

THE IMPACT OF DRAINAGE RECLAMATION ON THE COMPONENTS OF AGRICULTURAL LANDSCAPES OF SMALL RIVERS

V.A. ZUBAREV¹, YU.A. MAZHAYSKY², T.M. GUSEVA³

¹INSTITUTE OF COMPLEX ANALYSIS OF REGIONAL PROBLEMS OF THE FAR EASTERN BRANCH OF THE RUSSIAN ACADEMY OF SCIENCES, BIROBIDZHAN, RUSSIA

²MESHCHERSKY BRANCH OF THE ALL-RUSSIAN RESEARCH INSTITUTE OF HYDRAULIC ENGINEERING AND LAND RECLAMATION N. A. N. KOSTYAKOVA, RYAZAN, RUSSIA

³RYAZAN STATE MEDICAL UNIVERSITY N. I. P. PAVLOVA, RYAZAN, RUSSIA



THE TRADITIONAL USE OF AGRICULTURAL LANDSCAPES OF SMALL RIVERS IS AGRICULTURAL ARABLE LAND, WHICH REQUIRES A NUMBER OF RECLAMATION AND AGRICULTURAL WORKS. LAND DRAINAGE HAS A SIGNIFICANT IMPACT ON THE ENVIRONMENT, BUT THESE ACTIVITIES WERE CARRIED OUT ALMOST WITHOUT TAKING INTO ACCOUNT THE REQUIREMENTS OF ENVIRONMENTAL PROTECTION. ONE OF THE MOST SIGNIFICANT NEGATIVE EFFECTS ON THE COMPONENTS OF FLOODPLAIN-CHANNEL COMPLEXES (FLOODPLAIN SOILS, SURFACE WATERS, BOTTOM SEDIMENTS, MACROPHYTES, HYDROBIONTS) HAVE HEAVY METALS (HM).

THE PURPOSE IS TO ASSESS THE IMPACT OF DRAINAGE RECLAMATION ON THE COMPONENTS OF SMALL RIVER BASINS

MATERIALS AND METHODS: MANY YEARS OF FIELD RESEARCH HAVE BEEN CONDUCTED. 900 SAMPLES (350 OF WATER, 225 OF SOIL, 225 OF BOTTOM SEDIMENTS, 50 OF AQUATIC VEGETATION, AND 50 OF HYDROBIONTS) WERE RESEARCHED. IN THE SAMPLES THE CONTENT OF HM WAS DETERMINED BY ATOMIC ABSORPTION SPECTROMETRY.

RESULTS AND DISCUSSION: DURING DRAINAGE RECLAMATION IN FLOODPLAIN SOIL, CONDITIONS ARE CREATED FOR IMPROVED SOIL AERATION, WHICH LEADS TO A DECREASE IN THE HUMUS CONTENT AND A CHANGE IN PH FROM ACIDIC TO NEUTRAL REACTION OF THE MEDIUM. THIS PROCESS CONTRIBUTES TO A CERTAIN DECREASE IN THE CONCENTRATION OF HM IN THE SOIL. CONDUCTING DRAINAGE RECLAMATION WORKS LEADS TO A DECREASE IN THE WATER QUALITY OF ALL THE WATERCOURSES CONSIDERED, AS A RESULT OF AN INCREASE IN THE CONCENTRATION OF HM IN WATER AND BOTTOM SEDIMENTS. THE TRANSFORMATION OF LANDSCAPES LEADS TO THE ACCUMULATION OF HM IN MACROPHYTES AND FISH, WHICH IS POTENTIALLY DANGEROUS FOR BOTH THE AQUATIC ECOSYSTEM AND HUMAN HEALTH.

