

Determining Great Lakes invasive carp species susceptibility to emerging viral infections



CORE QUESTION:

How could the twin challenges of fish viruses and invasive carp interact to affect Great Lakes ecosystems?

Invasive aquatic species, particularly invasive carp, threaten Great Lakes ecosystems and regional economies. Four species of invasive carp have already infiltrated water bodies near the Great Lakes, primarily through connections between the Mississippi River basin and Lake Michigan. Their establishment poses a severe challenge because they are difficult to control and eradicate and can cause ecosystem damage.

In addition, two emerging viruses are currently circulating in Michigan waters and have been detected in common carp and other native carp-related species. These viruses have the potential to affect species of farmed inland carp, wild native and naturalized carp, and invasive carp alike. Understanding how the viruses spread among invasive carp species is vital to developing containment strategies and reducing the impact of potential disease outbreaks.

GOING VIRAL

Santosh Lamichhane, a PhD student in the Michigan State University College of Veterinary Medicine, received a MISG Graduate Student Fellowship to investigate the susceptibility of invasive carp to new and emerging viruses in the Great Lakes. Originally from Nepal, he is studying Comparative Medicine and Integrative Biology (CMIB) with the goal of becoming a professor focused on fish health and welfare.

Lamichhane and his project mentors will collect tissue samples from invasive carp already being removed from Illinois rivers, as well as carp harvested from Michigan inland lakes and aquaculture farms. They will assess whether the sampled fish already carry certain viruses and study the effects of viral infections on fish tissues.

The results could help determine how prevalent these new and emerging viruses already are in the Great Lakes and their potential to affect native and invasive fish populations. Understanding how fish immune systems respond to the viruses can help with the development of management and containment strategies key to maintaining healthy Great Lakes ecosystems.

CONTACT

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