

Changing climate could cut western trout habitat in half: study

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(PhysOrg.com) -- A new study shows a changing climate could reduce trout habitat in the Western United States by about 50 percent over the next 70 years, with some trout species experiencing greater declines than others. The results were reported by a team of 11 scientists from Colorado State University, Trout Unlimited, the U.S. Forest Service Rocky Mountain Research Station, the U.S. Geological Survey and the University of Washington Climate Impacts Group.

The study, published this week in the peer-reviewed science journal, [Proceedings of the National Academy of Sciences](#), predicts native cutthroat throughout the West could decline by as much as 58 percent and introduced brook trout could decline by as much as 77 percent. Rainbow and brown trout populations, according to the study, would also decline by an estimated 35 percent and 48 percent, respectively. These losses would have major impacts on trout fishing, which generates hundreds of millions of dollars in recreation annually in the United States and is a major factor drawing anglers to Colorado and the West. The study notes that the decline of cutthroat trout is of particular significance because cutthroats are the only trout native to much of the West and a keystone species in the Rocky Mountain ecosystem.

“The study advances our understanding of climate change impacts by looking beyond temperature increases to the role of flooding and interactions between species,” said Seth Wenger, the paper’s lead author. “The study also is notable in scope, using data from nearly 10,000 sites throughout about 400,000 square miles of the Western United States.”

“This research also builds on 15 years of work with graduate students at CSU to find ways to prevent our native cutthroat trout from going extinct in the face of declining habitat and nonnative trout invasions,” said co-author Kurt Fausch, professor in CSU’s Department of Fish, Wildlife and Conservation Biology and an expert on trout ecology and management in the West. “It’s exciting to see these ideas being used, but the impending loss of trout habitat is both startling and depressing. The West is iconic for trout fishing, but much of this is projected to go away.”

Wenger was quick to point out that, while predictions are indeed dire, there is some hope. By restoring and reconnecting coldwater drainages and by protecting existing healthy habitat largely located on public lands in the West, some of the decline in trout populations might be avoided.

“Trout Unlimited is working to protect remaining strongholds and restore degraded habitat – exactly the kind of things that need to be done to reduce the impact of a [changing climate](#) on coldwater fisheries in the West,” Wenger said.

“This report is a wake-up call,” said Chris Wood, president and CEO of Trout Unlimited. “The good news is that we’re already working to protect high-quality trout habitat, such as backcountry roadless areas on national forests. We’re reconnecting tributaries to mainstem rivers, and we’re restoring degraded habitat. It is imperative that we accelerate the scope and the pace of that work if we are to have healthy trout populations and the irreplaceable fishing opportunities they provide through this century.

“However, this study also reinforces the danger in congressional proposals that would remove protection from backcountry roadless areas and cut funding for state and federal natural resource agencies,” Wood said.

Wenger and fellow researchers used an ensemble of climate models to arrive at the study's findings. Some models predicted more warming than others, but under even the most optimistic model, cutthroat trout populations in the West could decline by 33 percent. Scientists note that most of the 14 unique forms (subspecies) of cutthroat trout are already in trouble—two are extinct, and most of the rest now occupy less than 15 percent of their historic native range with several of these listed under the Endangered Species Act. Declines from a changing climate would impact native cutthroat [trout](#) beyond the impacts they've already suffered.

More information: The study can be read in its entirety online at the *Proceedings of the National Academy of Sciences* website:
www.pnas.org/content/early/2011/08/09/1103097108

Provided by Colorado State University

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