

Successful Natural Reproduction of the 'Extinct in the Wild; Yangtze Sturgeon Through Ecological Hydraulics-Based Spawning Habitat Creation

Authors : Hao Du, Xuan Ban, Pengcheng Li, Jinming Wu, Junyi Li

Abstract : The Yangtze sturgeon, a Class I protected aquatic wildlife species in China, has suffered a rapid decline due to human activities such as dam construction, channel dredging, sand and stone mining, and overfishing. Its natural reproduction ceased by 2000, and it was assessed as 'extinct in the wild' by the IUCN in 2022. To save this endangered species, the Chinese government is fully committed to restoring the Yangtze's fishery resources, implementing policies such as the '10-year fishing ban' and the Yangtze River Protection Law. Researchers have established an artificial population tier using limited wild stock and attempted to restore natural reproduction through parental release. Based on ecological hydraulics simulations of historical spawning grounds of the Chinese sturgeon and Yangtze sturgeon in the upper Yangtze River, this study identified flow velocity, substrate, and topography as key environmental factors for sturgeon reproduction. Through six consecutive years of indoor artificial spawning ground simulations, researchers pinpointed critical environmental parameters for Yangtze sturgeon's natural reproduction. Subsequently, they created a spawning habitat in the natural waters of the Jiajiang River, a branch of the Yangtze, successfully inducing natural reproduction of the Yangtze sturgeon for two consecutive years, with a total of 980,000 eggs laid and fertilization rates ranging from 54% to 83%. This breakthrough resolved the 20-year challenge of interrupted natural reproduction of the Yangtze sturgeon. This report systematically introduces research progress on the protection of the Yangtze sturgeon, providing a classic case for the reconstruction of wild populations of critically endangered aquatic animals and offering a reference for global freshwater biodiversity conservation.

Keywords : dam, ecohydraulic conditions, spawning ground, habitat creation, natural reproduction, sturgeon, Yangtze River

Conference Title : ICWERC 2025 : International Conference on Wildlife Ecology, Rehabilitation and Conservation

Conference Location : Paris, France

Conference Dates : May 08-09, 2025