

The Role of Great Rivers in the Sustainability and Prosperity of Local Communities and their Fisheries Resources

Inland freshwater systems provide countless essential goods and ecosystem services. The world's great rivers in particular function as a vital source of food and water and are also the drivers of nearby local economies. Great rivers are essential providers of fish protein and livelihoods for many communities along these rivers' extensive lengths. Globalization and the increase in human population size have resulted in increased demand and competition for the use of freshwater resources worldwide. As humans modify the landscape and rivers to meet these demands, fish habitats are significantly impacted, resulting in the alteration of fish communities and the decline and loss of species, populations, and genetic diversity. Consequently, this also profoundly impacts the productivity of fisheries and the allied ecological, social and economic services they provide. The lack of precise predictable scientific knowledge of community based fish productivity and resilience, coupled with the failure of governance to implement and motivate sustainable management decisions and actions, has resulted in a reduction in the sustainability of the fishes of the great rivers and associated fisheries. The future status of great river fisheries rests largely on our ability to foster integrated approaches to managing river systems to ensure thriving and prosperous human communities that encourage sustainable fisheries. To secure the integrity and sustainability of fisheries we must become better stewards, continue to enhance our scientific understanding of fish and their habitat needs, learn to balance the many demands placed on modern great rivers, and improve our ability to communicate the high value of our fisheries resources to society as food, recreation, and generators of economic, ecological and social wealth that benefit local, national and international communities. We use case studies from the Volga River, the Mississippi River, the St. Lawrence River, the Mekong River, and the Zambezi River systems to compare and contrast management strategies to determine the most effective methods of maintaining and improving sustainable fish communities and fisheries of the world's great rivers.

Authors

Taylor, William , Center for Systems Integration and Sustainability, Department of Fisheries and Wildlife, Michigan State University , East Lansing , United States, taylorw@msu.edu (Presenting); Schlee, Kelsey, Center for Systems Integration and Sustainability, Department of Fisheries and Wildlife, Michigan State University , East Lansing , United States, schleeke@msu.edu; Cowx, Ian, Director, Hull International Fisheries Institute, Hull, United Kingdom, i.g.cowx@hull.ac.uk; Pavlov, Dmitry, . D. Papanin Institute of the Biology of Inland Waters, Russian Academy of Sciences, Borok, Russia, pavlovd@msu.edu; Leonard, Nancy, Northwest Power and Conservation Council, Portland, United States, nleonard@NWCouncil.org; Beard, Douglas, Chief, National Climate Change & Wildlife Science Center, U.S. Geological Survey, Reston, United States, dbeard@usgs.gov