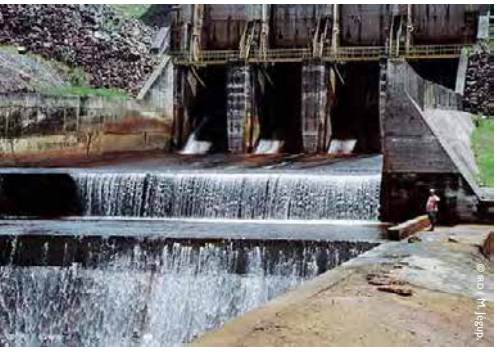
Of dams and fish

All over the world, the number of dams is set to explode over the coming decades, particularly in the global South. This new infrastructure will be a significant source of electricity with low greenhouse gas emissions, but will also pose an array of social and environmental problems.



Rio Pitinga dam, Brazil.

Hydroelectric dams generate electricity, but they also constitute insurmountable obstacles to the free movement of many types of fish. While certain solutions have been envisaged for migratory species, no such system has been tested or assessed for sedentary species whose population numbers have suffered as a result. What impact will this have in the long term?

The issue is receiving attention in France, where preliminary results indicate that some species can now only be found in isolated stretches of rivers, while the population numbers of other species appear to oscillate wildly. The complex mechanics which underpin these variations are still being studied, with a view to determining the minimum distribution range required for a fish population to stabilise and survive in the long term. This information will then be used to make adjustments to dams, or even remove them altogether. But the results will also prove very useful when designing future dams.

Further research is attempting to predict the impact of the growing number of dams being erected in South America. In the Amazon Basin alone, 142 dams have already been built and 160 more are on the way. This proliferation of obstacles risks transforming the interconnections which make up the river system, and thus represents a threat to the survival of aquatic species which constitute a primary source of dietary protein for over 30 million people. Researchers are now using the Amazon Fish database, updated by the various biodiversity observatories, as well as the design properties of the dams, in order to model the impact on fish populations of dams which are in place, under construction or still in the project phase. And all while taking the effects of climate change into consideration. The goal is to identify in advance those hydroelectric dams which pose the greatest risk to species survival, and to propose adjustments or, for those still in the project phase, to rethink their location.

PARTNERS

French Office for Biodiversity, Paris, France

Pontificia Universidad Javeriana, Bogota, Colombia

Universidad Nacional Mayor de San Marcos, Lima, Peru

Instituto National de Pesquisas da Amazônia (INPA), Brazil

Universidad Mayor de San Simon, Cochabamba, Bolivia

Florida International University, Miami, USA

••• Predictive models are still grappling with the question of how existing and future dams will impact the distribution, and even the long-term survival, of fish •••

Fishing for recreation, subsistence and occasional commerce on the Rio Madeira, Brazil.

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Written by
Viviane Thivent/Les Transméduses

Editorial coordination
Corinne Lavagne

Design and page layout
Charlotte Devanz

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Stéphanie Carrière, ethno-ecologist, UMR Gred
Danielle Mitja, ecologist, UMR Espace-Dev
Pierre Couteron, ecologist, UMR Amap
Éric Delaitre, specialist in the use of remote sensors for terrestrial analysis, UMR Espace-Dev

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Philippe Borsa, population geneticist, UMR Entropie
Catherine Sabinot, ethnoecologist and anthropologist, UMR Espace-Dev
Éric Vidal, ecologist and population biologist, UMR Entropie

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Catherine Sabinot, ethnoecologist and anthropologist, UMR Espace-Dev
Jean-Brice Herrenschmidt, geographer, GIE Oceanide, UMR Espace-Dev
Gilbert David, geographer, UMR Espace-Dev
Fabrice Brescia, ecologist, Institut Agronomique Néo-Calédonien (IAC), Arboreal team

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