



Michigan Arctic Grayling Initiative

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Manager





Presentation Overview

- ▶ Vocabulary lesson
- ▶ History of Arctic Grayling in Michigan
- ▶ Past restoration efforts
- ▶ Current effort to reintroduce Arctic Grayling
- ▶ What's coming next?



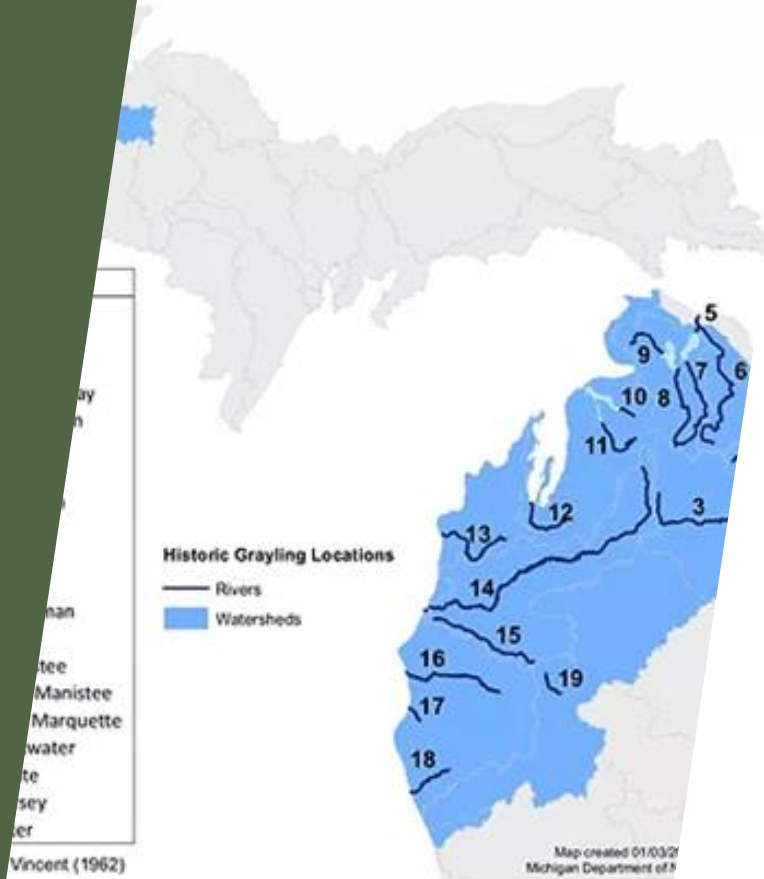
Hatchery Jargon 101

- ▶ **Imprinting:** Learning the smell or chemical fingerprint of the water a fish was hatched in
- ▶ **Broodstock:** Adult fish that are used for spawning purposes
- ▶ **Year Class:** The year that eggs were collected
- ▶ **Eyed Eggs:** Fertilized eggs that are just a short time from hatching
- ▶ **Fry:** Tiny fish that are newly emerged from eggs
- ▶ **Fingerlings:** Small fish that are actively feeding and are less than one year old
- ▶ **Yearlings:** Fish between one and two years old
- ▶ **Subadults:** Fish over two years old but not yet sexually mature
- ▶ **Adults:** Fish that have reached the age where they become sexually mature



History of Arctic Grayling in Michigan

- ▶ Native only to Michigan and Montana in the Lower 48
- ▶ Dominant salmonid species in NLP coldwater streams
- ▶ Not believed to be native in UP streams
- ▶ In trouble by mid-late 1880s
- ▶ Extirpated from Michigan in 1936



What led to their extirpation?

- ▶ Habitat degradation from rapid deforestation of NLP
- ▶ Unregulated harvest
- ▶ Introduction of competitors/predators



Previous Supplementation and Reintroduction Efforts

- Several attempts to bolster or reintroduce grayling
- Tried multiple life stages from eyed eggs to adults

Year	Waterbody	Amount
1877, 1880, 1925	3 Lower Peninsula Rivers	Unknown (Adult-Translocation)
1900 to 1933	Numerous Rivers and Lakes	>3,330,000 (fry and eyed eggs)
1934 to 1941	Numerous Rivers and Lakes	70,000 (yearlings)
1958 to 1960	Keweenaw County Streams	300,000 (fingerlings)
1987 to 1991	13 Lakes and 7 Streams	145,000 (yearlings)



What's different this time around?

- ▶ Not stocking advanced life stages
- ▶ Learning from Montana's experience
- ▶ Addressing critical imprinting periods
- ▶ Remote Site Incubators
- ▶ Starting with strong genetic stock
- ▶ Alaska Department of Fish and Game is stepping up BIG



Michigan Arctic Grayling (MAGI)

- ▶ Cooperative Partnership
 - ▶ MDNR and LRBOI foundational partners
 - ▶ 45 Partners
- ▶ MAGI Goal: Establish self-sustaining populations of Arctic Grayling within its historic range in Michigan
- ▶ Not intended to be reliant on stocking long-term
- ▶ Ideally, some recreational fishery is hoped for
- ▶ Marathon rather than a sprint



Michigan Arctic Grayling Initiative

- ▶ First organization meeting in August 2016
- ▶ Action Plan developed in July 2017
- ▶ Four Core Groups
 - ▶ Management
 - ▶ Production
 - ▶ Research
 - ▶ Outreach and Education

Michigan's Arctic Grayling Initiative Action Plan



Initiative Funding

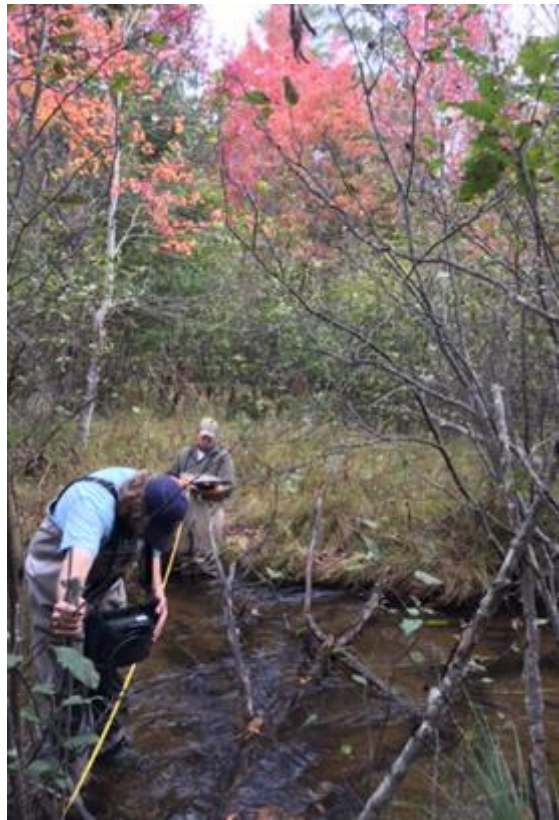
- ▶ Almost entirely funded with donations
- ▶ Petoskey Harbor Springs Area Community Foundation is acting as fiduciary
- ▶ Henry E. and Consuelo S. Wenger Foundation has been our champion
- ▶ First grant came from Consumers Energy Foundation
- ▶ Second CEF grant, with additional funds from Wenger Foundation, will be used to determine best RSI design
- ▶ Many other donors have contributed
- ▶ Third grade student in Royal Oak started a fund drive that now exceeds \$3,500 raised for MAGI and he is still going strong!!!



Michigan Arctic Grayling Initiative - Research Core Group



Photo courtesy of Nicole Watson




- ▶ Collaboration among DNR, tribal governments and universities
 - ▶ Stream habitat evaluation
 - ▶ Evaluation different types of RSIs
 - ▶ Masters student at NMU
- ▶ PhD Student at MSU
 - ▶ Competition, predation and imprinting





Michigan Arctic Grayling Initiative - Fish Production Core Group

- ▶ Eggs from Chena River in Alaska
 - ▶ Goal of three years of future brood
 - ▶ Start each lot in isolated rearing
 - ▶ 2019 Year class is at MSFH
 - ▶ Skipped 2020 due to COVID
 - ▶ 2021 Year class recently moved to Marquette
 - ▶ 2022 Year class in isolated rearing at Oden
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Michigan Arctic Grayling Initiative - Management Core Group

- ▶ Managing stream nomination process
 - ▶ Must have historically supported grayling population
 - ▶ Must be nominated by local group or government
 - ▶ Manistee River
 - ▶ W. Branch of Maple River
 - ▶ Boardman River
 - ▶ Jordan River
 - ▶ Au Sable River
- ▶ Considering outlets for retired/surplus brood



Michigan Arctic Grayling Initiative - Outreach and Education Core Group



- ▶ Get public engaged and encourage stewardship
- ▶ Identify collaborative partners and their roles
- ▶ Managing Website - WWW.MiGrayling.org
- ▶ Troy Athens High School documentary



Recent Advances



- ▶ 2021 Brood lot passed final fish health inspection
- ▶ Transfer to Marquette State Fish Hatchery



What comes next?

- ▶ Completion of habitat analysis on nominated streams
- ▶ Select streams and locations with greatest likelihood for success
- ▶ Final year of isolated rearing of future brood
- ▶ First eggs into the RSIs in 2024 or 2025



Thank you for your attention.

Questions?

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