



CLIMATE ADAPTATION SCIENCE CENTERS

Formerly known as the Climate Science Centers

Warmer Waters Mean More Driving, Less Fishing

For millions of years, the eastern brook trout thrived in the valleys of the Appalachian Mountains. The *East Coast's only native trout*, it was a *staple of Native American diets* and for some tribes considered a gift from spiritual leaders. It has also been a *prized species among anglers since early colonial times*. Yet changes in the landscape have impacted water quality and led to a reduction in suitable brook trout habitat. The species has *disappeared from 28% of its native range*, and warming temperatures are expected to *further reduce the cold-water habitat* that the brook trout relies on.

WHAT: Brook trout thrive in cold, clear waters. To understand how warming temperatures could impact angling opportunities for brook trout, researchers examined predicted changes in stream temperature and predicted changes in brook trout distribution across the eastern U.S. Using this information, they calculated the distance required to drive from 23 cities to the nearest streams expected to still have wild brook trout in the future.

FINDINGS: *Over the next 70 to 80 years, the driving distance required to fish for wild brook trout is expected to increase greatly, as populations are lost to warming. It's possible that driving distance to streams offering angling opportunities could increase by over 150 miles.*

The driving route from Philadelphia to the nearest brook trout stream could be up to 250 miles – much longer than the current 48 miles. Anglers in the southern part of brook trout range would experience the most dramatic increases in trip length. For example, in Cleveland, Tennessee, driving distance could reach upwards of 500 miles, compared to the current 20 miles.

SIGNIFICANCE: The results of this effort clearly identify how warming temperatures could affect the day-to-day life of anglers. For many, the predicted changes will mean the difference between single-day fishing trips that could be made fairly often and multiday trips requiring significant planning and resources. In addition to longer drives, anglers will also likely have to plan on hiking, as many brook trout streams are expected to be located in relatively remote, protected lands away from roads. All of this could translate into an economic loss for states, as some anglers may not be willing to travel such distances.



WHO: **PROJECT LEAD:** USGS National Climate Adaptation Science Center, casc.usgs.gov

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STAKEHOLDERS: Federal and state wildlife management agencies | Eastern Brook Trout Joint Venture | National Fish Habitat Action Plan | The Pennsylvania Fish & Boat Commission