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NEWS

Sea lamprey? Quagga mussels? Meet the worst invasive species in Lake Erie

Because of invasive species, 'The Great Lakes of today are practically unrecognizable compared to the Great Lakes of the 17th century.'

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One hundred eighty-eight.

That's the number of aquatic non-native species that have made their way into the Great Lakes as of 2023—at least the ones that scientists have identified.

About one-third of the species have transformed the lakes for the worse. Those invasive species have destroyed ecosystems, messed up food webs, almost driven other species to extinction, and threatened recreation and economic activity.

Invasive species contribute to the most pollution in the Great Lakes

Yes, it's not industrial discharges, municipal sewage or chemical rain polluting the Great Lakes, according to Sea Grant New York. It's the non-native plant and animal species that have changed its ecosystem.

These plants and animals earned their name as an 'invasive species' due to their ability to spread through an ecosystem and limit food and habitat for species already native to the Great Lakes, essentially displacing them and polluting the environment. Most often, these invasive species that have reproduced in this new environment were transported by humans, both intentionally and unintentionally.

Due to the advent of canals, some of these species have been around the Great Lakes as early as the 1800s. Ocean-going ships in the 1950s carried millions of gallons of freshwater ballast

water that contained many of the invasive species living in the Great Lakes today. The species arrived in the Great Lakes when ships emptied their ballast tanks.

What invasive species are found in Lake Erie?

These are the non-native invasive species found in Lake Erie and Lake Ontario, according to Sea Grant New York:

Zebra mussels: Mollusks introduced via ballast water

Quagga mussels: Mollusks introduced via ballast water

Spiny waterflea: Crustaceans introduced via ballast water

Fishhook waterflea: Crustaceans introduced via ballast water

Sea lamprey: Fish that came through canals

Alewife: Fish that came through canals

Common carp: Fish introduced via ballast water

Round goby: Fish introduced via ballast water

Purple loosestrife - plant that was intentionally introduced

Water chestnut: Plant that was intentionally introduced

Eurasian watermilfoil: Plant that was intentionally introduced

The species jeopardizing areas of Lake Erie the most is the zebra mussel. Scientists say that they are a great threat to the Great Lakes and their threat should not be minimized due to the loss of the native habitat of the lakes.

Great Lakes: Invasive mussels, alewives top the list of invasive species

In a new study, scientists created a top 10 list of the worst invasive species in the Great Lakes. The team of scientists from Michigan Sea Grant, the National Oceanic and Atmospheric Administration, and two Michigan state agencies ranked the invaders based on how they impact the environment and society.

Here are the top ten invasive species in all the Great Lakes:

1. Zebra mussels: Mollusks introduced via ballast water

2. Quagga mussels: Mollusks introduced via ballast water

3. Alewives: Fish that came through canals

- 4. Sea lamprey:** Fish that came through canals
- 5. Japanese stiltgrass:** Plant introduced in shipment packing material
- 6. Grass carp:** Fish introduced for aquaculture
- 7. Water chestnut:** Plant that was intentionally introduced
- 8. Common reed:** Plant introduced in shipment packing material and solid ballast
- 9. Round goby:** Fish introduced via ballast water
- 10. White perch:** Fish that came through canals

"The Great Lakes of today are practically unrecognizable if you compare them to the Great Lakes of the 17th century," said El Lower, a communications specialist through the Great Lakes Aquatic Nonindigenous Species Information System and Michigan Sea Grant.

Only some non-native species are considered invasive

While nearly 200 non-native species have moved into the region and established populations, Lower said scientists are watching another 100 to see if they become established.

For now, only about one-third of the non-native plants, fish and other organisms are invasive, meaning they cause harm, Lower said.

Another one-third are harmless, they said, including ornamental plants brought over that don't crowd out other plants, and salmon that have been introduced for fishing.

When it comes to the last one-third, scientists don't have enough information yet.

For the study, scientists wanted to create a one-stop-shop where people could see the impact of the most invasive species. Scientists divided impact into two categories: environmental and socioeconomic.

Rankings based on environmental impact included the extent the invasive species have affected the ecosystem, such as outcompeting native species, changing native species' genetics or destroying water quality.

Rankings based on socioeconomic impact included the effects on humans and society, such as human health, infrastructure, recreation and aesthetics.

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Invasive mussels, grass carp, common reed alter ecosystems

According to the study, zebra and quagga mussels have had the biggest environmental impact, followed by grass carp and the common reed, which received the same ranking.

While it may seem counterintuitive, one of the most destructive impacts of invasive mussels is that they make water clearer. Invasive mussels are filter-feeders, sucking out nutrients and plankton that native species rely on for food. The mussels are so abundant, scientists estimate they have the potential to filter all of the water in Lake Michigan in roughly 10 days.

So far, grass carp have been found in low numbers in all of the lakes, except for Lake Superior, where they have not shown up. Grass carp have had a big impact on how predator and prey interact in the lakes. These carp are voracious eaters that can eat their weight in plants every day, using up food for native species as well as plants they use to shelter from predators.

Even though they live in nearby wetlands, plants like Japanese stiltgrass and common reed are considered aquatic invasive species because they alter the hydrology of the lakes, Lower said. The thick growth of these plants can actually cause wetlands to dry out.

More: We know more about the surface of Mars than about the floor of Lake Michigan. But what we do know is remarkable.

Economy, infrastructure, recreation take a hit

As for socioeconomics, about 90% of the invasive species had some impact.

Zebra and quagga mussels, for example, eat up all the plankton, which form the base of the food web, causing fish populations to decline. They also have taken over reefs used as spawning habitat by fish.

Invasive mussels also have caused costly damage to infrastructure, by clogging water intakes.

Periodically, alewives make unwelcome appearances on beaches around the Great Lakes when they die-off in mass numbers and litter beaches with their rotting carcasses. This can cause beachgoers to steer clear.

Invasive species are not evil

The scientists hoped they would find some common thread between the invaders that have established here, but that didn't happen. The top 10 list varied quite a bit in what kinds of organisms were included, where they came from, and how they got here.

While invasive species have a bad reputation, Lower likes to remind people that these plants, fish and other organisms are here because of human activity, even if by mistake.

"They're not evil; they're just trying to survive," Lower said.

More: Scientists just discovered cold, dark sinkholes in Lake Michigan. What's living in them?

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