Decade-long study shows half of all rivers in the world heavily impacted by humans

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Credit: Sebastien Brosse

A team of researchers from several institutions in France and China has conducted a decade-long study of the degree of human impact on river systems around the world over the past two centuries. In their paper

published in the journal *Science*, the group describes their study and what their findings revealed.

Lakes and rivers cover just 1% of Earth's surface, yet they serve as host to over 17,000 species of fish, which represent 25% of all vertebrates. And today, approximately 25% of all the fish in the world live in rivers, lakes and streams. Prior studies and anecdotal evidence suggest that humans have made a major impact on lakes and streams, particularly since the start of the industrial revolution—a time when factories began dumping waste in waterways. In this new effort, the researchers wondered just how big of an impact humans have had on river systems over the past 200 years. To find out, they began studying rivers and streams around the globe 10 years ago. In all, they collected data on 2,456 river basins, which included approximately 14,000 fish species, which they note accounts for approximately 80% of all known freshwater fish.

To put their findings into perspective, the researchers developed a scale from 1 to 10 to judge the level of human impact on biodiversity for all of the river basins they studied. The scale was derived by taking into account the number of species in a given area, the function of each, and the evolutionary relationships between them—and comparing what they found with conditions 200 years ago.

The researchers found that over half of all river basins in the world have been heavily impacted by humans—their biodiversity scale showed over 53% of them rated a 6 or higher. They also found that most of the large rivers in Europe and North America were heavily impacted—some, such as the Thames, were rated 10. They also found that just 14% of rivers worldwide were rated as having experienced little human impact, and those were mostly in underdeveloped areas in Africa and Australia.

More information: Human impacts on global freshwater fish

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