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STATE ECOLOGY INSPECTION OF THE BLACK SEA

UKRAINIAN SCIENTIFIC CENTER OF MARINE ECOLOGY

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ECOLOGICAL PROBLEMS**

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(1996 - 2000)*

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Цей збірник наукових доповідей присвячений основним підсумкам виконання Стратегічного плану дій по реабілітації і охороні Чорного моря (1996-2000 рр.), підсумкового документа першого етапу виконання Міжнародної Чорноморської Екологічної Програми ООН. У цьому зв'язку надруковані матеріали відображають основні розділи Програми, а саме: швидке реагування при надзвичайних ситуаціях, моніторинг забруднення і стандарти якості навколишнього середовища, захист біологічної різноманітності, розробка загальної методології управління прибережною зоною моря, рибальство, освіта і громадська поінформованість в природоохоронній області. В статтях представлені результати раніше не надруковані результати наукових досліджень. Подані дані, їх інтерпретація і закінчення належать авторам повідомлень і ні в коєму разі не можуть бути приписані членам організаційного комітету, які склали даний збірник.

Збірник призначень для широкого кола спеціалістів у галузі біології і екології моря, океанографії, техногенної безпеки і охорони природи.

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Present issue is devoted to the main results of Strategic Action Plan for the Rehabilitation and Protection (SAPRP) of the Black Sea (1996-2000) implementation. The SAPRP is a resulting document of the Black Sea Environmental Program (GEF/UN/UNDP) first step. The published materials have been reflected by the main Program sections: emergency response, pollution monitoring and environmental quality standards, protection of biodiversity, integrated coastal zone management, fisheries, environmental education and public awareness. These papers are the results of scientific research haven't been unpublished earlier. The findings, interpretations and conclusions expressed in papers, are in own property of the authors and should not be attributed in any manner to the members of organization committee, which prepared this issue.

The issue was design for specialists in the field of marine biology and ecology, oceanology, technogenic safety and environmental protection.

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ZONING OF THE NORTH-WESTERN PART OF THE BLACK SEA BASED ON THE PARAMETERS OF MUSSELS GROWTH

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As is known, the growth of animal is an important integral parameter, which characterize a degree of suitability of the environmental factors for development of this species in concrete location. The growth rate of mollusks depends first of all on depth, quality of fodder base, regime of temperature and salinity of water, density of settlements, degree of a wave action and some other factors. With the help of the analysis of character of growth of mussels it is possible to conduct ranking them locations on a degree of fitness both for natural development, and for simulated cultivation.

For the comparative analysis of mussel's growth samples from ten districts of the northwestern Black Sea [1.] were used. In these samples using sklerochronology method [2.] average lengths of shells for each age class were defined. Using the von Bertalanffy growth equation the asymptotic length of shell and growth coefficient "k" was calculated. For formalizing the obtained dates the procedure of their normalization was conducted, as the result of which the linear characteristics were converted to dimensionless indexes. The values of these indexes have formed the basis for build-up of a matrix of measures of intersection of parameters of mussels growth from different districts. Then the matrix of measures of likeness of these parameters was calculated. Using the theory of careless multitudes [3.] the comparative analysis was conducted.

As the result of the subsequent analysis, three major areas were selected, inside which between districts the greatest measure of likeness of growth parameters was observed. So, the Central district and Zmeiny Island can be united in one area. The value of measure of likeness (S) for them was equal 79,5. Its lowest values are marked for Zmeiny island as contrasted to Dnestrovsky (S=13,8) and Tendrovsky districts (S=14,8).

Last districts can be united in other area. So, on Dnestrovsky district the growth of mussels was most similar to those on Sanzheika(S=76,9) and Odessa bay (S=74,2). The character of mussels growth on Sanzheika and Tendrovsky district was wery similar (S=83,3).

The third area was united by four districts, includes Shagansky bank and Fillofomy field (S=82,3), and also Mezhvodnoe (S=74,9) and Tetis (S=69,2). The difference of this area from other also expresses in values of matrix of measures of likeness. So, the character of mussels growth on Dnestrovsky district is least similar to those on Shagansky bank (S=5,92), in Central district (S=19,1) and on Mezhvodnoe (S=13,9). So, the analysis of a matrix of measures of likeness has shown, that Central district and Zmeiny island includes in the first area, in second - Dnestrovsky, Tendrovsky districts, Sanzheika and Odessa bay, in third - Shagansky bank, Filloforny field, Mezhvodnoe and Tetis.

Inside each of the major areas the boundaries of oscillations of the values of growth coefficient "k" were calculated. So, the limit of oscillations of the value "k" in I area was 0,29-0,30, in II area - 0,18-0,21, and in III area - 0,33-0,56. These datas confirm justification of the given zoning of the north-western part of the Black Sea.

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