objective of this work is the studies of ichthyofauna biodiversity dynamics in the coastal waters of the Zmiinyi Island in 2003-2010 and revealing of the factors influencing the biodiversity. Ichthyological studies had been carried out in accordance with the national methodology using stake nets in 2003-2010. Altogether 500 stake-net catches had been studies. Visual underwater observations with the help of lightweight diving outfit had also been used. Studying the biodiversity of ichthyofauna we used three indices of communities' species composition: Margalef's species richness, Shannon's total diversity index and Pielou's evenness index. Results of ichthyological observations had been discussed. According to those results 52 fish species belonging to 13 orders, 32 families and 42 genera had been found within eight years in the Zmiinyi Island area, i.e. approximately one-fourth of all the fish species found in the Black Sea. It had been shown that the basis of the Zmiinyi Island area ichthyofauna was formed by the Mediterranean immigrants - 42 species, which made 80.8% of total number of the species observed. It was revealed that out of 52 species registered near the Zmiinyi Island 12 species had been entered into the Red Data Book of Ukraine, 19 species - into the Black Sea Red Data Book, 8 species were in the lists of Bern
Convention on the Conservation of European Wildlife and Natural Habitats, 15 species - in the list to the Protocol of Bucharest Convention 1992. Thus, about 60% of all the fish living in the coastal waters of the Zmiinyi Island belonged to the species protected on the national and international level. This is forming a special biological value of this area for the entire western part of the Black Sea. One of the main prerequisites for the unique coastal island ichthyofauna biodiversity conservation is the prohibition of all kinds of economic activities both on the island and in its coastal waters. Analyses of the results of ichthyological surveys in 2003-2010 had shown that even insignificant anthropogenic pressure on the coastal ecosystem of the island cause sharp decrease in biodiversity. It had been found out that the main reasons of ichthyofauna biodiversity changes in the coastal (500 meters zone around the island) waters had been construction and shore-pitching activities in 2007-2009, as well as increase in number of the invading species M. leidyi and R. thomasiana. For example, increase of anthropogenic pressure on the coastal waters had cut the indices of ichthyofauna species richness according to Margalef almost in half compared to 2005, Pielou's evenness index - 1,3 times, Shannon's total diversity index - 1,5 times. The studies had been carried out in the framework of research activities funded by the Ministry of Education and Science of Ukraine (2003-2010) with the financial support from the ENVIROGRIDS Project of the FP7 Programme (2009-2010). The author would like to express his gratitude to the staff of the "Island Zmiinyi" Research Station for their help in material collection and to V.I.Medinets, Head of the Regional Centre for Integrated Environmental Monitoring and Ecological Studies, Odessa National I.I.Mechnikov University, for his help and advice during the analyses of the materials collected.

Estimation of Flood and Erosion under Conditions of Present Climate for Varna Region

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Varna coastal region is located in the Western Black Sea sector between capes Ekrene and Galata. Historical records of the extreme hydro-climatic events show that for the western Black sea shelf storm waves and sea-level fluctuations are the most dangerous sources of flood and erosion hazard. In order to estimate flood and erosion hazard for Varna region various datasets are used among which atmospheric reanalysis data and several hydrodynamical models: WAM and SWAN and morphodynamical models: IO-BAS Morphodynamical Model (IO-BASMM) and SBeach. By definition flood/erosion maps represent width of flooded/eroded section of the beach in meters and as % of total beach width as a result of event with specified return period. That is why for estimation of flood hazard prototype storm concept is employed. Wave boundary conditions are obtained by coupling of WAM wave model with SWAN model. For Varna region the available time series of sea level (1928 - 2007) consist of daily/monthly records of maximum, minimum, and mean values. Using these data two time series were compiled including annual and monthly maxima. Detailed data from topography and bathymetry surveys were used to implement hydro- and morphodynamical modeling For the construction of storm prototypes wave reanalysis data were used and on the base of about 200 selected events the shape of prototype storm was compiled. Results of the analysis of extrema for different