



Invasive Carp Update

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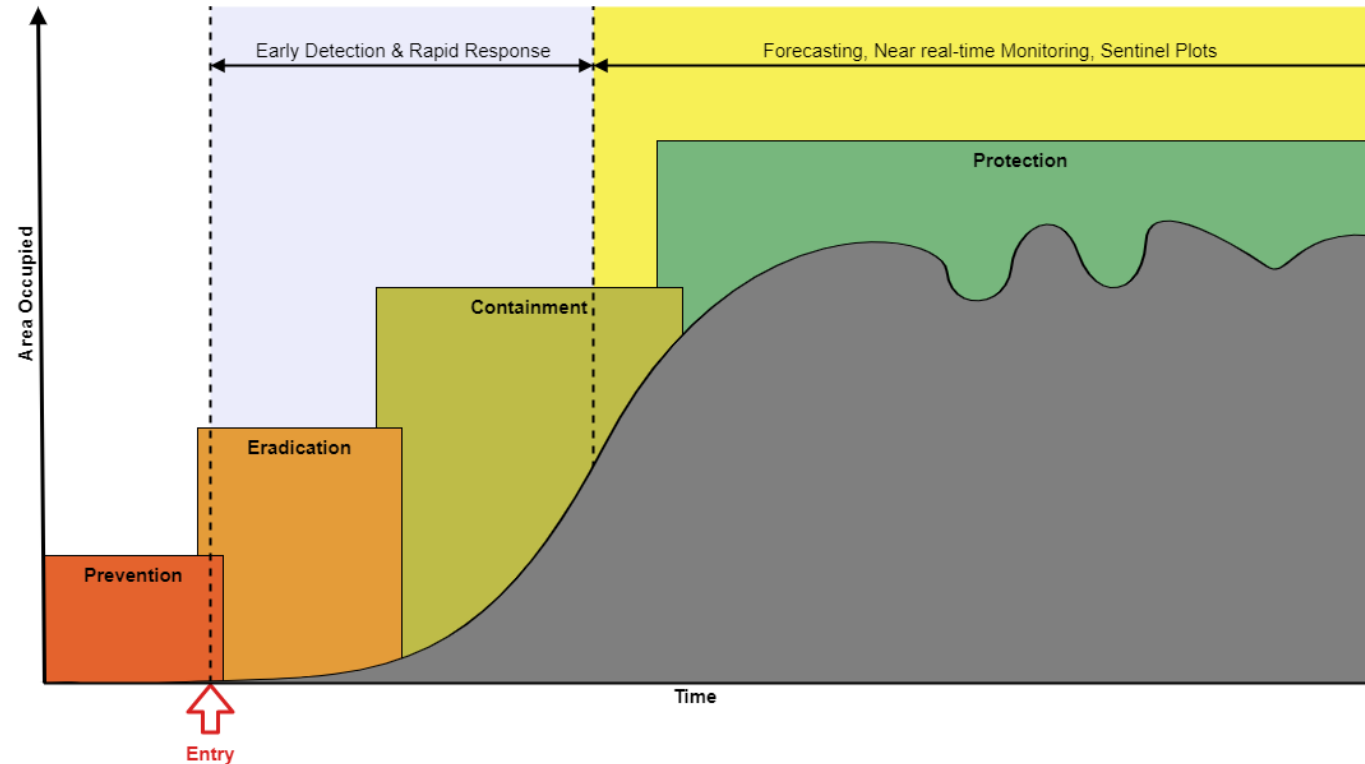
Special Advisor to the Director
Michigan DNR

Natural Resources Commission Meeting
March 14th, 2024

Overview of today's talk

- Background on invasive carp
- Brandon Road Interbasin Project to keep invasive carp out of the Great Lakes
- eDNA Surveillance for Bighead and Silver carp in Michigan and the Great Lakes
- Overview of Grass Carp response program and control efforts in Lake Erie

Managing on the invasion curve



Prevention is
the top priority

Stages of Invasion

Species Absent	Small number of localized populations	Rapid increase in distribution and abundance. Many populations	Widespread and abundant throughout its potential range. Populations fluctuate with environmental and biotic factors which may result in local variability for incidence and severity
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Economic Returns

1:100	1:25	1:5-10	1:1-5
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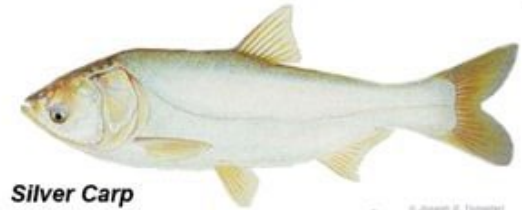
Invasive Carp

- “invasive carp” is a general term for four species
- Different species = different concerns
- Only Grass Carp currently found in Great Lakes
- Bighead and Silver Carp pose greatest threat
 - High reproduction rate
 - Filter feeders
 - Silver carp jump



Bighead Carp

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Silver Carp

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Grass Carp

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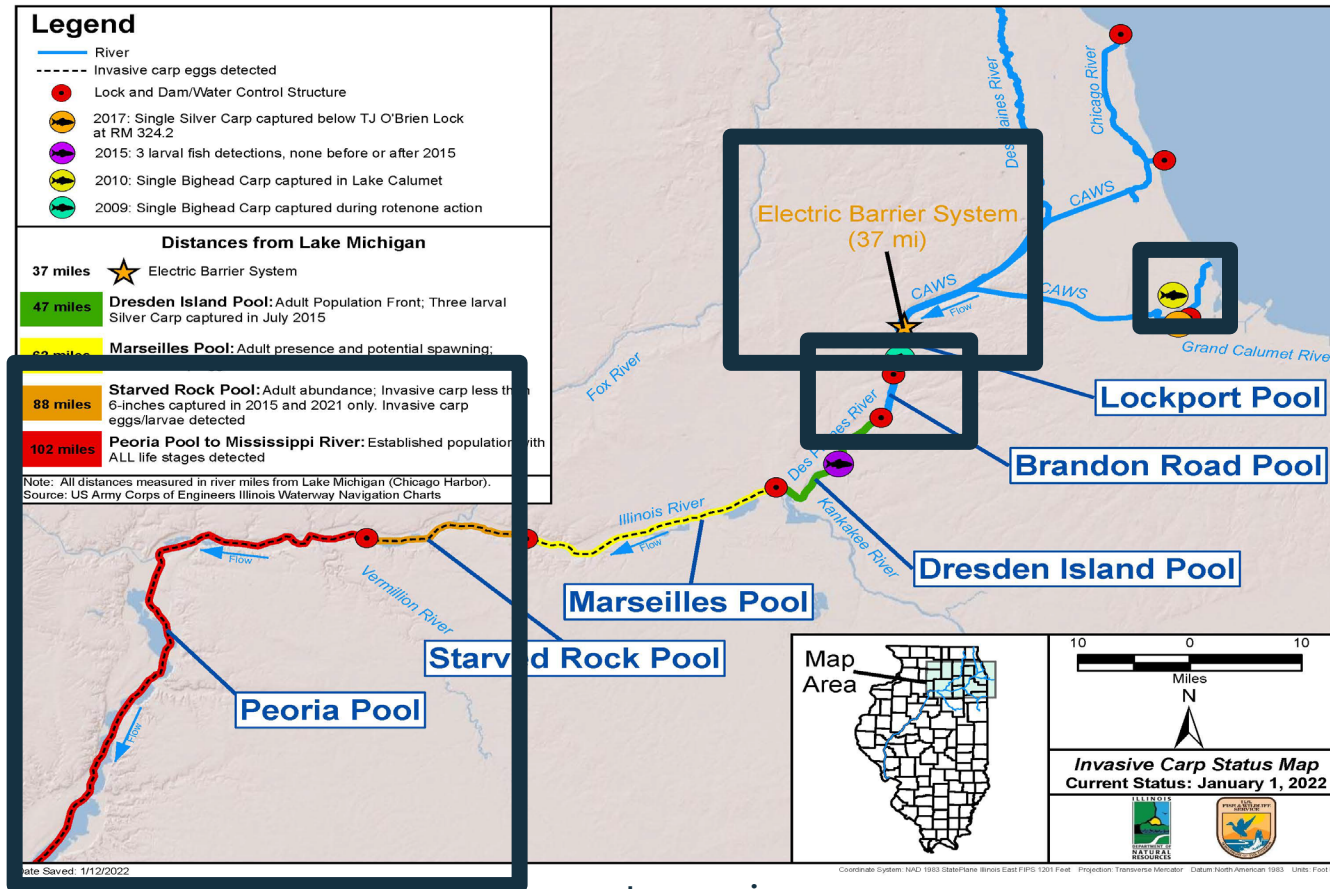


Black Carp

© Joseph R. Tomelleri

*Watershedcouncil.org,
illustrations by Joseph R.
Tomelleri*

Chicago Area Waterway System



Invasivecarp.us

- Connection between Mississippi Basin and Great Lakes
- Highest densities downstream
- Contracted commercial fishing
- Electric barrier system
- Lake Calumet fish
- Brandon Road
- **We have no evidence of any live Bighead or Silver Carp in the Great Lakes**

Brandon Road Interbasin Project (BRIP)





Brandon Road Interbasin Project Costs & Timeline

Planning and Engineering

- \$29 million total (65:35 federal/state costshare)
- MI \$8 million; IL \$2.5 million

Construction

- \$1.14 billion total (90:10 costshare)
- MI \$64 million; IL \$50 million (funds in agency budgets)
- \$245 million in federal funding- need signed Project Partner Agreement (PPA)

Timeline

- Construction begins in earnest once the PPA is signed amongst the parties
- 8 years to completion

More Information

- <https://www.mvr.usace.army.mil/Missions/Environmental-Stewardship/BR-Interbasin-Project/>
- Tammy Newcomb (NewcombT@michigan.gov)

Environmental (e)DNA

- Fish release DNA into water, which can be captured and detected
- Can be more sensitive and efficient than traditional sampling
-but takes additional interpretation



Fishbio.com



Invasive Carp eDNA Program

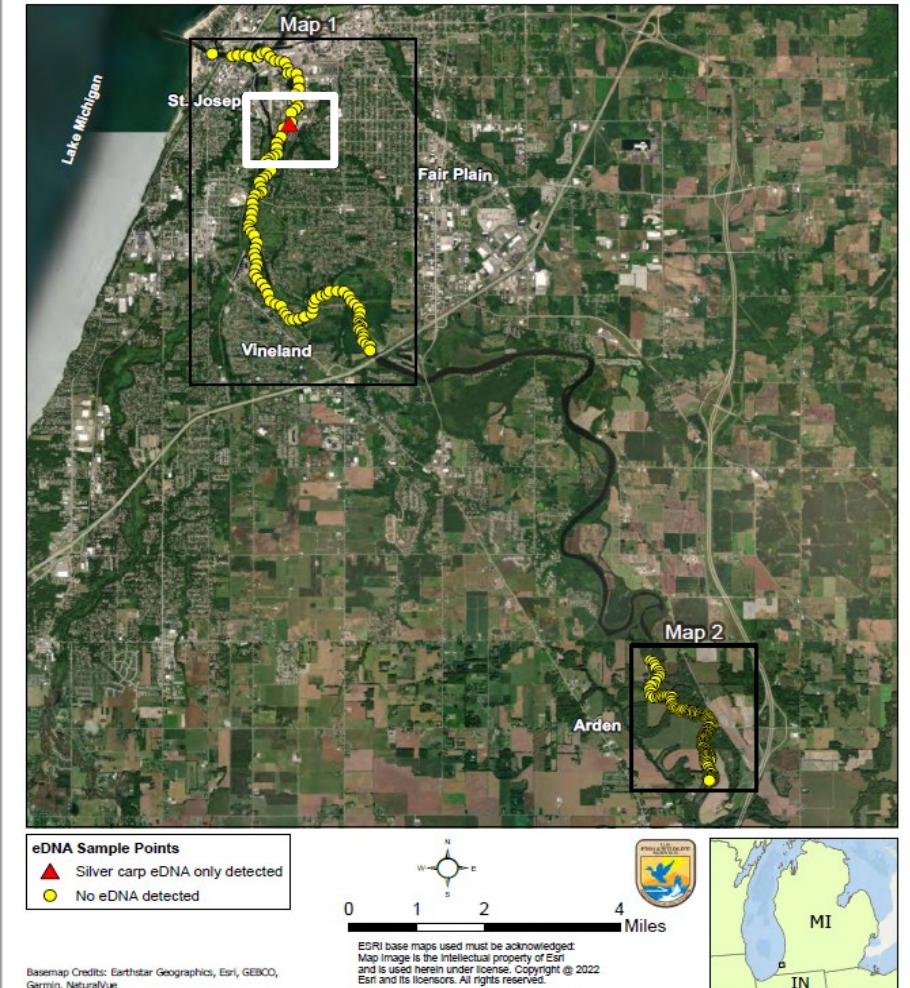
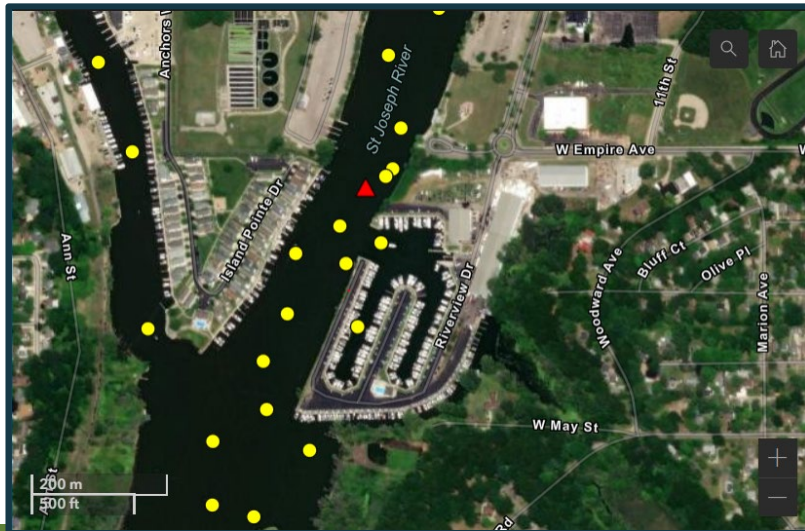
- Led by U.S. Fish and Wildlife Service, coordinate with states
- Target high priority locations across basin
- ~50k samples collected since 2013
 - ~20k in MI (two positives)



<https://www.fws.gov/office/whitney-genetics-laboratory>

St. Joseph River Detection

- 1/220 samples tested positive for Silver Carp in June, 2023
- Detection in front of a marina



St. Joseph River Response

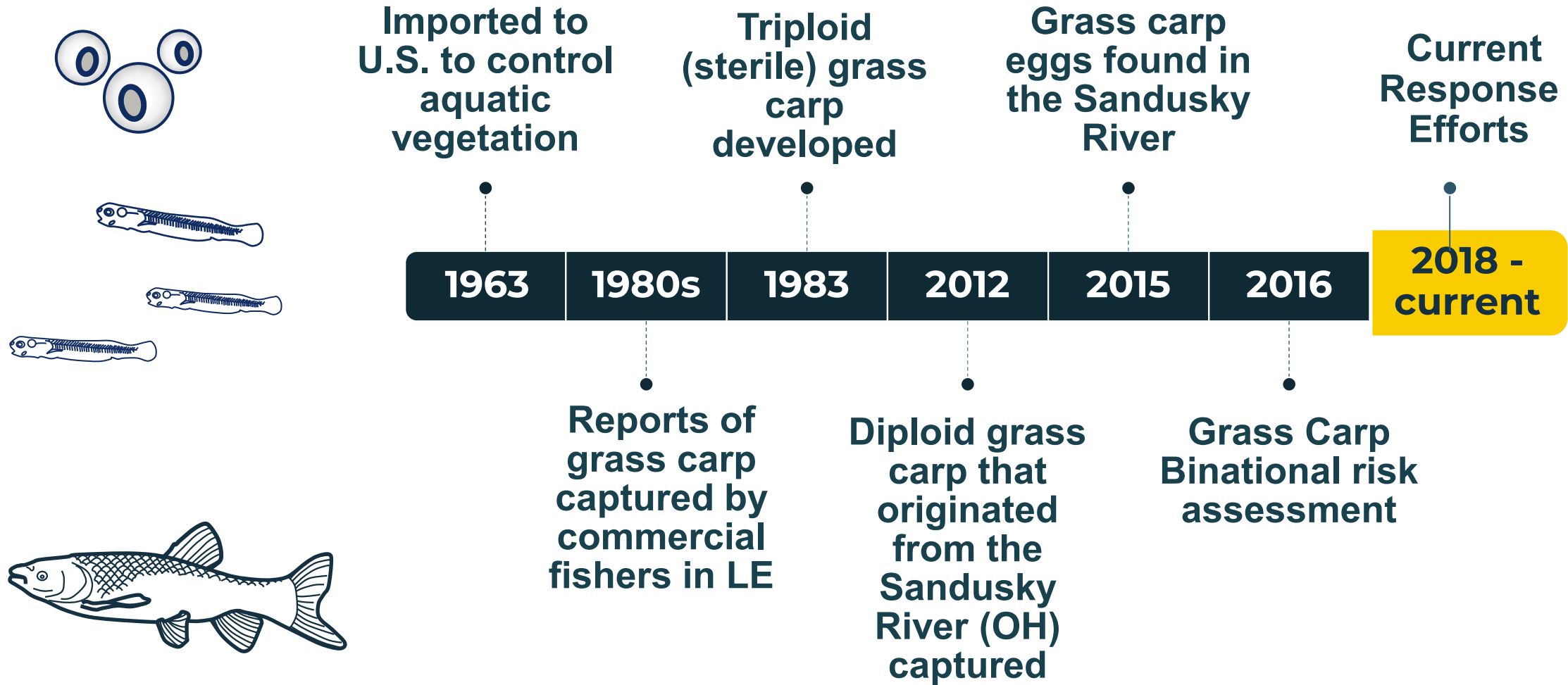
- Communications
 - Press releases
 - Invasive Carp Regional Coordinating Committee
 - Invasive Fishes Communications Protocol
- No additional detections from additional 220 samples in September by USFWS
- No observations of fish during monthly Grass Carp removal efforts



St. Joseph River Next Steps

- USFWS will continue routine eDNA monitoring in spring
- Continued Grass Carp removal efforts by USFWS and MDNR
- **At this time, no evidence of live Silver Carp in St Joseph or elsewhere in the Great Lakes**

Grass Carp Timeline in the Great Lakes



Structured Decision Making (SDM) Process

- Uses available information and stakeholder values
- Formal structure for transparent and collaborative process
 1. Establish goals and objectives using the best available information
 2. Collaboratively carry out response actions



Quantitative Fisheries Center
MICHIGAN STATE UNIVERSITY



Evaluate Control Scenarios

1.No action

2.General removal action

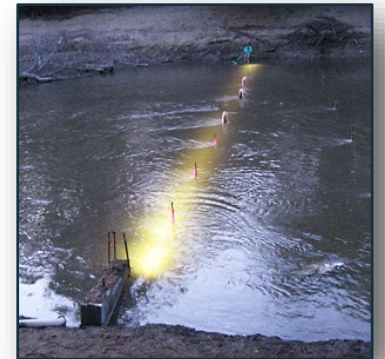
- Removal efforts across seasons and habitats based on current best information

3.Concentrated removal action

- Removal efforts concentrated in seasons and areas with high catchability

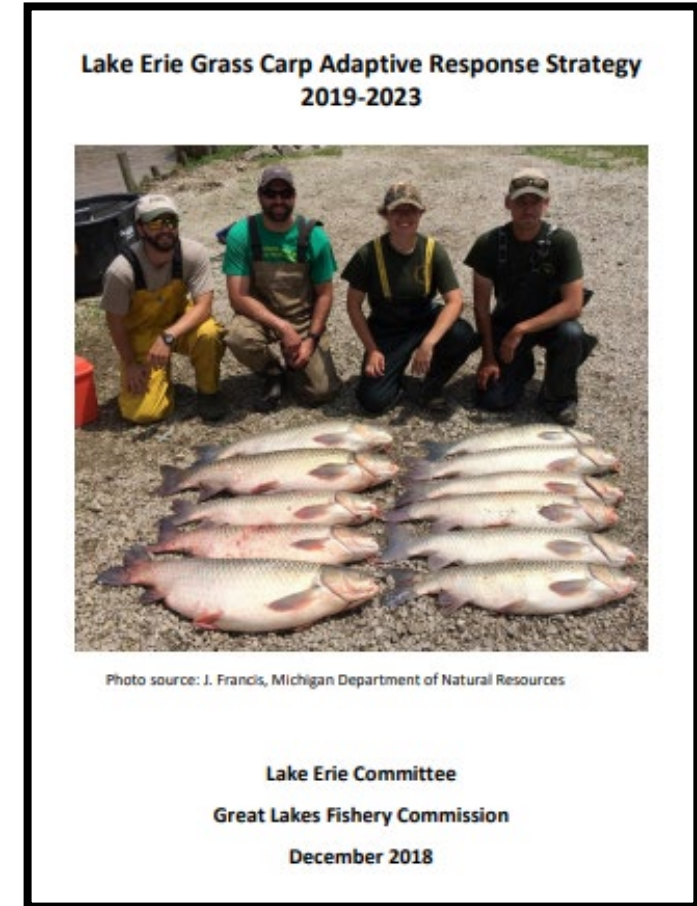
4.Concentrated removal action + barrier

- Addition of a seasonal behavioral barrier in the Sandusky River



Lake Erie Committee Response Plan

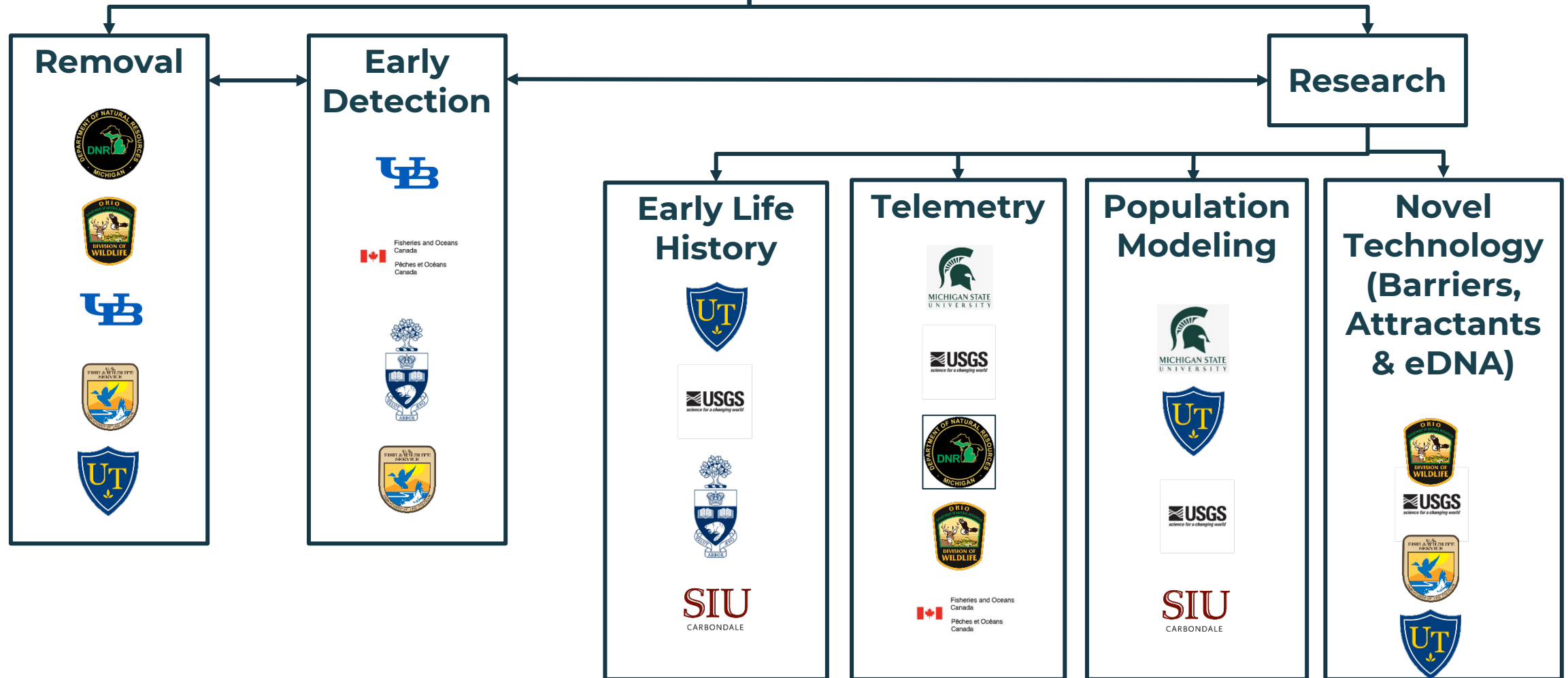
- GLRI funding increased response capacity in 2018
- Lake Erie Committee developed a 5-year response plan to address growing threat of Grass Carp
- Implementing recommendations from SDM
 - Removal target of 390 fish/year
 - Evaluate potential seasonal barrier
- Objectives
 1. Improve understanding of populations/behavior/impacts
 2. Implement controls (removals + barriers)
 3. Minimize introductions and establishment



Lake Erie Committee & GLFC

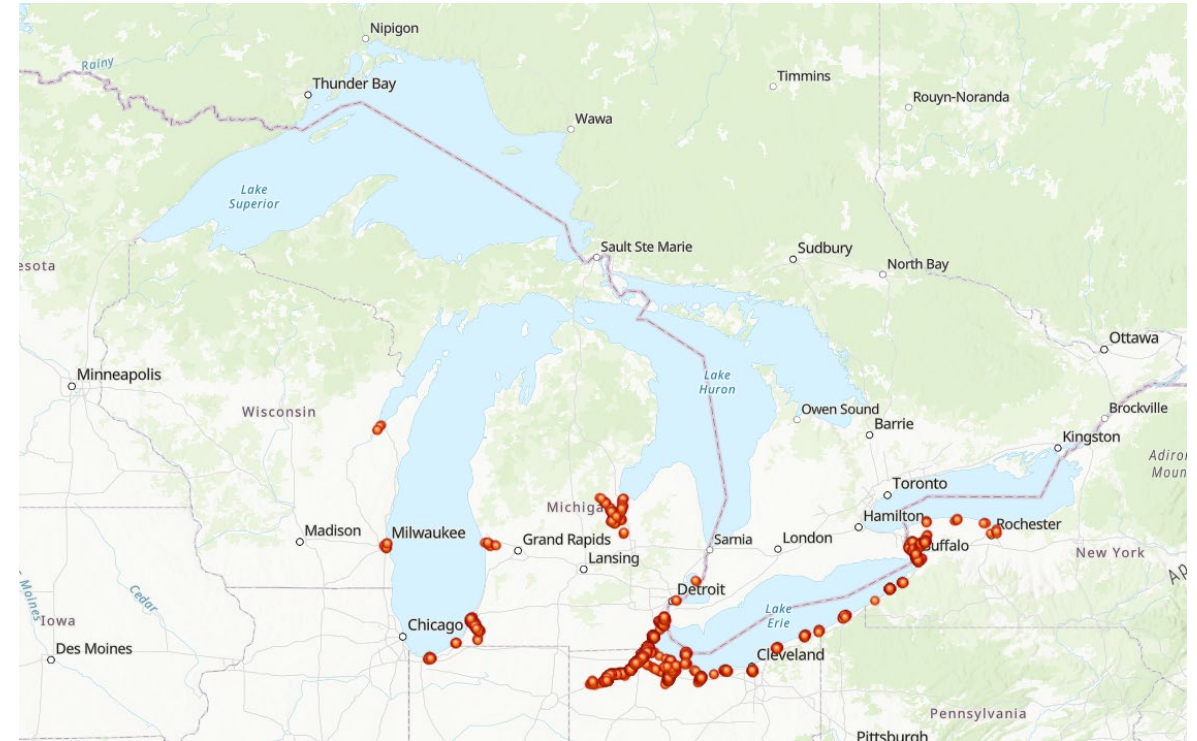


Grass Carp Advisory Committee

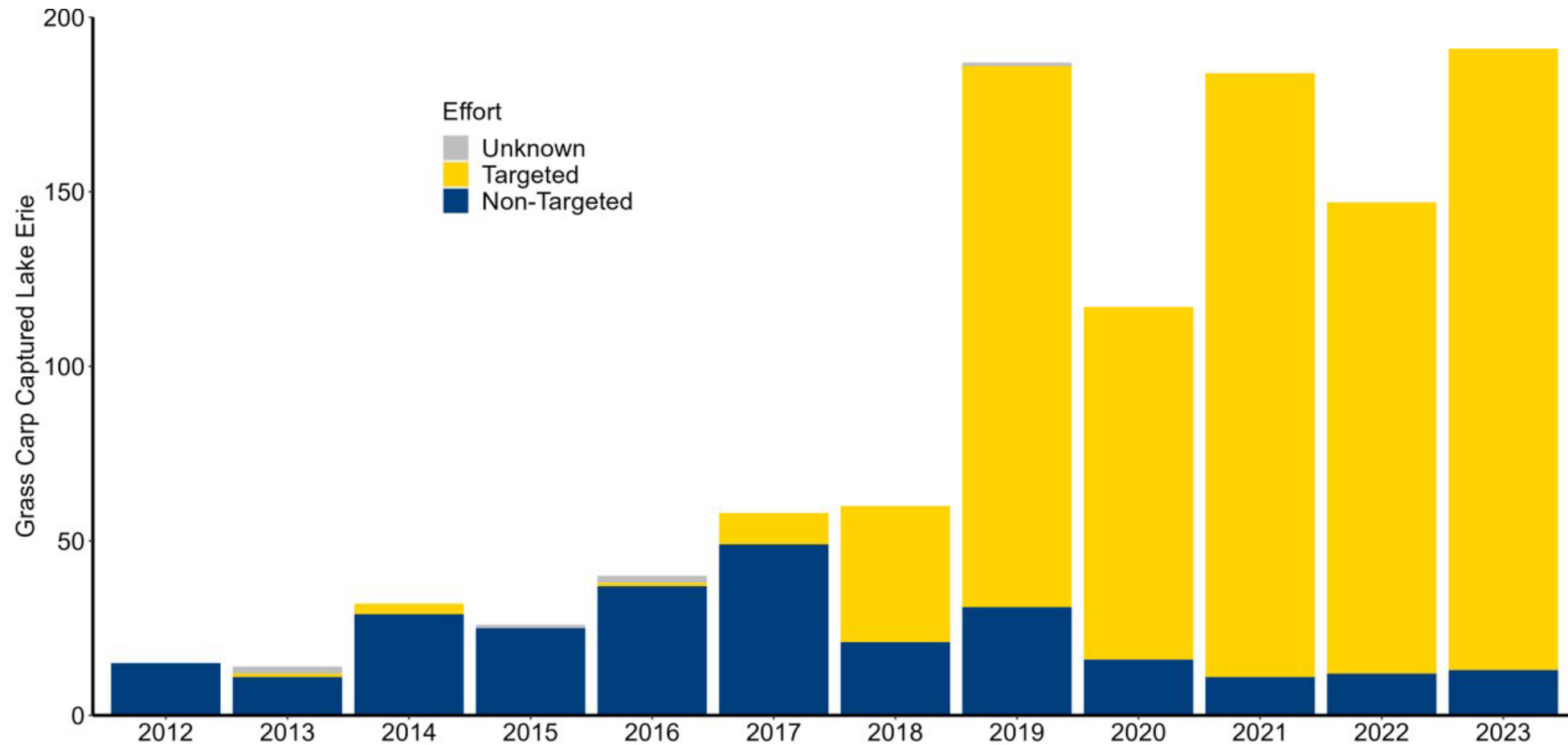


Grass Carp Removal Efforts

- Focused in Western Basin of Lake Erie
 - ~70% in Sandusky and Maumee Rivers
- Electrofishing and trammel netting
- Capacity has increased over time
 - 2 crews in 2018
 - 13 crews in 2023



Lake Erie Grass Carp Captures



2023 Effort and Captures

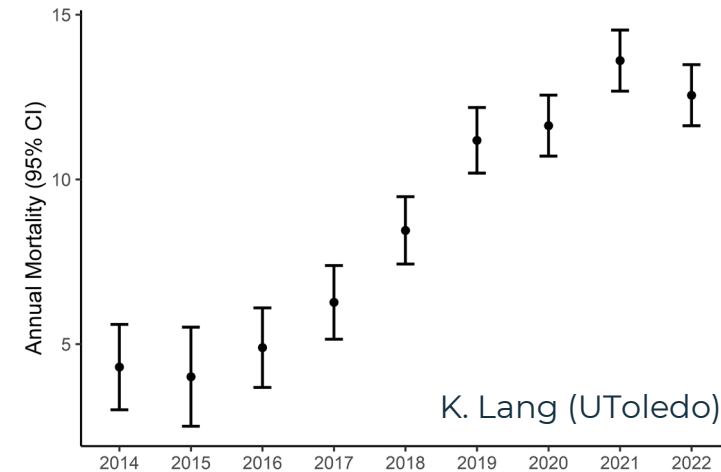
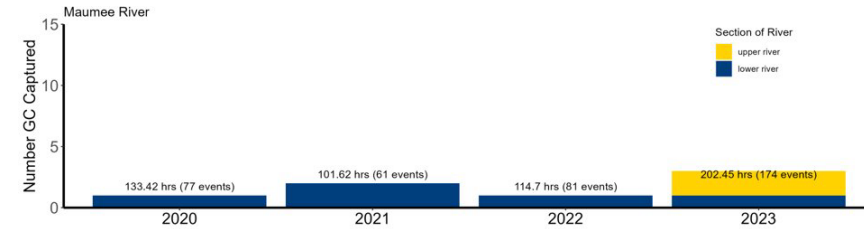
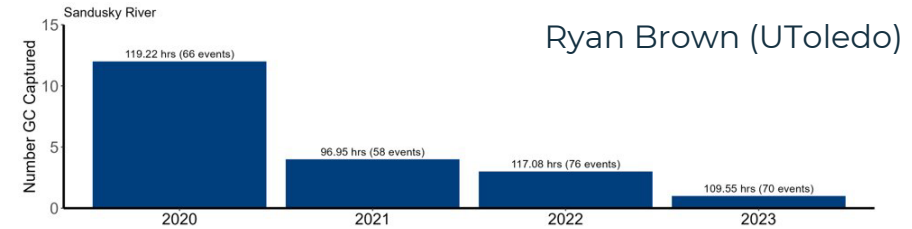
Grass Carp Captures – Lake Erie	
Waterbody	GC Harvested
Sandusky River	87
Maumee River	55
Buffalo Harbor	6
Cuyahoga River	2
Tonawanda Creek	1
Grand River (OH)	1
Dunkirk Harbor	1
Huron River (OH)	0
MI Waters	0
Total	153

Grass Carp Captures – Lake Michigan	
Waterbody	GC Harvested
St. Joseph River	8
East Arm Little Calumet	3
Total	12



Evaluations of Removal Efforts

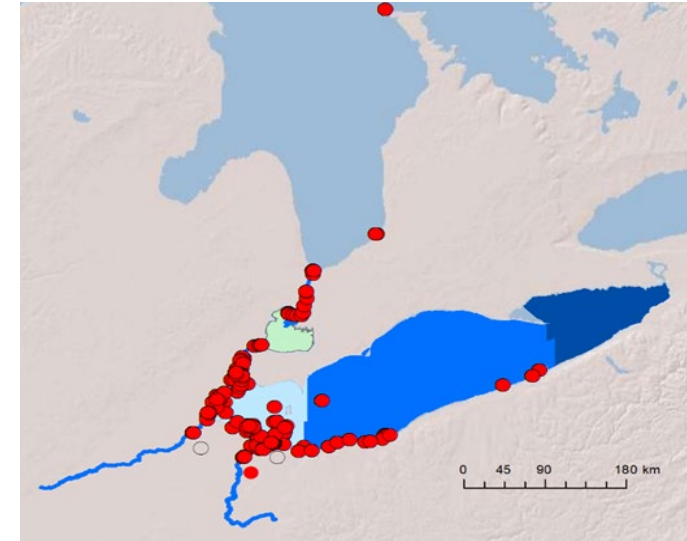
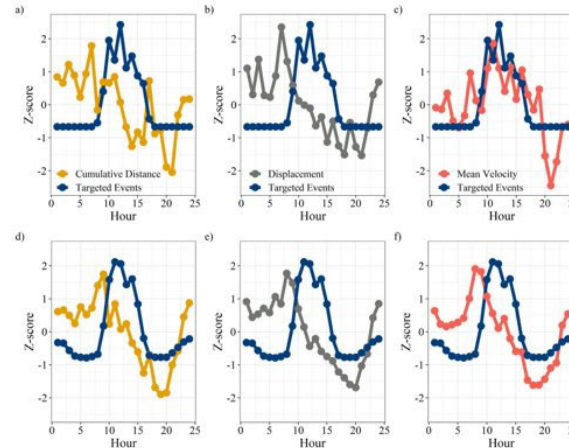
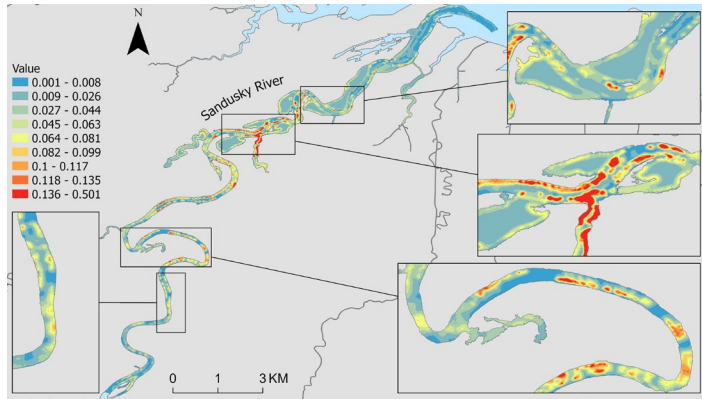
- “Sustained” removal efforts
 - Low catches
 - Decreasing over time?
 - Identifying new areas to target
- Evidence of increased mortality over time



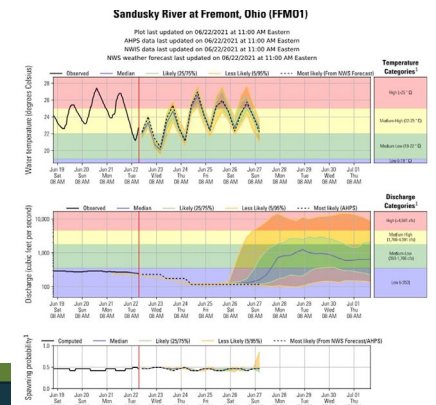
Research to Inform Action

Modeling to improve removal efforts (UT, USGS)

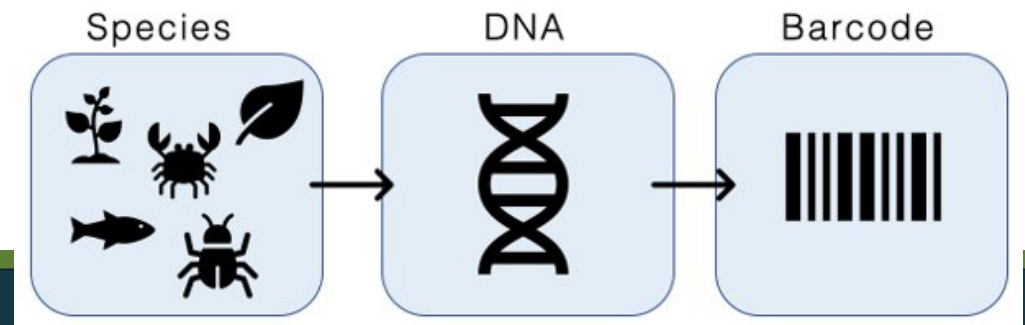
Evaluate movement with telemetry (MSU, USGS)



Predict spawning events (USGS)



Diet analyses using DNA metabarcoding (USGS)



Evaluating Feasibility of Seasonal Barrier

- Initial feasibility study completed 2021
- USACE initiated Feasibility study with goal of 2025 completion
- Ongoing efforts to collect baseline data to inform evaluation



Future Work

- Lake Erie Committee developed next five-year plan (2024 – 2028) through the GLFC
- New priorities identified:
 1. Continue to learn how, when, and where to efficiently remove Grass Carp in the Lake Erie basin
 2. Detect where Grass Carp reproduction is occurring in the Lake Erie basin and connecting waters
 3. Identify new sources of Grass Carp and minimize their spread throughout the region
 4. Determine how to best detect and assess adverse impacts of Grass Carp herbivory in the region

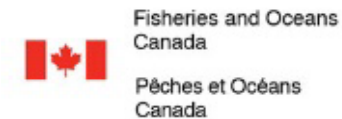
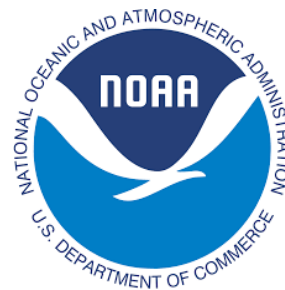
Lake Erie Grass Carp Adaptive Response Strategy 2024-2028



Photo source: R. Mapes, University of Toledo - Lake Erie Center

Lake Erie Committee
Great Lakes Fishery Commission
December 2023

Acknowledgements



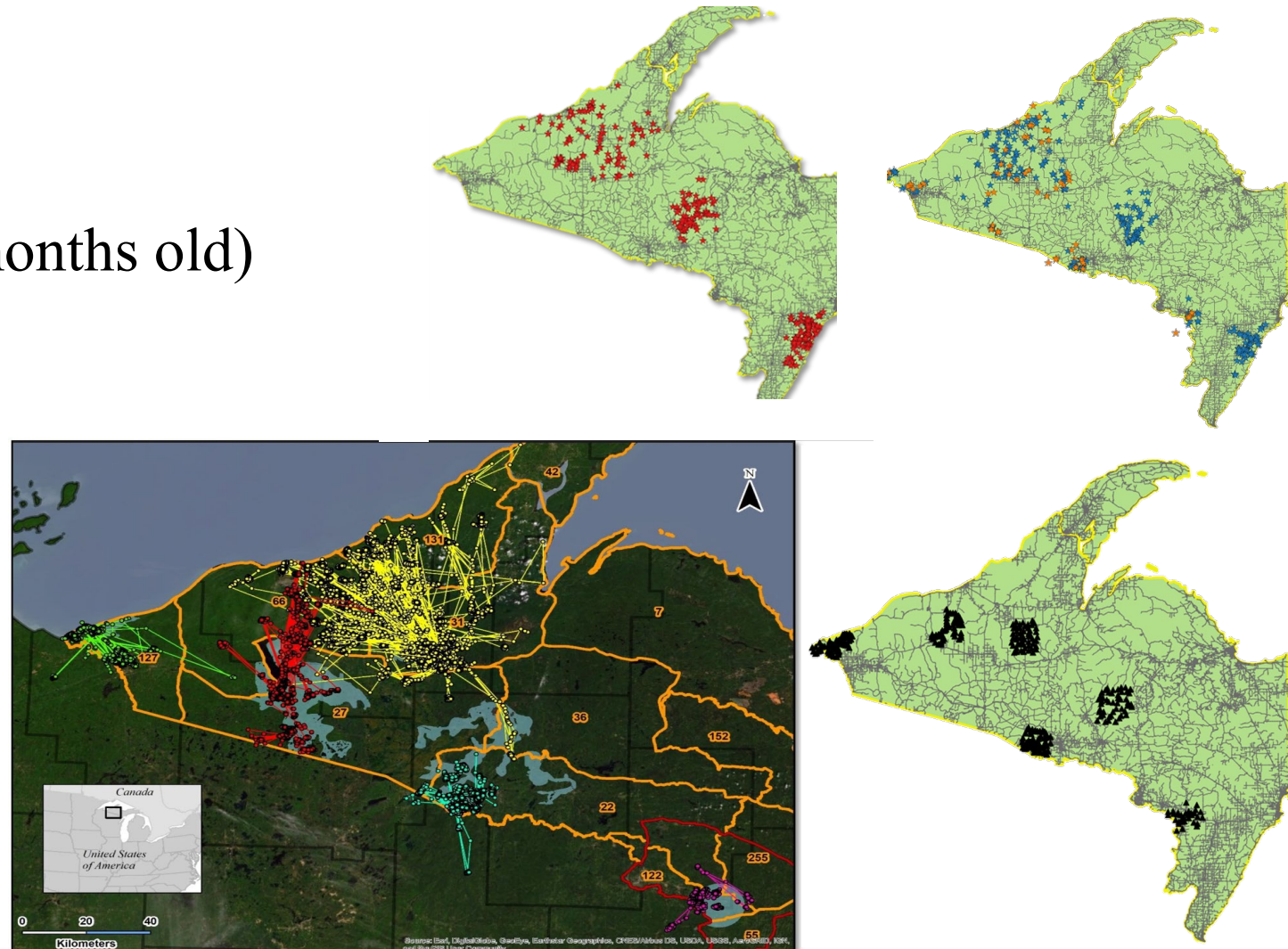


White-tailed Deer Predation in the Upper Peninsula of Michigan

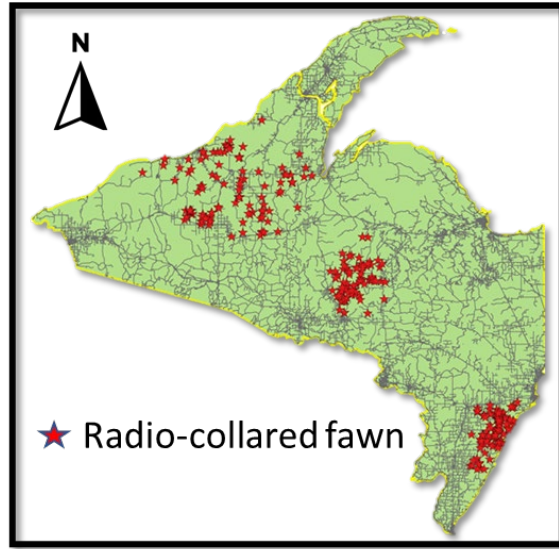
**NRC Wildlife Committee
14 March 2024**

Data: collared deer sample sizes

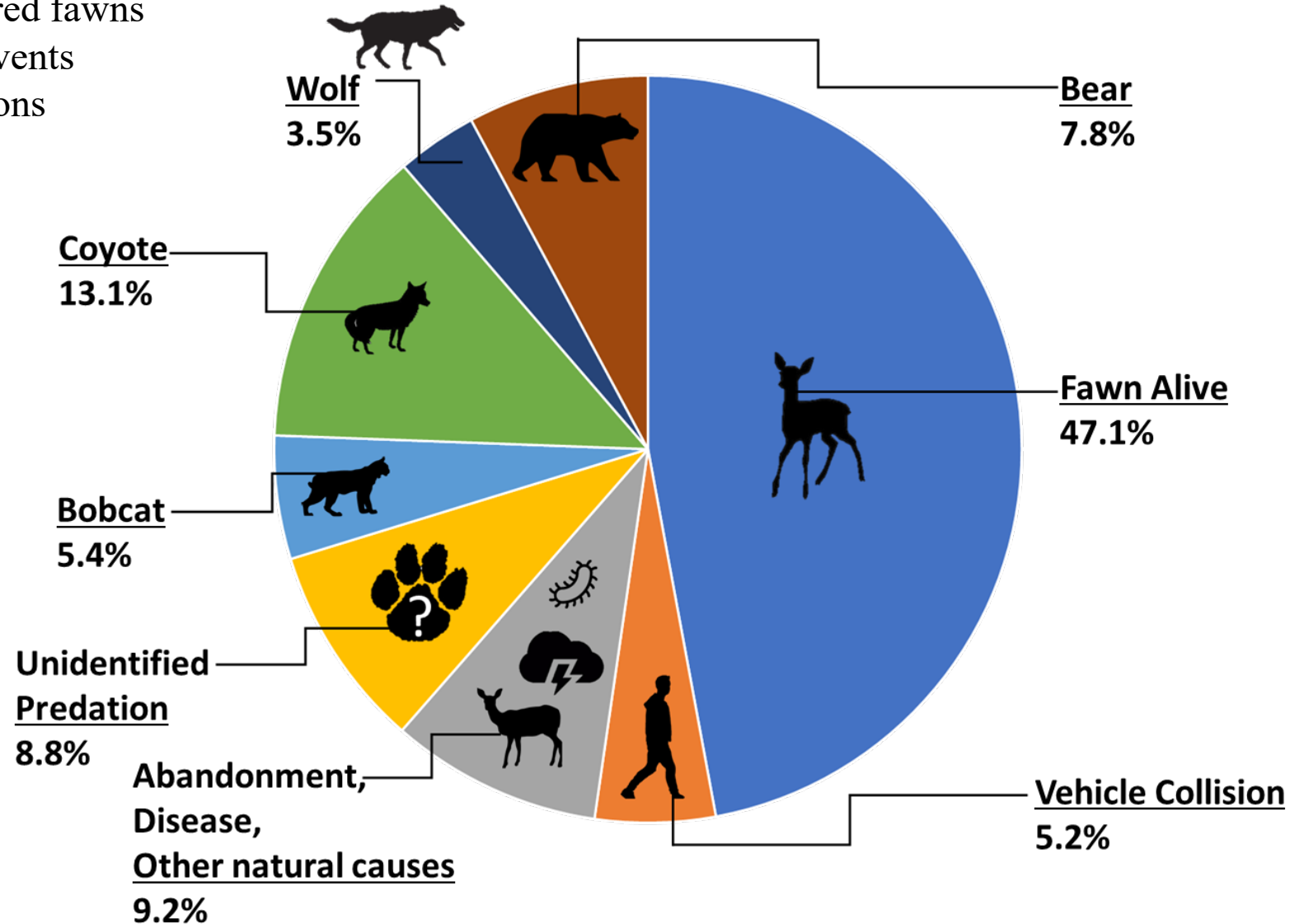
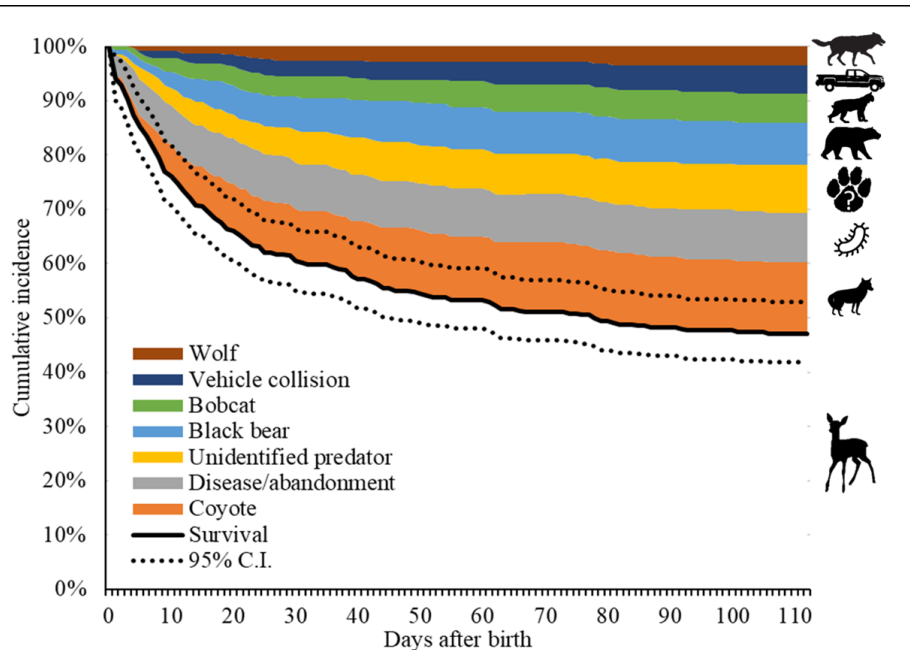
- 423 adult females
- 365 newborn fawns
- 158 winter fawns (~7 months old)
- 96 adult males
- 1,042 total deer



Fates of white-tailed deer fawns, 16 weeks post-birth

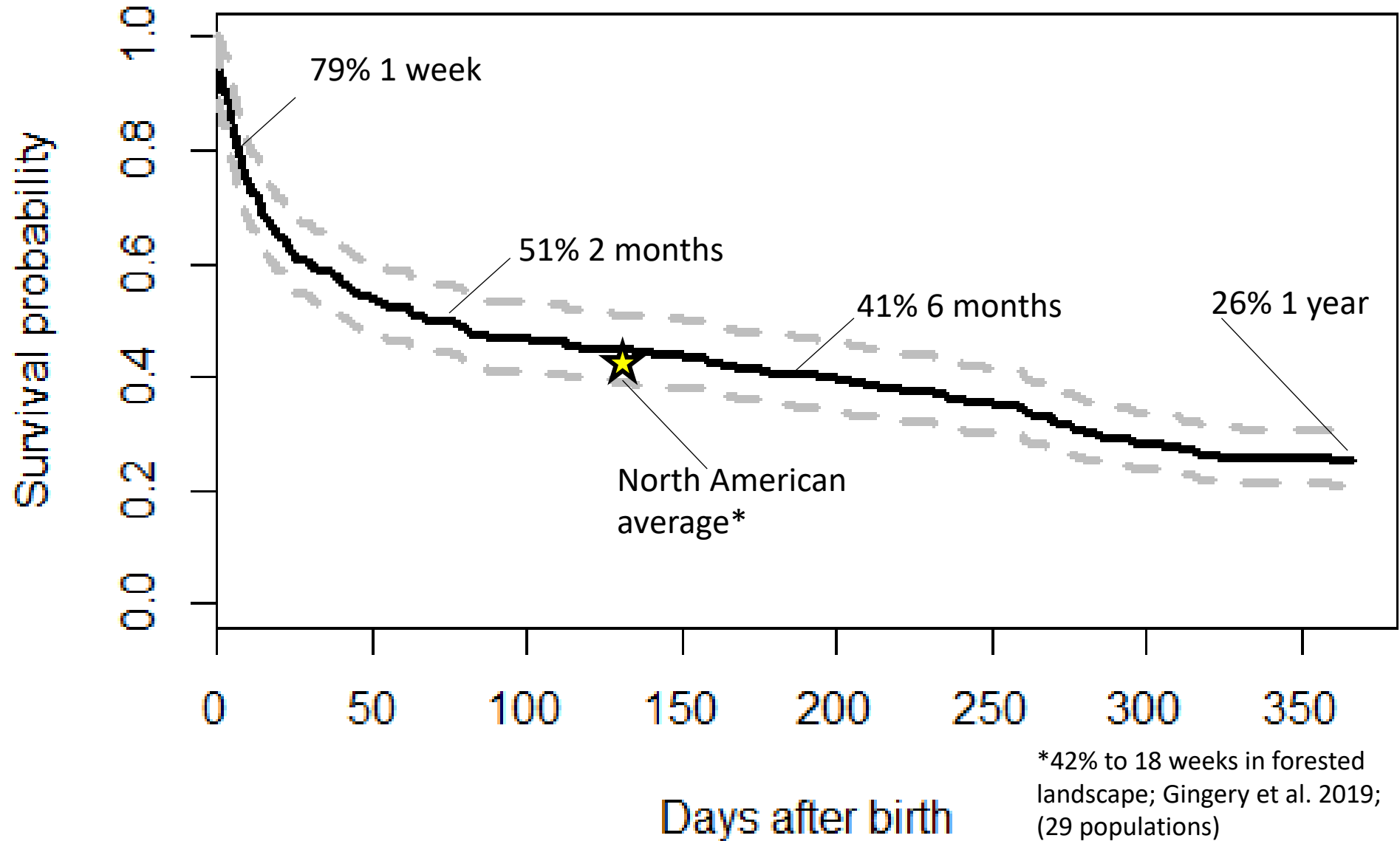


- 363 radio-collared fawns
- 166 mortality events
- 12 wolf predations

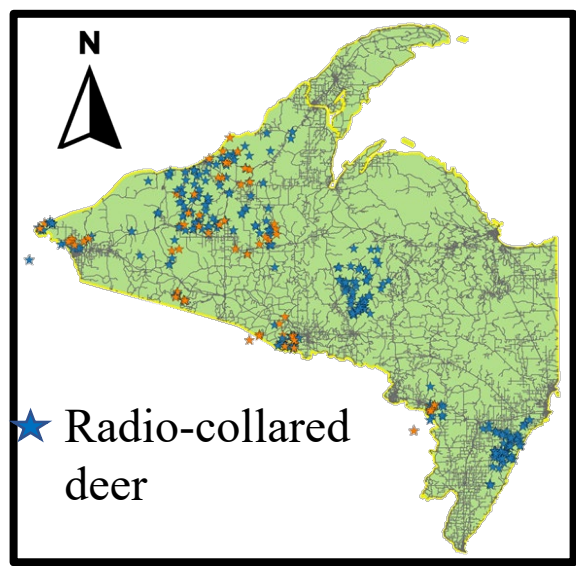


Fawn survival

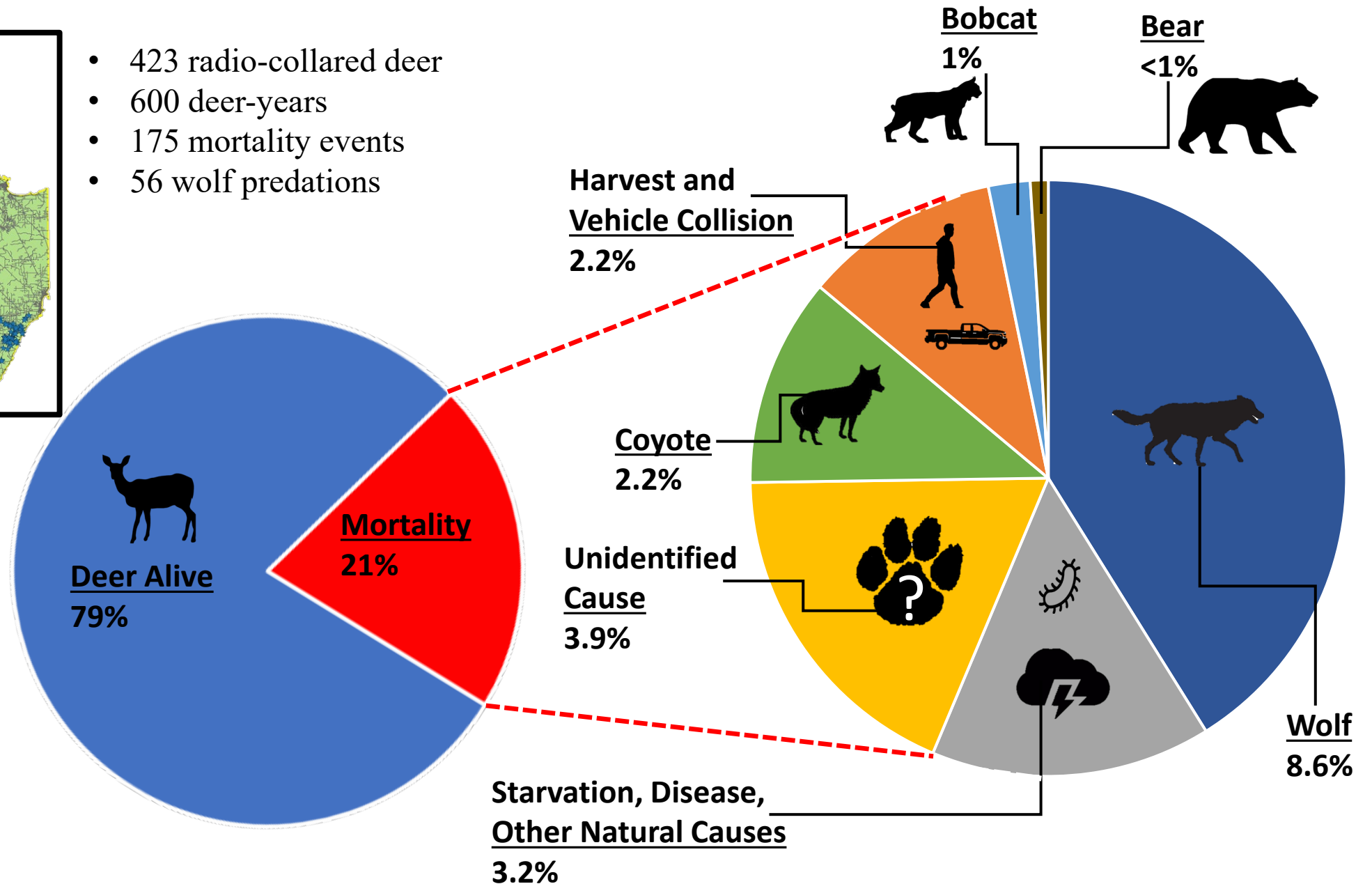
- 365 newborn fawns
- 158 winter captured fawns



Annual fates of adult female white-tailed deer

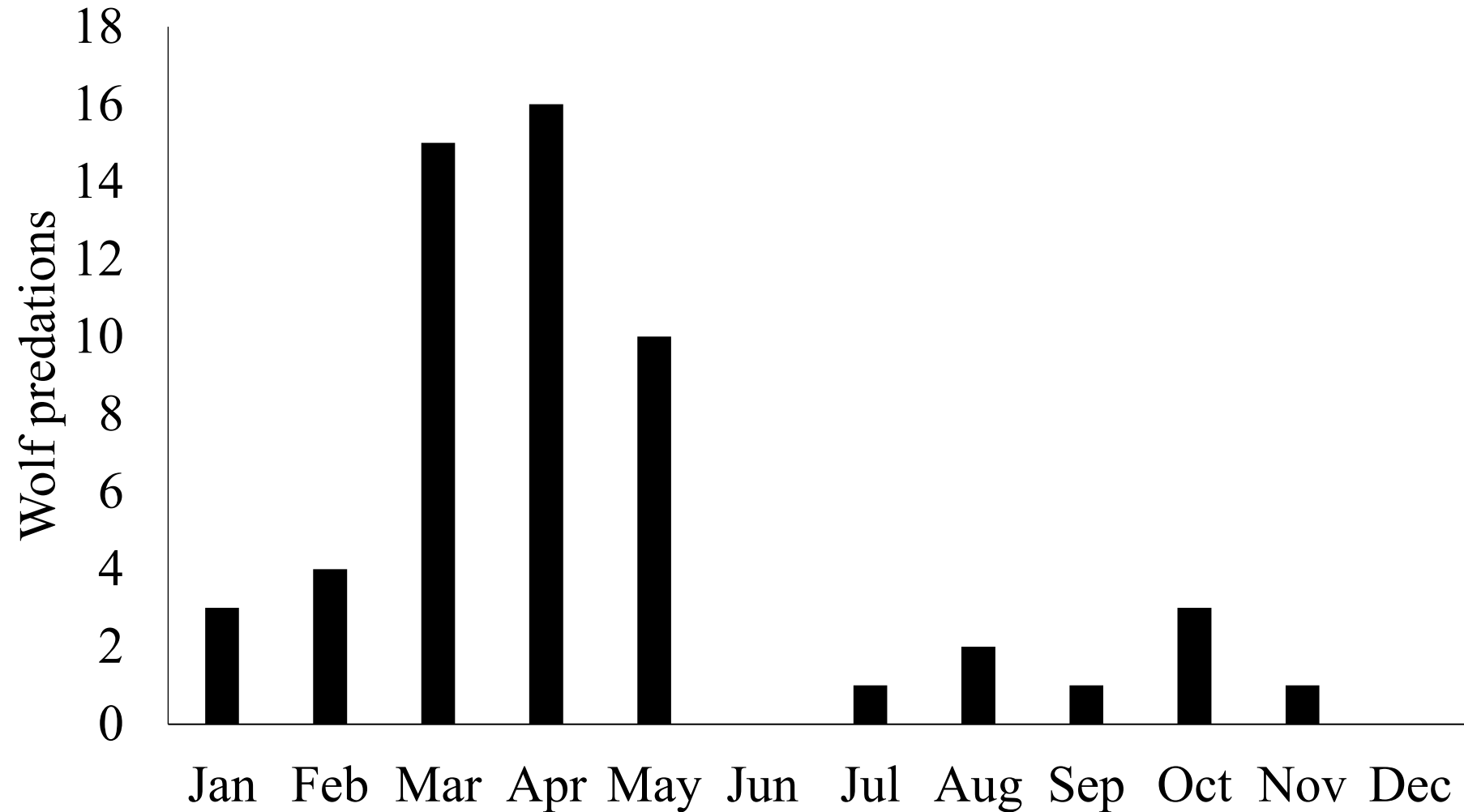


- 423 radio-collared deer
- 600 deer-years
- 175 mortality events
- 56 wolf predations



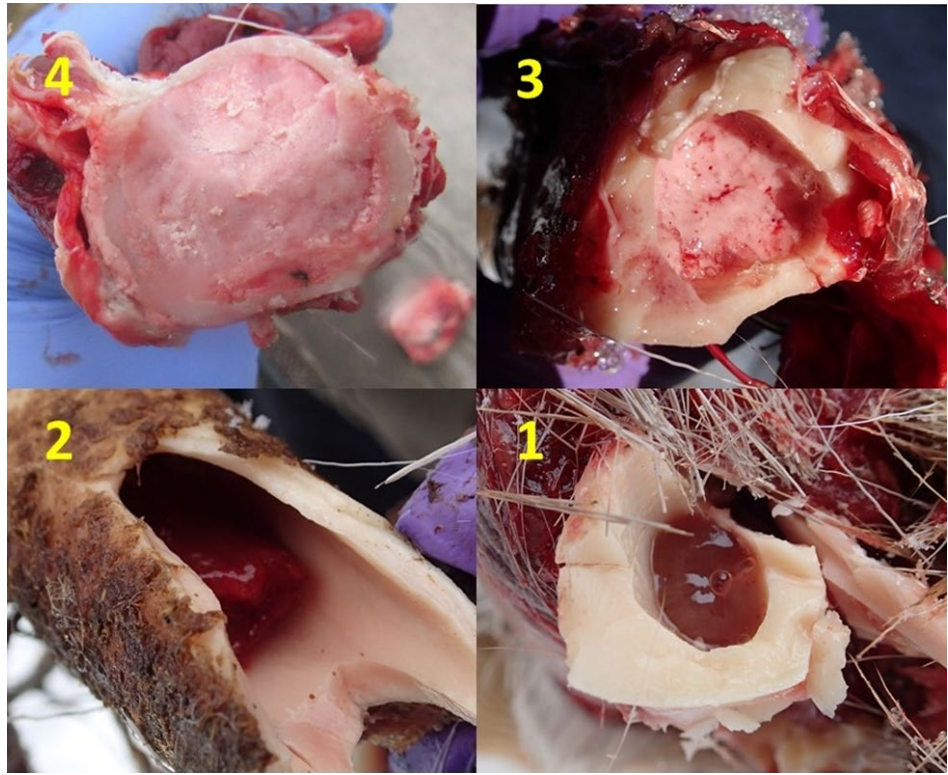
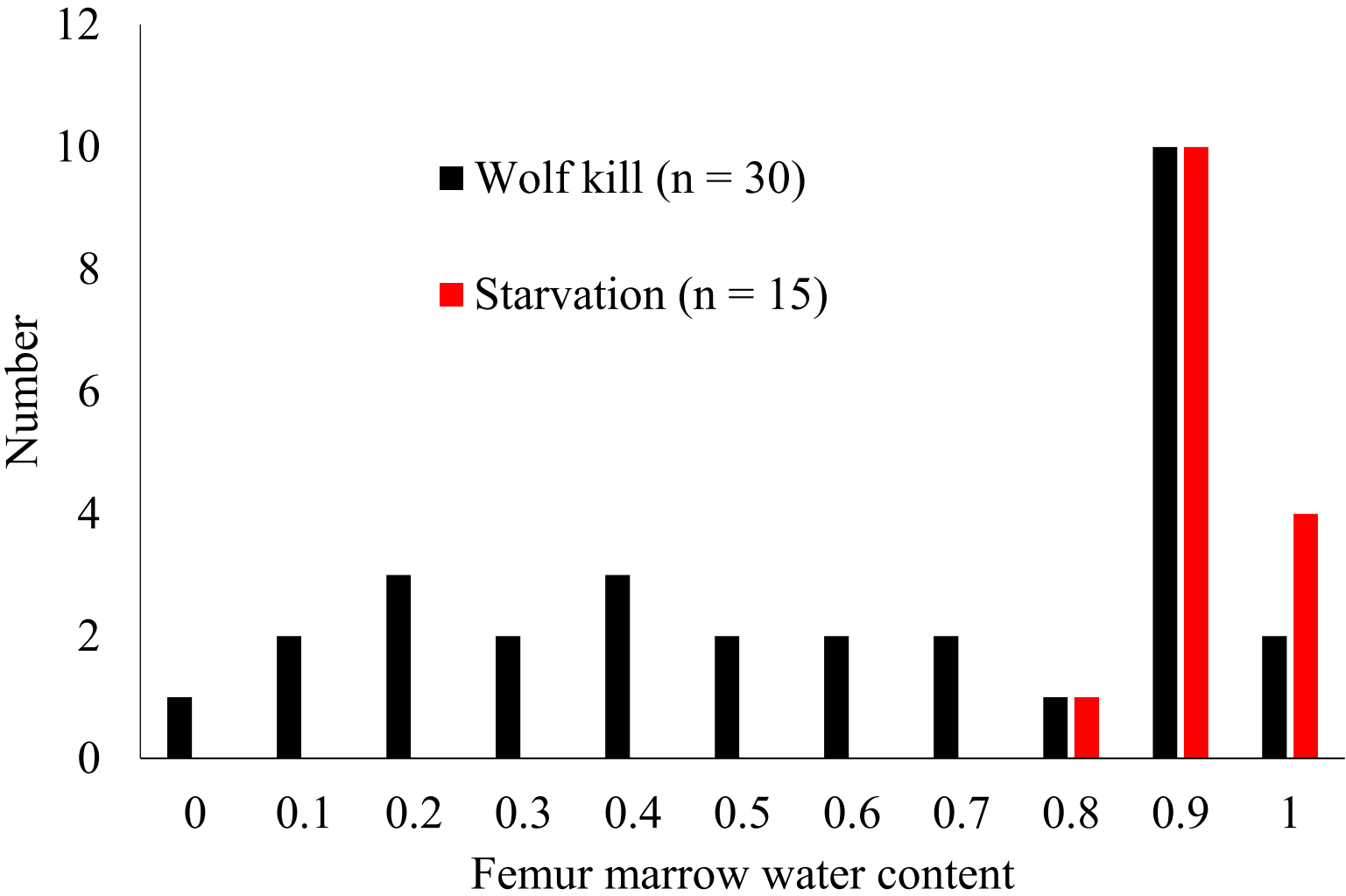


Timing of wolf predations on adult female deer

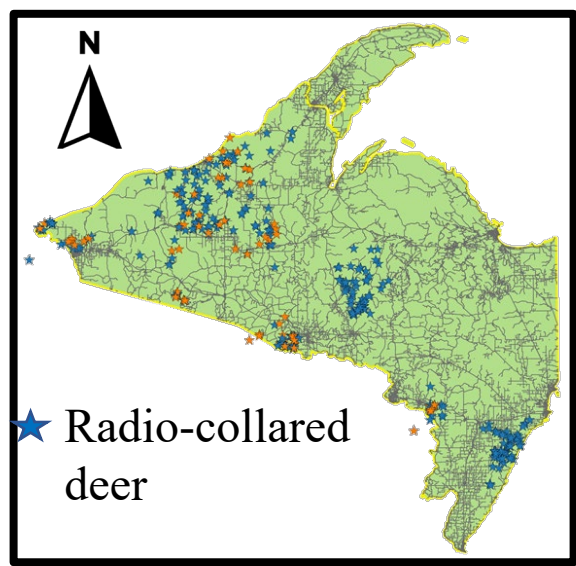




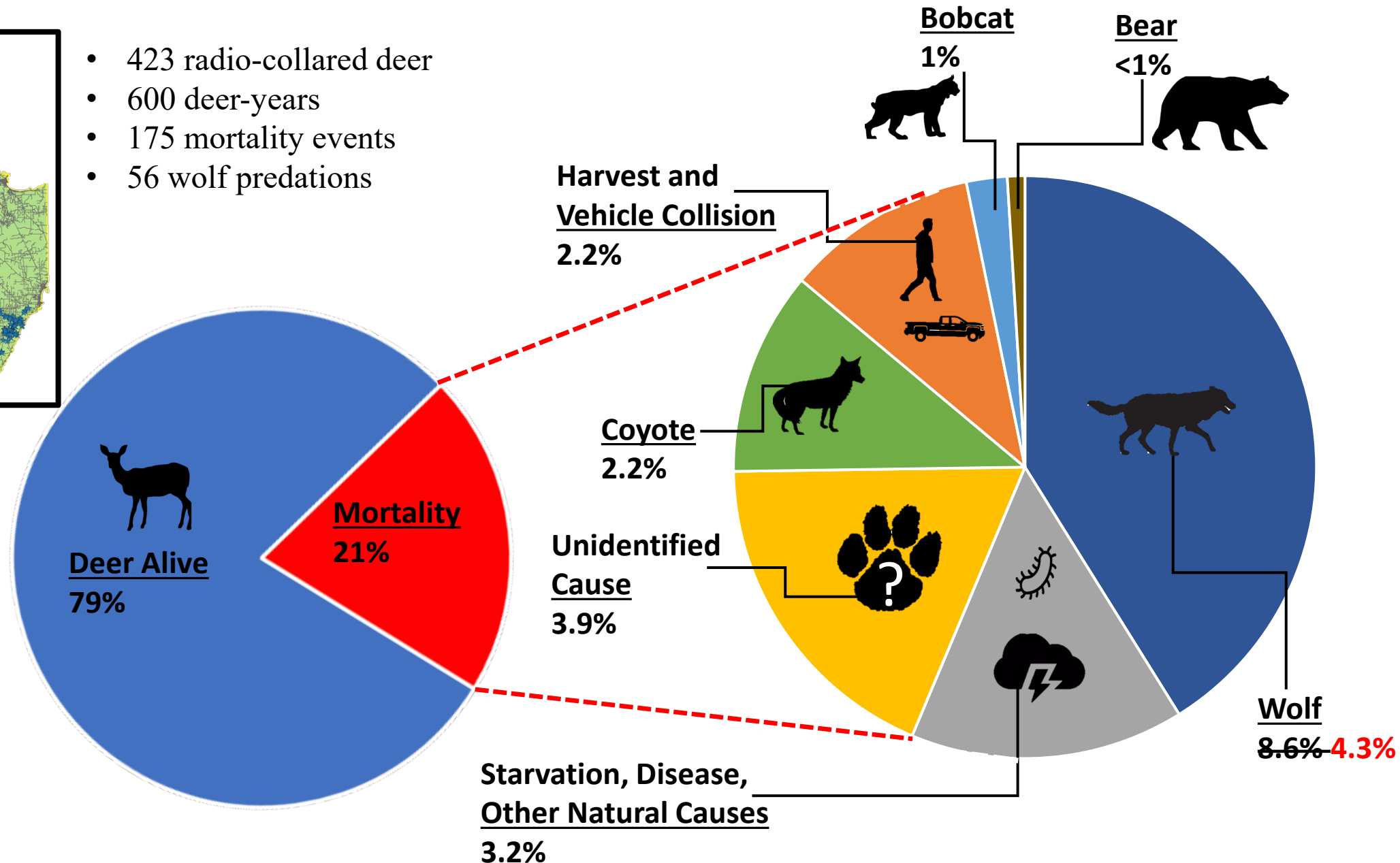
Nutritional condition of adult female deer killed by wolves



Annual fates of adult female white-tailed deer

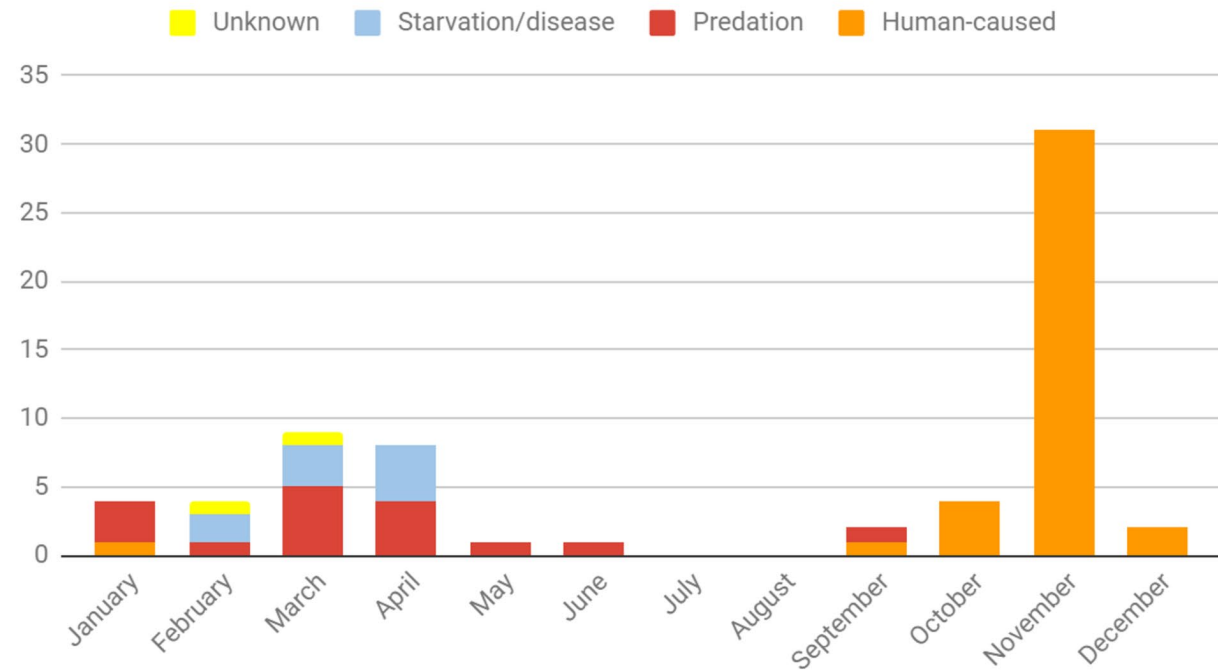


- 423 radio-collared deer
- 600 deer-years
- 175 mortality events
- 56 wolf predations



Adult male mortality

96 adult males monitored (2018-2020)
60 mortalities
81.7% hunting
5.0% Other human
13.3% wolf predation
0% coyote



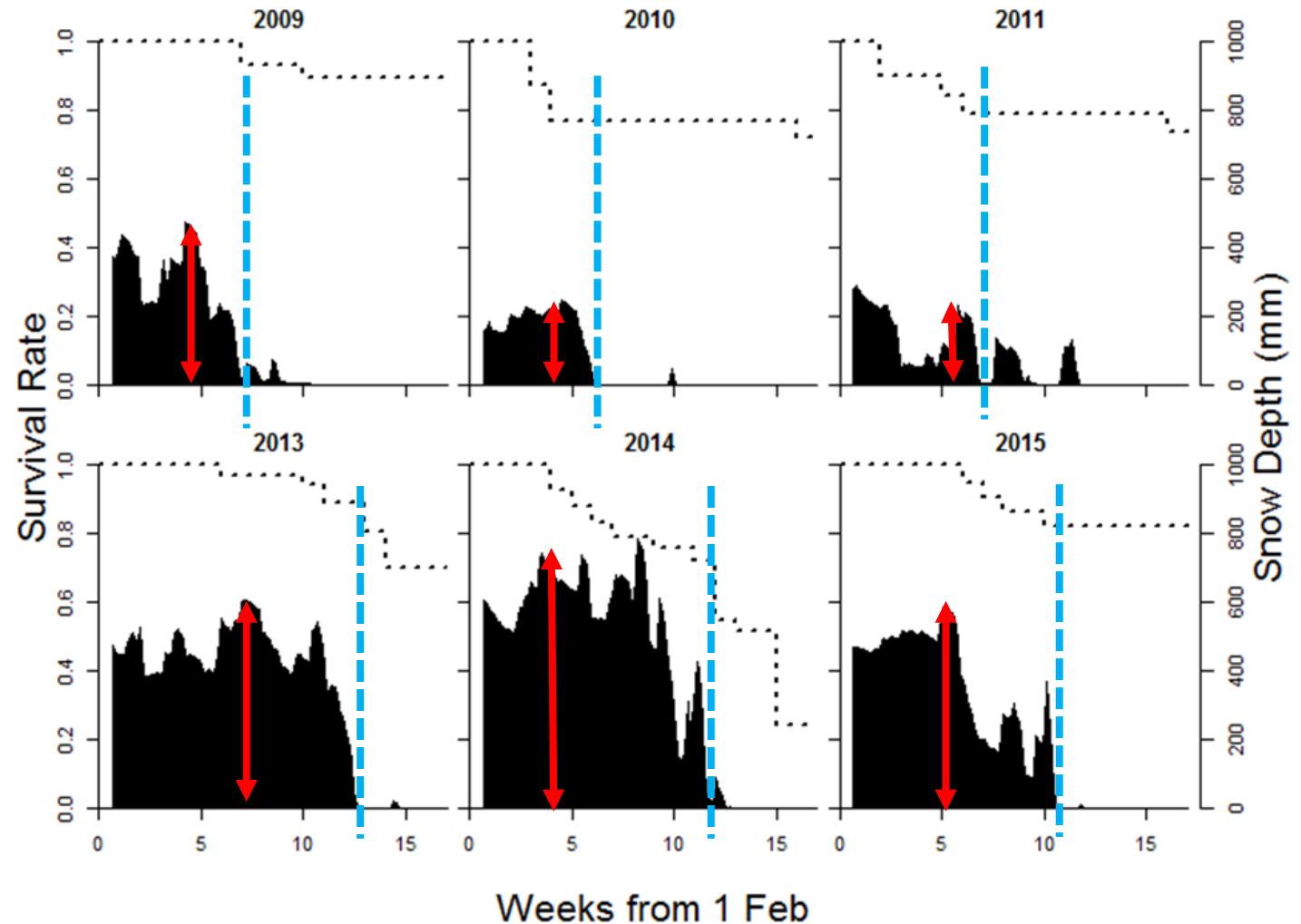
Adult female survival – winter weather

Covariate	Coeff	SE	Z	<i>P</i>	Risk effect per unit increase	Scaled and centered coeff
Body mass (kg)	−0.840	0.331	−2.54	0.011	↓ 11.9%	-0.84
Cumulative winter severity index	0.914	0.302	3.03	0.003	↑ 1.7%	-0.91
Cumulative snow free days	−1.719	0.551	−3.12	0.002	↓ 7.2%	-1.72
Body mass:time	0.062	0.035	1.77	0.077	NA	NA

Adult female survival – winter weather

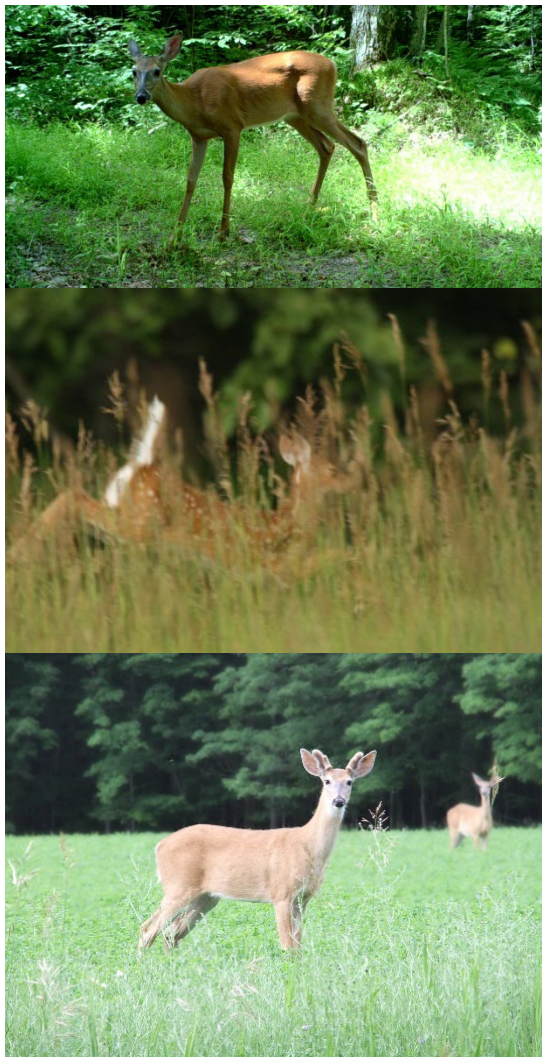
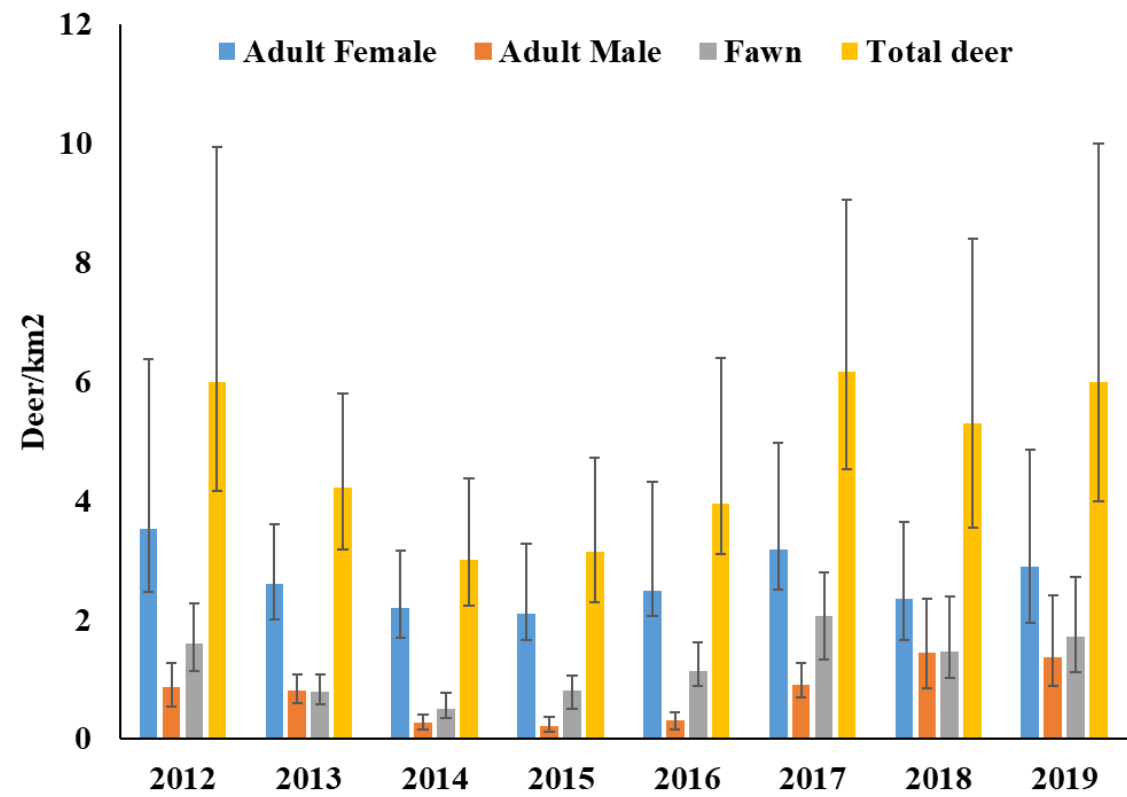
Magnitude of snow cover

Timing of spring snow melt





Deer abundance – mid-snowfall area



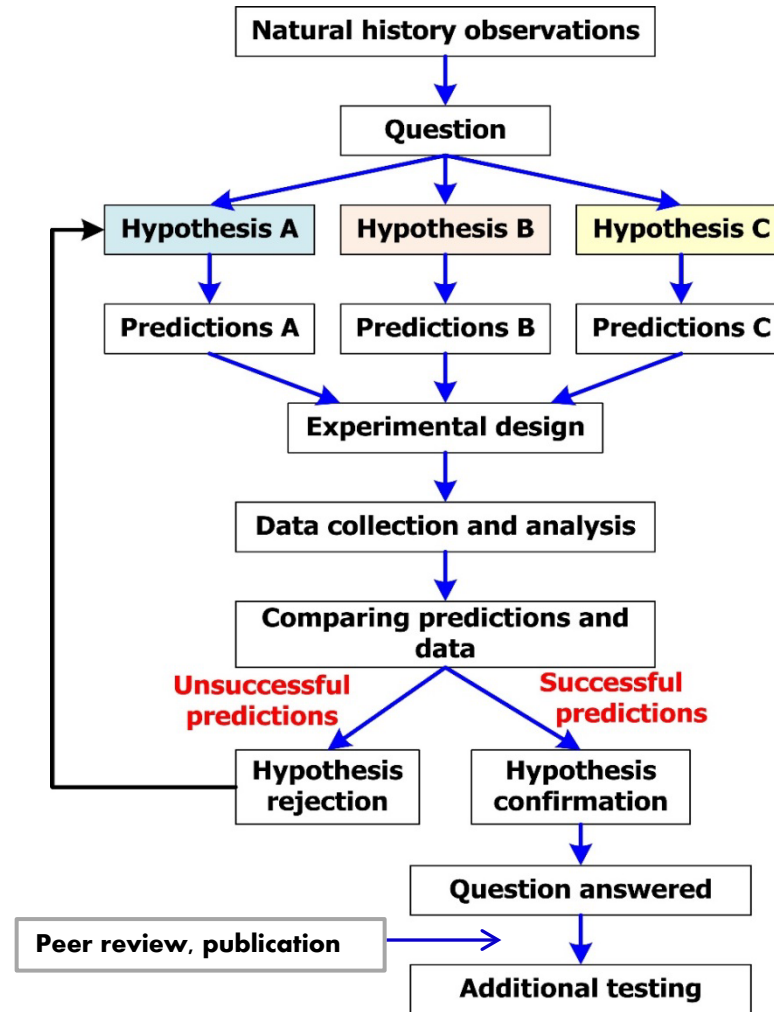
Aspect dominance



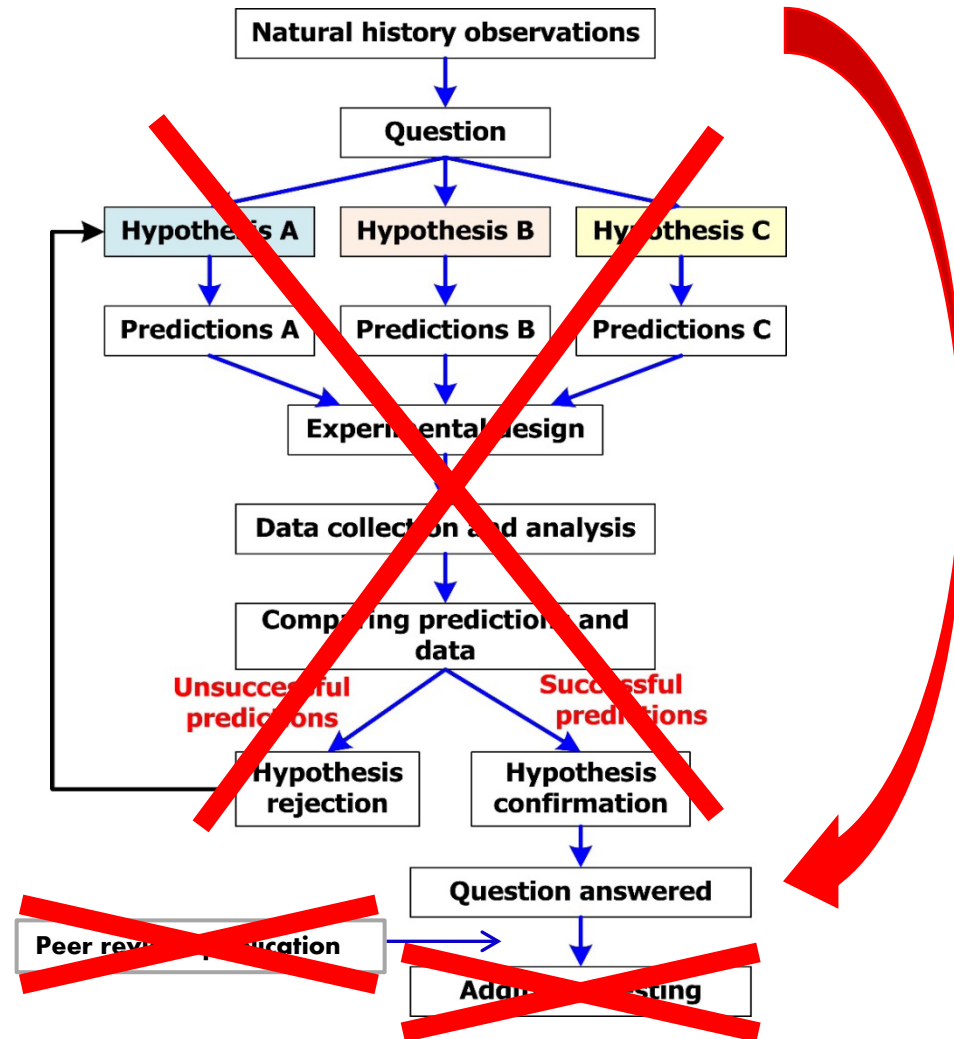
Aspect dominance



What science is....



...and is not



2024-25 Migratory Game Bird Hunting Seasons



Barbara Avers, Waterfowl and Wetland Specialist



Process

- USFWS:
 - Publish Preliminary, Proposed, and Final Frameworks
- DNR:
 - Waterfowl Workgroup
 - Citizens Waterfowl Advisory Committee
 - NRC
 - Submit Season Selections for publication in Federal Register



Canada Goose Population Status

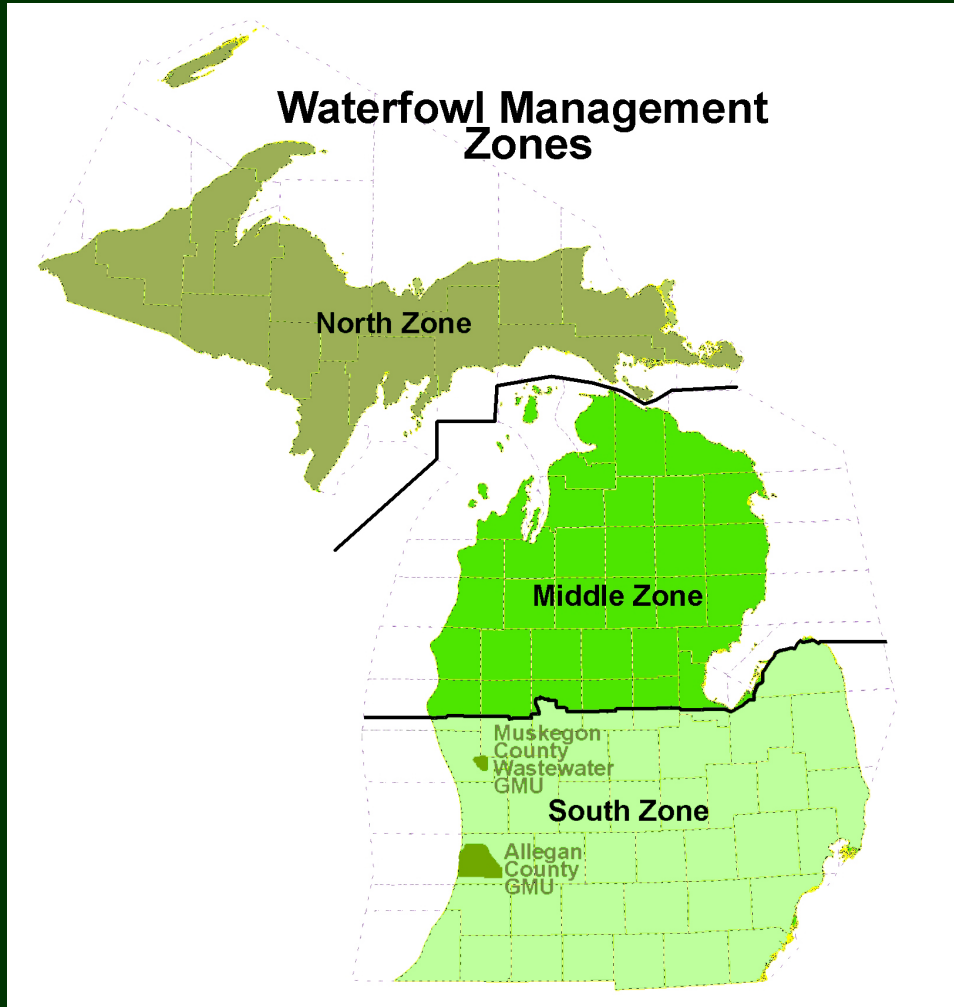
- Mississippi Flyway temperate-breeding estimates indicate long-term increasing trend
- MI temperate-breeding estimates have declined the last two years to the top of goal range, but still long-term increasing trend
- Subarctic-nesting geese stable but variable



2024 Goose Season Federal Framework



2024 Goose Season Federal Framework



- Season length and outside dates
 - Maximum 107 days
 - Between Sept. 1 - Feb. 15
- 4 segments allowed



2024 Goose Federal Frameworks – Bag Limits

- Canada daily limits:



- Maximum 5 birds

- White-fronted daily limits:



- Maximum 5 birds in aggregate with dark geese

- Brant daily limits:



- Maximum 1 bird in aggregate with dark geese

- Snow, blue, Ross' daily limits:



- Maximum 20 birds

Possession limits 3X daily limit

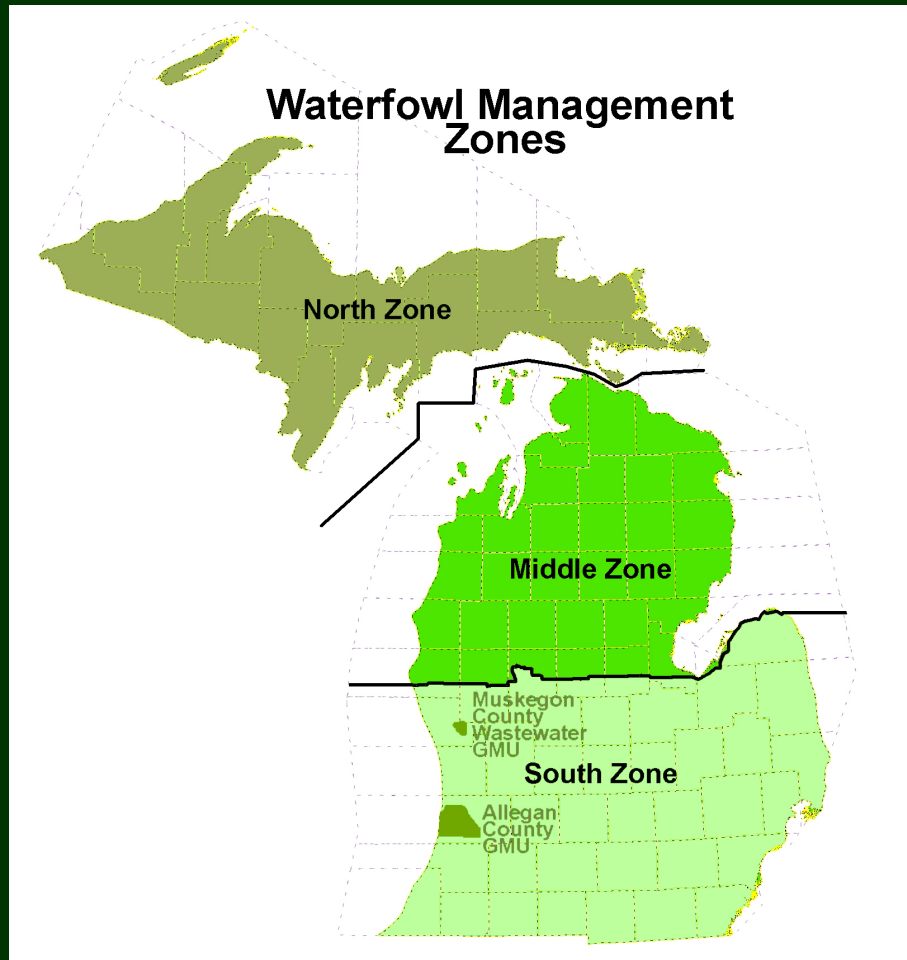


2024 Michigan Goose Season Recommendations



2024 Goose Season

Recommendations Season Dates and Bag Limits – North Zone

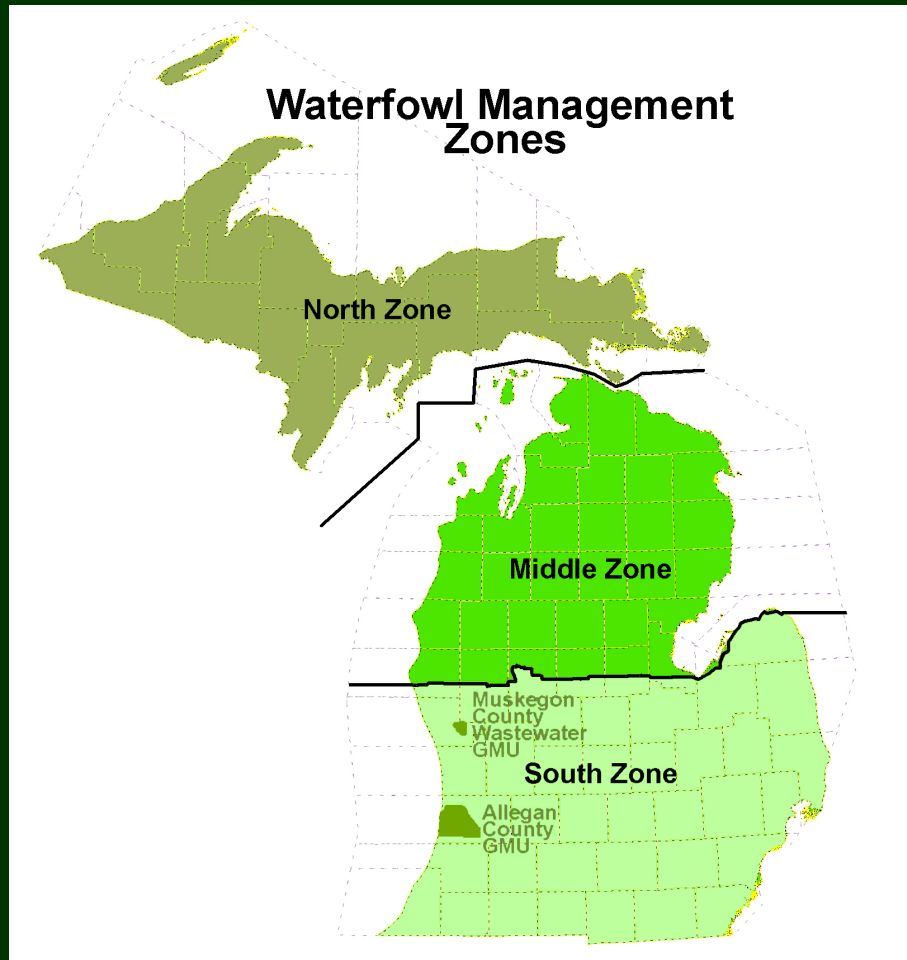


- Sept. 1 – Dec. 16
- Dark goose aggregate daily limit = 5, only 1 of which can be a brant
- Light goose daily limit = 20



2024 Goose Season

Recommendations Season Dates and Bag Limits – Middle Zone

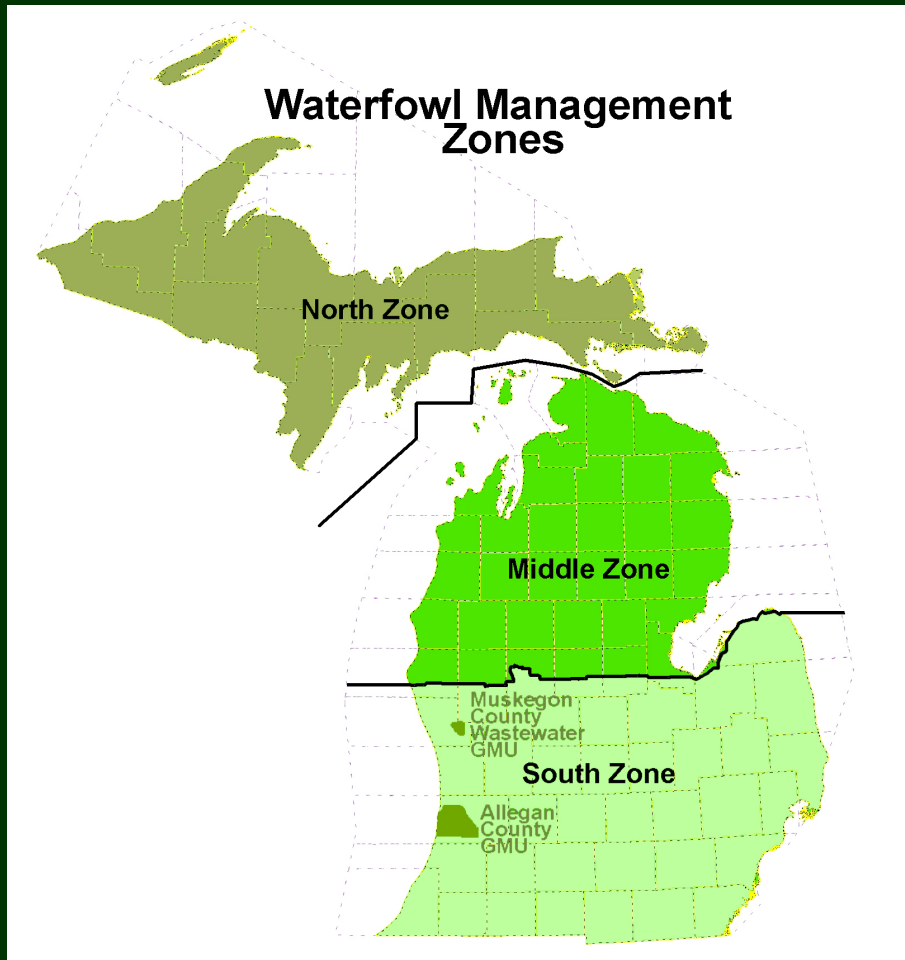


- Sept. 1 – 30 and Oct. 5 – Dec. 20
- Dark goose aggregate daily limit = 5, only 1 of which can be a brant
- Light goose daily limit = 20



2024 Goose Season

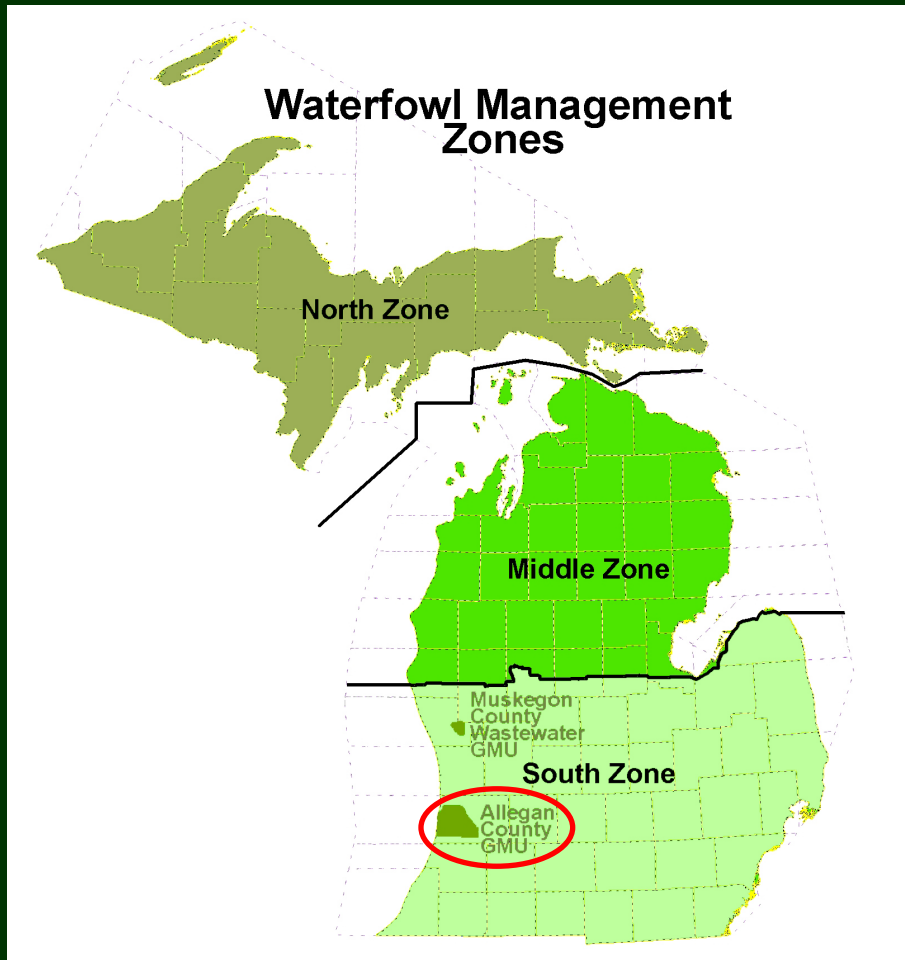
Recommendations Season Dates and Bag Limits – South Zone



- Sept. 1-30; Oct. 12 – Dec. 8; Dec. 28 – Jan. 5, 2025; and Feb. 1 – 10, 2025
- Dark goose aggregate daily limit = 5, only 1 of which can be a brant
- Light goose daily limit = 20



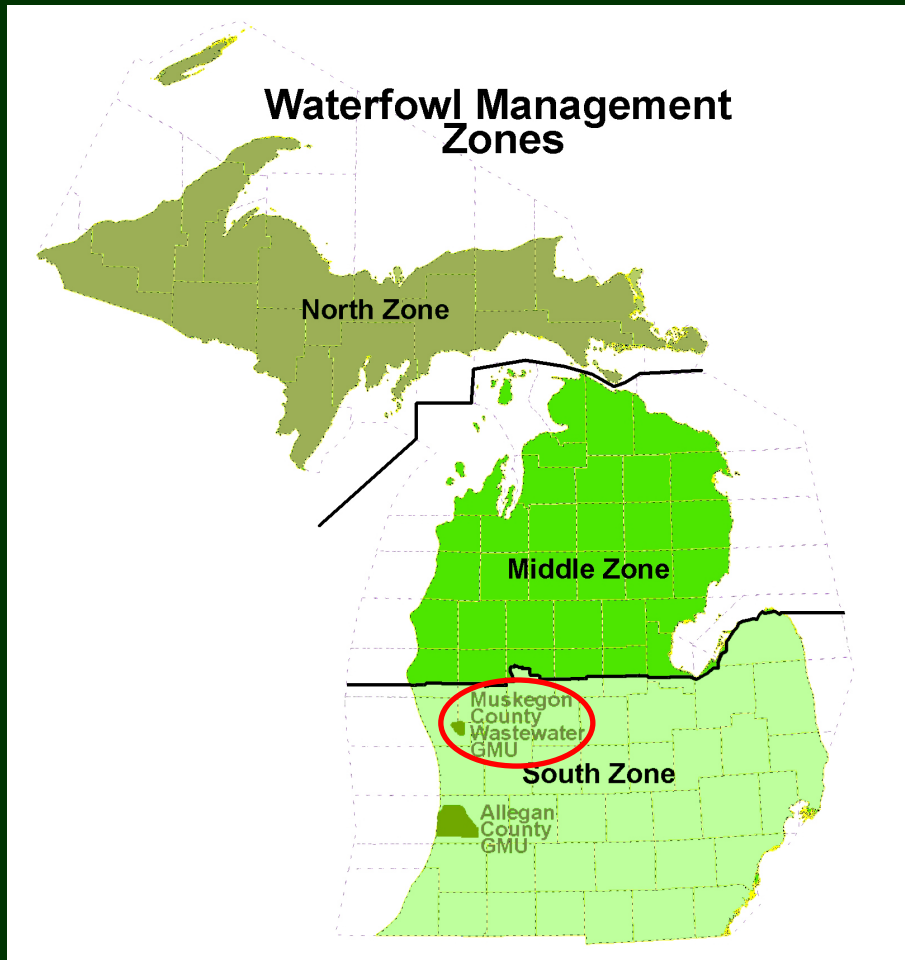
2024 Goose Season Recommendations – GMUs



- Allegan County
 - Sept. 1-30; Nov. 19-Dec. 8; Dec. 21-Feb. 15, 2025
- Dark goose aggregate daily limit = 5, only 1 of which can be a brant
- Light goose daily limit = 20



2024 Goose Season Recommendations – GMUs



- Muskegon County Wastewater
– Oct. 15 – Dec. 21
- Dark goose aggregate daily limit = 5, only 1 of which can be a brant
- Light goose daily limit = 20



2023 Duck Population Status

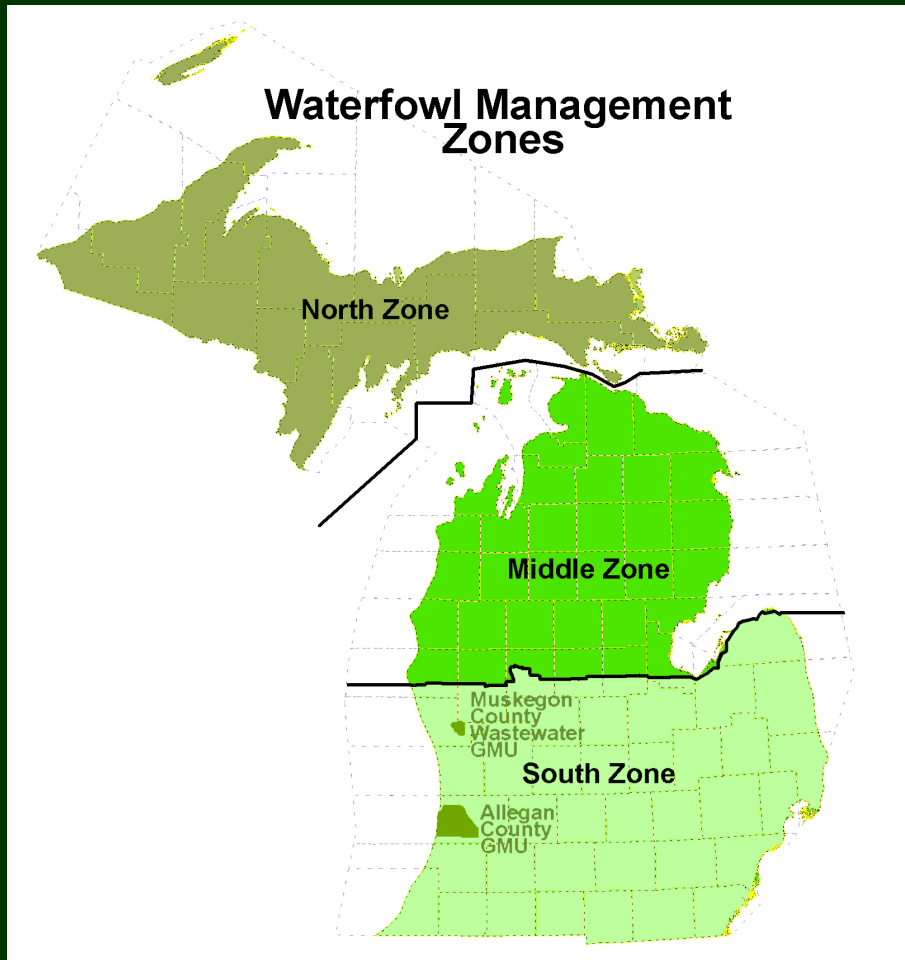
- Continental duck populations mostly down from 2022
- Michigan total duck and mallard estimates down from 2022
 - Continuing concern over long-term decline of Great Lakes mallards



*Photo credit David Stimac Photography



2024 Duck Season Federal Framework

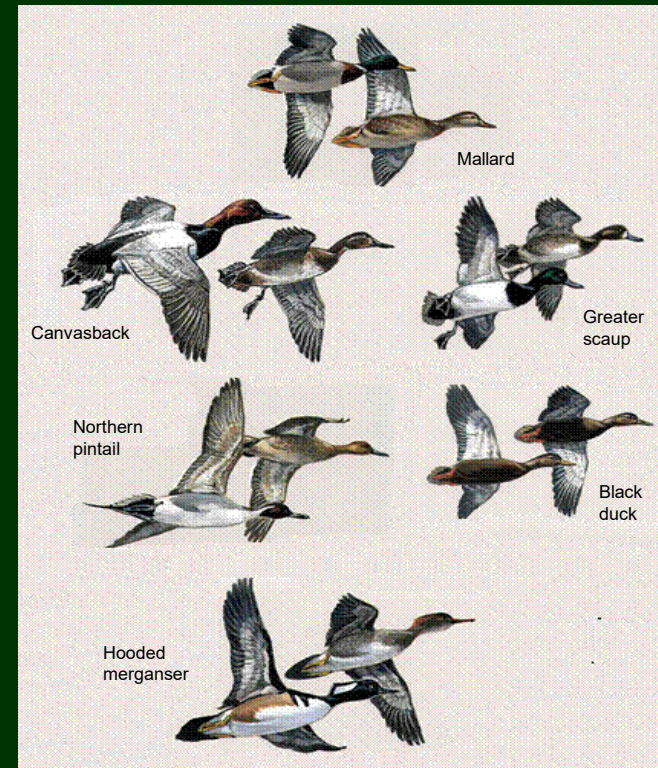


- Liberal season
 - Maximum 60 days
 - Between Saturday nearest Sept. 24 and January 31
 - Maximum 6 birds per day
- Possession limit 3X daily limit
- Seasons set by Zone
- One split per Zone

2024 Duck Season

Federal Framework – Daily Limits

- 6 ducks combined
 - Mallard
 - Maximum 4 birds (maximum 2 hens)
 - Wood duck
 - Maximum 3 birds
 - Redhead, Canvasback, & American black duck
 - Maximum 2 birds
 - Scaup
 - 2 for 45 days and 1 for 15 days
 - Northern pintail
 - Maximum 1 bird
 - All other ducks
 - 6 birds
- 5 mergansers combined
 - Maximum 2 hooded mergansers



2024 Michigan Duck Season Recommendations



2024 Early Teal Season Recommendations

- Sept. 1 – 16 Statewide
- Daily limit 6 teal
- Possession 3X
- Hunting hours begin at sunrise



2024 Youth Season Recommendations

- Remain 3rd weekend in September (Sept. 21-22)
- Daily and possession limits same as regular waterfowl seasons





Veterans and Active-Duty Waterfowl Hunt Recommendations

- Hold concurrently with Youth Season (September 21-22)
- Bag limits for Youth Season apply

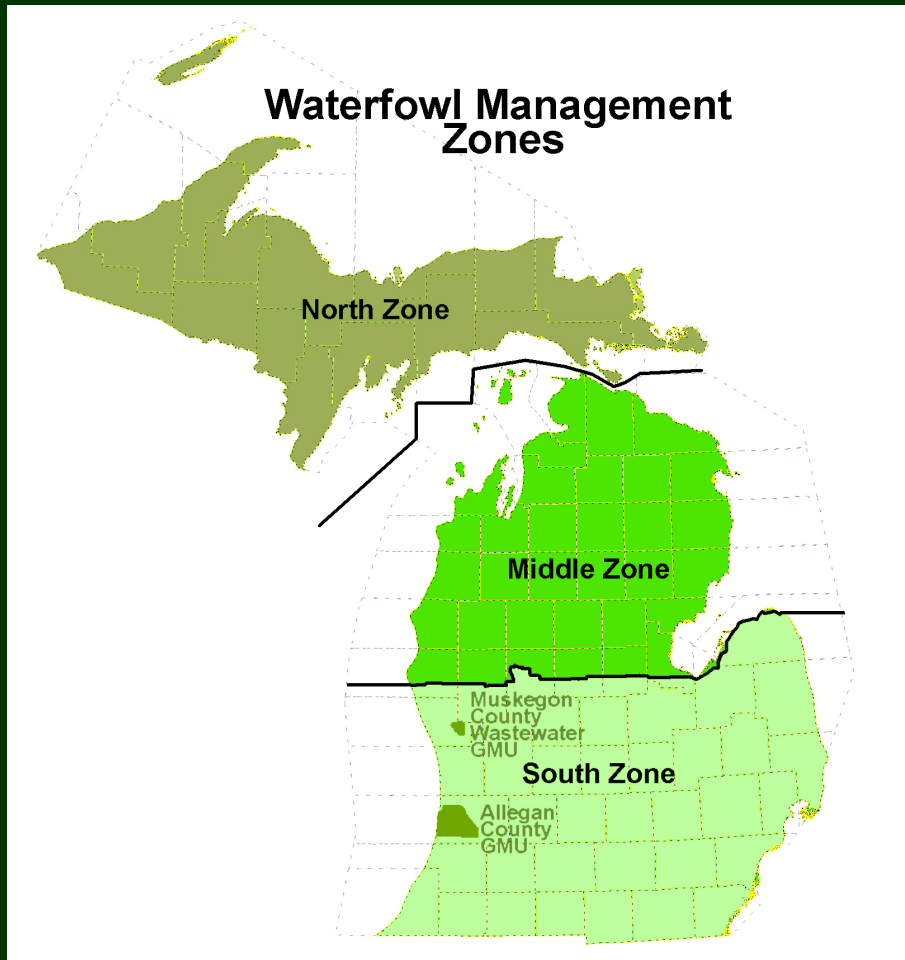


3-Year Stable Duck Season Opening Dates

- North Zone:
 - 2022 = Sept. 24
 - 2023 = Sept. 30
 - 2024 = Sept. 28
- Middle Zone:
 - 2022 = Oct. 8
 - 2023 = Oct. 7
 - 2024 = Oct. 5
- South Zone:
 - 2022 = Oct. 15
 - 2023 = Oct. 14
 - 2024 = Oct. 12



2024 Duck Season Recommendations – Dates



- North Zone
 - Sept. 28 – Nov. 24
 - Nov. 30 – Dec. 1
- Middle Zone
 - Oct. 5 – Dec. 1
 - Dec. 14 – 15
- South Zone
 - Oct. 12 – Dec. 8
 - Dec. 28 – 29



2024 Duck Season Recommendations – Daily Limits

- Maximum allowed under Federal Frameworks
- Scaup:
 - 2-bird limit for first 45 days in North Zone
 - 2-bird limit for the last 45 days in Middle and South Zones
 - Maximize scaup harvest opportunity in each zone



2024-25 Falconry Season Recommendations

- Same dates as gun hunting
- Additional days for ducks, mergansers, coots, and moorhens:
 - Dec. 30 – Jan. 12, 2025
 - Feb. 22 – Mar. 10, 2025
- No change to daily bag limits
- Possession limits 3X daily limit



Thank You

Michigan.gov/Waterfowl



2024-25 Elk Regulations



Chad Stewart, Deer and Elk Management Specialist
Wildlife Division
March 14, 2024

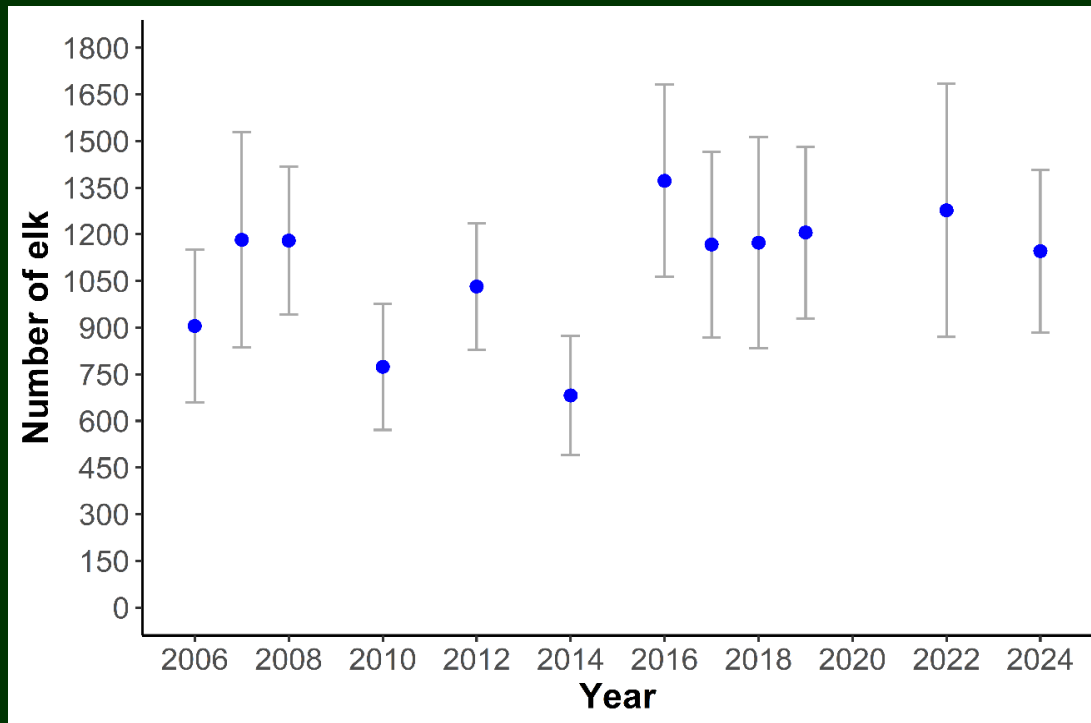


Elk Program Goals

- 500-900 Elk
- 2024 Elk survey
 - 1,146 (95% Confidence Interval 884-1,408)
 - 1,277 estimated in 2022
 - 1,206 estimated in 2019
 - 1,173 estimated in 2018
 - 1,167 estimated in 2017

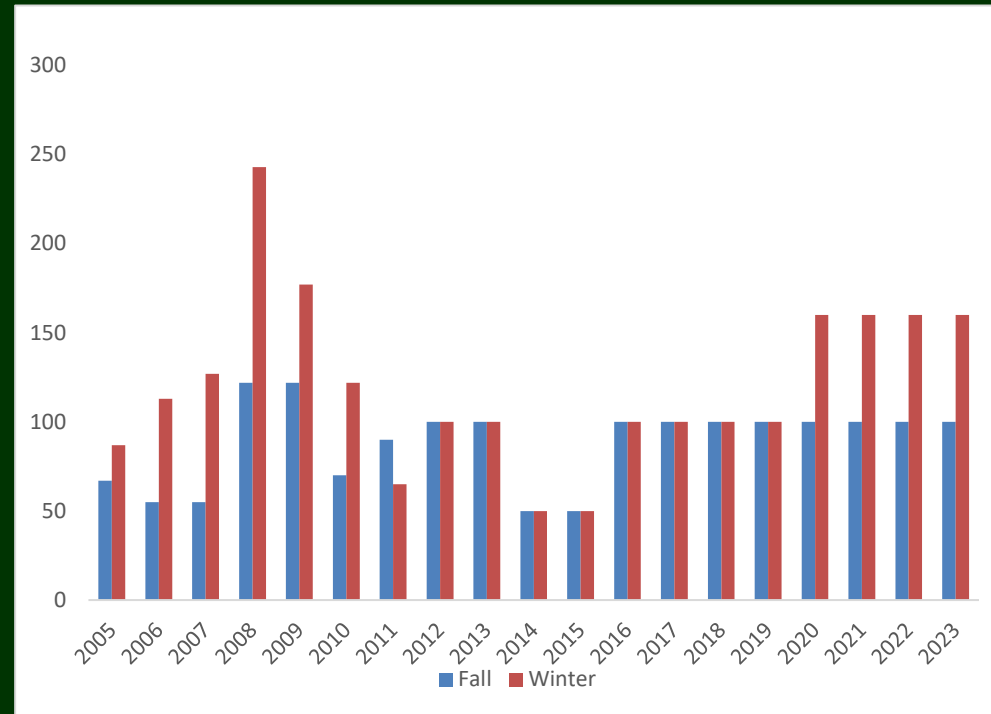


Elk Program Goals



Historic Quotas and Demand

- 2023
 - ~47,724 applicants
 - +8,575 applicants for chance only
 - Odds to draw
 - Any elk tag: 0.21%
 - Antlerless elk tag: 1.13%



2024 & 2025 Proposed License Quotas

- Maintain quota structure from 2022-2023
- 260 state drawn licenses
 - 100 licenses in September/October
 - 70 antlerless
 - 30 either sex
 - 160 licenses in December
 - 110 antlerless
 - 50 either sex



Season Dates and License Quotas

Hunt Period 1

Aug. 27-30, 2024	Aug. 26-29, 2025
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Sept. 13-16, 2024	Sept. 12-15, 2025
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Sept. 27-30, 2024	Sept. 26-29, 2025
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Unit	Any Elk	Antlerless
X	30	70



Hunt Period 2

Dec. 14-22, 2024	Dec. 13-21, 2025
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Unit	Any Elk	Antlerless
H	20	40
I	30	70
Total	50	110



Tribal Licenses

- The 2007 Inland Consent Decree authorizes the five 1836 Treaty Tribes to issue licenses equal to 10% of state issued elk licenses, rounded up.
 - Issuance of 26 tribal licenses associated with proposed quotas
 - Issuance of 1 tribal license associated with 3 Pure Michigan Hunt winners



Other Changes

- Return to elk check stations
 - Provides an opportunity for community event
- Harvest Reporting
 - Hunters can receive assistance at check station
 - Allows for public reporting, data organization
- Timelines are still being worked on, so instructions will be provided to successful hunters



Thank You

www.michigan.gov/elk

