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**ANALYTICAL PROPERTIES AND FUNCTIONALITY OF THE SYSTEM FOR CALCULATION OF THE SPATIAL STRUCTURE AND PARAMETERS OF A HYDROACOUSTIC FIELD**

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**ABSTRACT**

The article presents the results of the next phase of the authors' scientific research on the creation of a monitoring system for marine areas based on the development of non-linear low-frequency hydroacoustics and neural network technologies for recognizing object images. The accuracy of the results of the software for calculating the characteristics of a sea medium (the DALNOST program) is estimated. The parameters and structure of the hydroacoustic field, which were calculated from the in-situ measurements of the sound speed inside a vortex disturbance zone observed in the western part of the Sea of Japan are investigated. The obtained results indicate to the practical importance of technique and the DALNOST program as a key element of the AIS structure and provide the possibility for its integration into the systems created for the monitoring of marine water fields to solve the research problems as well as the problems of developing the ocean environment in the interests of the marine science. The sound propagation conditions for distances of 500 km are simulated, the impact of a complex bottom relief and various depths of the sound source on the sonoacoustic signal receiving conditions are shown.

**Keywords:** information-analytical system, beam pattern, sound propagation loss, vortex.

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