

Northern Pike Management Plan

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July 13, 2023





History of Pike Regulation

- ▶ 1865-1915: statewide no minimum size limit (MSL), no daily possession limit (DPL).
- ▶ 1916-1929: statewide 10-inch, 10 fish
- ▶ 1930-1958: statewide 14-inch, 5 fish
- ► 1958-1992: statewide 20-inch, 5 fish
 - ▶ 14-inch MSL exceptions 1958 to 1970
 - ▶ no-MSL regulation exception ~1970 to present.
- ▶ 1993: statewide 24-inch, 5 fish
- ▶ 2002: statewide 24-inch, 2 fish

- ▶ 2013: statewide 24-inch, 2 fish
 - no-MSL, 5 fish changed to only 1 fish > 24 inches
 - ➤ 24-34-inch protected slot limit (PSL) added as a regulation option for northern pike







Statewide Trend

- ► Habitat imperiled
- pike spawning marshes/stocking no longer operated
- ► Lakes with many small fish are common
 - ► No minimum size limit common
- ► Vulnerable to exploitation
- ► Increasing need for data driven decision making when adding exception





Esocid Committee

- ► 2004- Officially Formed
 - ► Esocid Work Group
- ► 2010- Committee charged with regulation review for managed Esocids







STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES

FR15 November 2016

Management Plan for Northern Pike in Michigan

Kregg M. Smith, Cory K. Kovacs, Michael V. Thomas, and James S. Diana



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2016 Pike Management Plan

- 5 goals
- Identified issues
- Objectives and strategies
- Set regulation toolbox
- Evaluation criteria

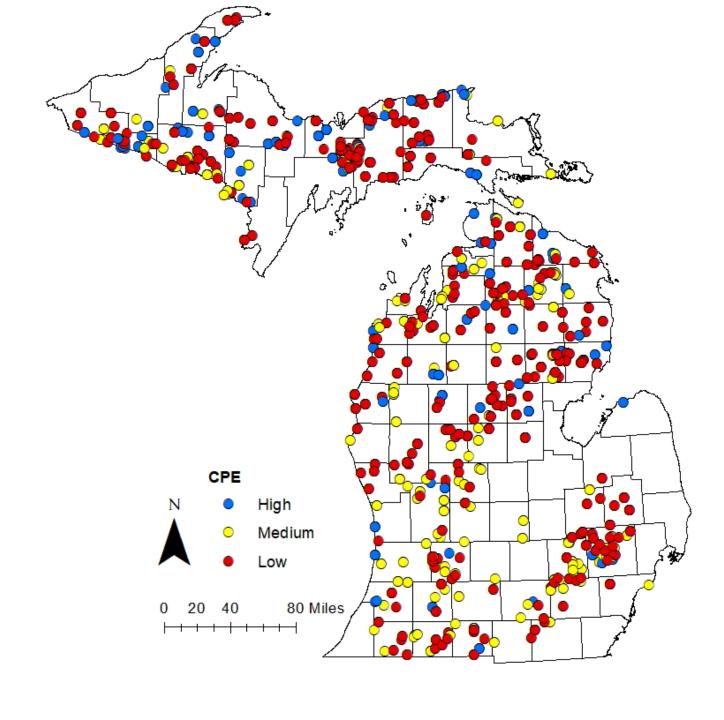
Goal I

- ► Protect, restore, and enhance habitat on Michigan waters
 - ► Habitat monitoring and evaluation
 - ► Wetland protection/permit reviews



Goal II

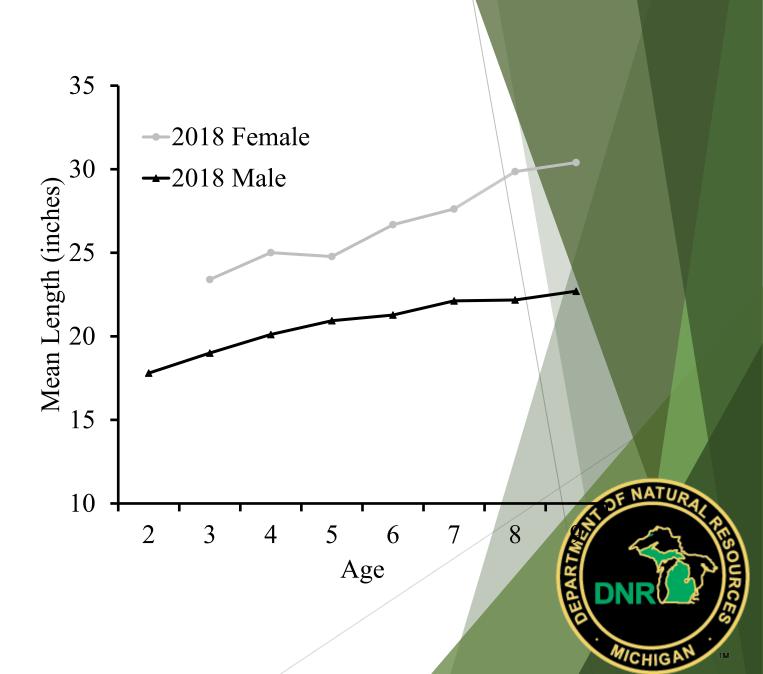
► Ensure that adequate technical information is available about Michigan's Northern Pike fisheries





Evaluations

- ▶ Growth
 - ► Mean length of 3-5 age fish
 - ► Males v Females
 - management differs by sex (e.g., females selectively targeted)
- ▶ Density
 - ► Population estimates
 - ► Catch rates
- ➤ Surveys
 - ► Status and Trend
 - ► Targeted





Pike Survey Protocol

- ► Approved in 2022
- ► Standardizes methods
- ► Targets pike in spring during spawning
- ► Sex identification
- Population estimate methods

Goal III

- ► Protect and maintain Michigan's self-sustained recreational Northern Pike fisheries and associated fish assemblages and aquatic communities
 - ► Regulations
 - ► Fish population surveys



Age	Statewide growth metric	Population characteristics	Suggested regulation options	Management goal				
3-5	Mean length exceeds 75 th percentile	Above average growth, low density	24 in MSL, possession limit 2 or PSL 24–34 in, possession limit 2	Maintain population size structure, encourage above average growth of younger fish, maximize reproductive potential, and allow for harvest of memorable- or trophy-size fish				
3-5	Mean length between 75 th and 25 th percentile	Average growth, moderate density	24 in MSL, possession limit 2 or PSL 24–34 in, possession limit 2	Maintain average abundance and size structure or Improve size structure				
3-5	. •	Below average growth, high density	No MSL, possession limit 5 a	Reduce over abundance, improve growth rate, maximize sustainable harvest				
8 Fire field limit includes no more than one Northern Dilse greater than or equal to 24 inches in total length								

^a Five-fish limit includes no more than one Northern Pike greater than or equal to 24 inches in total length.



Goal IV

► Communicate with anglers and promote the recreational value of Michigan's Northern Pike fisheries

Angler Data Sources

- Angler paper diary surveys
 - ► Informs the size of fish caught
- ► Angler aging structure collection
- ► Inland Creel
- **▶** Biologists

Blind Sucker F	looding Ar	ıgler Survey								
Date fished:/ Time spent fishing: hours minutes										
What is your ZIP Code?										
What type of bait did you use? (circle only one) Live Bait Artificial Both										
What did you fish for today? (mark only one)Northern PikeYellow PerchAny										
Have you previously filled out a Blind Sucker Flooding angler survey card?										
YesNo (If yes, skip to * question)										
How many days per year do you fish at Blind Sucker Flooding? (mark only one) 1-10 11-20 >20										
Prioritize these factors in order of importance to you. (using 1-6, 1 = most important factor) size of fish fish for consumption numbers of fish campground near fishery potential for trophy fish remoteness of fishery										
Rate northern pike fishing in this lake on a scale of 1-5. (1=highest)										
*How many northern pike (per size category) did you:										
Length	<24"	24"-34"	≥34	"						
Catch										
Keep]					
Comments:		2.50	200		•					

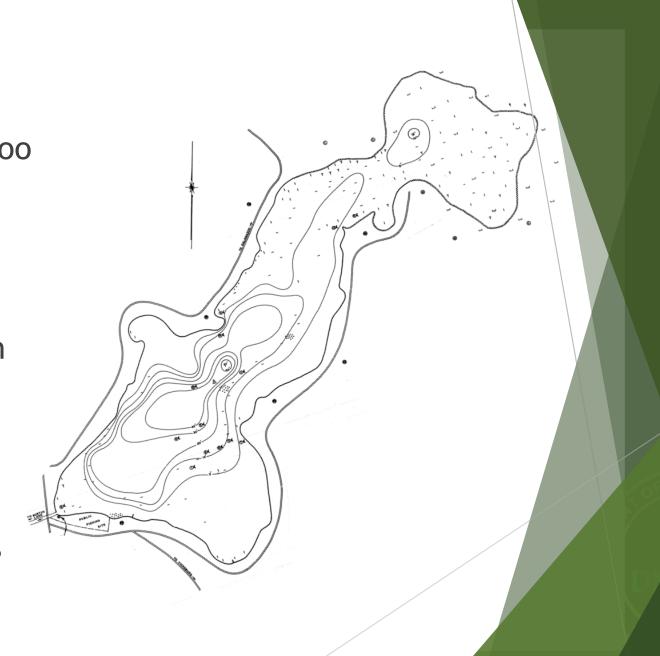
Goal V

▶ Provide a variety of Northern Pike fishing opportunities within a science-based management system

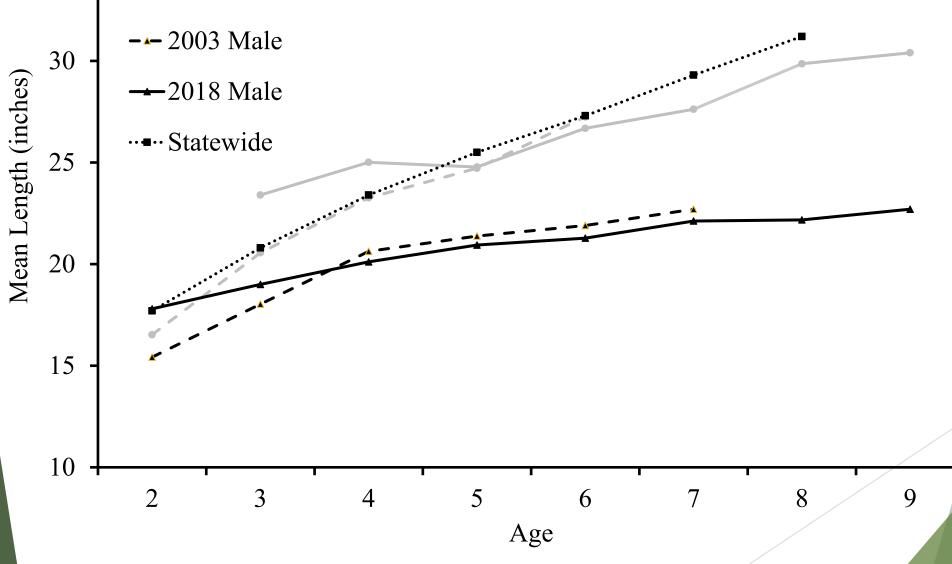


Long Lake, Kalamazoo County

- ► 575-acre lake in Kalamazoo County
- ► Pike reported as stunted from anglers beginning in 2002
- ► Survey in 2013 found high abundance of small pike (<24")
- ► 24 to 34-inch PSL implemented in 2013
- ➤ Survey conducted 5 years after to evaluate (2018)

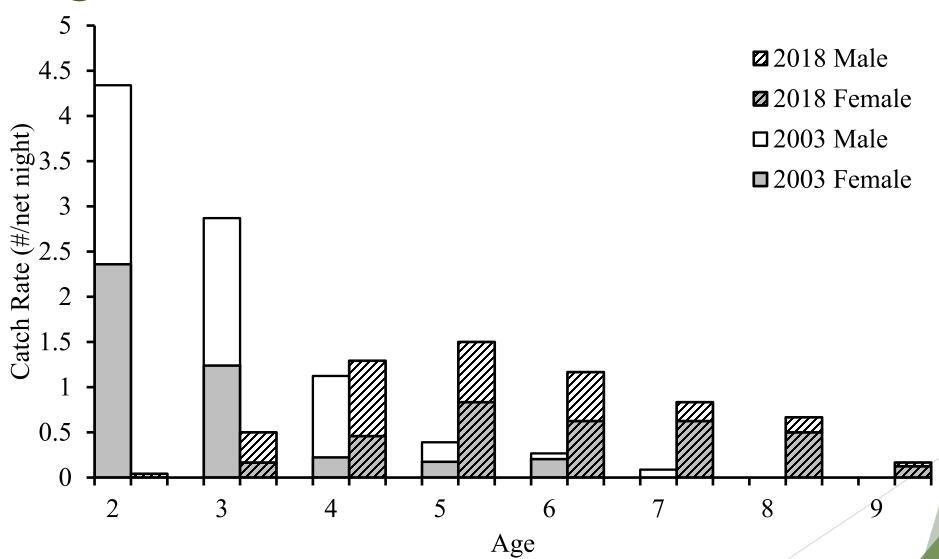


Length at Age --- 2003 Female --- 2018 Female --- 2003 Male



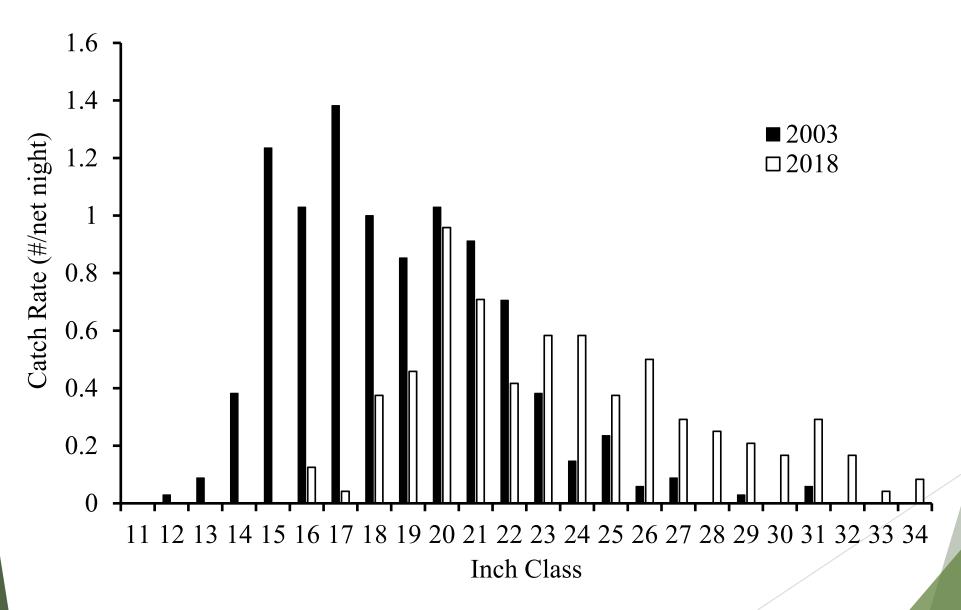


Age Structure





Size Structure





What's Needed?

- ▶ Data driven regulation changes
- ► More evaluation
 - ► Alternative regulations need to be monitored and evaluated
- Realistic goals and messaging





Illustrations by Joseph R. Tomelleri ®

Muskellunge Management

- ▶ Biology
- ► Goals of Management Plan
- ► Progress towards goals
 - ► Sampling Protocol
 - ▶ Brood Stock Plan

Muskellunge Biology

- ► Large predator
 - ▶ Diet: Various but primarily soft-rayed fishes like suckers and minnows



- ► Historically distribution
 - ► Great Lakes
 - some inland waters in the upper peninsula
 - very limited in lower peninsula
- ► Currently distribution
 - ▶ limited in Great Lakes
 - ► ~116 inland pops





Muskellunge Biology

- ► Capable of longdistance movement
- ▶ Escapement
- Genetically distinct strains
- ► Competition with pike



Legendary Sportfish

► Fish of 10,000 casts







Muskellunge Management Plan

- ▶ 5 goals
- ▶ Identified issues
- ▶ Objectives and strategies
- ► Outlines a plan to achieve maximum size potential through low exploitation
- ► Call for standardized evaluations



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Management Plan for Muskellunge in Michigan

Kregg M. Smith, Michael V. Thomas, and Patrick A. Hanchin



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Goal I

- Protect, restore and enhance Muskellunge habitat in Michigan waters
 - ► Status and Trends program to document habitat conditions in lakes and streams statewide
 - ► Habitat protection
 - Research on Muskellunge movement and habitat use in Great Lakes

Goal II

- ► Ensure that adequate technical information is available for Michigan Muskellunge fisheries
 - **▶** Esocid committee
 - ► Muskellunge sampling protocol
 - ► Statewide angler survey program



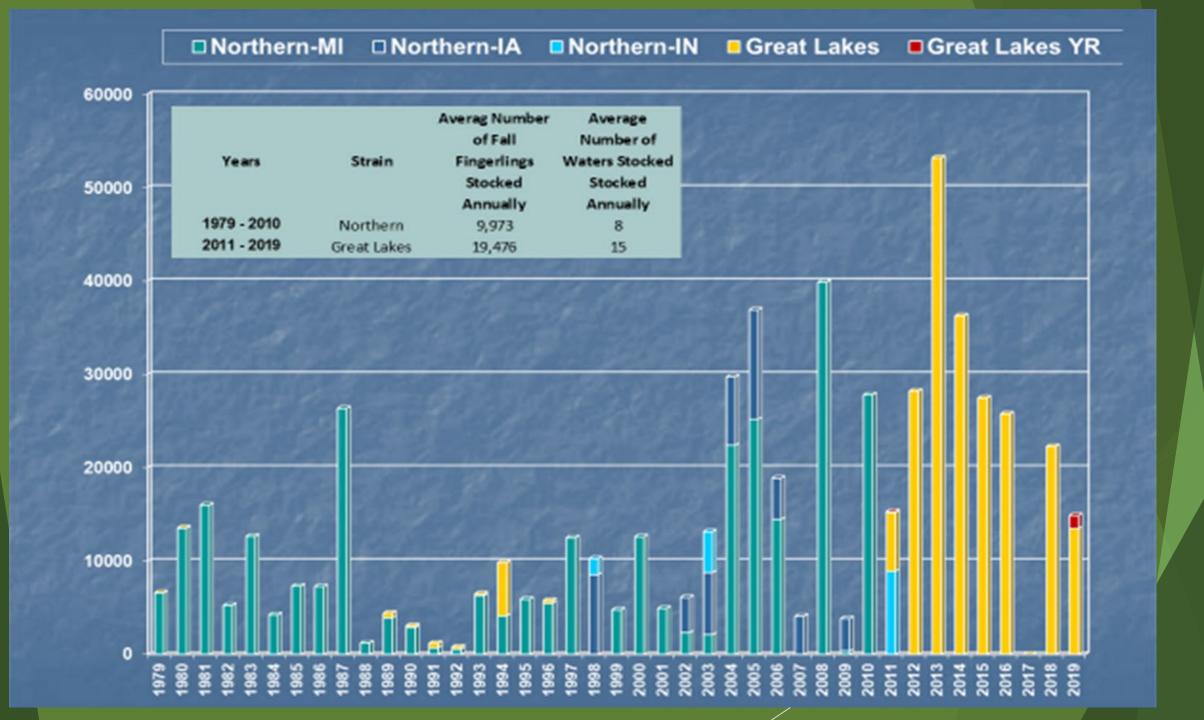
Goal III

 Protect, maintain and enhance recreational Muskellunge fisheries and associated fish assemblages and aquatic communities

► Implemented restrictive 1-per year harvest regulations

- ► Harvest reporting
- ► Great Lakes Strain
 - ► Native genetics
 - ► Broodstock Plan





Number of 2022 Musky Trips

Goal IV

► Communicate with anglers and promote the recreational value of Michigan's Muskellunge fisheries

- ► Establishment of Esocid committee: point of contact for anglers
- Angler harvest reporting, angler survey, angler diaries, press releases
- ► Research collaborations
- ▶ PIT tag program



Goal V

► Provide a variety of fishing opportunities for Muskellunge in Michigan

► Stocking program

► A variety of regulations promote fishing opportunities based on growth capacity of a system

▶ 42" standard, but also 50", 46" and 38"

► Year-round catch and release

► Select spearing waters

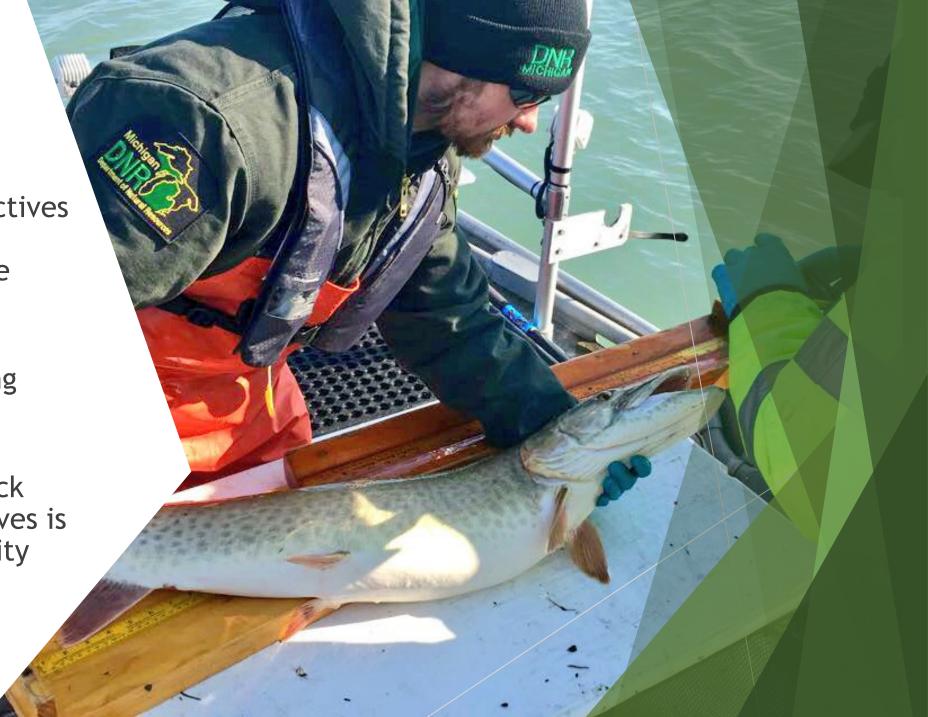




Progress on the objectives of the Muskellunge management plan are ongoing

Development of a standardized sampling plan is a major achievement

► Re-write of Broodstock management objectives is current biggest priority





Thanks

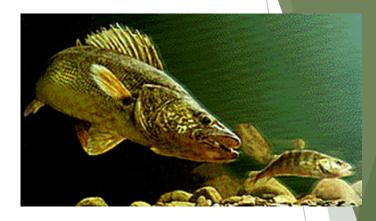
Saginaw Bay Fisheries Management Framework and Status

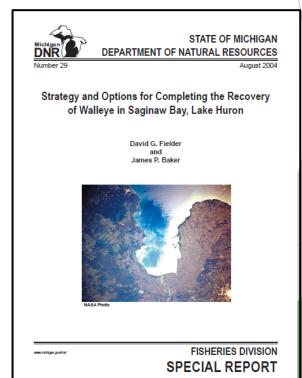
Presentation to the Natural Resource Commission July 13, 2023 Jeff Jolley - Southern Lake Huron Unit Manager, Fisheries Division



Fisheries Trends in Saginaw Bay

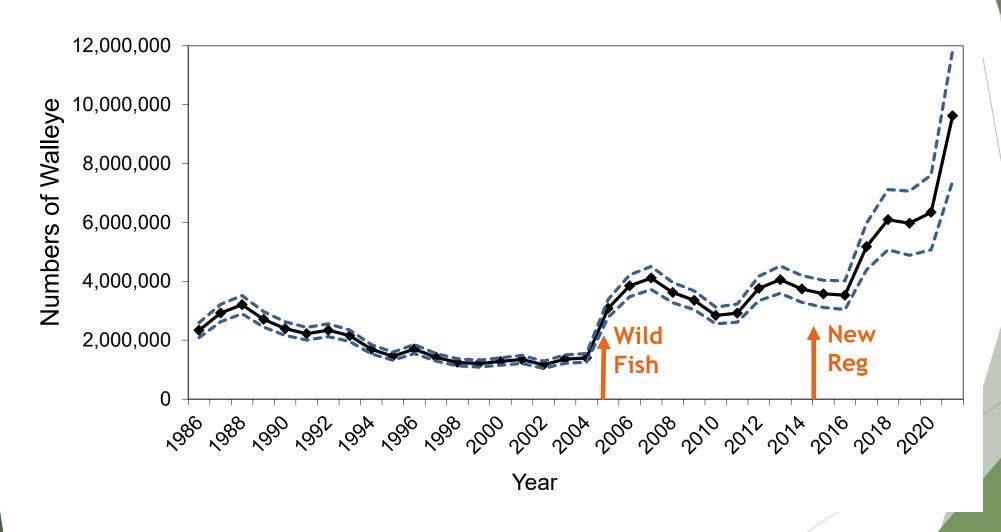






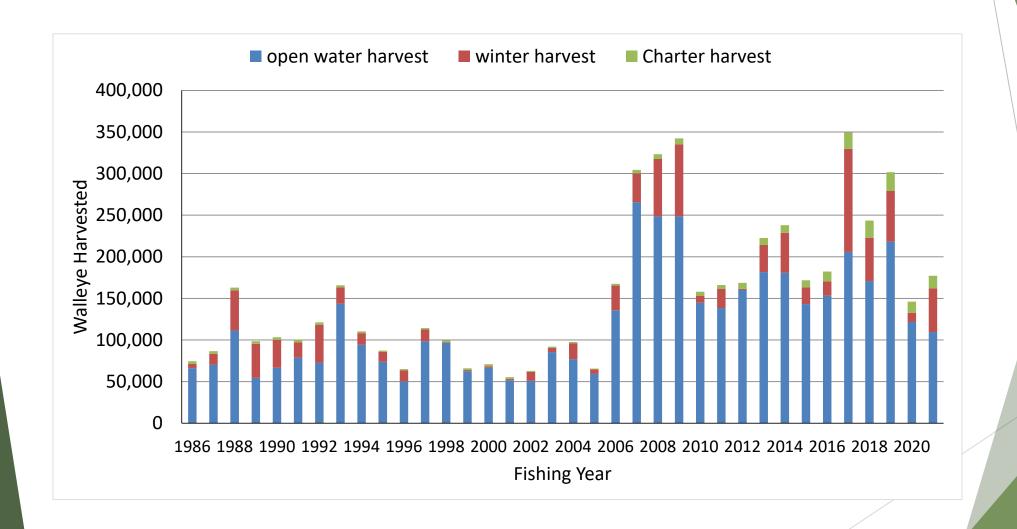


Walleye Abundance (1986-2021)



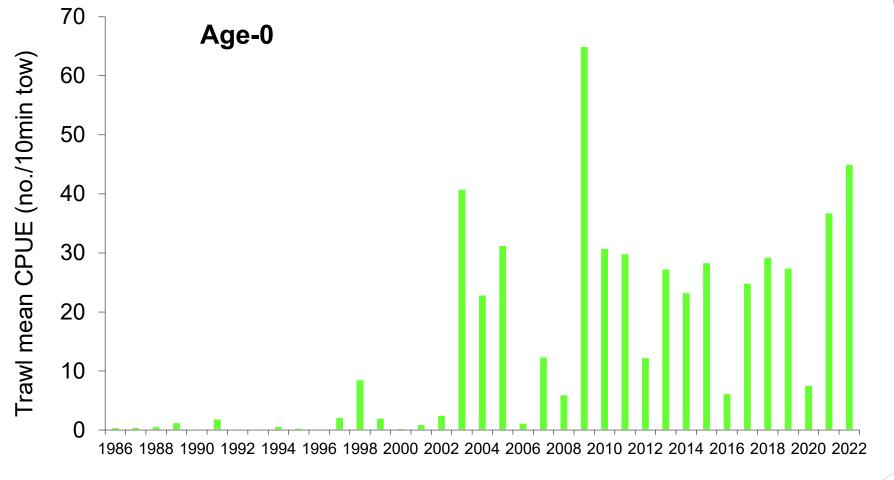


Trends in Walleye Angler Harvest 1986-2021



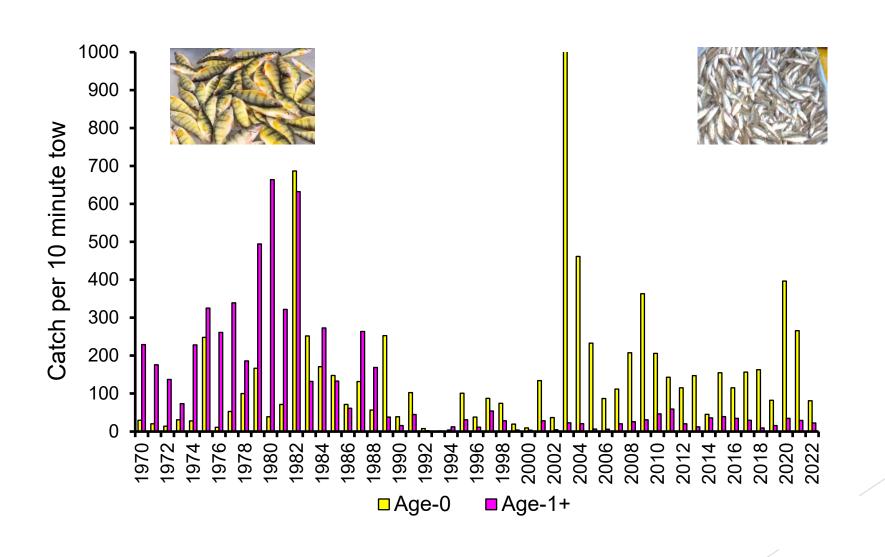


Walleye recruitment trends





Yellow Perch recruitment trends

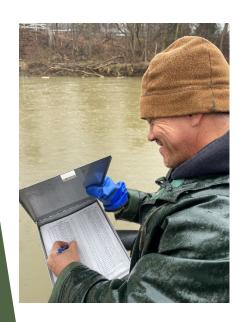




New Walleye Season on the Saginaw River March 16-April 28, 2023



Management Action
Saginaw River Open to Year-Round Walleye Harvest



6 weeks of additional fishing when Walleye abundant

Shore and watercraft options of all sizes

Consistent regulations for bay and river 8 fish DPL and 13" MSL

Bay and river single stock management



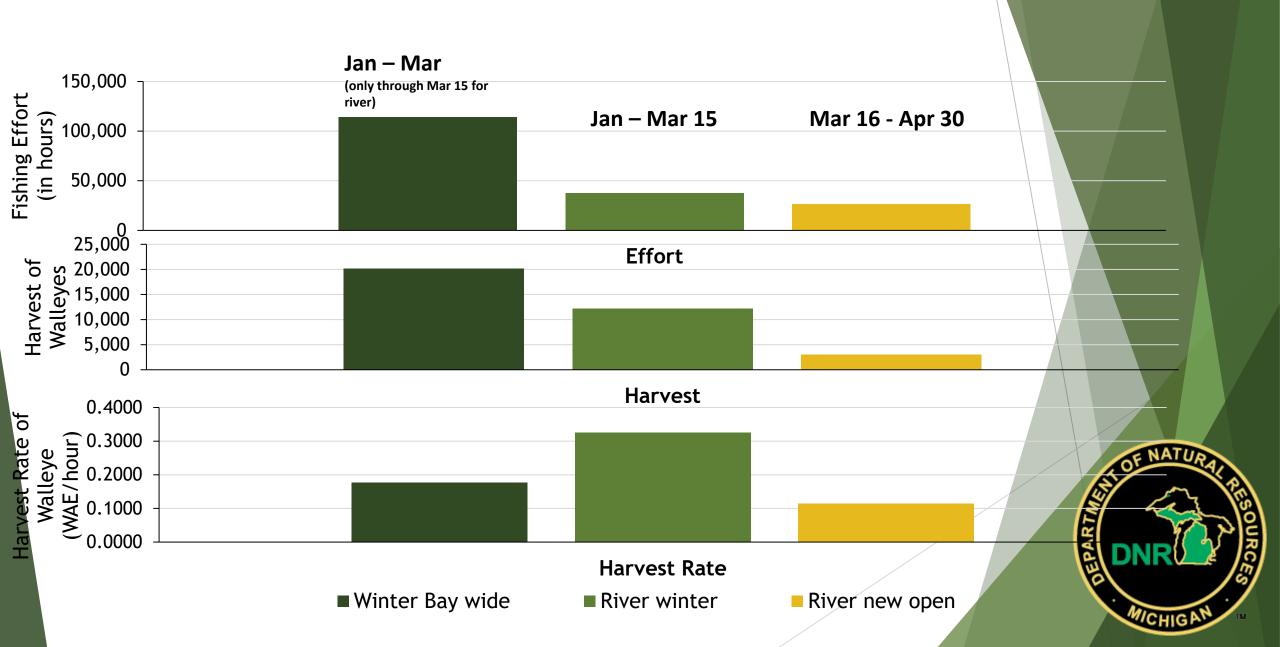
Legend ARENAC Complete Fishing Closure Special Gear Restriction; Closed to Walleye Pine River Potentially Open to Walleye Michigan Counties laganing River SAGINAW BAY HURON Kawkawlin River Tittabawassee River Saginaw River Open to WAE fishing in 2023 SAGINAW Cass River RATIOT Flint River Shiawassee River *This map only denotes mainstream rivers and should not be

referenced for regulations of tributaries shown on the previous slide.

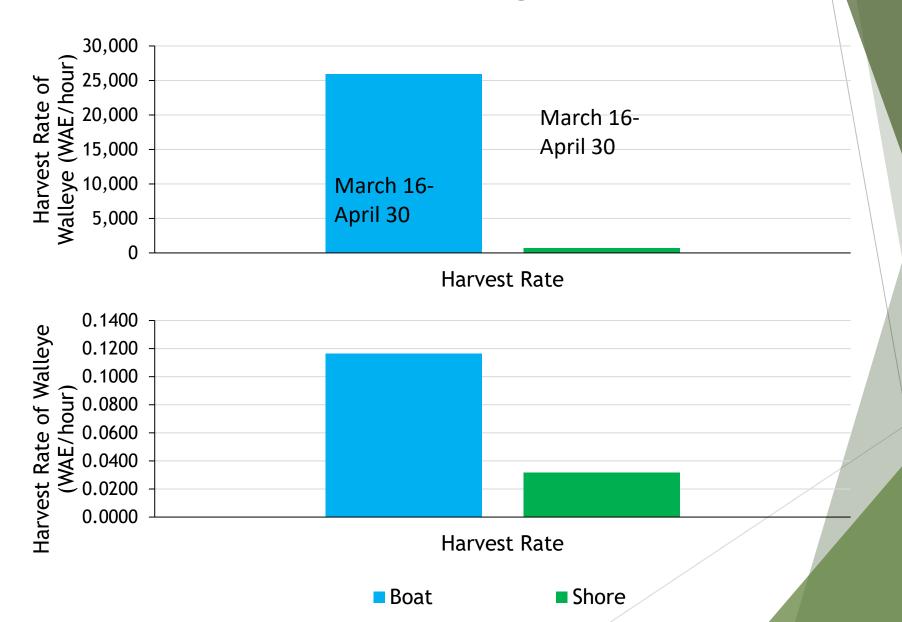
Saginaw River new Walleye Season



Comparison of Walleye Effort and Harvest



Mode of effort in new Saginaw River season

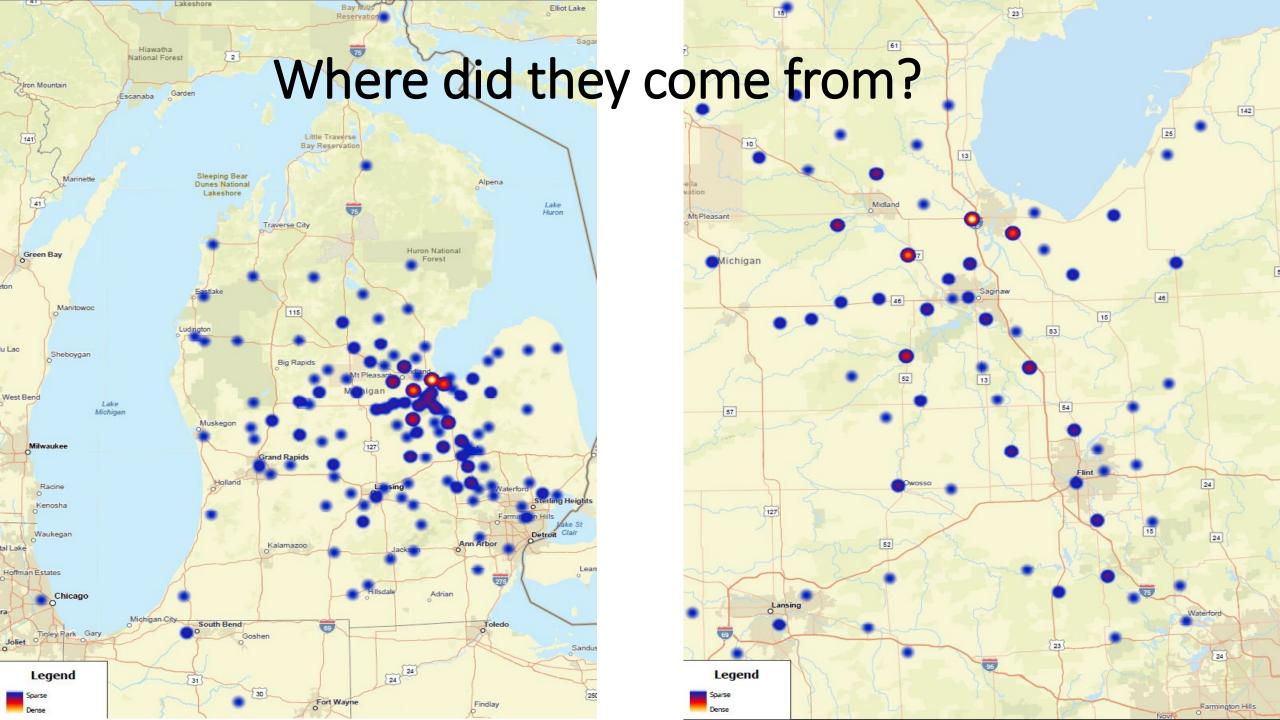




Walleye biological composition of new Saginaw River season

Segment	Mean length	Mean age	Sex ratio	N	Sig age diff?
Saginaw River before new season	17.3 in	4.32	Unable to determine	41	Yes P=0.0010 Nonparametric Mann-Whitney U test
Saginaw River during new season	20.1 in	5.55	1:1	31	





Summary of new season

New fishery was modest

- 23% as much as the preceding winter fishery on Saginaw Bay/rivers combined.
- 6% as much as the previous year's open water fishery.
- Angler harvest rate was low*
- * High flows, muddy conditions. Other years will be different.

New interest in the fishery

- Most effort boat-based.
- Lower effort and harvest from shore.
- Walleye harvested during the new season were older (& larger)

Minimum biological impact

 More monitoring of this new fishery over several years will be necessary to document the full extent.



Recent Management Approaches

2015:

- Liberalizing walleye (8 DPL, 13" MSL)
 - More fully utilize recovered walleye stock
 - Reduce yellow perch mortality (age-0 to age-1)
 - Increase forage fish abundance
- Reducing yellow perch bag limit (25 from 50 DPL)
- Reintroduction of cisco
- Shifting commercial fishing licensesCoreyon Reef Restoration
 - 023: Saginaw River open all year for

Principles

- Balance walleye recovery with prey fish and yellow perch population.
- Increase harvest opportunities
- Ability to scale back easily if needed



Draft Management Plan



A <u>Walleye</u> population that 1) promotes high-quality and diverse angling and harvest opportunities, 2) conserves reproducing fish and is self-sustaining, and 3) is appropriate for the prey base.

Support a <u>Yellow Perch</u> population that provides harvest opportunities for anglers in addition to a prey base for Walleye.





Walleye Management Goals

- **Goal 1.** Maintain a healthy Walleye population that balances recreational angling and harvest opportunity.
- **Goal 2.** Protect, restore, and provide connectivity to essential habitats.
- **Goal 3.** Provide a diverse menu of equitably distributed fishing opportunities in time and space to maximize fishery participation.
- **Goal 4.** Pursue and advocate for research that fills in information gaps which will inform management and policy.





Walleye Management Targets

- Integrated Index containing important metrics of sustainability, recruitment, and fishery quality.
- **Growth rate**: Growth of adult fish indicating carrying capacity of bay.
- Reproductive potential: Conserve appropriate number of spawning fish
- Angler targeted catch rate: open water catch rate of walleye is greater than 0.4/hr.
- Recruitment: Mean CPUE of age-0 walleye is above 20/10 min trawl in 3 of 5 years.



Yellow Perch Management Goals

Goal 1. Maintain a resilient Yellow Perch population that has recreational angling and harvest opportunity.

Goal 2. Protect and restore essential habitats used by young Yellow Perch.

Goal 3. Pursue and advocate for research that fills in information gaps which will inform management and policy.





Yellow Perch Management Targets

- Integrated Index containing important metrics of sustainability, recruitment, and fishery quality.
- Growth rate: Growth of adult fish indicating carrying capacity of bay.
- Angler targeted catch rate: Mean year-round catch rate of perch is greater than 1/hr.
- Recruitment: Mean CPUE of age-0 yellow perch is above 200/10 min trawl in 3 of 5 years.



Regulation Toolbox

Most Conservative Reduce bag limit; Close Saginaw River

Middle Ground

Return to statewide default Walleye bag and size limits

Most Liberal

8 fish daily bag limit and 13 in minimum size; Open Saginaw River



Conclusions

- High quality walleye population >8 million adults
- Adults are abundant strong 2019 year-class
- Yellow perch population remains depressed
- Yellow perch reproduction high but survival past age 1 is low
- Management plan draft internal review
 - Late summer/fall shareout with stakeholders
 - Fall finalization
- New rivery fishery was modest yet successful

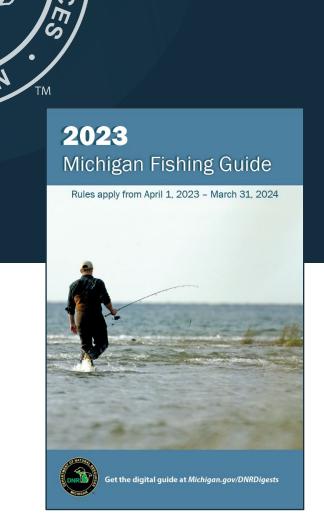


Understanding Steelhead Angler Dynamics, Perceptions, and Preferences

Seth Herbst, Ph.D.

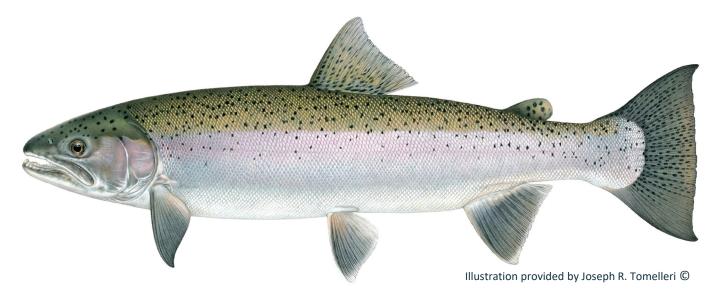
NRC Fisheries Subcommittee Meeting

July 13, 2023



Steelhead Management Goal

Provide angling opportunities to a range of user groups who have different ability levels and use different fishing methods to target Steelhead year-round in Michigan's Great Lakes and connected rivers.



Steelhead Management & Research

- Stocking
- Public Engagement and Regulations
- Weir and Creel
- Habitat Enhancements
- Stocking and Strain Evaluations
- Origin of Hatchery and Naturalized
- Lake Michigan Populations Models
- On-going Research





Angler Engagement

- Acquire representative information on angler use and perceptions to inform management strategies
 - Angler Surveys
 - Attend organizational meetings
 - Fishery workshops
 - Advisory Committees
 - Conversations and Coffee meetings



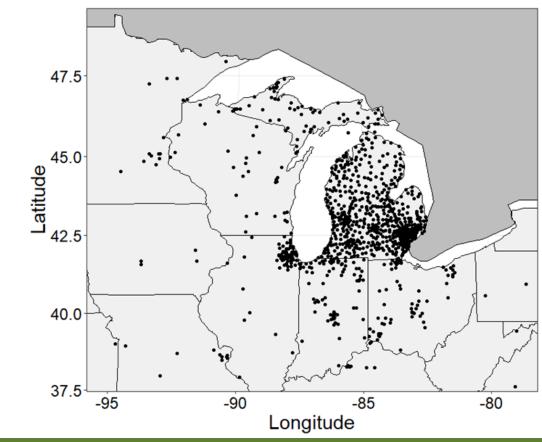
2022 Steelhead Angler Survey

- Purpose: Increase understanding on angler behaviors, perceptions, and preferences to inform Steelhead management strategies and regulatory discussions
 - Satisfaction of Steelhead angling opportunities?
 - Preferences for differing management strategies?
 - Steelhead harvest preferences?
 - Differences among diverse users?
- Acquire representative information from anglers to inform management strategies
 - Low attendance during meetings
 - Concern for biased feedback
 - Complement other targeted angler survey efforts Sea Grant

Steelhead Angler Survey Design

• Survey was emailed to 206,223 randomly selected licensed anglers

- Open from Aug. 8 through Nov. 7, 2022
- Two email reminders to boost response
- Received 4,556 unique responses
- Responses from anglers in 42 U.S. states
 - MI residents (84.2%)



Survey Results

- Responses provided primarily by males (92%) and individuals at least 50 years old (58.6%)
- Majority (86%) were experienced anglers (≥10 years) in MI
- Approx. 77% had 20 or more years of fishing experience
- Approx. 73% (n = 3,334) fished for Steelhead in MI within the previous 12 months
 - ~65% fished for Steelhead for at least 10 years in MI
 - 46% indicated Steelhead was most important species



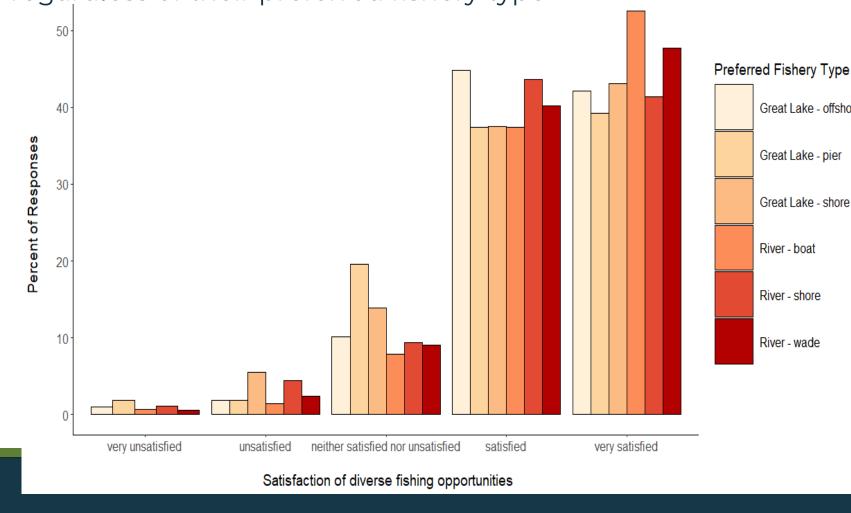
Survey Results

- Steelhead fishing is relatively specialized fishery
- Results provide a basic understanding of:
 - Angler satisfaction
 - Differences among angler types
 - Preferred fishing opportunities
 - Harvest preferences
- Results are mostly representative of current perceptions of Steelhead fishing opportunities and management goals by primary users of the resource
 - Several angler types responded, despite gender and age bias



2022 Steelhead Angler Survey

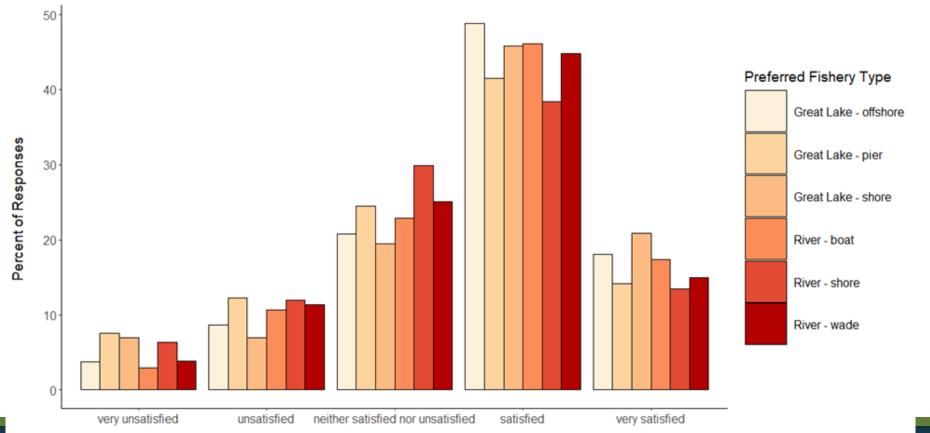
 Anglers are satisfied with MI's diverse Steelhead fisheries, regardless of their preferred fishery type



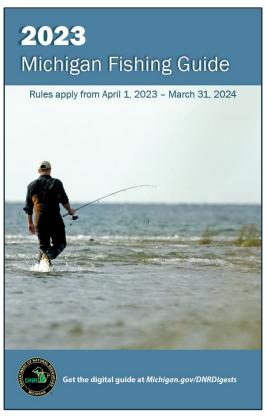


Survey Results

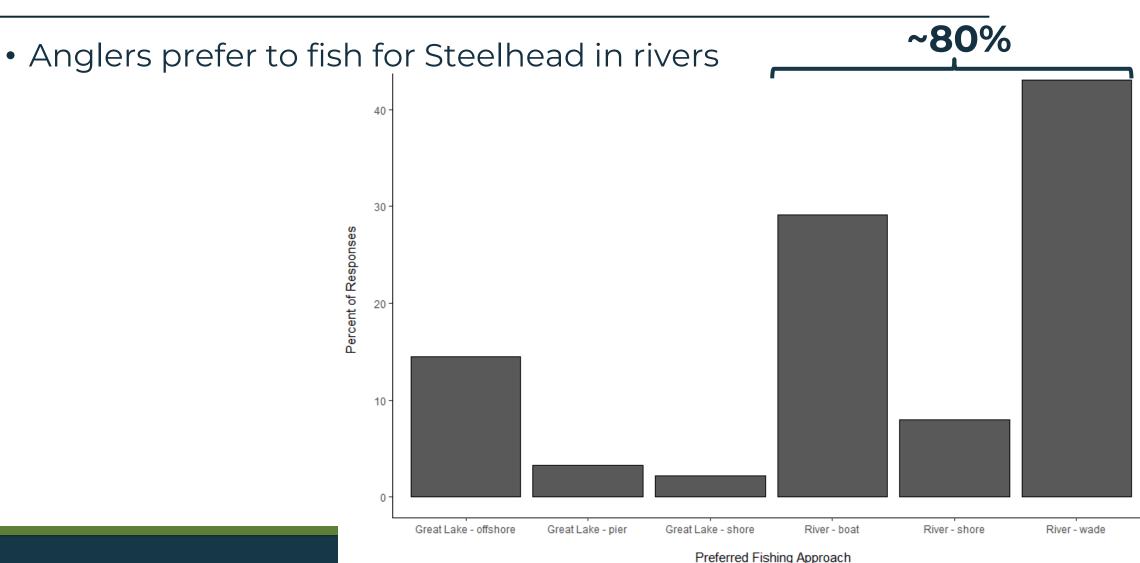
 Anglers are satisfied with regulatory complexity and understand Steelhead regulations



Satisfaction for understanding regulations

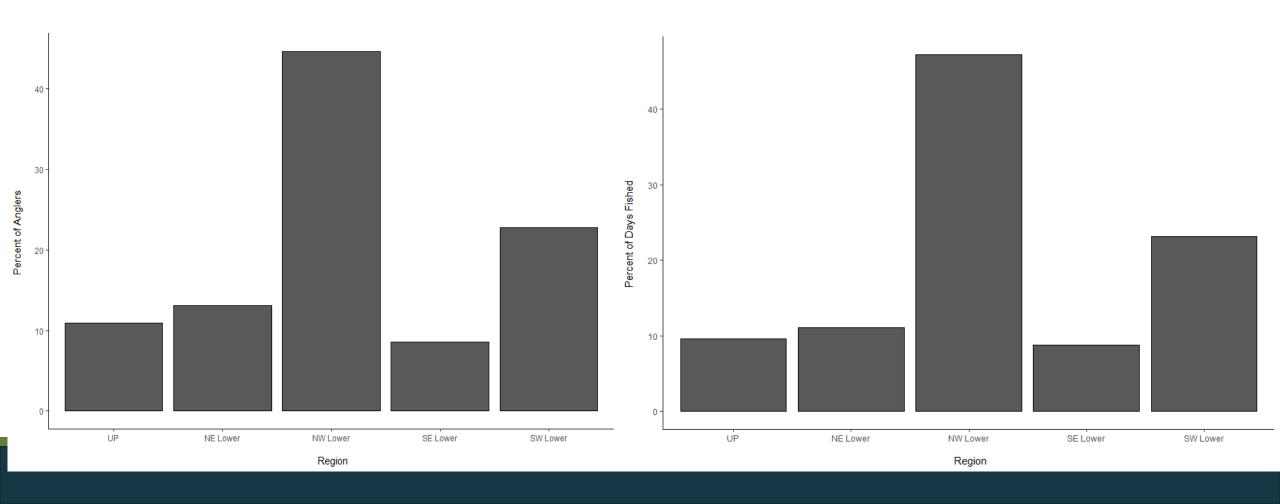


Regional Differences in Fishing Effort



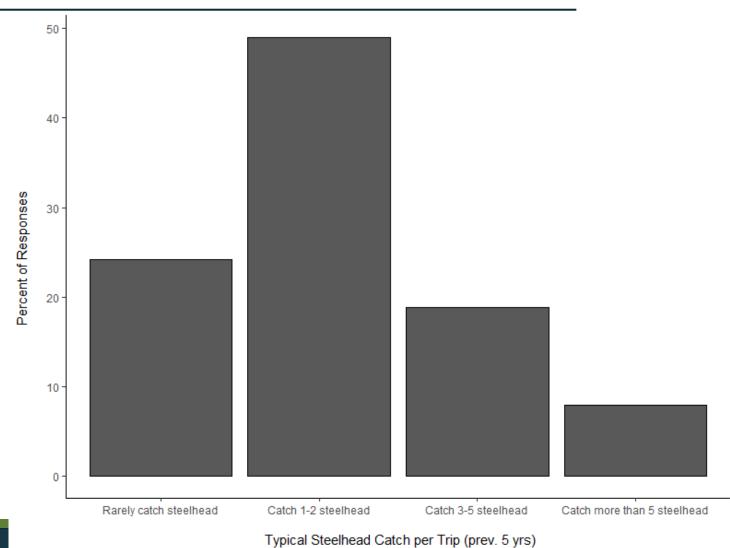
Regional Differences in Fishing Effort

More anglers and more fishing effort occurs in rivers in NW Lower Peninsula



Typical Catch Rate - previous 5 years

No regional differences



Typical Catch Rate - previous 5 years

- No regional differences
- Skill level influences typical catch rate



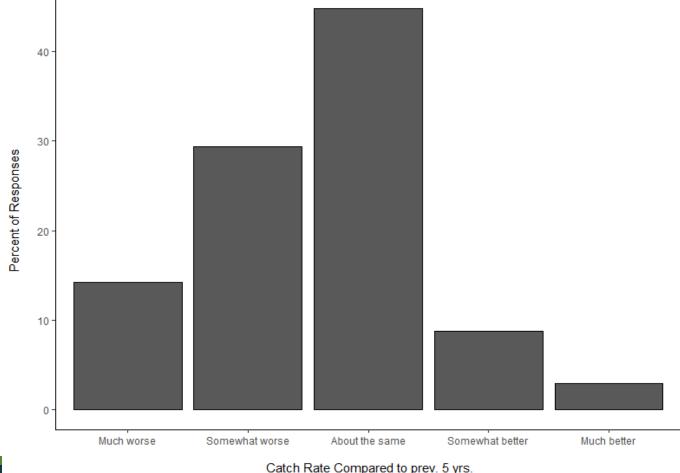
Typical Steelhead Catch per Trip (prev. 5 yrs)

Catch Rate Trends (prev. 5 yrs)

• High satisfaction with Steelhead fisheries, but concerning

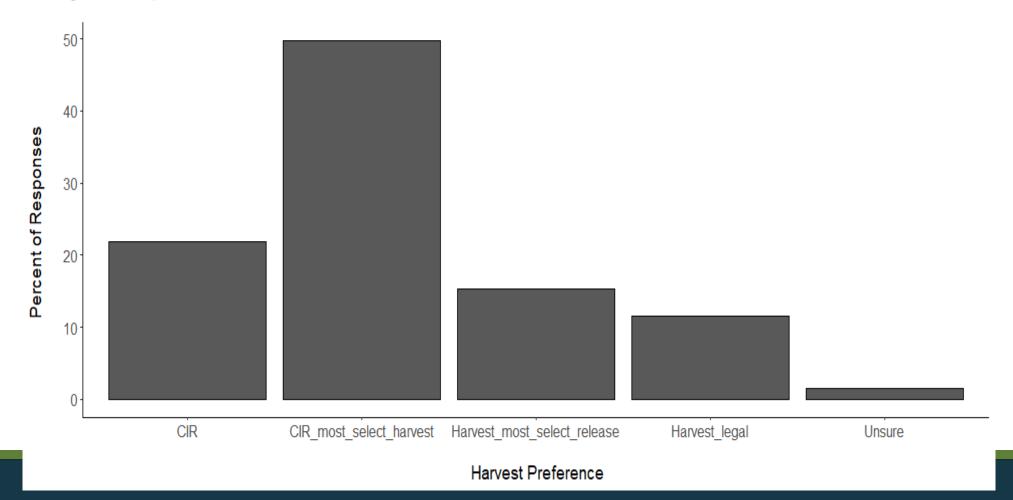
feedback on catch rate trends

No regional differences



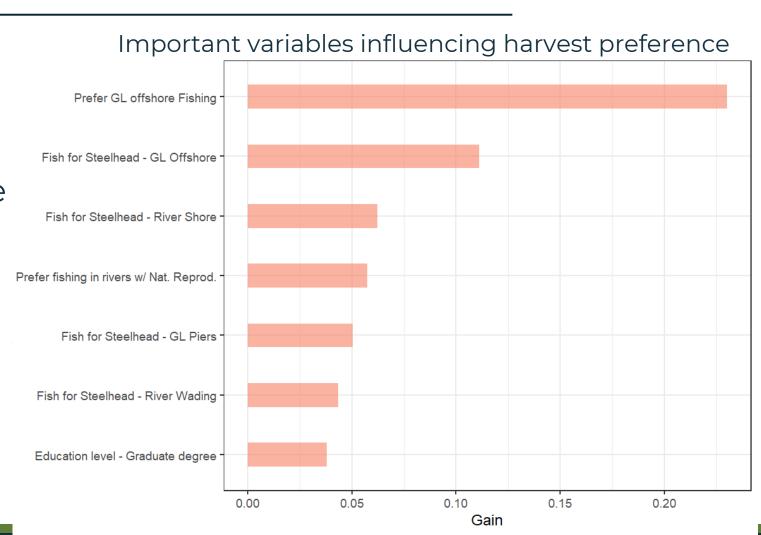
2022 Steelhead Angler Survey

Most anglers practice CIR with some level of harvest



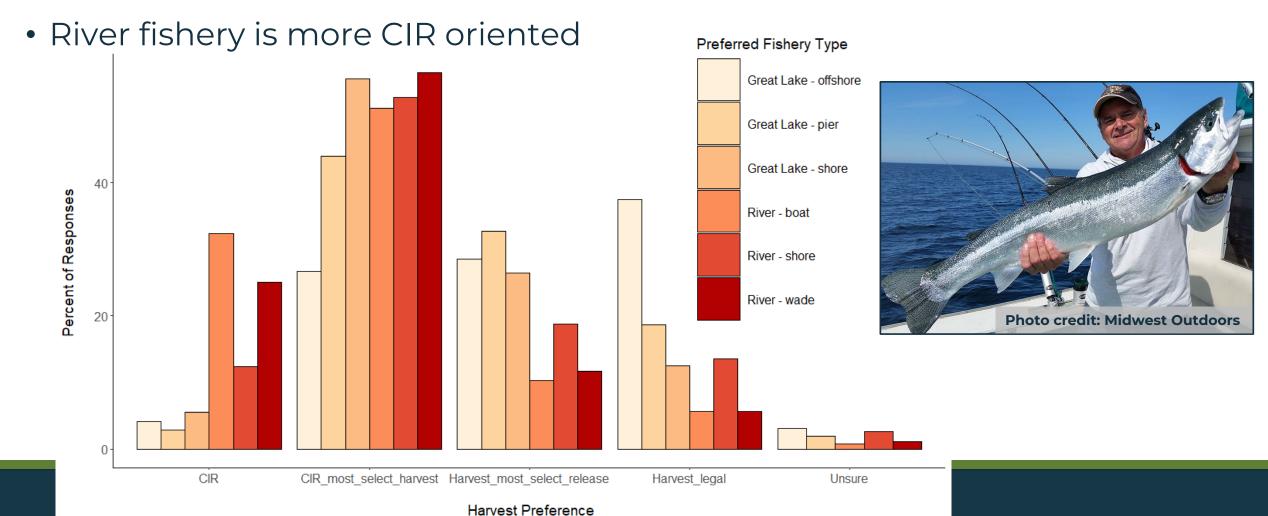
Factors Influencing Harvest Preferences

- Harvest preference is primarily influenced by a few angler features
- Most influenced if preference is to fish for Steelhead in Great Lakes offshore waters
- Additional influential factors are associated with where anglers fish and their mode of fishing



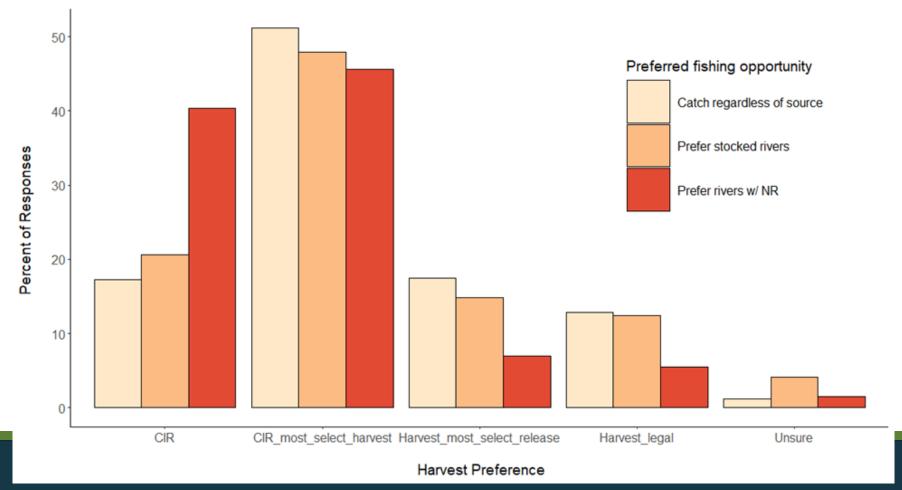
Harvest Preferences by Fishery Type

Great Lakes offshore fishery is more harvest oriented



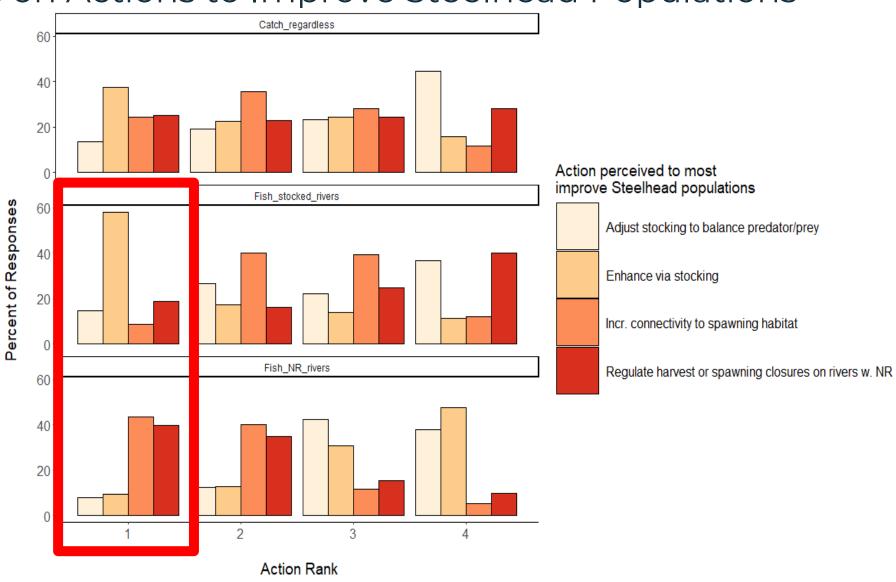
Harvest Preferences by Fishery Type

• CIR preference is elevated when angler is interested in fishing rivers with naturalized Steelhead



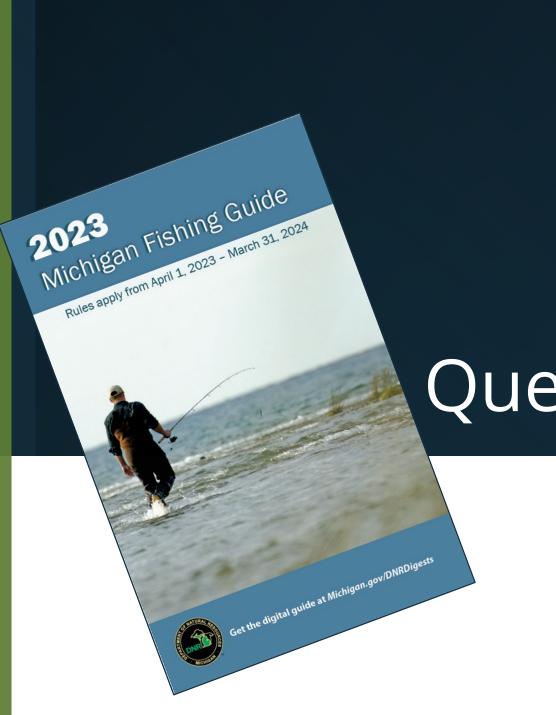
Diverse Perceptions on Actions to Improve Steelhead Populations

- Fish stocked rivers increase stocking and
 avoid restrictive harvest
 policies
- Fish NR rivers –
 increase connectivity
 and support restrictive
 harvest policies



Survey Results - Implications for Managing Steelhead Populations

- Anglers are highly satisfied with MI's diverse Steelhead fisheries and regulatory complexity
 - Deviating from status quo could influence satisfaction levels
 - Continued monitoring angler response to management changes
- Develop adaptive management strategies to maintain and enhance Steelhead populations under changing ecological conditions
- Adopt river specific management strategies to account for different habitat features, Steelhead reproductive status, and angler preferences
 - Increase connectivity in rivers that support natural reproduction
 - Maintain or increase stocking in waters without natural reproduction to provide desired fisheries
 - Tailor regulations to achieve population goals, conditional on river specific characteristics and angler preferences
 - Assess factors influencing Steelhead demographic rates (e.g., survival, growth, etc.)





Questions

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Public Education Campaig

July 13, 2023





Background

Public Acts 108 and 246 of 2013

- Established the Michigan Wildlife Council, a nine-member, governorappointed body, to oversee public education efforts
- Funded through \$1 from the sale of every base hunting license and allspecies fishing license
- Allocated revenue for marketing, education, outreach

Background

Goals:

- Increase Michiganders' understanding that hunting and fishing...
 - Are wildlife management tools
 - Fund habitat, wildlife and conservation work
 - Contribute significantly to the economy
 - Are part of our state's cultural heritage
 - Are integral to Michigan's outdoors

Hunting & Fishing Approval



Research Highlights – Approval

16%

Strong approval of fishing (64% strongly approve)

14%

Favorable opinions of hunters (67% favorable)

13%

Strong approval of hunting (52% strongly approve)

Research Highlights – Attitudes

14%

26%

Agreement that hunting is an important part of Michigan's culture and heritage (89% strongly agree)

Belief that hunting and fishing license fees provide a major benefit to Michigan (44% major benefit)

44%

Agreement that hunting and fishing are important even to people who don't hunt or fish

Research Highlights – Knowledge

49%

Knowledge that hunting is a wildlife management tool (87% agree)

51%

Agreement that human wildlife management is needed for wildlife to thrive (78% agree)

13%

Agreement that the protection of wildlife and their habitat is largely funded by the purchase of hunting and fishing licenses (68% agree)

Research Highlights – Knowledge

▲ 9%

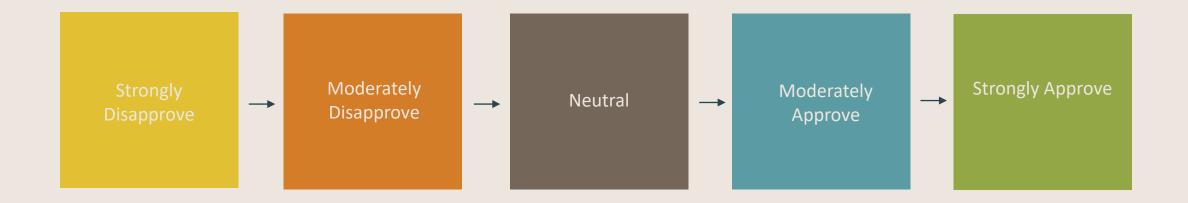
Agreement that the hunting and fishing industry contributes significantly to Michigan's economy (79% agree)

11%

Agreement that the hunting and fishing industry creates a significant number of jobs in Michigan (69% agree)



Audience Definition



Highest approval from:

- Men
- Caucasians
- Ages 55+
- Northern MI/U.P.

Lowest approval from:

- Women
- Blacks
- Ages 18-34
- SE & West MI

Campaign Background



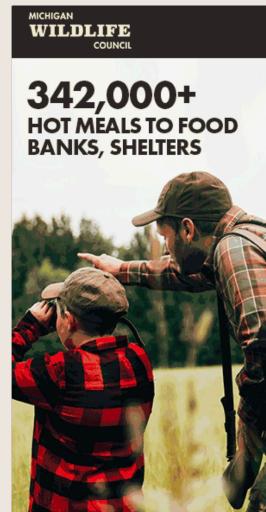




Campaign Background







2022 Campaign









2022 Campaign

FISHING AND HUNTING ARE CRUCIAL TO MICHIGAN

Fishing and hunting provide many benefits to our state. Every year, more than a million anglers and hunters add over \$11 billion for Michigan's economy, as well as more than \$65 million for wildlife conservation through their license purchases.

The Michigan Wildlife Council promotes the importance of fishing and hunting to the great state of Michigan. Created in 2013 by the Michigan Legislature, the council seeks to build understanding among the state's nonhunting and nonfishing residents through a statewide public education effort - so that our outdoor heritage will continue to be here for generations.

The habitat improvements, disease prevention and species restoration efforts done by dedicated professionals and volunteers alike are funded primarily by fishing and hunting license revenue - not from taxes.



Traveling exhibit, photo contest highlight 'Michigan Wildlife Conservation Month'

Belle Isle, Stony Creek to host exhibit

By: Mary Beth Almond | Metro | Published July 13, 2022

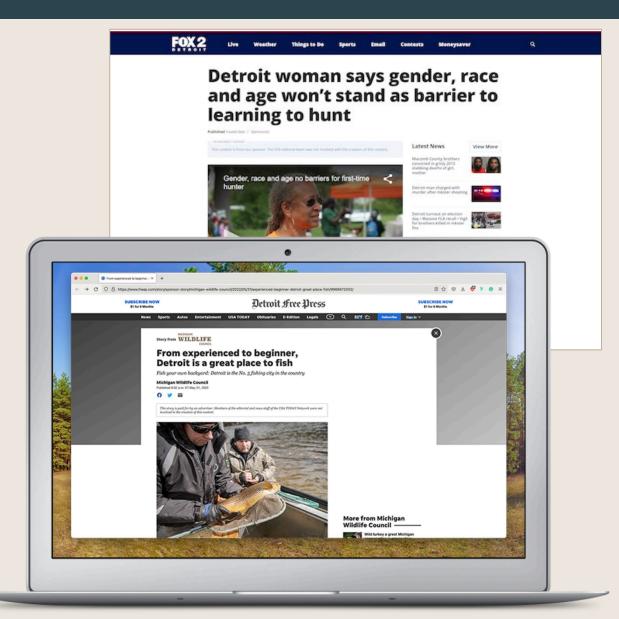
METRO DETROIT — July is Wildlife Conservation Month in Michigan, and the Michigan Wildlife Council is celebrating by hosting a few special activities for the public to enjoy.

The council's new "Conservation Takes Flight" exhibit — which details four Michigan ecosystems, showcasing a different species of bird that makes each its habitat — made its debut at the Detroit Kite Festival on Belle Isle July 10. It will be on display at two remaining festivals this summer — including the Stony Creek Metropark Art Fair July 23-24 and the Belle Isle Art Fair Aug. 6-7.

Exhibit-goers, organizers say, will learn about the conservation activities that help keep the featured birds thriving in the state —

including the Kirtland's warbler of the coniferous forest, the American woodcock of the deciduous forest, the pheasant of the grasslands and the osprey of the wetlands.

Mark Loeb, of Integrity Shows, which is organizing the Stony Creek Metropark Art Fair, said much of the focus of the art fair — including the Conservation Takes Flight Exhibit — is the intersection between art and nature.



2022 Campaign











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that by the early 20th century, turkeys were almost extinct in Michigan?



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2023 Campaign Direction

Goals:

- Increase Michiganders' understanding that...
 - Wildlife management is necessary
 - Wildlife management helps maintain balanced populations
 - Hunting and fishing are management tools
 - Management/activities/experiences funded by hunting and fishing benefit
 future generations

"Thank Who?"

30-second audio spot







MICHIGAN WILDLIFE COUNCIL