Chemical and biological data holdings in the Russian Federation

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Chemical and biological observations are conducted in Russia mainly by organizations of the Academy of Sciences, the State Committee of Fishery and the Russian Federal Service for Hydrometeorology and Environmental Monitoring. In the recent decade many nongovernmental agencies started to be involved in conducting chemical and biological observations required for environmental monitoring in the period of industrial construction in coastal areas.

The organizations of the Russian Academy of Sciences (Shirshov Institute of Oceanology, Pacific Oceanological Institute, Marine Biological Institute) hold data of chemical and biological observations collected by more then 350 cruises, about 4500 stations of hydrochemical observations and up to 3000 stations of hydrobiological observations.

The institutions of the State Committee of Fishery hold the oceanographic data collected by more than 4000 research expeditions. The database contains more than 4 million records with different kinds of biological data.

Organizations of the Federal Service for Hydrometeorology and Environmental Monitoring (Arctic and Antarctic Research Institute, Far Eastern Regional Hydrometeorological Research Institute, State Oceanographic Institute) collect physical and chemical data during research expeditions in the ocean and sea and conduct monitoring of the environment of Russian seas using the network of long-term observations. Regular measurements of chemical parameters and contaminants are conducted on the network. Biological indicators are also included to evaluate the condition of ecosystem. Most of the physical and chemical measurements data are held in RIHMI-WDC. These data were collected by more than 20 000 cruises of national research vessels. Measurements of chemical parameters were taken in more than 13 thousands of cruises and observations of contaminants were made by 3560 cruises. Besides 35 reports with biological observations are stored in the holding.

The data holdings are managed using DBMS of different types (MsAccess, Oracle, etc.). Some of the historical and modern data are not yet digitized. Different code systems are applied for the data description. To improve chemical and biological data management RIHMI-WDC makes efforts to unify data, metadata and code systems through modern approaches and technologies for data processing and management. The Unified System of Information on the state of the World Ocean which integrates marine information resources through an advanced reference system, metadata standartization, code unification, and which provides web-access to the distributed multidisciplinary databases is under development.