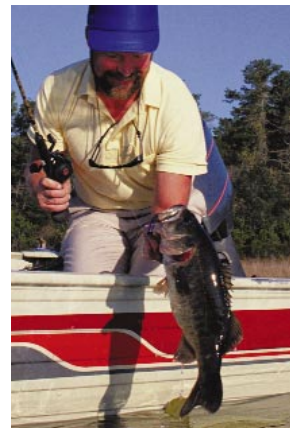


CLIMATE CHANGE AND ECOSYSTEMS

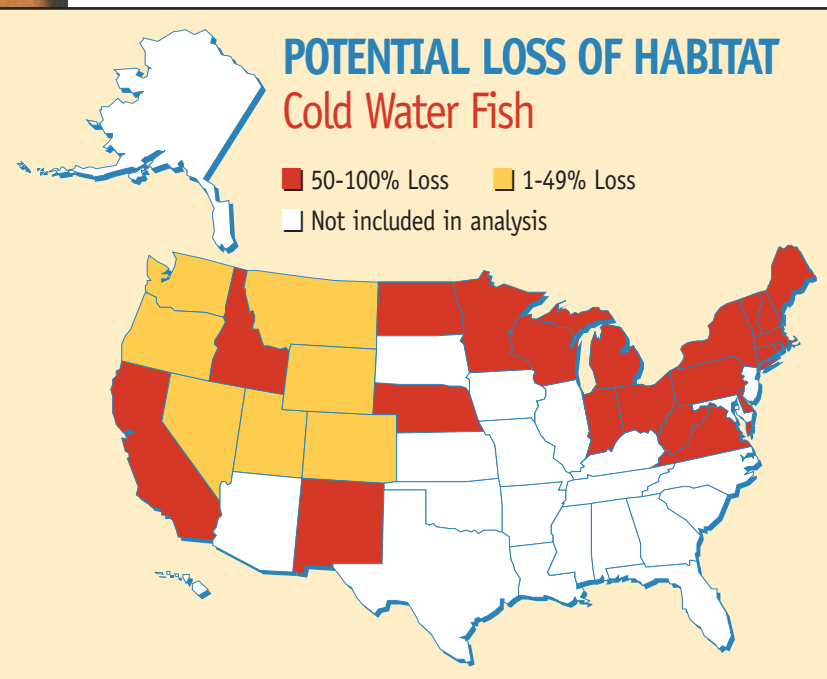
Thousands of scientists predict that the earth's climate will change because human activities are altering the chemical composition of the atmosphere through the buildup of greenhouse gases. The heat-trapping property of such gases as carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons is undisputed. Greenhouse gases are released into the atmosphere in large quantities by motorized vehicles, utilities, factories, appliances, and landfills.

Although there is uncertainty about exactly how and when the earth's climate will respond to higher concentrations of greenhouse gases, observations indicate that detectable changes are underway.

Temperatures will most likely rise by an average of 2 to 6°F over the next century, along with measurable changes in precipitation, soil moisture, and sea level. All of these changes could have adverse effects on many ecological systems, as well as on human health and the economy.



Map: U.S. Environmental Protection Agency. 1995. *Ecological Impacts from Climate Change: An Economic Analysis of Freshwater Recreational Fishing*. EPA 220-R-95-004. Exhibit 2-26.

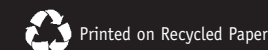


FOR MORE INFORMATION

- To keep up with the latest scientific developments, check out EPA's climate change website at www.epa.gov/globalwarming/. Click on [impacts/fisheries/](#) for specific information on how climate change may affect outdoor recreation and fishing. Or call EPA's National Service Center for Environmental Publications (NSCEP) at 1-800-490-9198 and ask for information on climate change and fishing.

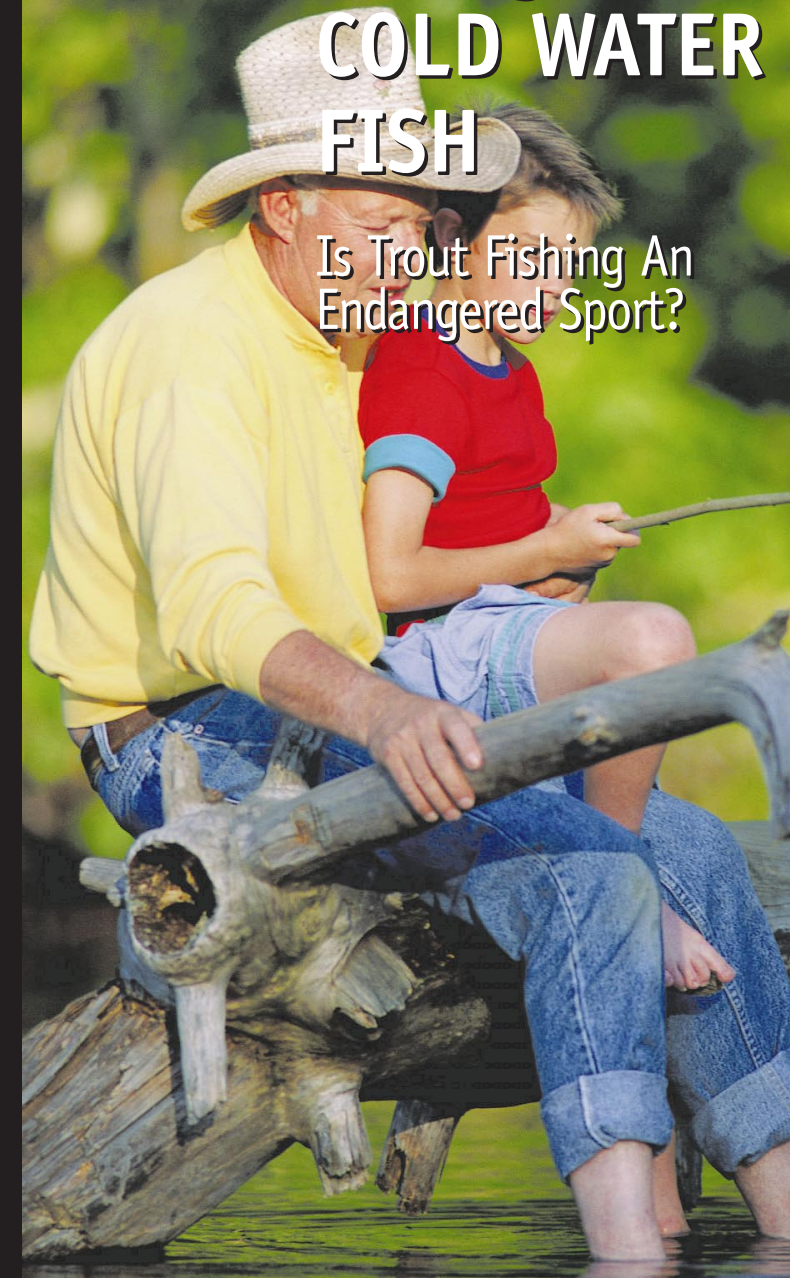


U.S. ENVIRONMENTAL
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EPA Climate Change and COLD WATER FISH

Is Trout Fishing An Endangered Sport?



CLIMATE CHANGE AND COLD WATER FISH

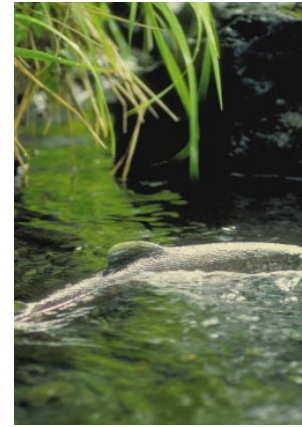
Aquatic ecosystems will be affected by climate change. The distribution of freshwater species is likely to shift northward, with some extinctions of local species likely throughout the southern ranges of these species and expansion in their northern ranges.

Warmer freshwater temperatures and changes in the pattern of flows in spawning rivers could reduce the abundance of species like salmon, trout, and bass.

For example, an 8°F increase in mean annual air temperature is projected to eliminate more than 50 percent of the habitat of brook trout in the southern Appalachian Mountains.

In addition, projected changes in water temperatures, salinity, and currents could affect the growth, survival, reproduction, and distribution of marine fish species and their competitors and predators.

The survival, health, migration, and distribution of many North American marine mammals and sea turtles also are expected to be affected by projected changes in the climate through impacts on their food supply, sea-ice meltdowns, and breeding or nesting habitats.



CLIMATE CHANGE: WHAT MIGHT WE LOSE?

The loss of fishing opportunities due to climate-induced changes in fisheries could be severe in some parts of the country, especially at the southern boundaries of the habitat ranges of cool- and cold-water species.

Although gains in warm-water fishing opportunities may offset overall losses in cold-water fishing opportunities, the potential effects on specific localized regions are cause for concern.

For example, cold water fish habitats could be lost entirely in such states as Maine, Massachusetts, Connecticut, Ohio, and Nebraska. Presently, more than 750,000 people fish for trout in those states each year. How many people would or could switch to a warm water species is uncertain.

What can you do? Help reduce greenhouse gases. Use a more fuel-efficient (or non-motorized!) mode of transportation. Carpool. Purchase electronic devices and appliances with the ENERGY STAR® label. Plant trees. Educate yourself and others about climate impacts. Share research and encourage more of it.

