

HEAR UR**Season Six, "Rapid History: Tales of the Genesee River"
Episode 608, "Genesee Sturgeon: A Modern Fish-story"**

Episode Produced by
Alexander Junquera, Jerry Dulluog, and Maya Doichev

Executive Producers
Thomas Flieschman and Stephen Roessner

MUSIC: Rhythmic, upright bass, ukulele.

ALEX JUNQUERA

The Lake Sturgeon is the oldest
and largest native fish species in
the Great Lakes and has been for
more than 10,000 years.

Dubbed "Dinosaurs of the Great
Lakes," or "living fossils,"
they're characterized by their
large cartilaginous skeletons—
even the small species found in
the North-East United States can
grow to 6 feet in length from tip
to asymmetric tail.

They have rows of bony,
armor-plates called "scutes," and
barbelled suckers, and an
unmistakable silhouette; a nearly
unchanged morphology, the visage
of their ancestors from 130
million years ago.

MUSIC FADE OUT.

**SFX: Creek ambiance, gentle flow of water
FADE IN.**

ALEX

In the late 1980s, New York State
evaluated that lake sturgeon were
regionally extinct in the Genesee
River.

Another of the Earth's ample and
prodigious beasts extinguished
from their ancestral home, claimed
by the riptide of modernity; How
did this tragedy come to pass?

What has been done since, and is it possible for humans and nature to prosper together again on the mighty Genesee?

This is Hear UR, Season 6, Episode 8 "A Modern Fish-story". I'm your host, Alex Junquera.

SFX: Cicadas and crickets FADE IN. Slow, gentle, and intimate.

ALEX

Dusk in August, the full moon peaks through the winding branches of great trees. In the absence of suffocating city lights, the cosmic gasses like heavenly pools color the sky purple, navy, and pink. The stars appear dim, vying for brilliance, upstaged by the glow of the milk-white moon. Its reflection ripples along the rushing current. The sturgeon are coming to spawn.

SFX: Creek ambiance FADE OUT. Rushing river water FADES IN. Excitement builds, as the holler of fishermen signal their behemoth catch, the first of the season. Excitedly, as if a hoard of sturgeon are barrelling upstream at this present moment.

ALEX

Sturgeon: one, another, swim straight towards netted traps set by indigenous anglers.

SFX: Crickets and cicadas FADE IN again, slowly with the rush of the river where lake sturgeons are caught during the Sturgeon Moon season.

ALEX

To the various peoples who comprise the Haudenosaunee Confederacy, the mid-August moon has many traditional names. For example, "Green-Corn Moon" which signifies the season for harvesting corn, and "Fruit Moon"

for when certain fruits are ripest. Along the river, it is the "Sturgeon Moon," the time of year when sturgeon are most readily caught.

Anglers consult with their community leaders to determine fishing locations, careful not to harvest in excess, for sturgeon are revered. The important leaders are philosophers and teachers, part of a group known as the Sturgeon Clans.

SFX: Slamming hammer, materials transformed into crafts.

ALEX

Fishermen catch and transform sturgeon parts into various crafts: sturdy skin into workable leather, and dried air bladders into isinglass, an invaluable source of collagen.

SFX: Crackling fire and sizzling fish. Labored and salivating.

ALEX

Not to mention the delicate taste of sturgeon flesh... the buttery flakes of fat-soaked meat hot-smoked by the fire, and the caviar, little black pearls of brine.

For the Haudenosaunee, there was a bounty to be found in the river.

SFX: Crackling fire FADE OUT. A steam whistle cuts the calm, rings out, and interjects. Intense and bleak, something shifts.

JEFF WYATT

When pioneers first came, they looked at the indigenous community thinking we're not about to eat those fish, they're trash fish, they're in our way.

ALEX

This is Dr. Jeff Wyatt, professor and chair of Comparative Medicine at the University of Rochester School of Medicine and Dentistry, and member of the Institute for Human Health and the Environment. He is an expert on the ecological role of this region's lake sturgeon.

SFX: Gentle flow of the river and distant ruckus of fishermen.

JEFF WYATT

They were more interested in getting white fish that are smaller and the Europeans were more accustomed to eating them. Lake sturgeon would get in their fish nets, mess up their nets. As they were aggravated by these fish, they would just throw them on the beach, let them dry out.

SFX: Gears shifting and steam boat.

JEFF WYATT

And then they learned the best use for a lake sturgeon was to use them as fuel instead of cutting trees down, you could just dry up the fish. It was very, very popular for the lake sturgeon to power the boats going back and forth to Canada.

Europeans eventually learned that the filet was good. The lake sturgeon was a second to the Russian sturgeon with the delicious caviar.

SFX: Recurring flow of river.

ALEX

In the 1870s, commercial fisheries were established on the Great Lakes, and over the next few decades, an average of 4 million

pounds of lake sturgeon were harvested annually.¹

SFX: Deep and dramatic boom to emphasize the record-breaking number of harvested sturgeon.

MUSIC: Solemn and dramatic. Lake sturgeon numbers are dwindling.

ALEX

In 1885, European settlers harvested a record 8.6 million pounds.² Overfishing eventually lead to the collapse of the lake sturgeon market.

By the end of the 19th century, sturgeon commerce imploded and their stocks severely depleted.

MUSIC FADE OUT.

SFX: Artisan workshopping combined with steam whistle, productivity of industrialization.

ALEX

The 20th century gave rise to novel methods of industrial production, and as manufacturing plants populated the Rochester Embayment, they defiled the Genesee with all new kinds of chemical waste, suffocating biodiversity.

SFX: Chemicals bubbling in a tube. Spray in "Mirex," used as an insecticide. Then accompanied by swarming bugs.

WYATT

These chemicals are PCBs, dioxins, furans, industrial products, combustion byproducts, heavy metals, mercury, cadmium from batteries, and our signature chemical contaminant in Lake Ontario is called Mirex. It was one of these man-made chemicals in

¹ New York State Department of Environmental Conservation, 2018

² Tour Blend and Seneca Park Zoo, 2023

the 70s that was made for being an insecticide to kill fire ants in the South. It also happens to be a flame retardant oddly.

ALEX

If you want to learn more about the history of pollution in the Genesee River, we recommend listening to episode 7 of HEAR UR, titled "Silver and Snapshots."

In 1983, New York State officially listed the lake sturgeon as a threatened species, and in 1987, the Environmental Protection Agency found the Rochester Embayment to be an Area of Concern. The Genesee was no longer fit for spawning sturgeon, and they were declared regionally extinct.

MUSIC: Optimistic and folky, looking towards the future of the lake sturgeon population.

WYATT

So in 2003, I met Dawn Dittman, a PhD aquatic ecologist who works with the United States Geological Survey, the USGS.

WYATT

This is all part of an EPA initiative to address what we have [which] are 14 beneficial use impairments. These are 14 environmental damages that are due to pollution. One of the beneficial use impairments was lack of habitat for river animals to spawn, as well as thrive.

Working through the Remedial Action Committee, which is part of the Department of Health, as well as working at Seneca Park Zoo, which is on the banks of the Genesee River, and that a mission of the zoo is saving animals from extinction and conserving habitat,

it was a natural fit for me as a veterinarian to get involved with Dr. Dittman's reintroduction or repatriation program. Repatriation really means that the fish were always here, and we're returning them, they are native fish.

MUSIC FADE OUT.

ALEX

Dr. Dawn Dittman is the lead scientist on the sturgeon reintroduction program in the Genesee.

In our interview with Dr. Dittman, I asked her opinion on the preferred terminology for the cause, whether restoration, repatriation, conservation, revitalization, or rewilding:

MUSIC: Whimsical, pretty, and revelatory.

DAWN DITTMAN

We often refer to it as reintroducing an extirpated population, is what we did in the Genesee; they were gone, and we reintroduced them. Then babysat them through the developmental time now till they get to adults and start reproducing on their own.

SFX: Fish splashing in water.

DITTMAN

What I'm doing in the Genesee is an experiment to test how well stocking works for restoration management. The goal is to have multiple species, particularly native fish, that function in the food web, in the ecosystem in a similar way to what they did in the past.

WYATT

Unfortunately, they disappeared because of us. Now our goal is to

return them to a healthier environment.

In 2003 and 2004, she introduced 1,900 hatchery reared sturgeon.

SFX: Recurring fish splashing in water.

ALEX

Sturgeon are bioindicators, which means that they're organisms that can be monitored to evaluate the health of an ecosystem. By monitoring the health of the sturgeon, you can detect levels of legacy contaminants or "forever chemicals" that linger in the environment.

WYATT

Over the last 20 years, we've been monitoring the lake sturgeon that we've been reintroducing.

What we've learned, which definitely supports our EPA goal of showing that we are healthier than we were 20, 30, 40, 50 years ago as far as river health, is that these fish are thriving.

MUSIC FADE OUT.

ALEX

In 2021, Dr. Dittman netted an 18-year old female sturgeon in the Genesee River.

MUSIC: Folky and country.

DAWN DITTMAN

We caught the first female. 2003, stocked female, 60 something pounds, she was ready to spawn.

ALEX

This was the first spawning female lake sturgeon found in over 50 years, and it was originally from the first group of lake sturgeons released in 2003.

DITTMAN

Now we're three weeks away from netting, again for this year's adults. But last year, we caught five foot, six inch, 110 pound female, the largest one we caught last spring.

WYATT

We have found at least two years of natural spawning. So our adult fish, the Lake Sturgeon that are in the river, are naturally spawning. That's a huge milestone.

ALEX

Later this year, in 2024, Rochester is expected to reach a milestone in delisting the Rochester Embayment from the EPA's Area of Concern. 37 years later.

WYATT

This year, we've written up our draft document to become delisted, and submitted it to the EPA. We will hear soon, we are fairly confident we will be delisted this fall. That means that we've addressed the 14 beneficial use impairments. And that was a huge effort. There are about 43 areas of concern across all of the Great Lakes, including Canada and the United States. These are all urban areas that have a long history of pollution. Rochester is just one of them, Buffalo, Chicago, Detroit, Oswego. So we share that label and we also all share the goal of becoming what we call "delisted."

This fall will be a big celebration in Rochester and we will correlate that with the Roc the River celebration the city of Rochester has in the fall.

ALEX

The lake sturgeon rewilding project plays an important role in this milestone, but now the

success of the initiative presents an opportunity and a responsibility to inform Rochesterians about fishing responsibly and safe fish consumption.

WYATT

When we were out recently, over the last five years, pulling nets, we were noticing non traditional anglers. These are fishermen and women that were not your typical recreational angler, you would see they were from the refugee communities. And we started building relationships with the communities and learned from them.

ALEX

Fishing is a multi-cultural practice and staple, especially among refugees, immigrants, and asylum seekers here in Rochester.

WYATT

What we've learned with our interviews, especially with some of our refugee communities, is the same as it is. It doesn't matter if you live in Webster or Pittsford, people enjoy fishing, You're getting out in nature. It's a very healthy life experience. With some of our communities, it reminds them of home. So they go fishing, and yes, indeed, they might very well be eating the fish too.

MUSIC FADE OUT.

ALEX

Thanks to the effort of environmental conservationists such as Dr. Wyatt and Dr. Dittman and the Great Lakes Restoration Initiative, in 2021, the EPA announced a \$14.1 million grant to fund environmental justice nationwide. One of them is the Rochester Refugee Resettlement

Services which aims to educate local fishermen about the environmental and public health issue around safe fish consumption. Some of the efforts consist of engaging with high school and college students to develop effective outreach messages about fish advisories to local fishermen, typically from refugee communities.

MUSIC: Subtle atmospheric beats.

WYATT

Part of what we do also is to members of our community who actually enjoy eating fish, we make presentations, maybe in non-traditional venues. There are environment days at the public market. That's a wonderful place to have a table with baby sturgeon. We have a six foot model of a fiberglass sturgeon that's very eye-catching and his name is Seth. So he is a very good trigger. He's a draw for people to come in, have a conversation.

A very big part of this story is to share with everybody how special they are. In the long run, we're hoping that we see many generations of these fish, and that we can have citizen scientists, our fishermen, and women even help us document where these fish are found by taking a photograph of them when they catch them by accident, and give us a call.

ALEX

From being responsibly harvested by the Haudenosaunee, to being hunted in excess and driven to regional extinction, the "Dinosaurs of the Great Lakes" are not entirely forsaken. The collaborative efforts of the New York State Department of

Environmental Conservation, the USGS, and Seneca Park Zoo present a successful and optimistic future of rewilding initiatives for revitalizing native species back into their premodern habitats, especially with the discovery of the 18-year old spawning female lake sturgeon caught right here in 2021.

It is important to continue to educate communities about the endangerment of the fish species, guidelines for angling, safe fish consumption, and the environmental impact of human activity. Rewilding the Sturgeon gives us an opportunity to celebrate our natural world and take pride in the healing watershed of Rochester.

Communities from different cultures and families can all become environmental stewards, knowing that everything is interconnected, from the rivers to lake sturgeon to health and humanity.

MUSIC FADE OUT.

WYATT

The bottom line is, sometimes you might have someone who says "why waste all this money on reintroducing a fish, we've got problems". But I see it and fish biologists and ecologists see it as more evidence that the environment, the ecosystem is healthier, which is really a broad overarching goal to have healthier lives for all people in the Great Lakes.

MUSIC. Track 6 "The River Genesee"
from Songs of the Genesee album.

HearUR is a podcast created by

students at The University of Rochester. This episode was produced by Alex Junquera. Our lead researcher was Jerry Dulluog. Our engineer was Maya Doichev. The Music used on this episode was from Blue Dot Sessions and Pixabay. We'd also like to thank Dr. Jeff Wyatt and Dr. Dawn Dittman, for their interviews.

The executive producers of HearUR are Thomas Fleischman and Stephen Roessner. Coordinating producers are Alyssa Koh and Jason Lee. This season was made possible through the financial support of the Department of History and the Program in Audio and Music Engineering at the University of Rochester. Special thanks to Tom Wenzel, Natural Resources Specialist at the Mt. Morris Dam and Recreation Area and the Army Corps of Engineers, who gave us an incredible tour of inside and outside of the dam. Thank you as well to Autumn Haag (PRONOUNCED HAY-G) from Rare Books and Special Collections at the University of Rochester. And finally, be sure to check out show notes, photographs, transcripts and links for this episode and others at HearUR.com.