



For Immediate Release
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RESEARCHERS IDENTIFY FIRST TRANSMISSIBLE CANCER IN FISH

BURLINGTON, VERMONT—Researchers at the University of Vermont, partner research universities, the U.S. Geological Survey, and Vermont Fish and Wildlife Department have documented the first known transmissible cancer in a fish species, publishing their findings July 22 in the journal *Nature*. The study focused on brown bullhead catfish (*Ameiurus nebulosus*) in Lake Memphremagog, a freshwater lake that spans both Vermont, USA, and Quebec, Canada, where an unusually high rate of melanoma—as many as one in three fish—has been observed since 2012. The Great Lakes Fishery Commission provided a portion of the funding support for this research through its Lake Champlain-Lake Memphremagog program.

Researchers set out to determine the cause of lesions observed by anglers and managers on brown bullhead in Lake Memphremagog. Once these were determined to be melanomas, the question became whether they were developed independently in each fish or spread between individuals. Transmissible cancer—in which actual cancer cells spread from one animal to another, behaving like a parasite rather than a conventional tumor—is extremely rare. Before this study, transmissible cancer had been documented in only three types of animals: dogs, Tasmanian devils, and several species of aquatic mollusks.

Researchers conducted gene sequencing of tumor tissue and healthy tissue from affected fish. The results were remarkable. Tumor genomes across different fish were far more closely related to each other than to the host fish they were found in—a hallmark of transmissible cancer. The tumors shared hundreds of thousands of genetic variants that were essentially absent from host tissue, at a rate that vastly exceeds what is seen even when comparing unrelated human melanomas. Both mitochondrial and nuclear DNA analyses independently pointed to the same conclusion: all the tumors descended from a single ancestral cancer cell line. No virus or microorganism was found that could account for the pattern, reinforcing that the cancer cells themselves are acting as the infectious agent.

This makes brown bullhead melanoma the fourth documented type of naturally occurring transmissible cancer in animals, and the first ever identified in a fish or in a freshwater ecosystem.



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Researchers do not yet know exactly how the cancer spreads between fish, how long the lineage has been circulating, or how it will affect brown bullhead populations over time. Brown bullheads are widely distributed across eastern North America and are considered an indicator species for water quality, making the long-term implications of this finding worth monitoring carefully.

The Commission provided funding support for this research as part of its broader commitment to understanding threats to fish and the ecosystems that support them in the Great Lakes, Lake Champlain, and Lake Memphremagog. Brown bullhead catfish are found throughout the Great Lakes basin, and the Commission will follow this line of inquiry as researchers work to understand the cancer's origins, transmission, and potential spread to other populations.

The full study, "Brown bullhead catfish melanoma represents a novel transmissible cancer," is available in the journal *Nature* at <https://doi.org/10.1038/s41586-026-10828-6>.

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The Great Lakes Fishery Commission (Commission) is an international organization established by the United States and Canada through the 1954 Convention on Great Lakes Fisheries. The Commission has the responsibility to promote measures that protect and improve the multi-billion-dollar Great Lakes fishery. Visit online at www.glfc.org. The Lake Champlain/Lake Memphremagog program is a program of the United States Section and is funded annually by the US Congress.



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