

Preface

The present issue of the journal "Transformation of Ecosystems" is dedicated to the 50th anniversary of the Vologda Branch of the All-Russian Research Institute of Fisheries and Oceanography (Vologda Branch of the FSBSI "VNIRO", "VologodNIRO"). The branch was established in Vologda on November 19, 1973 as the Vologda Laboratory of the State Research Institute of Lake and River Fisheries (GosNIORKh) –the Russian largest scientific center conducting complex fisheries research of inland freshwater bodies. The following main fishing reservoirs of Vologda Oblast, i.e. large lakes Beloye, Kubenskoye and Vozhe, the Sheksna Reservoir, numerous rivers, small lakes and reservoirs subject to long-term monitoring in terms of aquatic biological resources and their habitat, are in the zone of "VologodNIRO" responsibility. The branch takes part in the fishery regulation via setting the annual quotas and recommended volumes of production (catch) of aquatic biological resources in industrial fishing. It also develops the recommendations for the perfection of fishing rules and other regulatory documents on aquatic biological resources conservation with account for the specifics of the Vologda Region. The assessment of the impact of various economic activities on the aquatic ecosystems of Vologda Oblast, including the determination of caused damage(loss) to aquatic biological resources from the construction and reconstruction of hydraulic structures, pipelines and bridges, dredging, mining, water intakes operation, and check of fish protection structure effectiveness is among the crucial applied task of "VologodNIRO". It is worth noting that the branch deals with fish farming and biological substantiations for the creation of new and the improvement of the existing commercial aquaculture farms in the region. In the past decade, "VologodNIRO" has elaborated the recommendations for conservation and artificial reproduction of the most valuable and vulnerable fish species, as well as for establishment of special protected natural areas aimed at conservation of commercial fish species, protection of their habitat and breeding. Over the past 50 years, the Vologda Branch of the FSBSI "VNIRO" has provided the scientific support for the overall (from traditional fish production in industrial and amateur fishing up to various aquaculture types, including cage and pasture fish farming) development of the current fishery complex in Vologda Oblast. Based on the longstanding results, the branch staff has prepared many reports and scientific publications, defended Ph.D and Dr.Sc. dissertations, held scientific conferences and events to popularize the scientific knowledge.

When preparing this issue, the goal was to represent major results of as traditional as new (for the branch) and promising (for the region) scientific research. Therefore, the issue opens with an article by **A.F. Konovalov et al.** devoted to modern industrial and amateur fishing at the main fishery reservoirs of Vologda Oblast and estimates of their impact on commercial stocks of aquatic biological resources. The article contains the results of the traditional (for the branch) studies of the fishery base and its use in the region over the past 10 years. Within the framework of the long-term resource investigations, the branch team is also involved in comprehensive studying the fish food base and assessing the state and dynamics of phyto-, zooplankton and zoobenthos communities of the main fishery reservoirs of Vologda Oblast. The hydrobiological studies of "VologodNIRO", carried out over the past 5 years at the large lakes Beloye, Kubenskoye, Vozhe and the river part of the Sheksna Reservoir, are summarized by **E.V. Lobunicheva et al.**

Though almost from the outset of the branch foundation the development of the regional standards and biological justification for commercial fish farming in Vologda Oblast has become one of the main research topics, the most intensive development of aquaculture here is noted in the recent years. The current state of aquaculture and the branch contribution to its development are described by **M.Ya. Borisov et al.** Among the most important stages of the aquaculture development is the artificial reproduction of rare and vulnerable fish species, including the release of sterlet into the rivers of Vologda Oblast that is hardly possible without genetic studies of its population carried out by "VologodNIRO" jointly with the Department of Molecular Genetics of the FSBSI "VNIRO". By the example of the Mologa River of Vologda Oblast, **A.A. Ignashev et al.** summarize the results of the studied size-age and genetic structures of an artificially formed sterlet population.



The staff of the the Vologda Branch of the FSBSI "VNIRO" (from left to right).

Top row: Muravyov S.A., Neporotovskii S.A., Ignashev A.A., Konovalov A.F., Popeta E.S., Polyakov D.A.

Middle row: Tropin N.Yu., Vinogradova Yu.N., Makarenkova N.N., Dumnich N.V. (branch manager), Ugryumova E.V., Filonenko I.V., Litvin A.I.

Bottom row: Yarunichev A.S., Shilova A.E., Lobunicheva E.V., Pikhtova O.I., Borisov M.Ya.

Recently, the problem of fish products quality has become of great practical significance. In this connection, the longstanding fruitful cooperation of the Vologda Branch of the FSBSI "VNIRO" and the Cherepovets State University is aimed at solving the problem of dangerous toxicant (mercury) accumulation in body tissues of commercial fish species in water bodies of Vologda Oblast. The studied peculiarities of mercury accumulation by fish of different size and trophic groups (as the objects of aquaculture, industrial and amateur fishing) are discussed by **M.Ya. Borisov et al.**

Nowadays, the plentiful small rivers and streams of Vologda Oblast remain poorly studied. Located in the heavily urbanized landscapes, they act as the key indicators of man impacts on the adjacent territories. In this regard, **E.V. Lobunicheva et al.** assess the state of planktonic and benthic communities in the anthropogenically transformed Sodema River, which runs through the central part of the city of Vologda.

The anniversary issue of the journal crowns with investigations of **A.V. Kartanovich et al.** from the Karelian Branch of the FSBSI "VNIRO" devoted to fishing loads on fish population of Lake Onega, one of the largest natural reservoirs in Europe. Note that the shallow south-eastern part of this water body distinguished by its high fish productivity and traditionally intensive fishing is located within the territory of Vologda Oblast.

N.V. Dumnich, A.F. Konovalov