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Effect of hydromorphological conditions in estuaries and coastal waters on migrations, fishing and productivity of anadromous fishes of Kamchatka Peninsula (Far East of Russia)

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Abstract

The paper based on our long-term integrated research on the Kamchatka Peninsula (the Pacific coast of Russia). The main purpose of studies is the assessment of abiotic, biotic and anthropogenic factors impact for the productivity of natural anadromous fishes populations. Kamchatka is an unique region for such study because it is a sparsely populated and wild area with very diverse natural conditions and low biodiversity of freshwater ichthyofauna (which anadromous fish species, mainly of Salmonidae family, are absolutely predominate). Natural populations of these fishes always have been the base for indigenous fisheries, and it is the basis of economy of Kamchatka region now. At the present, the total catch of anadromous fishes on Kamchatka is about 300-500 thousand tons annually (mostly Pacific salmon). This fishery is seasonal and going on mainly in the ice free season during mass spawning migrations in estuaries and the coastal waters. In that time, anadromous fishes plays a key role in the coastal, estuarine and river ecosystems and also have a most important economic and social significance for the Kamchatka people. Always been known, that the abundance of anadromous fishes in various areas of Kamchatka is significantly differs, but the reasons were not fully understood. Our studies have shown that it is could highly depend to the geographical features of the various river systems and also to the differences of environmental conditions in the estuaries and coastal waters. In this paper we would like to show, how the hydromorphological conditions in various Kamchatka coasts can impact for the distribution and migration of anadromous fishes. How this features can affect for fishing effectiveness. How fishing can affect for the reproduction and stock abundance of natural populations. How all these factors can impact for the fish productivity of different river systems. The results of our research are necessary for development of rationally strategy for the fishery management and preserve of natural anadromous fishes populations of Kamchatka.

Keywords

mixing zone, anadromous migration, commercial fishes, fisheries management