

Climate change challenges the survival of fish across the world



Fish species in many river systems, including the John Day River pictured, will face the challenge of coping with warmer waters in the future. Credit: University of Washington

Climate change will force many amphibians, mammals and birds to move to cooler areas outside their normal ranges, provided they can find space and a clear trajectory among our urban developments and growing cities.

But what are the chances for fish to survive as [climate change](#) continues to warm waters around the world?

University of Washington researchers are tackling this question in the first analysis of how vulnerable the world's freshwater and marine fishes are to climate change. Their paper, appearing online Sept. 11 in *Nature Climate Change*, used physiological data to predict how nearly 3,000 fish species living in oceans and rivers will respond to warming water temperatures

in different regions.

"Climate change is happening. We need tools to try to identify areas that are going to be the most at risk and try to develop plans to conserve these areas," said lead author Lise Comte, a postdoctoral researcher in the UW's School of Aquatic and Fishery Sciences. "It's important to look at the organisms themselves as we cannot just assume they will all be equally sensitive to these changes."

The researchers compiled data from lab experiments involving nearly 500 fish species, conducted over the past 80 years by researchers around the world. These standardized experiments measure the highest temperatures fish are able to tolerate before they die. This analysis is the first time these disparate data from lab experiments have been combined and translated to predict how fish will respond in the wild.

The researchers found that overall, sensitivity to temperature changes varied greatly between ocean-dwelling and freshwater fish. In general, marine fish in the tropics and freshwater fish in higher latitudes of the Northern Hemisphere were the most at risk when water temperatures warmed, the analysis showed.

