Saginaw Bay Walleye & Yellow Perch Assessment and Future Management

April 11, 2024

Dave Fielder
Jeff Jolley
Doug Schultz

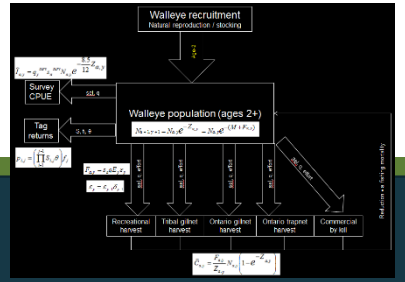
Information Sources for Saginaw Bay

Fish Community survey (gillnetting & trawling)

Walleye jaw tagging

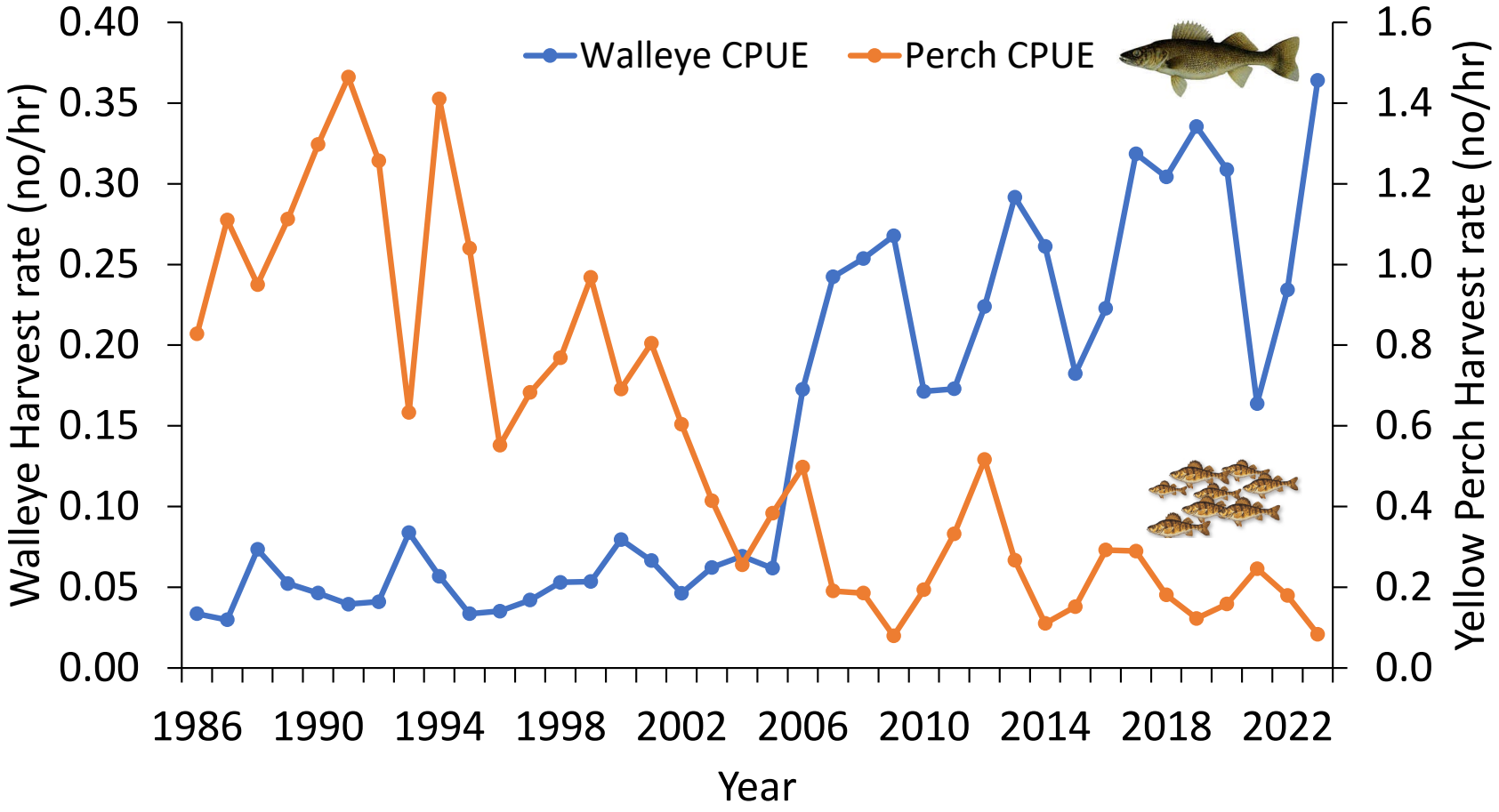
Creel Survey

Commercial Reporting



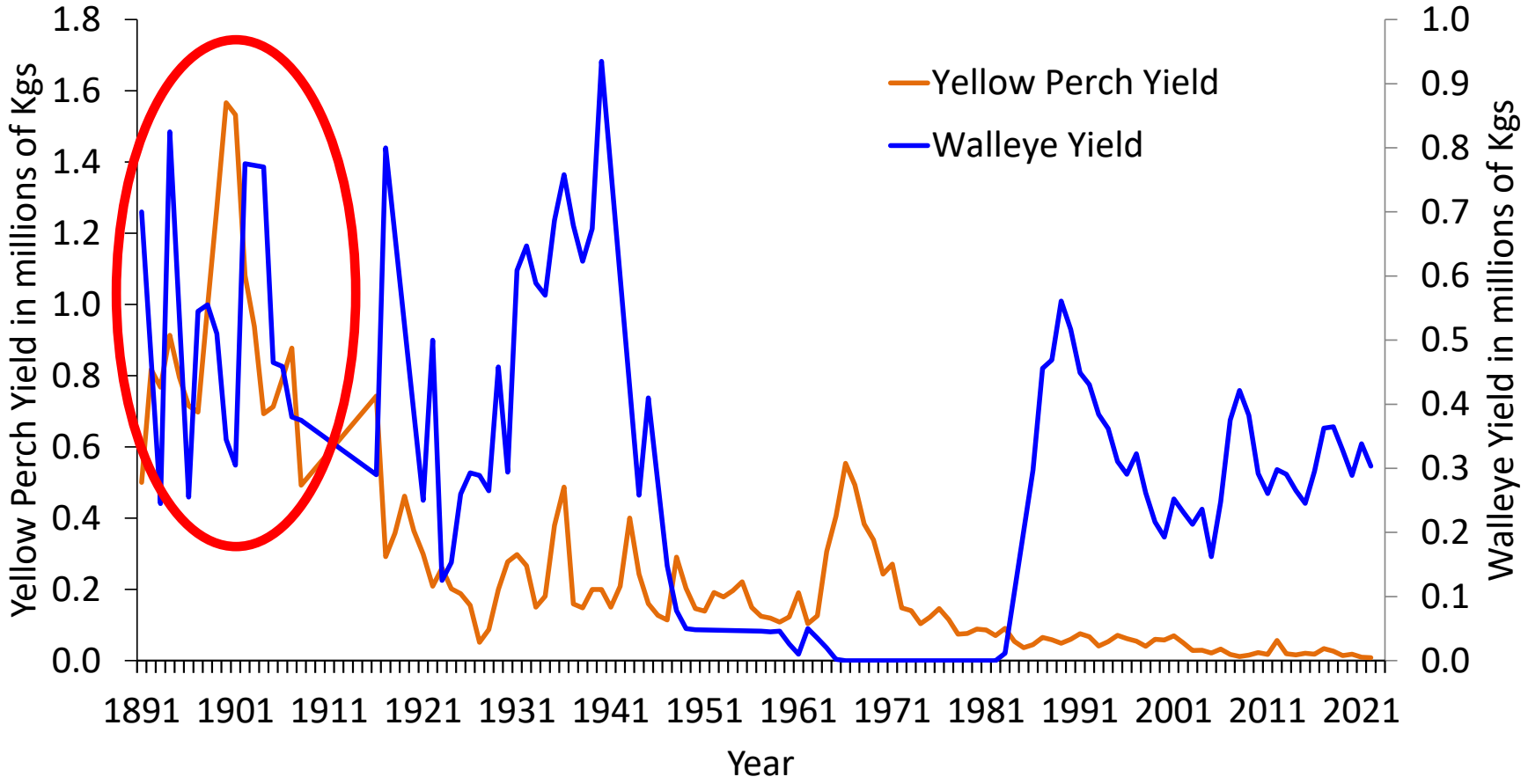
Computer models

Walleye have made a remarkable recovery, but Yellow Perch have declined greatly



Angler harvest rates in the recreational fishery, year-round in Saginaw Bay

But historically Saginaw Bay sustained both abundant Walleye and Yellow Perch populations



Yield from combined commercial and recreational fisheries from 1891 to 2023

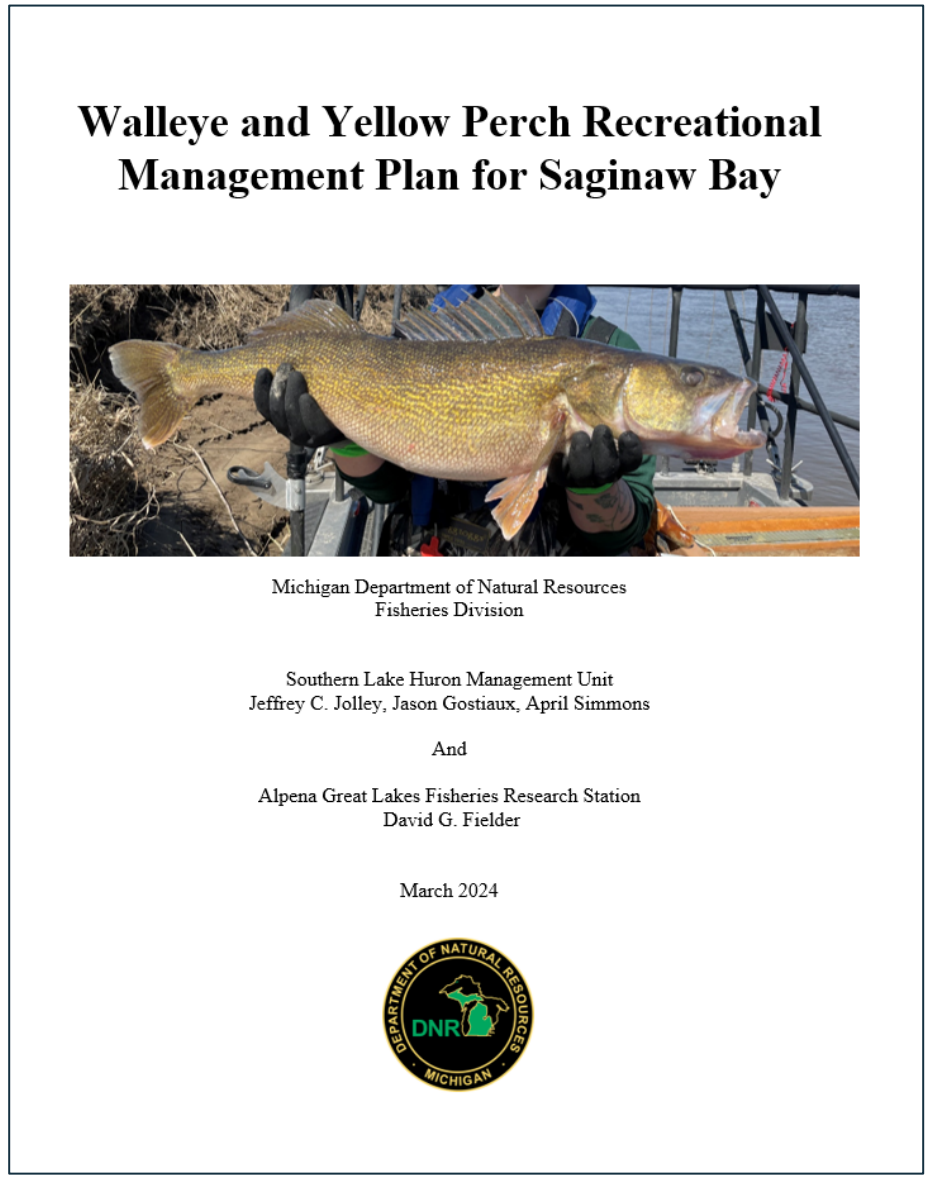
Saginaw Bay Management Timeline

- 1800s – 1945; Commercial harvest, little or no management
- 1945 - 1970s; Collapsed populations & fisheries
- 1970s – 1980s; Improving environmental conditions and stocking
- 1980s – 2003; Walleye recreational fishery dependent on stocking, considerable research to develop & implement recovery plan, Alewives collapse
- 2009; Walleye reach recovery targets, Perch depressed
- 2015-2023; Management strategy of liberalized regulations intended to increase Walleye harvest to benefit perch
- 2024; New (draft) management plan with emphasis on sustainability and quality Walleye recreational fishery and maintaining perch to be ready for recovery

New Saginaw Bay Recreational Plan

View the draft plan at:
https://www.michigan.gov/dnr/managing-resources/fisheries/walleye

Comments can be submitted to:
dnr-fish-saginawbayplan@michigan.gov



Walleye and Yellow Perch Recreational Management Plan for Saginaw Bay

Michigan Department of Natural Resources
Fisheries Division

Southern Lake Huron Management Unit
Jeffrey C. Jolley, Jason Gostiaux, April Simmons

And

Alpena Great Lakes Fisheries Research Station
David G. Fielder

March 2024

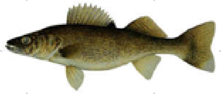
Dashboard

Draft Saginaw Bay Walleye suite of population and fishery Biological & Limit Reference Points 'Dashboard'

Type	Metric	Weight	Signal	Reference Point	Indication
Sustainability	Growth Rate	10	Meets target	Between 100% and 110% SAGR for age 3 in early Sept.	Population congruent with carrying capacity
			Some risk	Below SAGR of 386 mm for age 3 in early Sept	Population exceeding carrying capacity
			High risk	Above 110% SAGR (425 mm) for age 3 in early Sept.	Population below carring capacity
Sustainability	Spawning Stock Biomass (SSB)	10	Meets target	Above 30%	No recruitment overfishing
			Some risk	Between 20% and 30%	
			High risk	Below 20% of the unfished level	Recruitment overfishing
Recruitment	Alewife density in Lake Huron	10	Meets target	<0.25 per hectare	Determined by annual GLFC bottom trawling
			Some risk	0.25-0.35 per hectare	
			High risk	>0.35 per hectare	
Recruitment Sustainability	Stock Recruitment function position	5	Meets target	Within 20% of the Stock size to the right of the curve apex	Maximum recruitment
			Some risk	beyond 20% to the right of the curve's apex	Compensation
			High risk	Anywhere to the left of the apex	Recruitment overfishing
Recruitment	Age 0 mean trawl CPUE (per 10 min tow)	10	Meets target	>24.4	
			Some risk	6-24	
			High risk	<6.0 for more than one year out of four	
Sustainability	Total annual mortality rate age 4+	5	Meets target	0.3 - 0.4	
			Some risk	<0.3	Under utilization of fishery
			High risk	>0.4	Potential overharvest if consistently >0.4
Sustainability	Forage base	5	Meets target	> 5.0	
			Some risk	3.0 - 5.0	Trawling index kg/10 min tow
			High risk	<3.0	
Quality	Angler targeted catch rate	5	Meets target	>=0.40	
			Some risk	0.30-0.40	
			High risk	<0.30	
Sustainability Quality	Population (age 2+) size	2	Meets target	>5 million	
			Some risk	3-5 million	
			High risk	< 3 million	
Objective function	Recreational harvest	1	Meets target	>175,000	
			Some risk	125,000-175,000	
			High risk	< 125,000	
	Total max score possible:	**63**			

Yearly assessment

Dashboard trends and current status

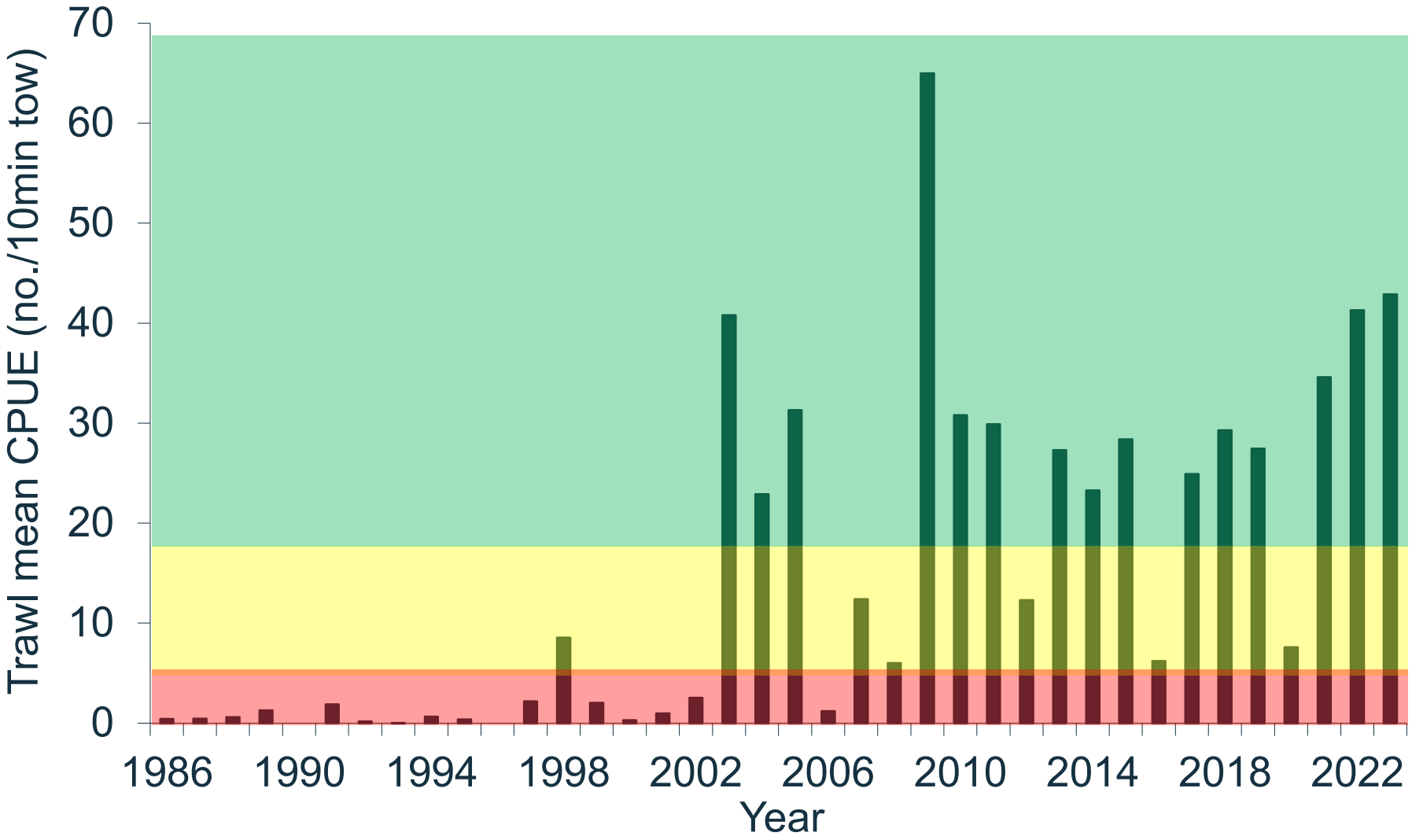


Walleye

Signal	multiplier
Yellow	0.5
Green	1
Red	0

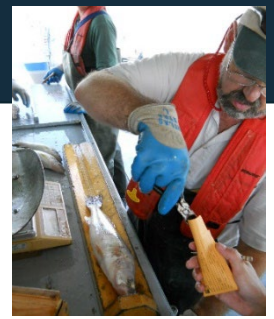
			Reference Points															
						600000												
			386	30		720000		0.30	0.3000		0.2000		20	83	5000000	308000	175000	
				30	0.25		24.40			5		0.4000						
			425	20	0.35	600000	6.00	0.40	0.4000	3	0.3000	0.3000	10	100	3000000	458000	125000	
Year	Sum	Type	Sustainability	Sustainability	Recruitment	Recruitment Sustainability	Recruitment	Sustainability	Sustainability	Sustainability	Sustainability	Quality	Quality	Quality	Sustainability Quality	Objective function	Objective function	
		Metric	Growth Rate (TL in mm @ age 3)	Spawning Stock Biomass	Alewife density in Lake Huron (no./ha)	Stock Recruitment function position	Age-0 mean trawl CPUE	Total annual mortality rate age 4+	Total exploitaiton rate age 4+	Forage base (kg/10 min tow)	Recreational exploitation rate age 4+	Angler targeted catch rate	RSD Preferred	Wr	Population (age 2+) size	Total Yield	Recreational harvest	Total possible
		Weight	**10**	**10**	**10**	**5**	**10**	**5**	**0**	**5**	**0**	**5**	**0**	**0**	**2**	**0**	**1**	**63**
2022	55.5	Value	419	36	0.18	2393360	45.00	0.2286	0.0813	4.7	0.0486	0.4219	12.0	######	10226700	303531	214505	
		Status	Green	Green	Green	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green	
		Score	10	10	10	2.5	10	2.5	0	2.5	0	5	0	0	2	0	1	
2021	58.0	Value	420	35	0.03	3005610	36.80	0.2513	0.0864	8.9	0.0460	0.3881	14.7	86.599	9621860	331644	177917	
		Status	Green	Green	Green	Yellow	Green	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Green	
		Score	10	10	10	2.5	10	5	0	5	0	2.5	0	0	2	0	1	
2020	50.0	Value	423	29	0.09	2557880	7.60	0.2721	0.0590	9.3	0.0230	0.4483	12.5	90.654	6338300	286377	146157	
		Status	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green	Yellow	Green	Green	Green	Green	Yellow	Yellow	
		Score	10	5	10	2.5	5	5	0	5	0	5	0	0	2	0	0.5	
2019	48.0	Value	422	24	0.15	2925150	27.46	0.3108	0.1650	2.3	0.1015	0.4958	8.3	85.252	5971560	330234	301572	
		Status	Green	Yellow	Green	Yellow	Green	Yellow	Green	Red	Yellow	Green	Red	Green	Green	Green	Green	
		Score	10	5	10	2.5	10	2.5	0	0	0	5	0	0	2	0	1	
2018	35.5	Value	417	15	0.74	1471160	29.29	0.3176	0.2156	3.2	0.0942	0.4203	6.4	85.771	6090250	368671	243524	
		Status	Green	Red	Red	Yellow	Green	Yellow	Green	Yellow	Yellow	Green	Red	Green	Green	Green	Green	
		Score	10	0	0	2.5	10	2.5	0	2.5	0	5	0	0	2	0	1	
2017	35.5	Value	423	17	0.32	1405190	24.91	0.3340	0.2424	2.7	0.1543	0.3891	10.8	85.117	5175490	363839	349561	
		Status	Green	Red	Yellow	Yellow	Green	Yellow	Green	Red	Yellow	Yellow	Green	Green	Green	Green	Green	
		Score	10	0	5	2.5	10	2.5	0	0	0	2.5	0	0	2	0	1	
2016	39.5	Value	415	17	0.03	1433370	6.20	0.3062	0.1582	6.5	0.0884	0.3033	10.4	86.175	3527680	295394	182337	
		Status	Green	Red	Green	Yellow	Yellow	Yellow	Green	Green	Yellow	Yellow	Green	Green	Yellow	Yellow	Green	
		Score	10	0	10	2.5	5	2.5	0	5	0	2.5	0	0	1	0	1	
2015	46.5	Value	400	16	0	1359480	28.39	0.2983	0.1345	3.5	0.0882	0.4291	8.3	82.597	3572470	244540	171842	
		Status	Green	Red	Green	Yellow	Green	Green	Green	Yellow	Yellow	Green	Red	Yellow	Yellow	Yellow	Yellow	
		Score	10	0	10	2.5	10	5	0	2.5	0	5	0	0	1	0	0.5	
2014	27.0	Value	407	10	0.9	1047070	23.29	0.3403	0.1668	1.8	0.1155	0.4169	3.4	74.006	3739870	264485	237999	
		Status	Green	Red	Red	Yellow	Yellow	Yellow	Green	Red	Yellow	Green	Red	Yellow	Yellow	Yellow	Green	
		Score	10	0	0	2.5	5	2.5	0	0	0	5	0	0	1	0	1	
2013	34.5	Value	414	12	8.68	1061820	27.30	0.3282	0.2067	3.4	0.1193	0.7591	6.8	82.219	4055720	290465	222622	
		Status	Green	Red	Red	Yellow	Green	Yellow	Green	Yellow	Yellow	Green	Red	Yellow	Yellow	Yellow	Green	
		Score	10	0	0	2.5	10	2.5	0	2.5	0	5	0	0	1	0	1	
2012	29.0	Value	409	14	13.95	1020120	12.30	0.3266	0.1962	4.9	0.1100	0.6412	5.8	82.512	3757980	297391	168668	
		Status	Green	Red	Red	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Green	Red	Yellow	Yellow	Yellow	Yellow	
		Score	10	0	0	2.5	5	2.5	0	2.5	0	5	0	0	1	0	0.5	
2011	30.5	Value	380	12	2.64	960894	29.90	0.3428	0.1813	5.5	0.1055	0.4830	7.4	72.166	2920500	260760	165996	
		Status	Yellow	Red	Red	Yellow	Green	Yellow	Green	Green	Yellow	Green	Red	Yellow	Red	Yellow	Yellow	
		Score	5	0	0	2.5	10	2.5	0	5	0	5	0	0	0	0	0.5	

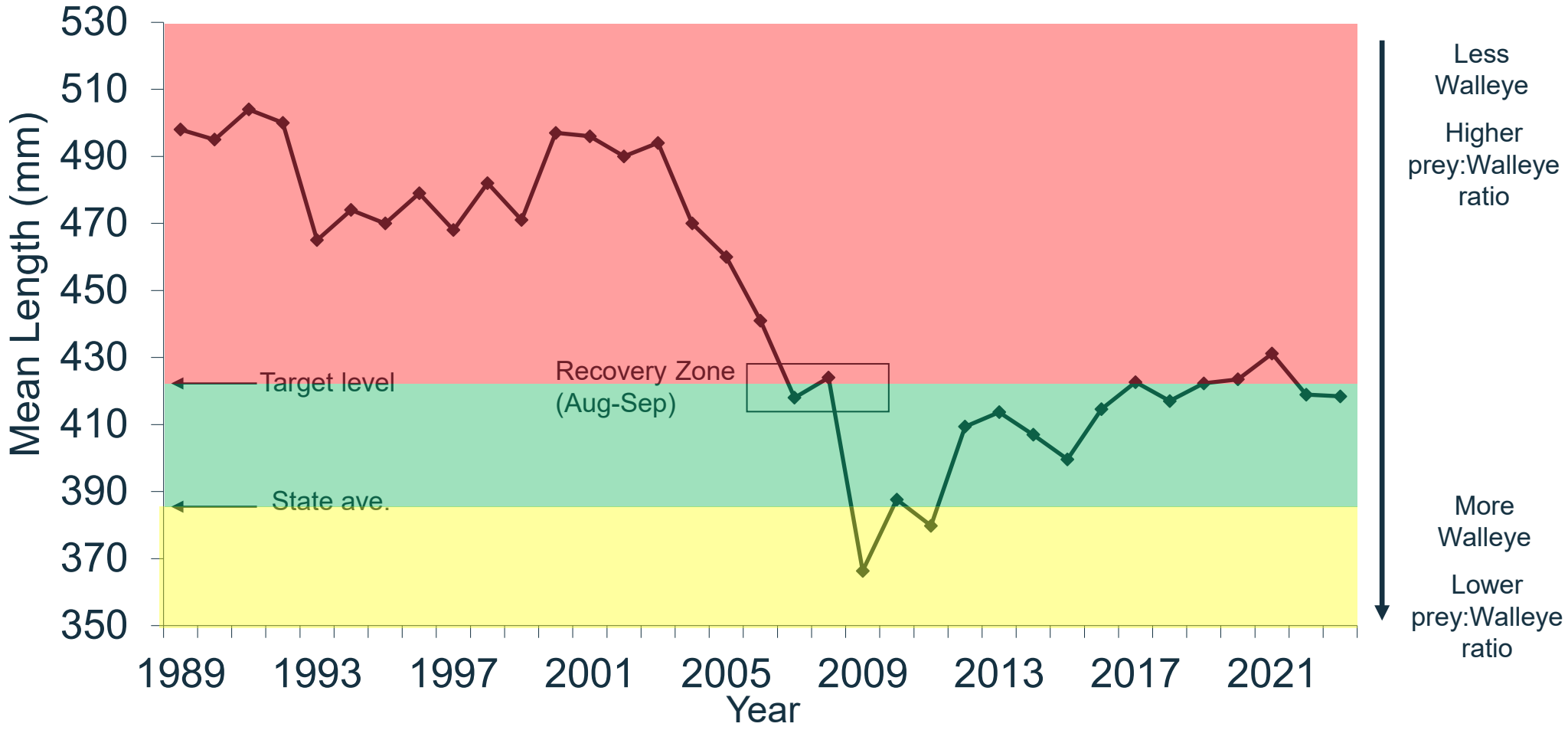
Age-0 walleye trawl CPUE Saginaw Bay



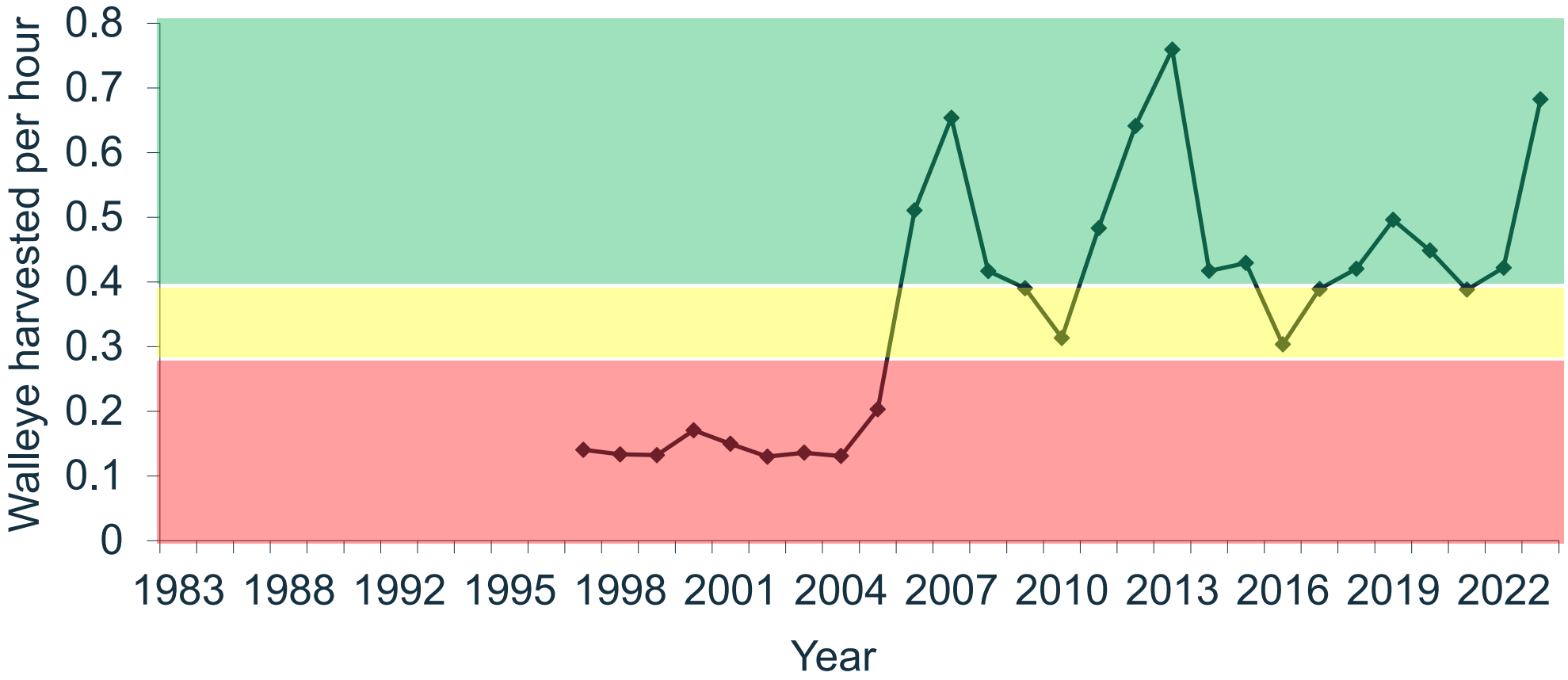
Trends in Walleye growth rate

Walleye Age-3 Mean Length at Capture (mid Sept.)





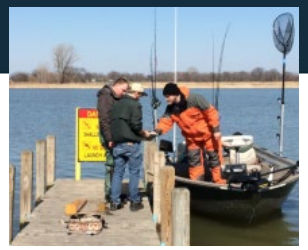
Targeted Saginaw Bay walleye angler harvest rate since 1997

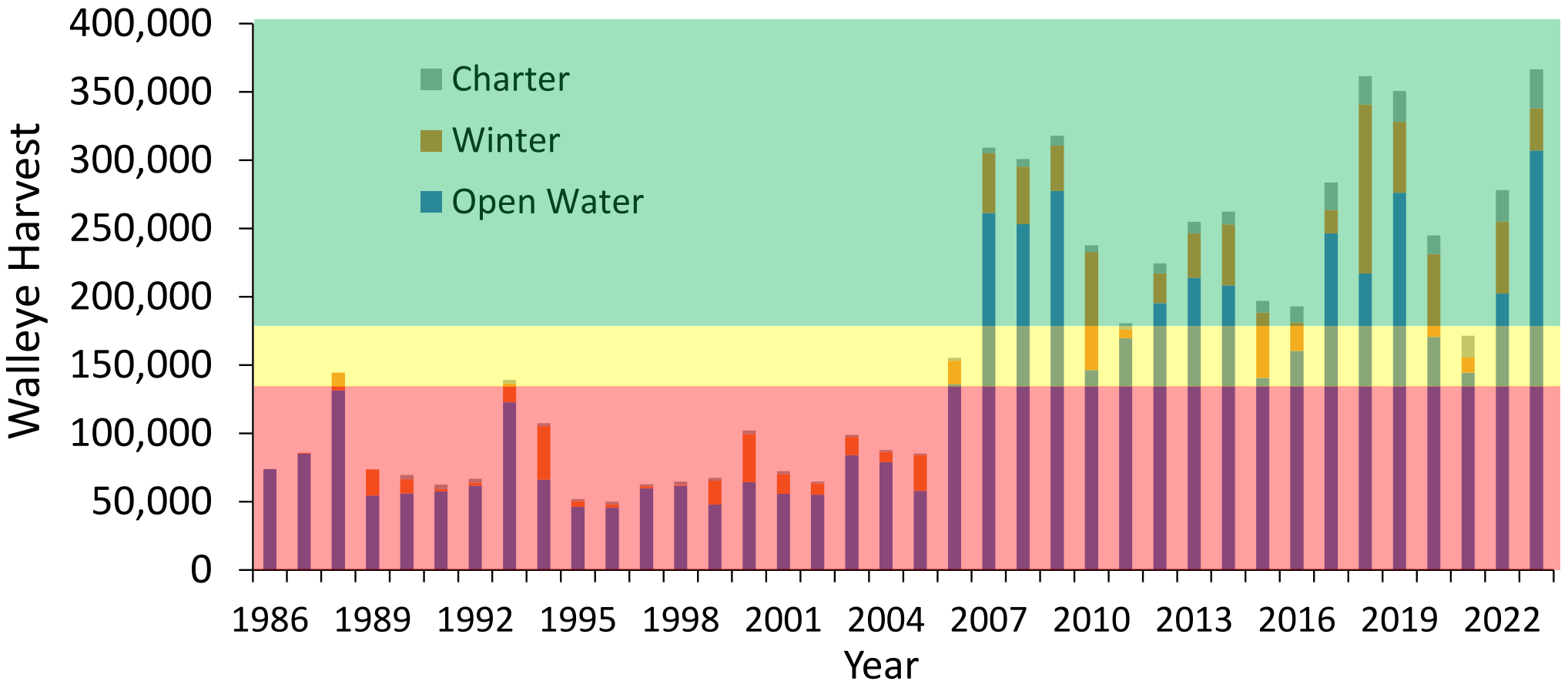


Based on calendar year. Data not collected before 1997

Saginaw Bay Walleye harvest since 1986

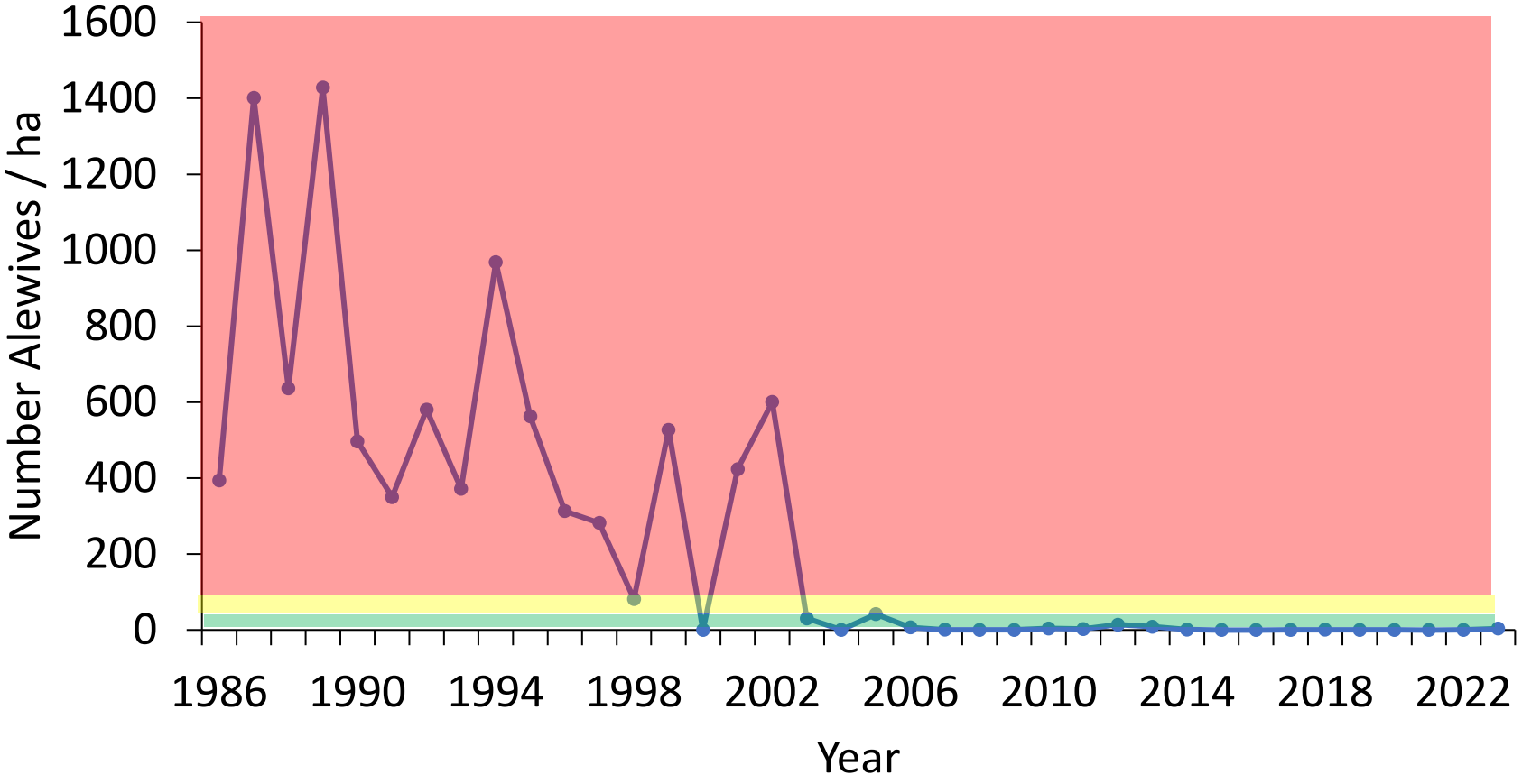
Includes Saginaw and Tittabawassee Rivers





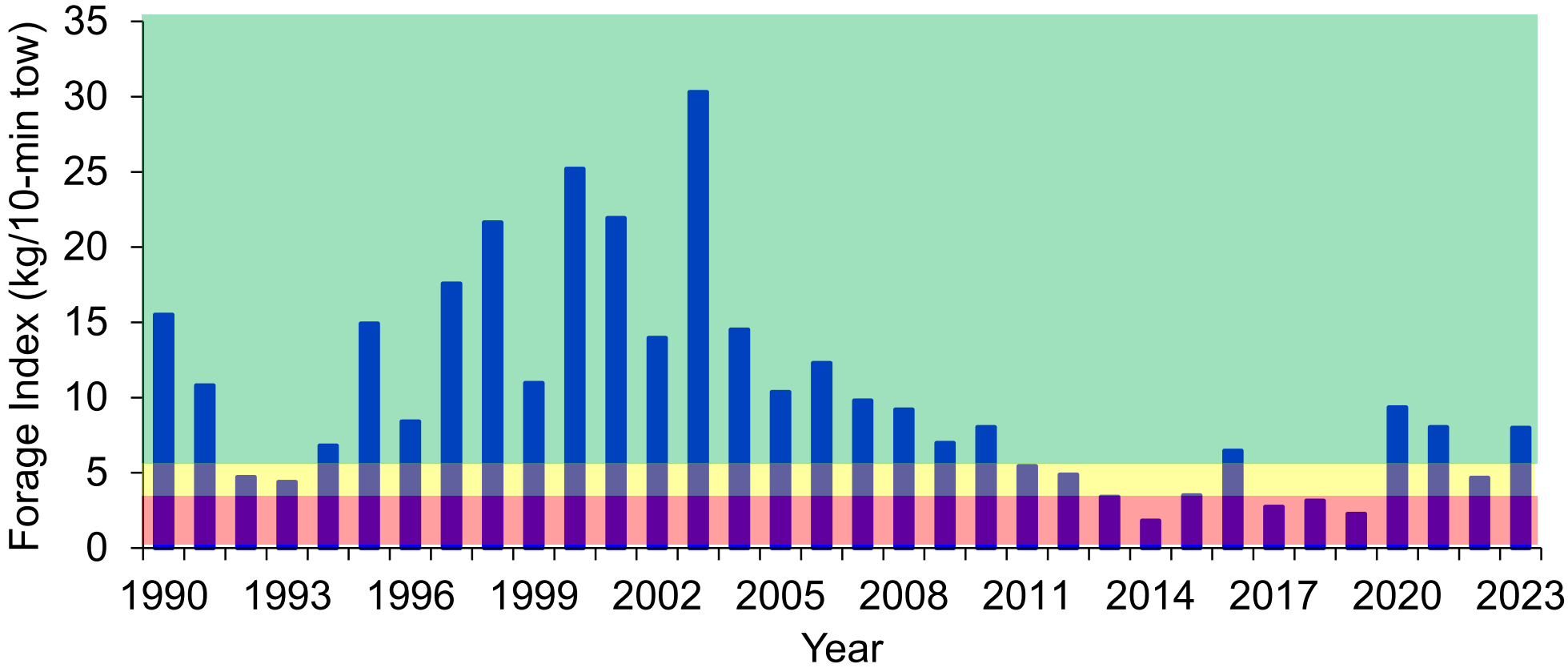
Based on Calander year, Saginaw Bay & tributaries only

Alewife density in Lake Huron



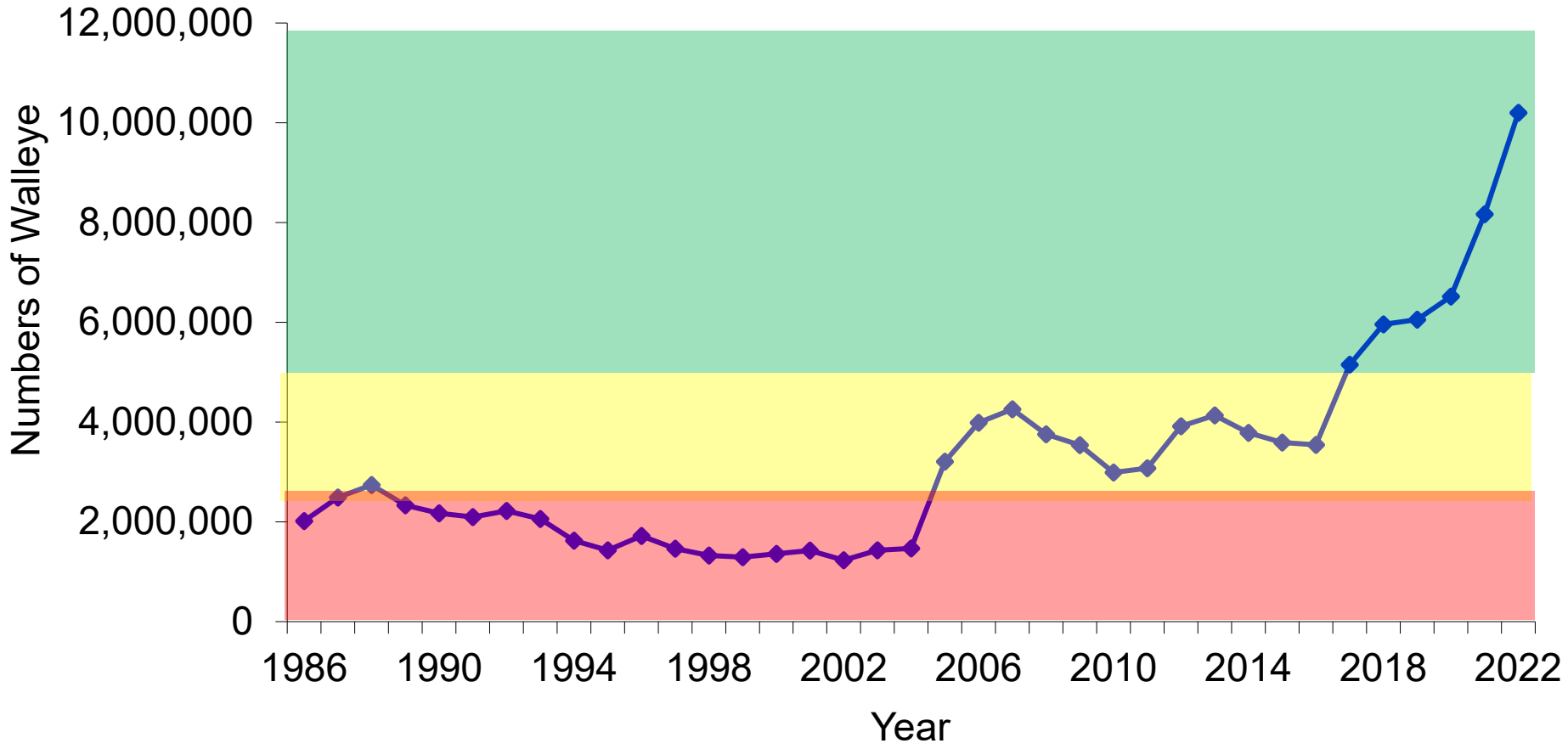
Based on USGS bottom trawling time series

Forage Index biomass based on fall trawls



Forage index species include; Alewife, Emerald shiner, Gizzard shad, Smelt, Spottail shiner, Round goby, Trout-perch, Age-0 White bass, Age-0 White perch, Age-0 Yellow perch, Mimic shiner

Saginaw Bay stock of walleyes, population size (age 2 and older) 1986 - 2022



2022 estimate is 10,226,700 age-2+ walleyes

Reflects data through March 2023

Dashboard trends and current status

Walleye

Signal	multiplier
Yellow	0.5
Green	1
Red	0

							Reference Points											
						600000												
			386	30		720000		0.30	0.3000		0.2000		20	83	5000000	308000	175000	
				30	0.25		24.40			5		0.4000						
			425	20	0.35	600000	6.00	0.40	0.4000	3	0.3000	0.3000	10	100	3000000	458000	125000	
Year	Sum	Type	Sustainability	Sustainability	Recruitment	Recruitment Sustainability	Recruitment	Sustainability	Sustainability	Sustainability	Sustainability	Quality	Quality	Quality	Sustainability Quality	Objective function	Objective function	
		Metric	Growth Rate (TL in mm @ age 3)	Spawning Stock Biomass	Alewife density in Lake Huron (no./ha)	Stock Recruitment function position	Age-0 mean trawl CPUE	Total annual mortality rate age 4+	Total exploitaiton rate age 4+	Forage base (kg/10 min tow)	Recreational exploitation rate age 4+	Angler targeted catch rate	RSD Preferred	Wr	Population (age 2+) size	Total Yield	Recreational harvest	Total possible
		Weight	**10**	**10**	**10**	**5**	**10**	**5**	**0**	**5**	**0**	**5**	**0**	**0**	**2**	**0**	**1**	**63**
		Value	419	36	0.18	2393360	45.00	0.2286	0.0813	4.7	0.0486	0.4219	12.0	######	10226700	303531	214505	
2022	55.5	Status	Green	Green	Green	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green	
		Score	10	10	10	2.5	10	2.5	0	2.5	0	5	0	0	2	0	1	
		Value	420	35	0.03	3005610	36.80	0.2513	0.0864	8.9	0.0460	0.3881	14.7	86.599	9621860	331644	177917	
2021	58.0	Status	Green	Green	Green	Yellow	Green	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Green	
		Score	10	10	10	2.5	10	5	0	5	0	2.5	0	0	2	0	1	
		Value	423	29	0.09	2557880	7.60	0.2721	0.0590	9.3	0.0230	0.4483	12.5	90.654	6338300	286377	146157	
2020	50.0	Status	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green	Yellow	Green	Green	Green	Green	Yellow	Yellow	
		Score	10	5	10	2.5	5	5	0	5	0	5	0	0	2	0	0.5	
		Value	422	24	0.15	2925150	27.46	0.3108	0.1650	2.3	0.1015	0.4958	8.3	85.252	5971560	330234	301572	
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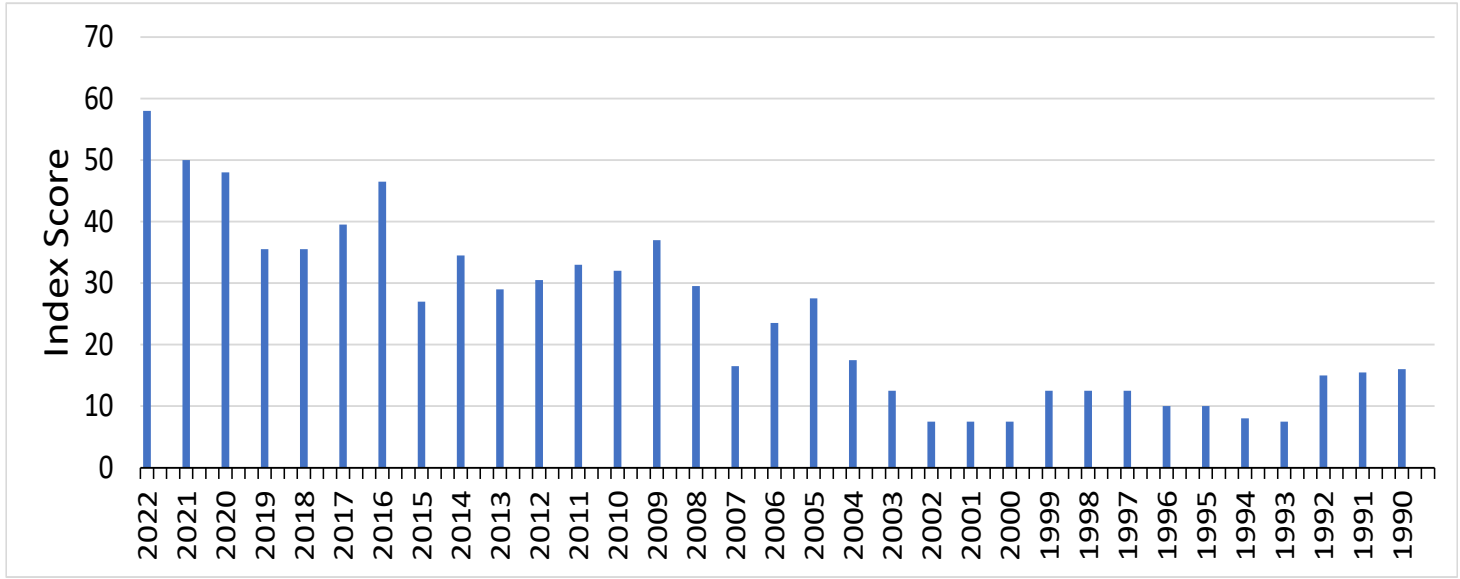
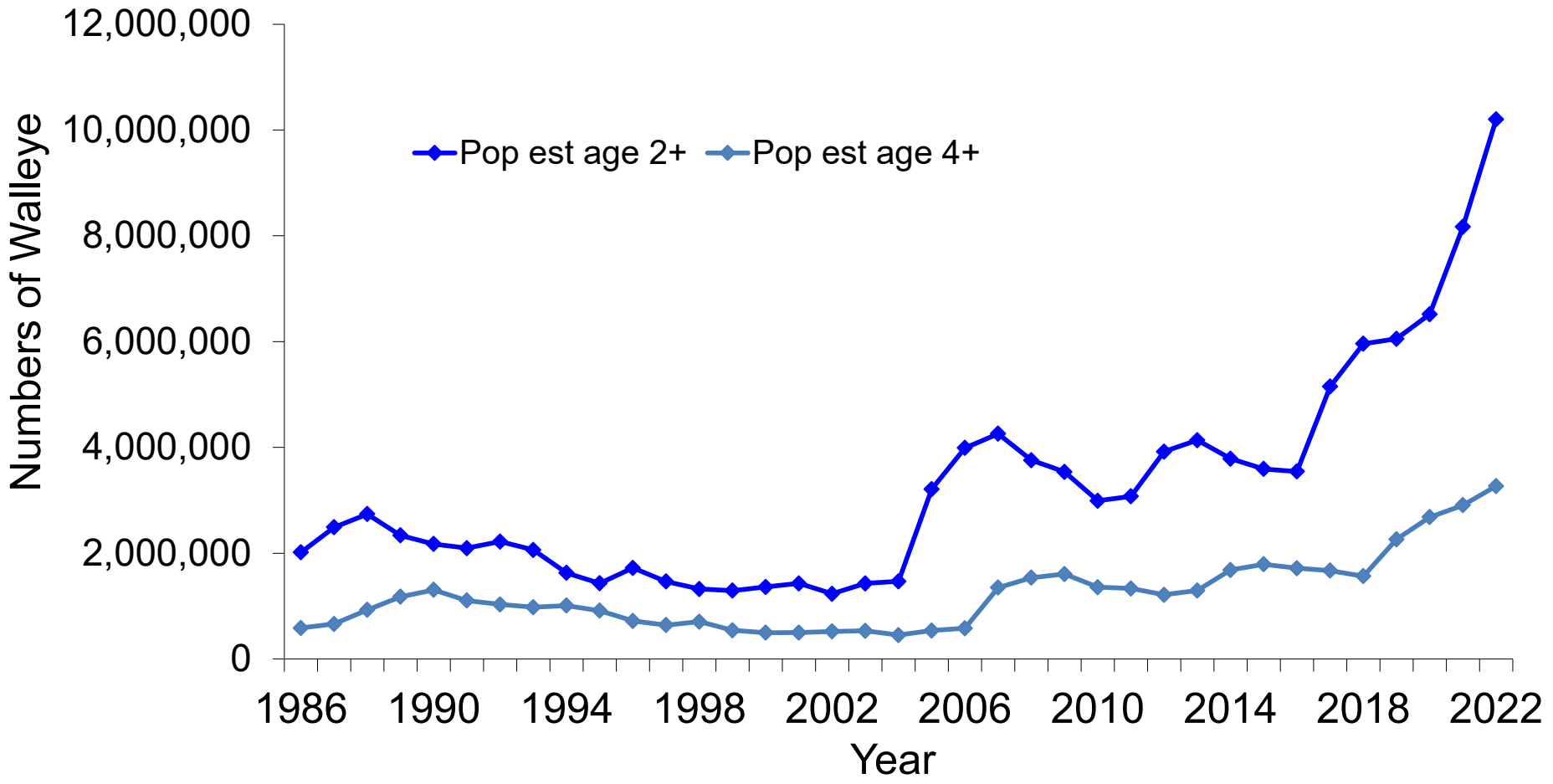
		Score	10	5	10	2.5	10	2.5	0	0	0	5	0	0	2	0	1	
		Value	417	15	0.74	1471160	29.29	0.3176	0.2156	3.2	0.0942	0.4203	6.4	85.771	6090250	368671	243524	
2018	35.5	Status	Green	Red	Red	Yellow	Green	Yellow	Green	Yellow	Yellow	Green	Red	Green	Green	Green	Green	
		Score	10	0	0	2.5	10	2.5	0	2.5	0	5	0	0	2	0	1	
		Value	423	17	0.32	1405190	24.91	0.3340	0.2424	2.7	0.1543	0.3891	10.8	85.117	5175490	363839	349561	
2017	35.5	Status	Green	Red	Yellow	Yellow	Green	Yellow	Green	Red	Yellow	Yellow	Green	Green	Green	Green	Green	
		Score	10	0	5	2.5	10	2.5	0	0	0	2.5	0	0	2	0	1	

2022 score is 55.5 out of 63 possible

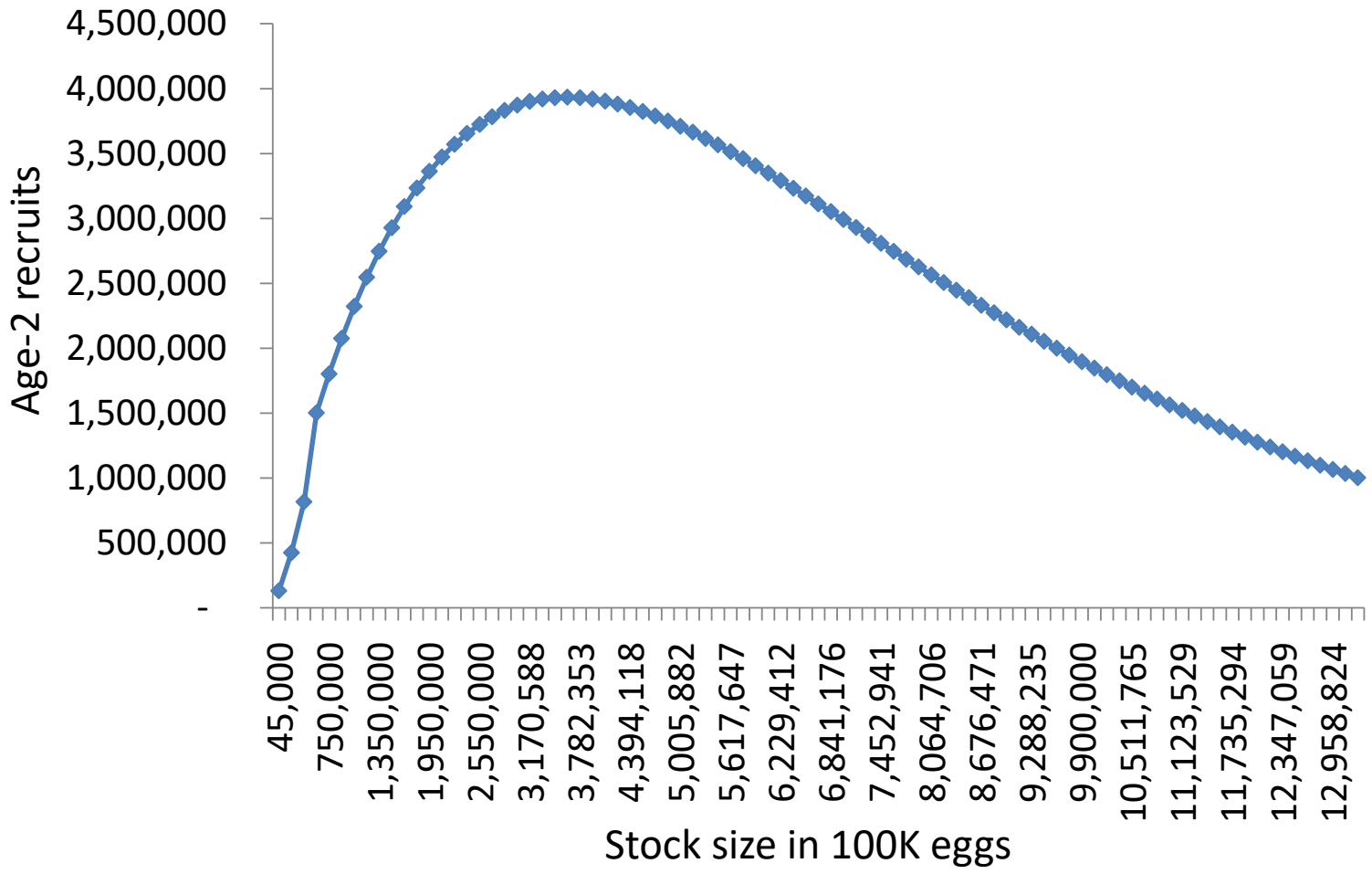


Saginaw Bay stock of walleyes, population size (age 2+ and age-4+ 1986 - 2022



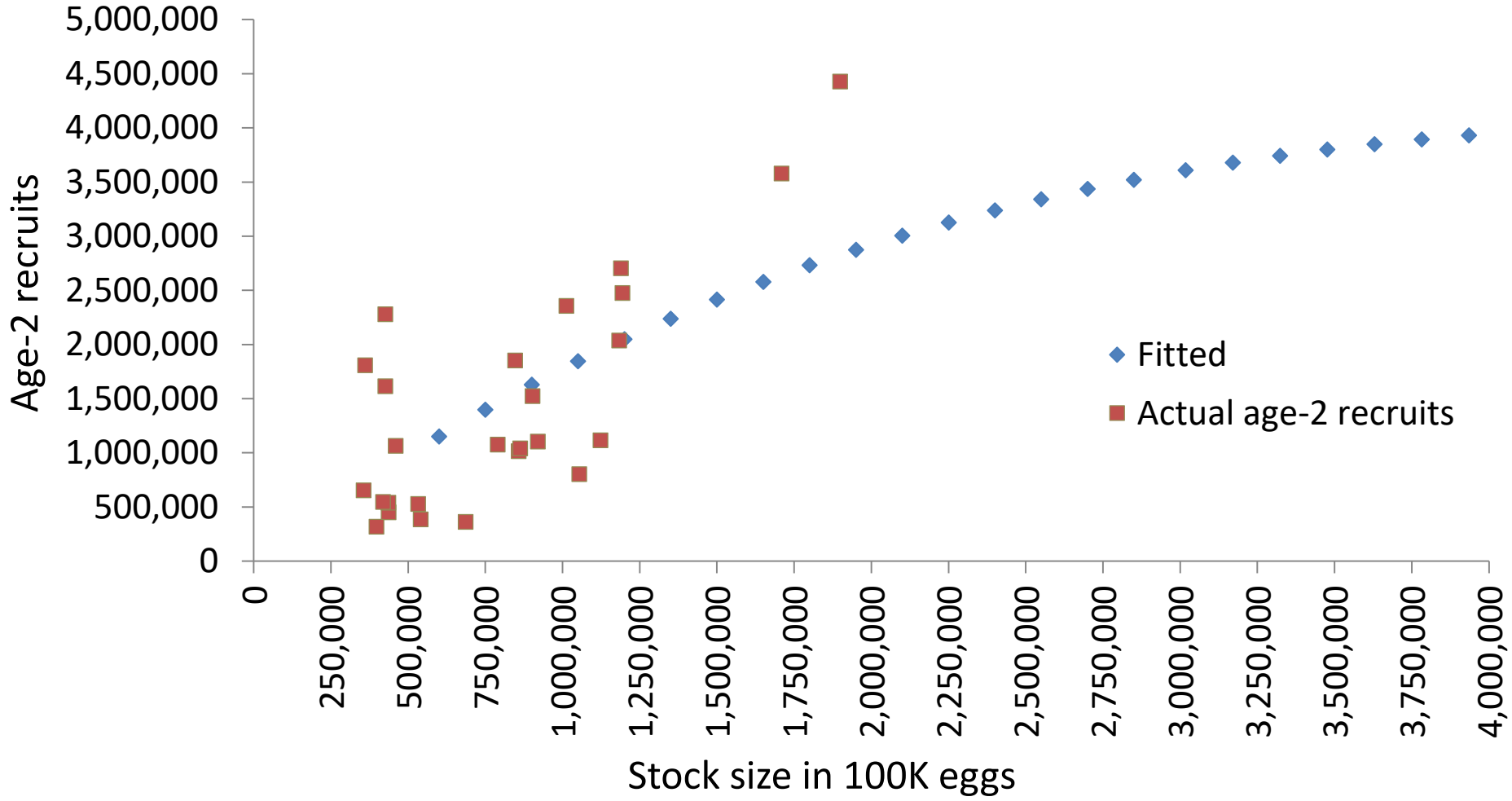
Reflects data through March 2023

Saginaw Bay Walleye stock-recruitment curve with data prior to 2021

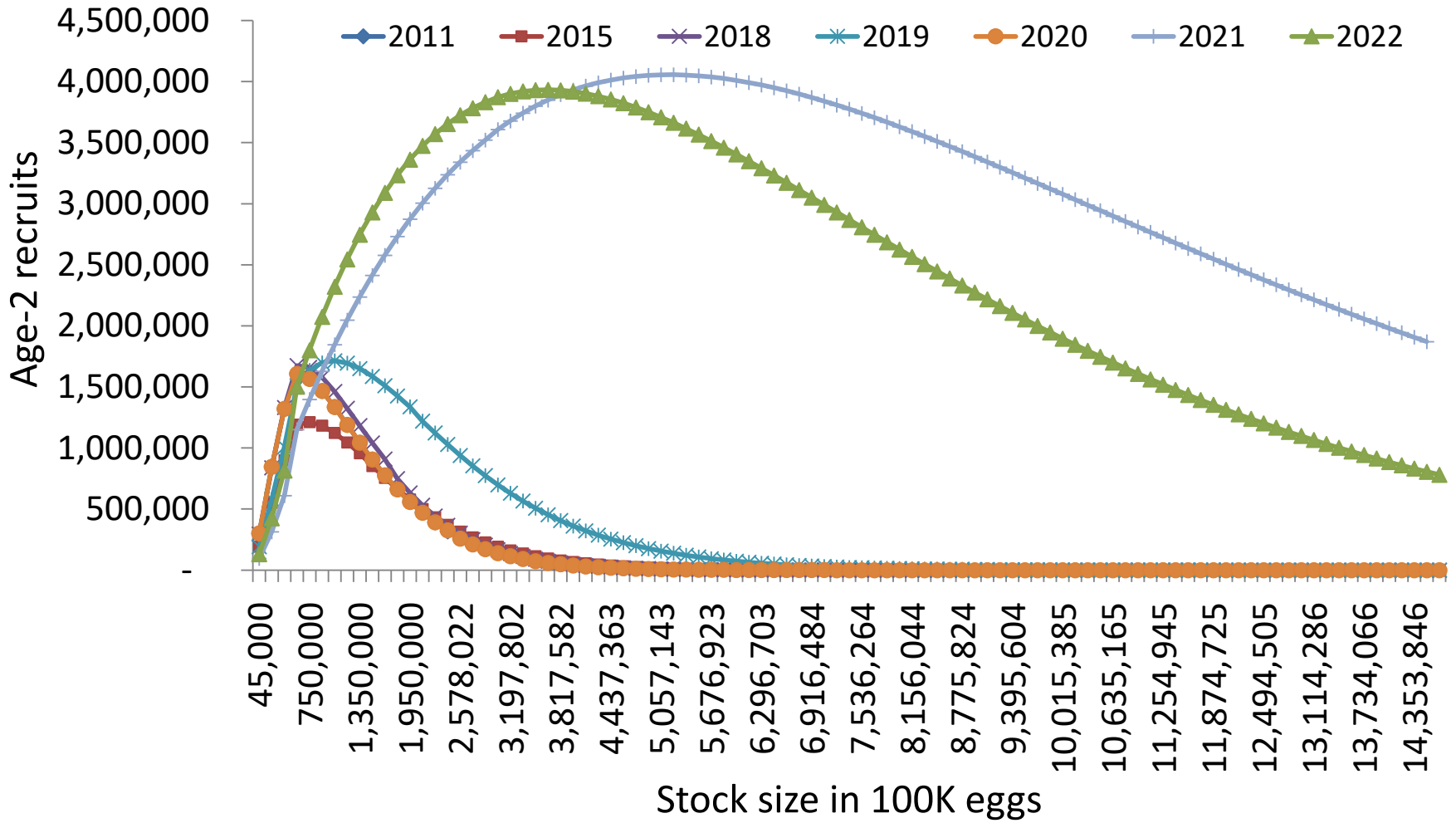


Reflects data through March 2020

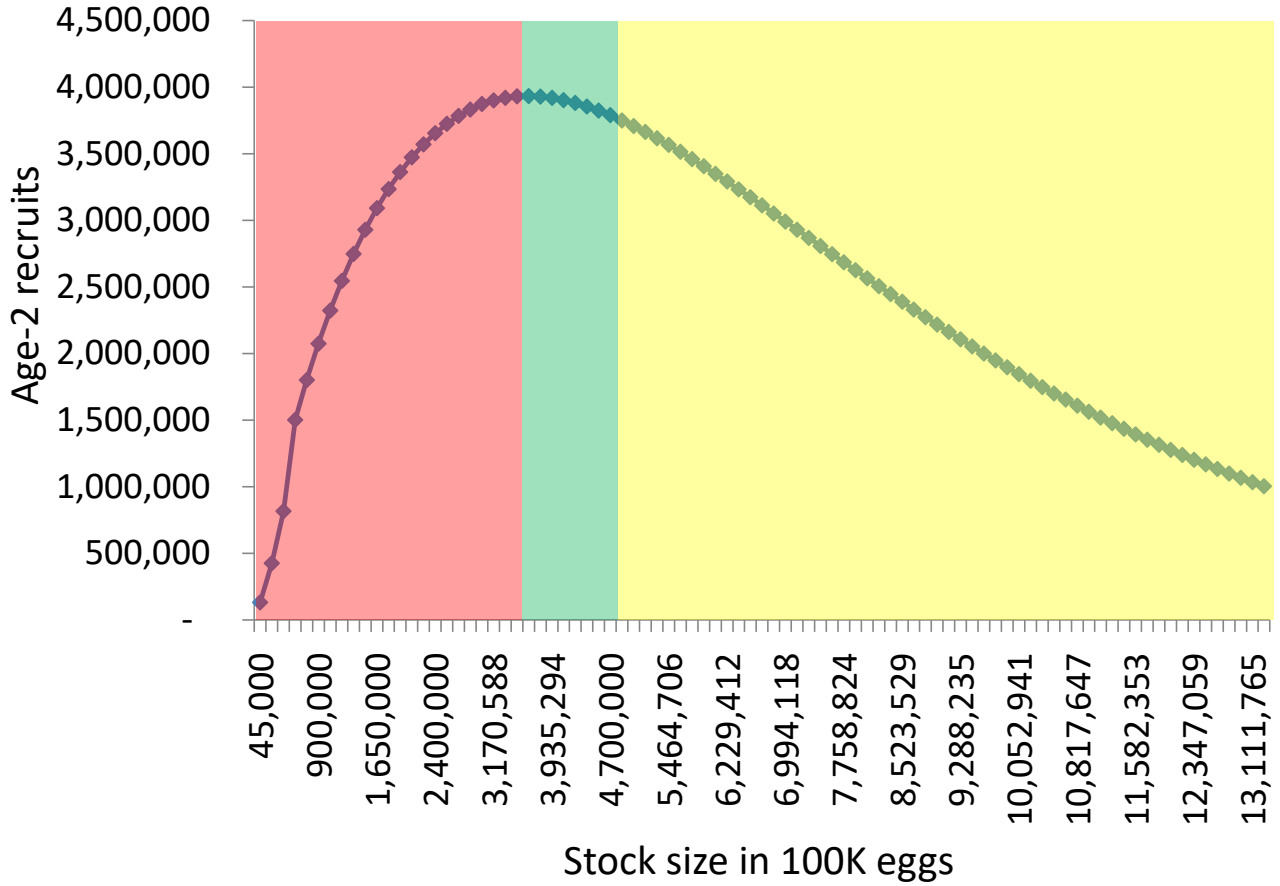
Saginaw Bay Walleye actual stock recruitment scatter plot and corresponding fitted line



Saginaw Bay Walleye Stock/Recruitment curve updated in 2022



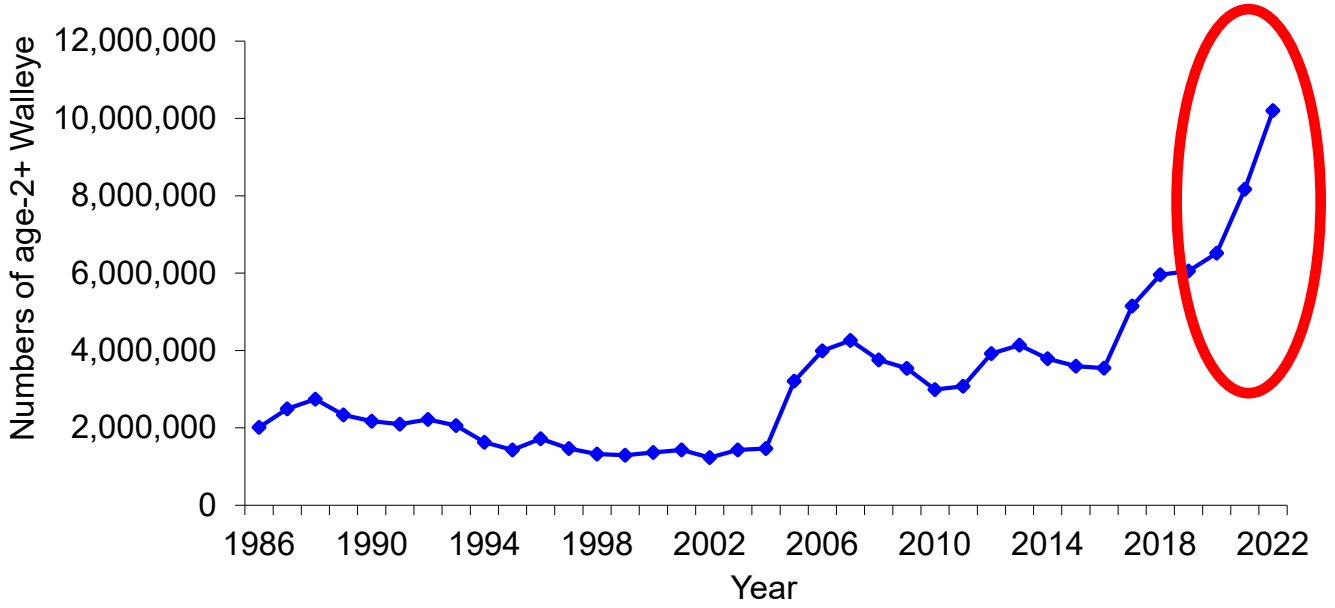
Saginaw Bay Walleye stock-recruitment curve with data through 2023



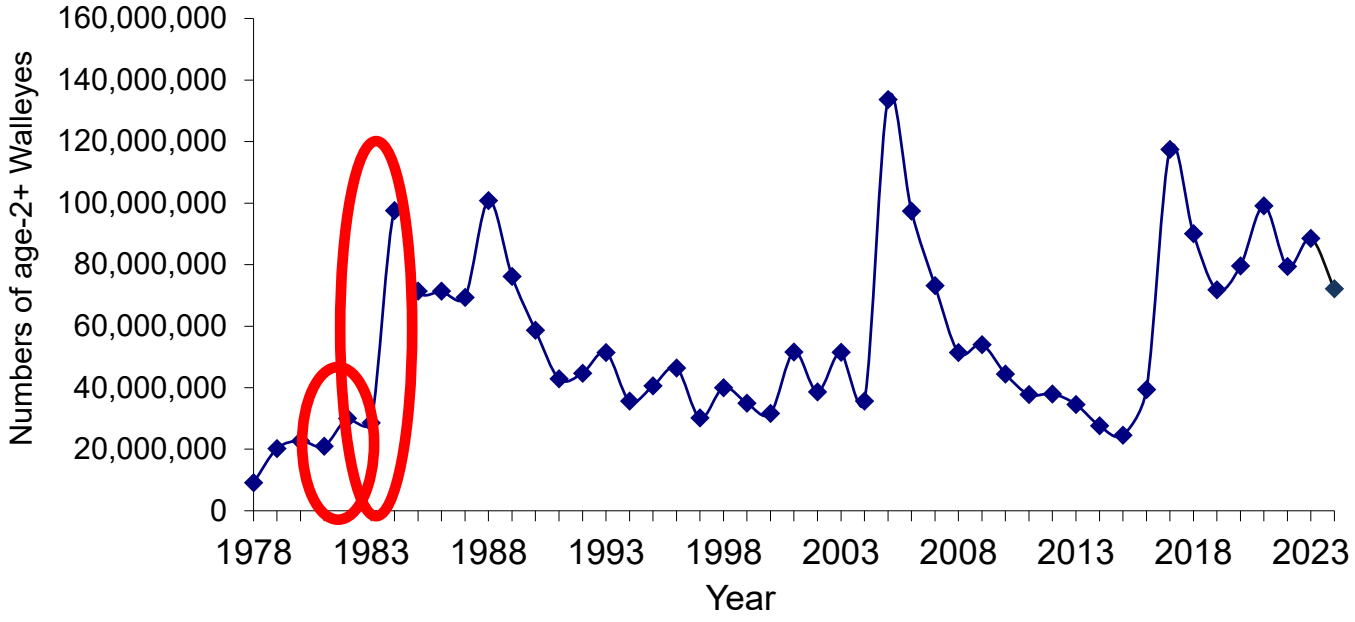
Predicated on S/R curve up through 2023

Saginaw Bay and Lake Erie Walleye population trends

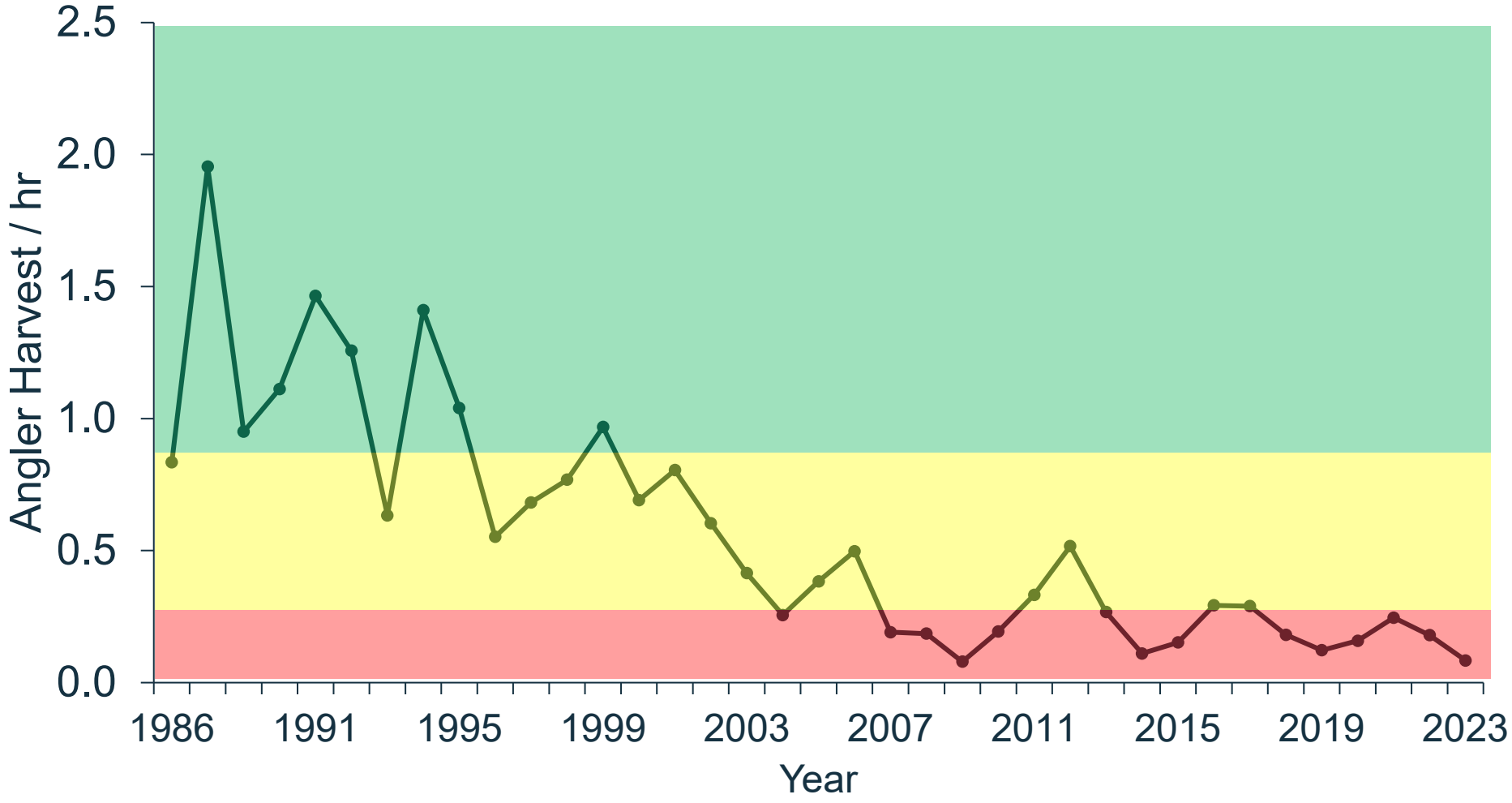
Saginaw Bay



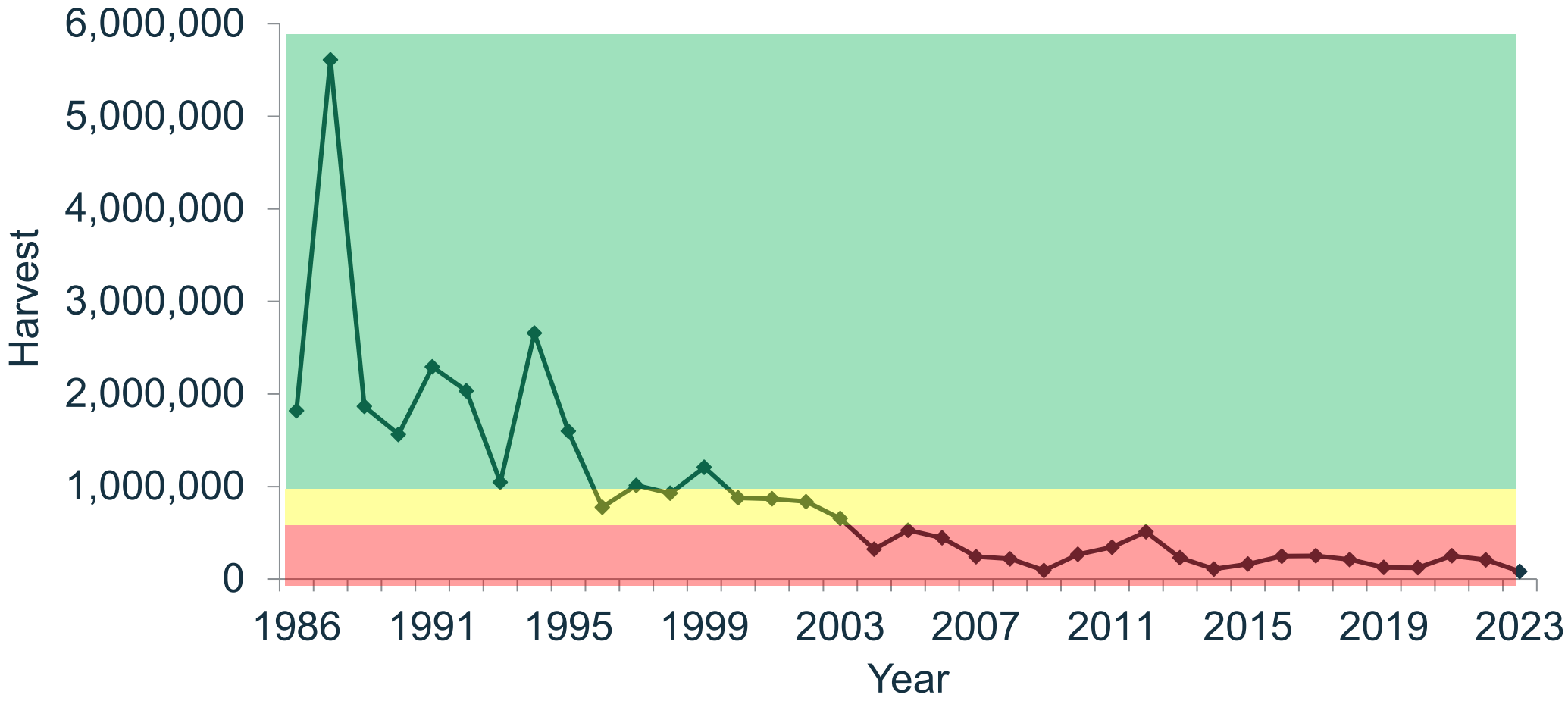
Lake Erie



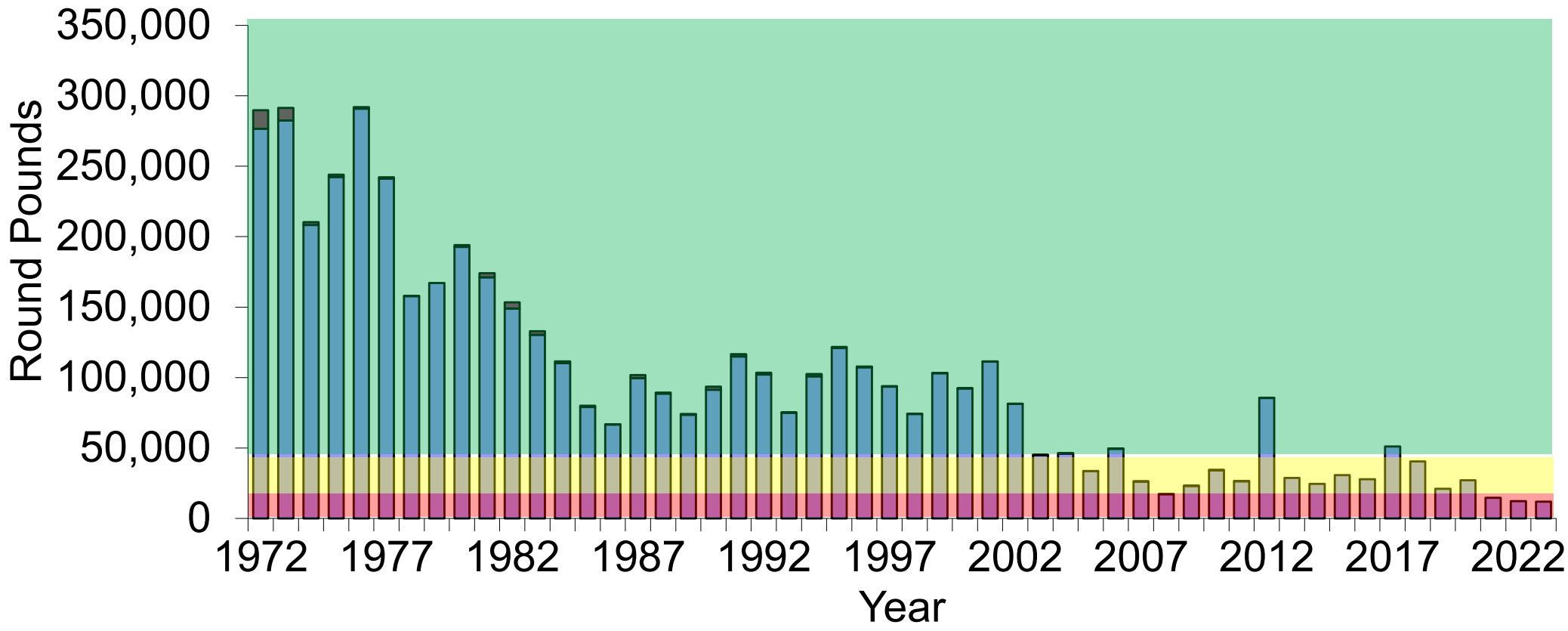
Saginaw Bay yellow perch Recreational angler CPUE (year-round)



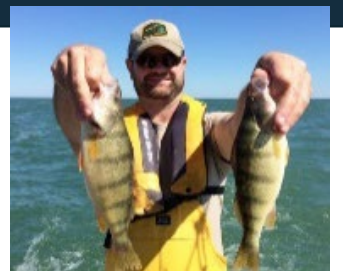
Saginaw Bay yellow perch Recreational harvest (year-round)

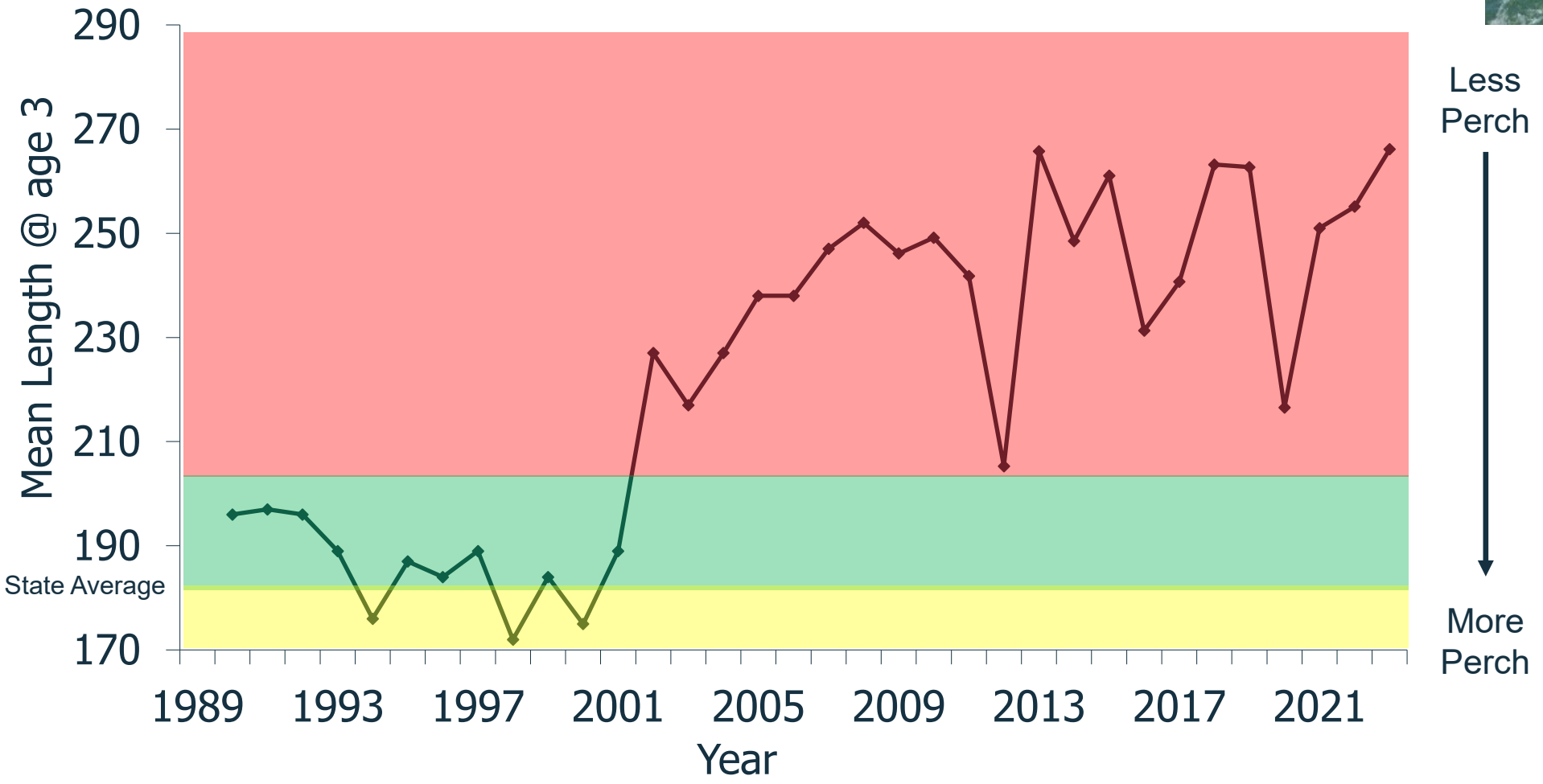


Saginaw Bay yellow perch Commercial yield

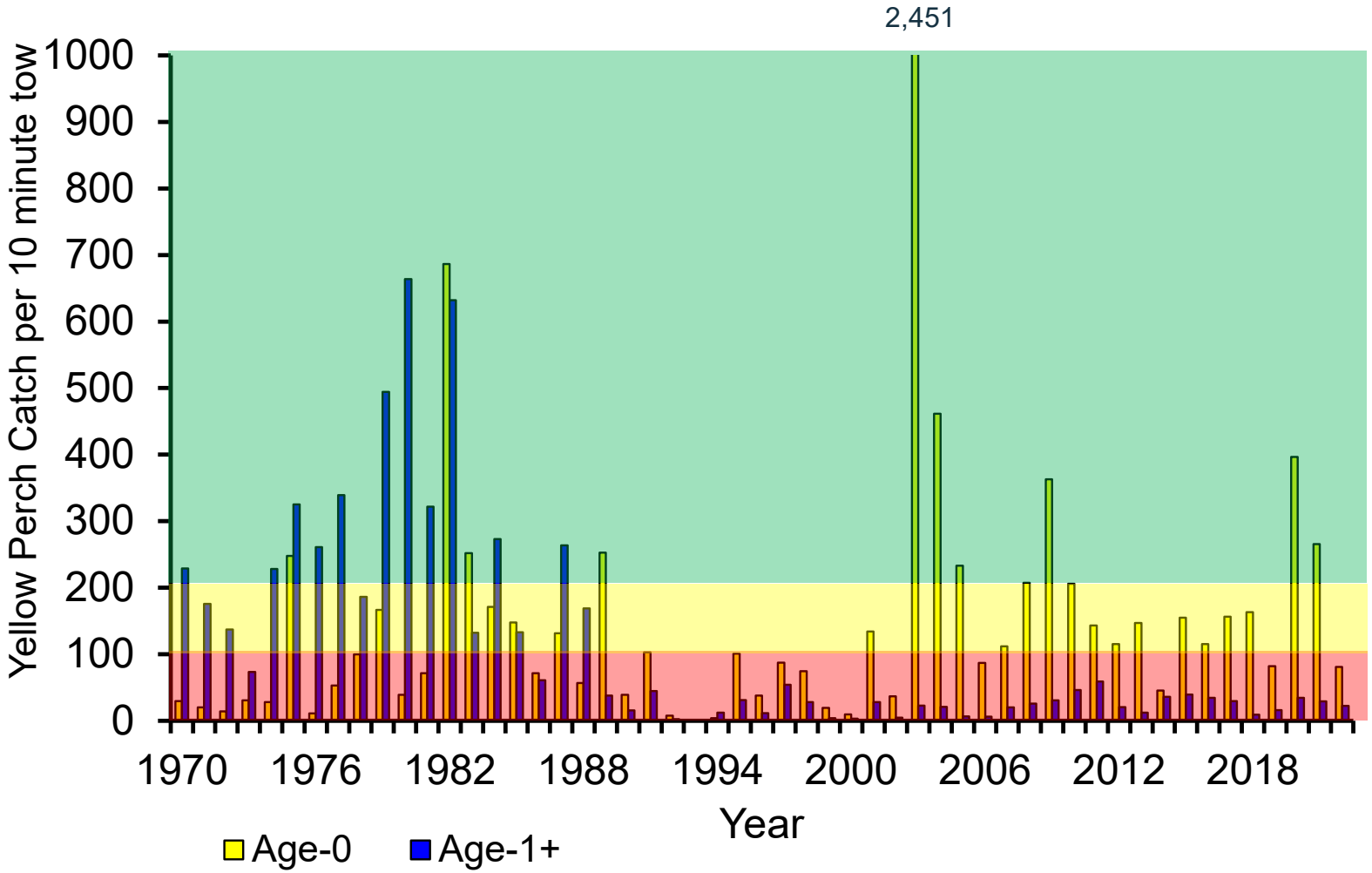


Trends of Mean Length at Age-3 for yellow perch in Saginaw Bay



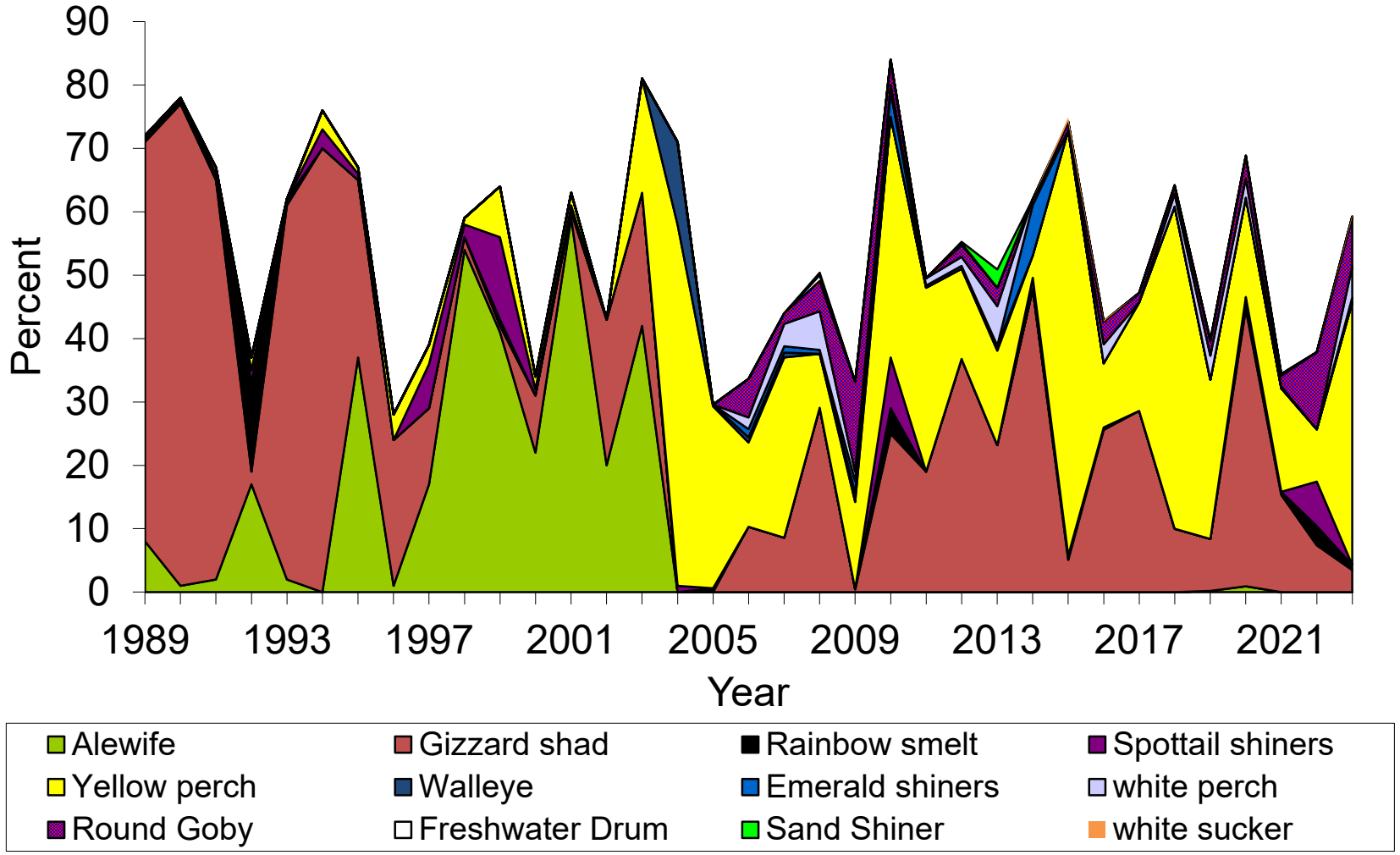


Mean CPUE for Age 0 and Age 1+ YP

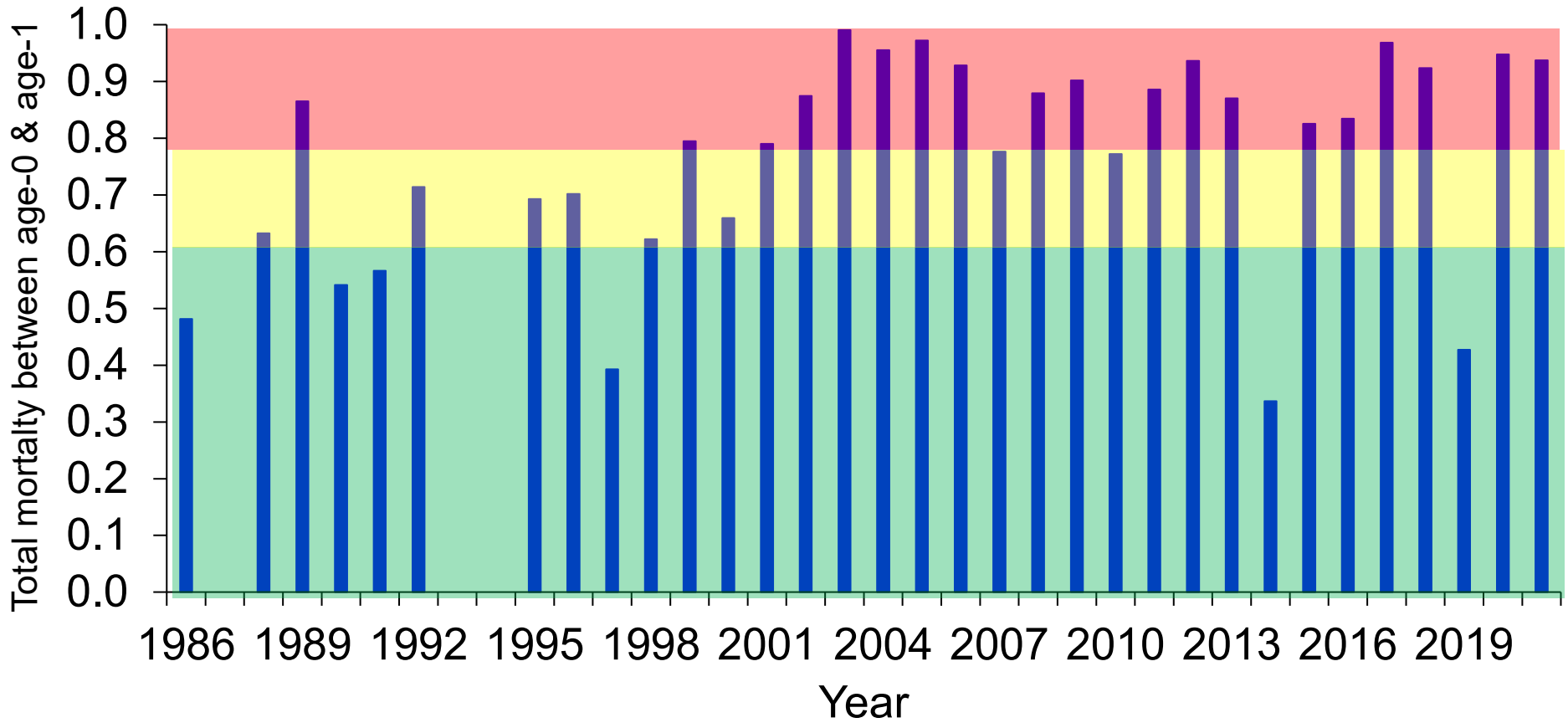


Walleye Diet from Fall Samples 1989 – 2023

Percent-Abundance of Food Item by Type

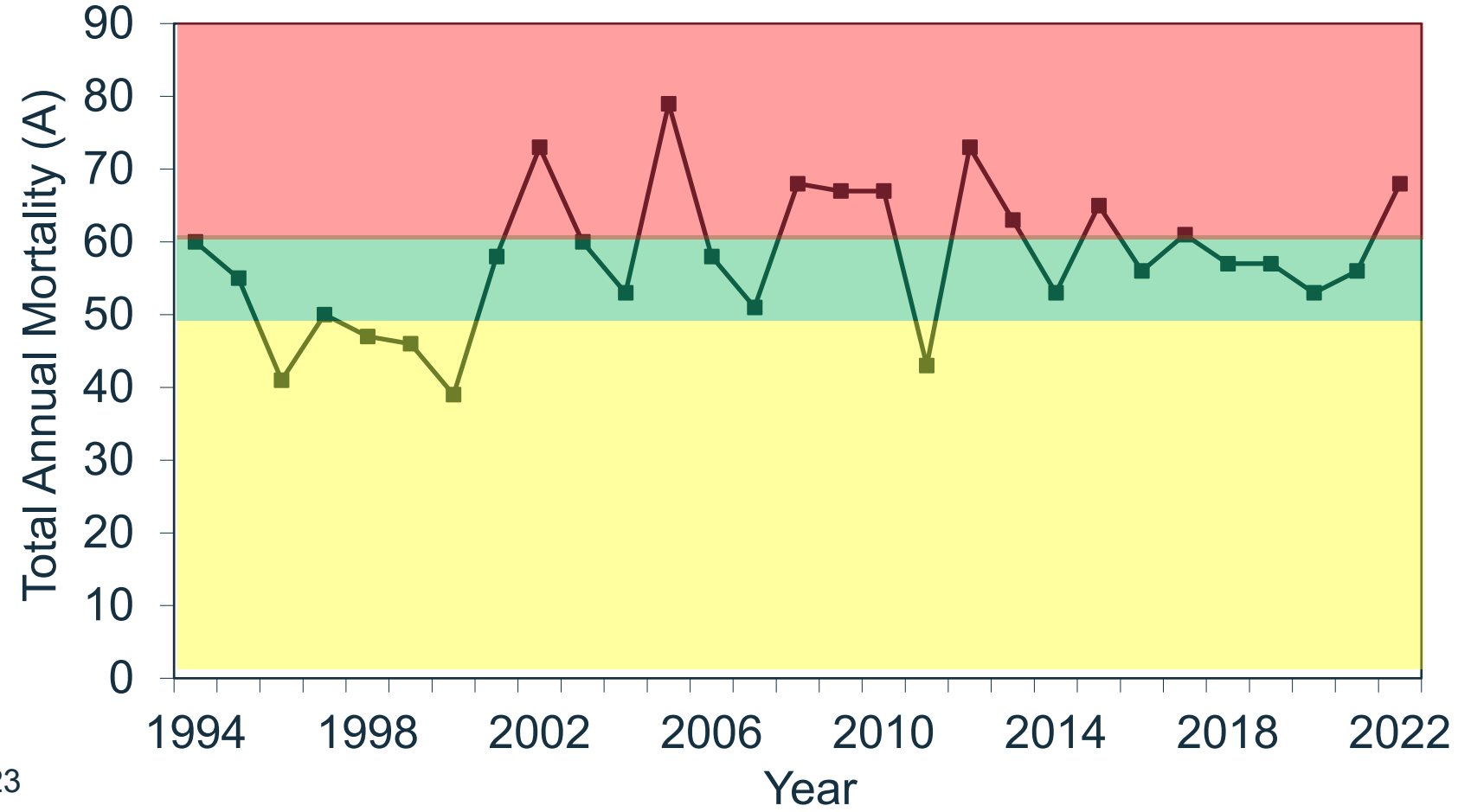


Yellow Perch age-0 to age-1 mortality in Saginaw Bay



Reflects data through 2022. 2021 is last value estimable

Yellow Perch total annual mortality since 1994 - 2022 calculated with the Robson-Chapman method based on direct annual catch curves (from gillnet collected perch)



Reflective of ages 1+ in 2023

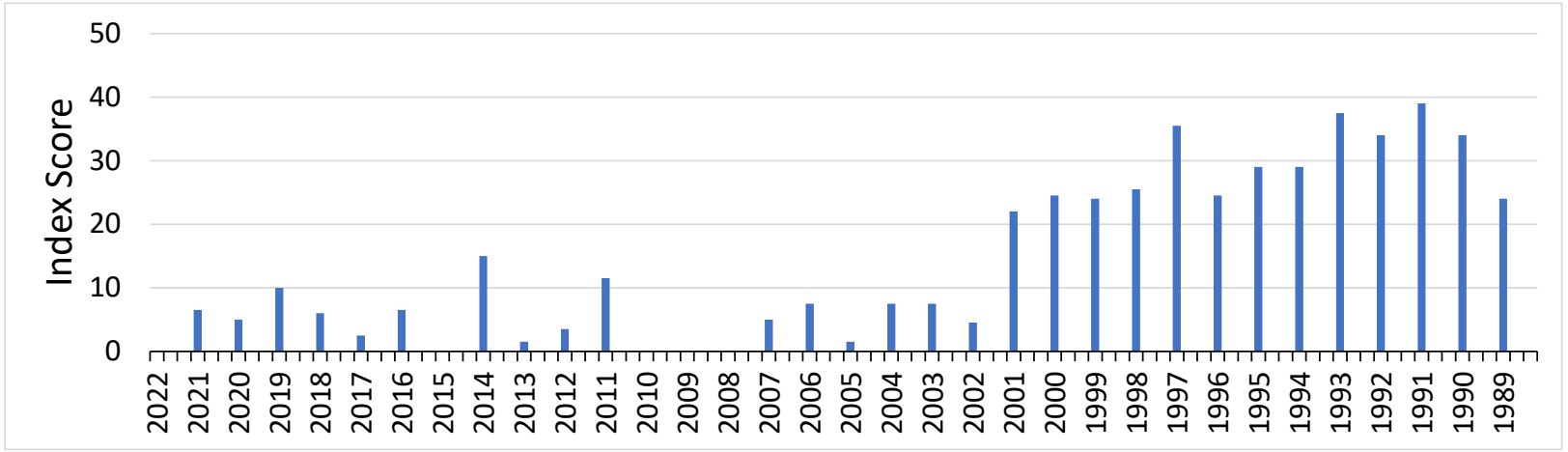
Dashboard trends and current status

Yellow Perch

Signal	multiplier
Yellow	0.5
Green	1
Red	0

			Reference Points							
			185							
				0.50	200	0.60	0.8000	27000	300000	1000000
			203	0.60	100	0.75	0.2500	18000	175000	700000
Year	Sum	Type	Sustainability	Sustainability	Recruitment	Recruitment	Quality	Objective Function	Objective function	Objective function	
		Metric	Growth Rate (TL in mm @ age 3)	Total annual mortality rate age 1+	CPUE age-1+ in trawling	Age-0 to Age-1 mortality rate	Angler catch rate	Commercial Yield	Recreational Yield	Recreational harvest	Total possible
		Weight	**10**	**10**	**5**	**10**	**3**	**2**	**2**	**2**	**44**
		Value	255	0.68	22.30	0.9377	0.1855	5530	28284	191336	
2022	0.0	Status	Red	Red	Red	Red	Red	Red	Red	Red	
		Score	0	0	0	0	0	0	0	0	
		Value	251	0.56	29.30	0.9377	0.2645	6641	93954	225851	
2021	6.5	Status	Red	Yellow	Red	Red	Yellow	Red	Red	Red	
		Score	0	5	0	0	1.5	0	0	0	
		Value	217	0.5300	34.50	0.9543	0.1289	12265	31864	76596	
2020	5.0	Status	Red	Yellow	Red	Red	Red	Red	Red	Red	
		Score	0	5	0	0	0	0	0	0	
		Value	263	0.5700	15.80	0.6845	0.1308	9558	55027	113692	
2019	10.0	Status	Red	Yellow	Red	Yellow	Red	Red	Red	Red	
		Score	0	5	0	5	0	0	0	0	
		Value	263	0.5700	9.10	0.9310	0.1842	18351	77190	182914	
2018	6.0	Status	Red	Yellow	Red	Red	Red	Yellow	Red	Red	
		Score	0	5	0	0	0	1	0	0	
		Value	241	0.6100	29.50	0.9687	0.3115	23135	76494	221082	
2017	2.5	Status	Red	Red	Red	Red	Yellow	Yellow	Red	Red	
		Score	0	0	0	0	1.5	1	0	0	

2022 score is 0 out of 44 possible



Main take away points

- No longer are we trying to maximize Walleye harvest to benefit Yellow Perch

- Emphasis on Walleye is now;
  - a) sustainability
  - b) quality
  - c) allowing the population to come to its own equilibrium

- No short-term solutions for Yellow Perch
  - a) pinning hopes on recovery of Cisco to buffer Perch
  - b) sustaining population until conditions change

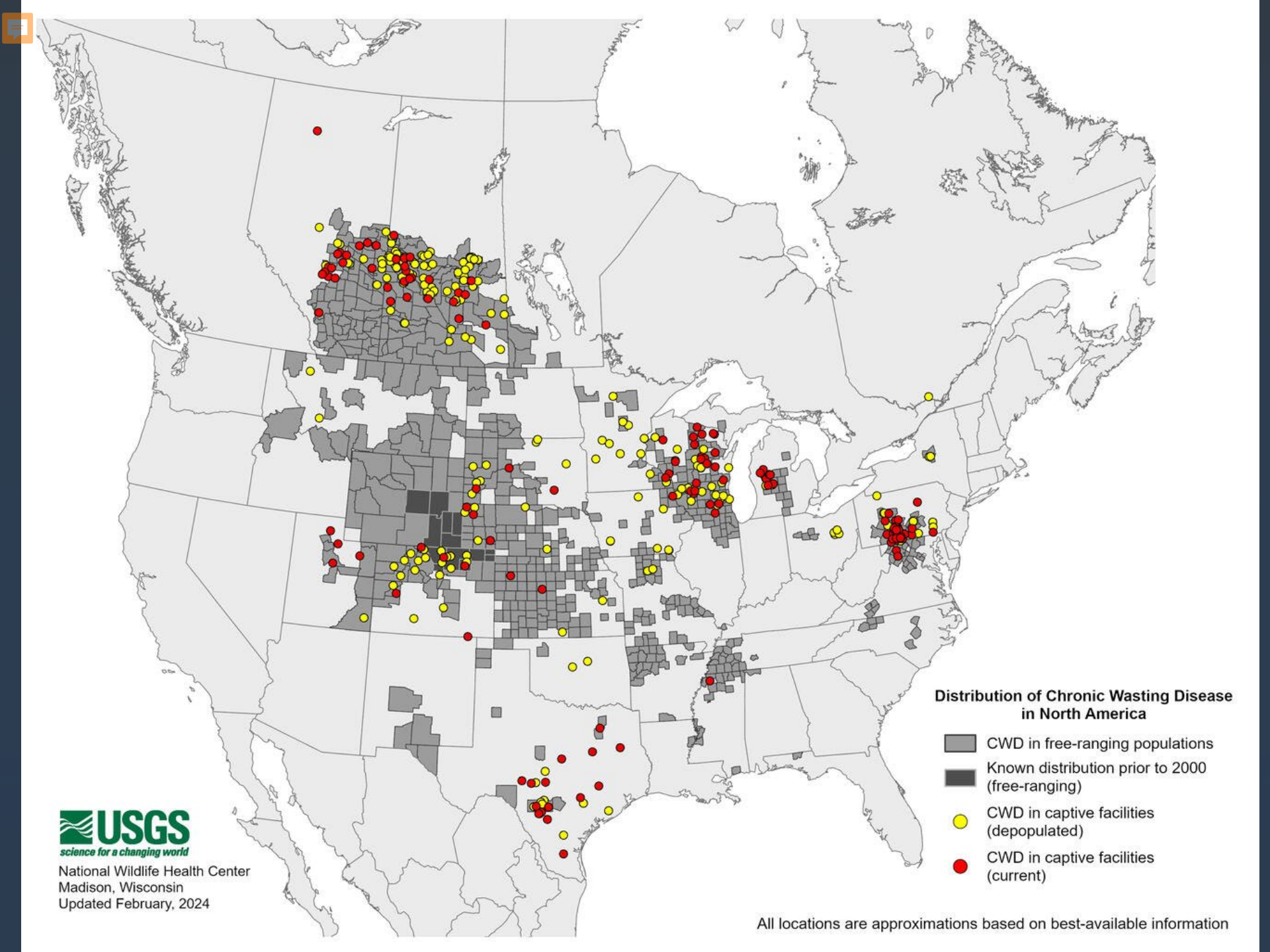
Acknowledgements

- Jason Gostiaux
- April Simmons
- Zhenming Su
- Eric Morrow
- Kendra Kozlauskos
- Chris Kemp
- Tom Goniea
- Dave Caroffino
- SLHMU crew & creel clerks
- USGS GLSC
- SASP staff
- AFRS staff
- LSCFR staff
- OMNR&F
- CORA

Department of Natural Resources CWD Update

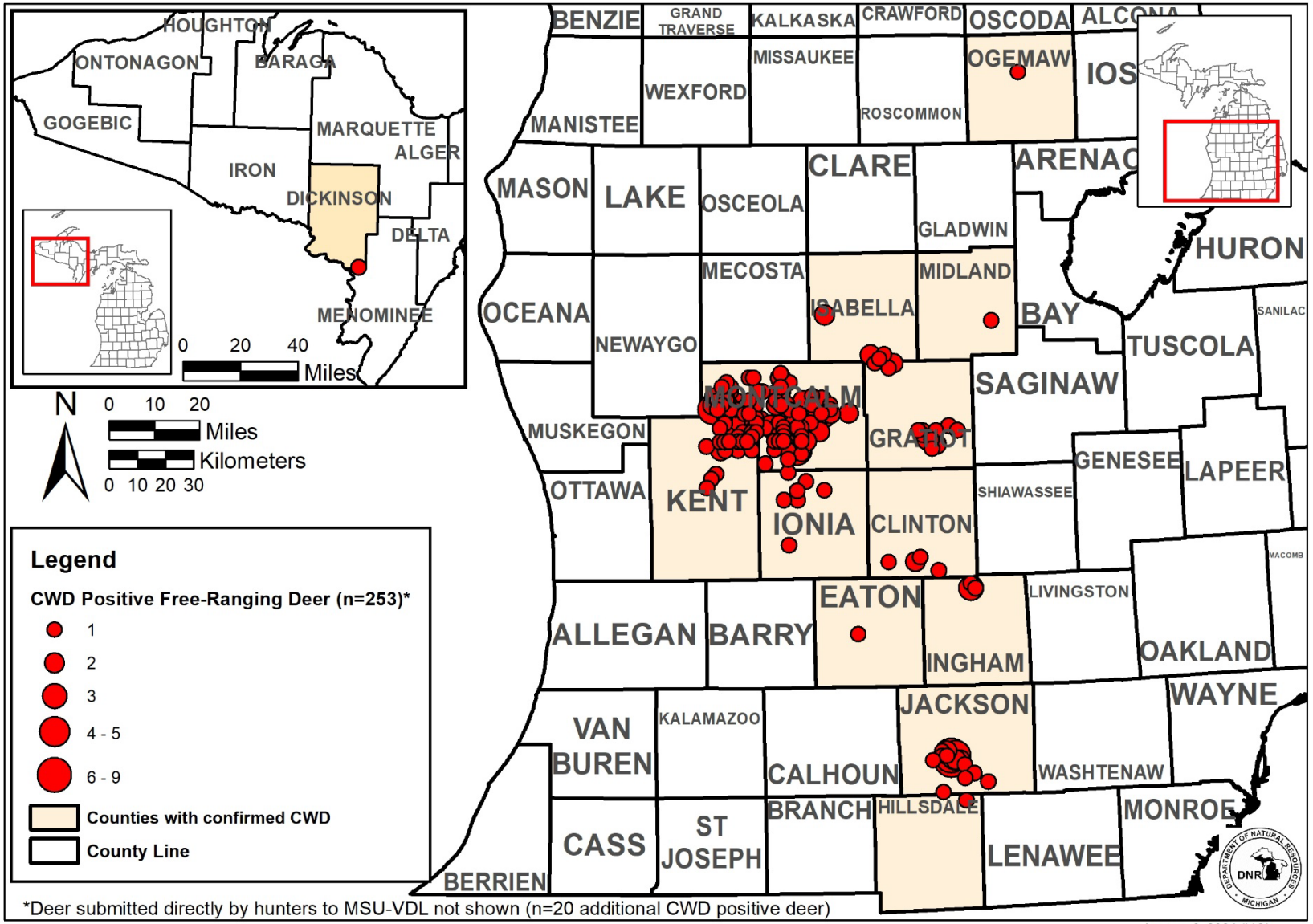
Melinda Cosgrove
Laboratory Scientist Manager
Wildlife Health Section
Wildlife Division

Wildlife Health Section


Distribution of Chronic Wasting Disease in North America
CWD in free-ranging populations
Known distribution prior to 2000 (free-ranging)
CWD in captive facilities (depopulated)
CWD in captive facilities (current)
USGS
science for a changing world
National Wildlife Health Center
Madison, Wisconsin
Updated February, 2024
All locations are approximations based on best-available information

Free-ranging White-tailed Deer Positive for Chronic Wasting Disease (CWD)
Michigan

as of January 8, 2024



Legend

CWD Positive Free-Ranging Deer (n=253)*

- 1
- 2
- 3
- 4 - 5
- 6 - 9

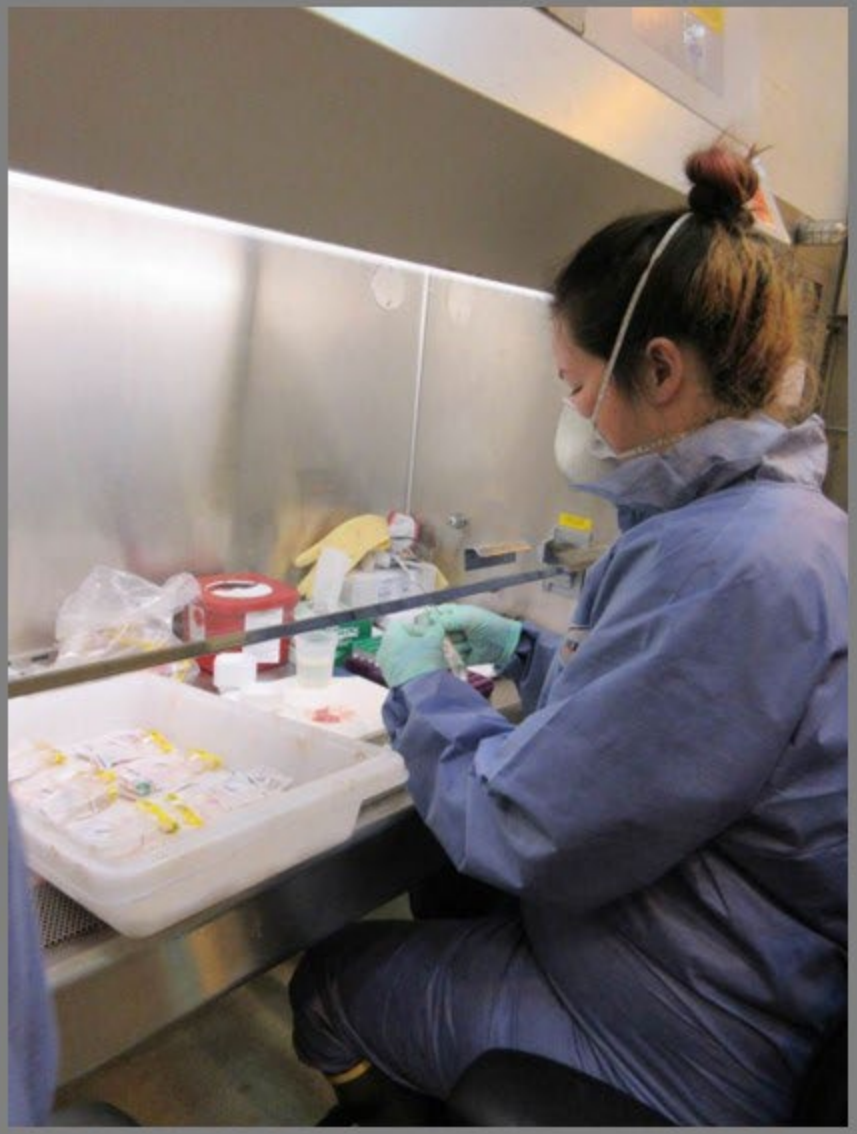
Counties with confirmed CWD

County Line

*Deer submitted directly by hunters to MSU-VDL not shown (n=20 additional CWD positive deer)

January 8, 2024 (MC)

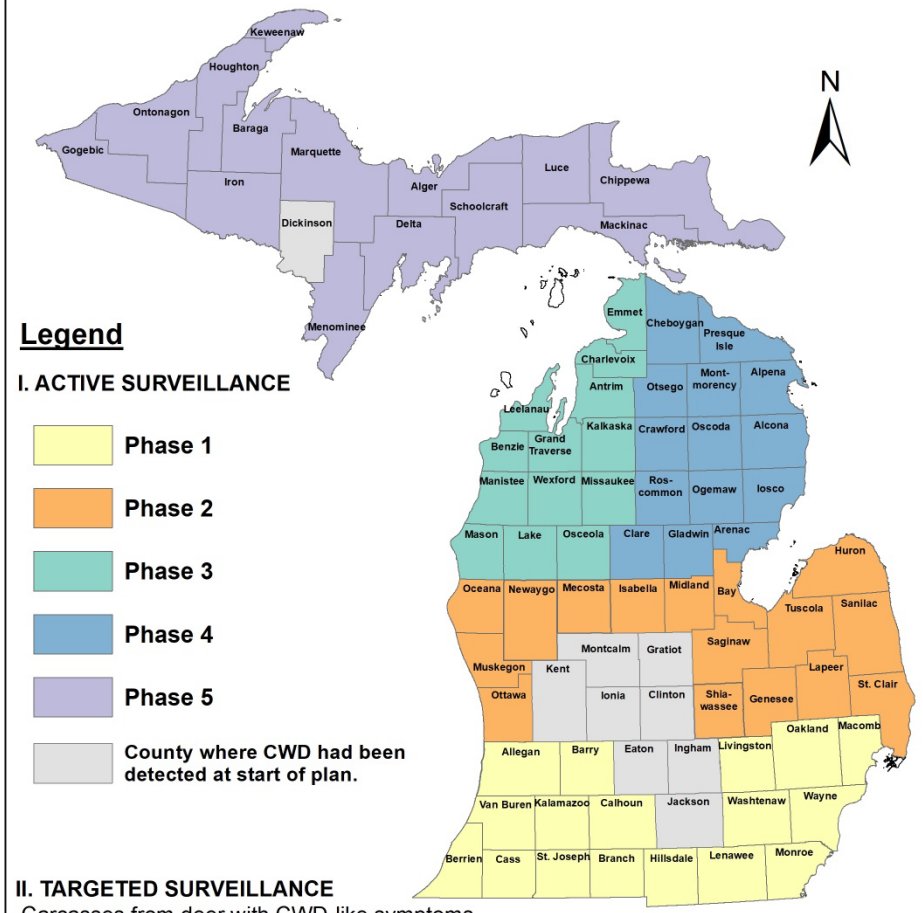
Michigan White-tailed Deer CWD Surveillance



Year	Positive	Total Deer Tested
2002		4,372
2003		5,617
2004		6,822
2005		1,702
2006		1,546
2007		1,406
2008		9,347
2009		1,136
2010		895
2011		798
2012		32
2013		46
2014		33
2015	5	4,226
2016	4	7,624
2017	45	17,414
2018	62	30,773
2019	65	20,071
2020	20	2,276
2021	25	7,773
2022	16	11,204
2023	11	4,142
Grand Total	253	139,255

As of March 8, 2024

Conceptual Plan for Rotational Approach to Chronic Wasting Disease (CWD) Surveillance for Free-ranging White-tailed Deer, Michigan



Legend

I. ACTIVE SURVEILLANCE

- **Phase 1**
- **Phase 2**
- **Phase 3**
- **Phase 4**
- **Phase 5**
- **County where CWD had been detected at start of plan.**

II. TARGETED SURVEILLANCE

Carcasses from deer with CWD-like symptoms accepted statewide, year-round

All deer tested for CWD are also tested for bovine tuberculosis.

0 25 50 Miles

0 50 100 Kilometers

March 11, 2024 (MC)

Weighted Surveillance

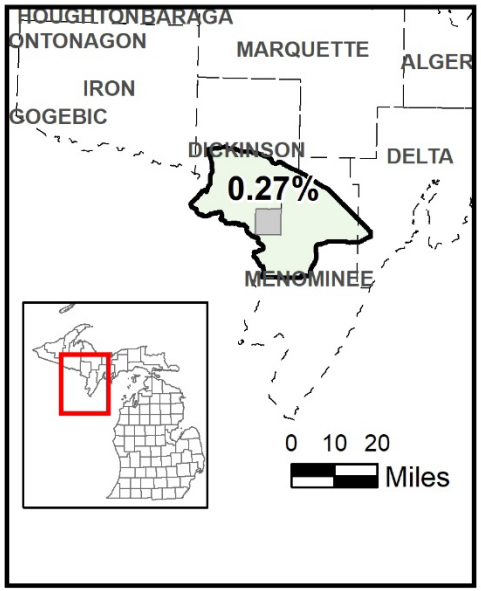
- Method developed through analysis of Wisconsin dataset containing 90,000 sampled deer with >1,000 positives (Jennelle et al., 2017)
- Deer grouped into categories by collection method/gender/age
  - Hunter harvest vs. sick deer vs. roadkill, etc.
  - Male vs. female; Adult vs. yearling vs. fawn
- Each category assigned value or weight based on likelihood to be positive for CWD

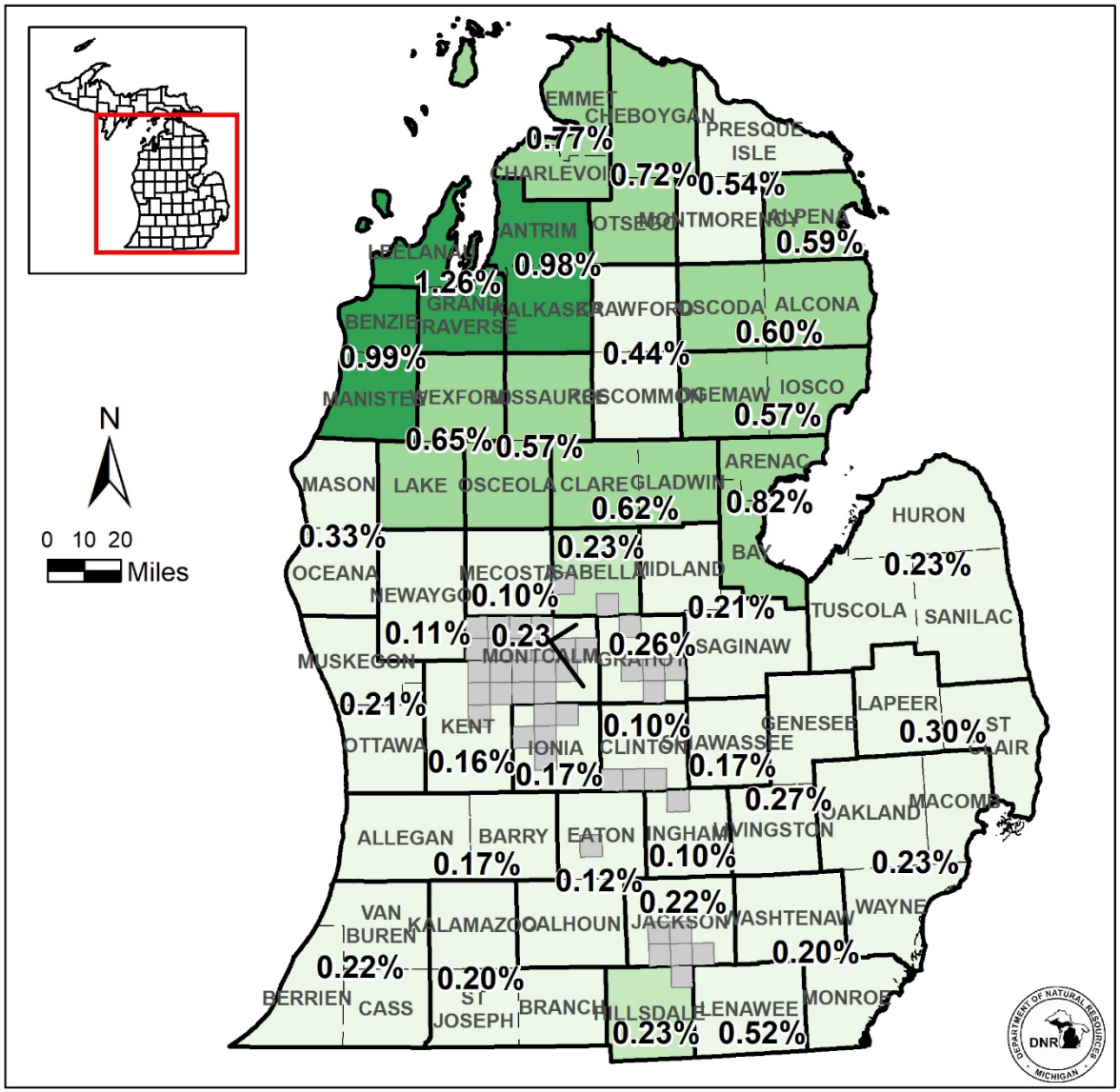
Not all deer are created equal

Estimated Potential Undetected Chronic Wasting Disease (CWD) Prevalence*, Lower Peninsula Michigan

Based on 2008-2022 Testing

Corrected October 2023





Legend

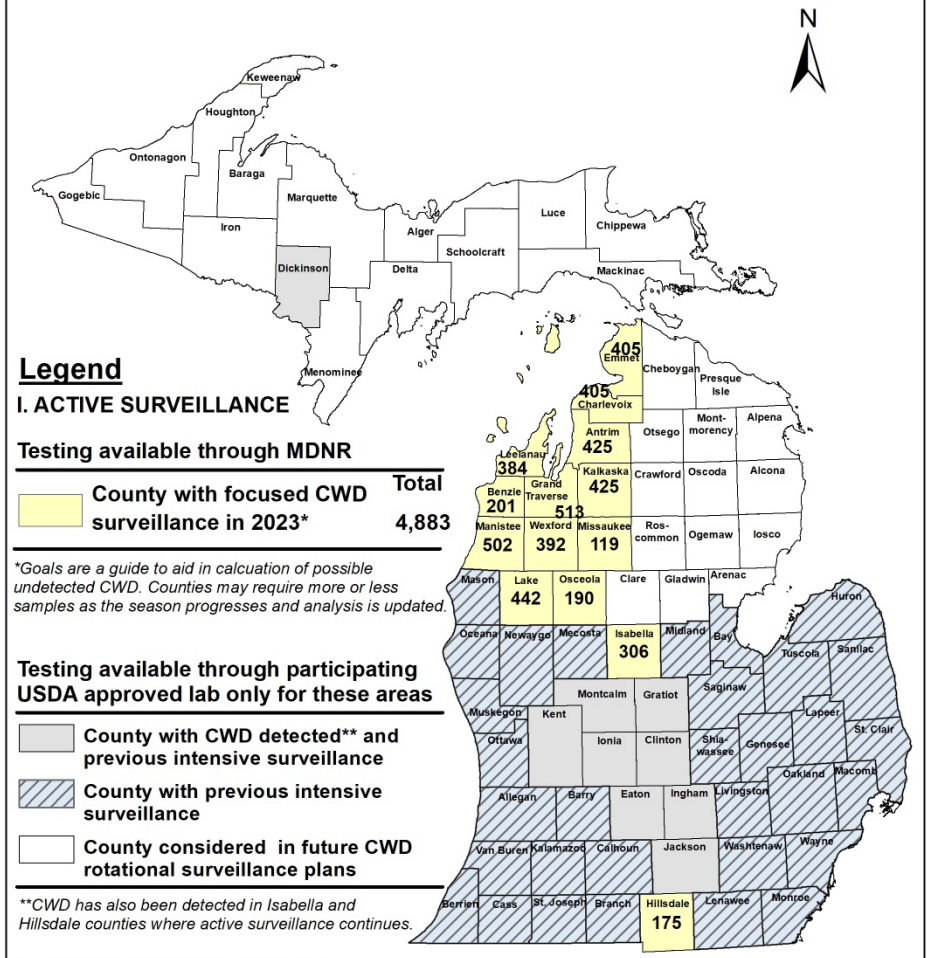
- CWD Positive Township
- CWD Surveillance Population
- County Line

Numbers represent the upper 95% credible limit for undetected prevalence.

*To the extent that CWD is clustered on the landscape and/or the deer tested are not represenative of the underlying population, prevalence could be higher.

rev. October 2023 (MC)

2023 Michigan Chronic Wasting Disease (CWD) Surveillance Plan for Free-ranging White-tailed Deer



Legend

I. ACTIVE SURVEILLANCE

Testing available through MDNR

	Total
County with focused CWD surveillance in 2023*	4,883

**Goals are a guide to aid in calcuation of possible undetected CWD. Counties may require more or less samples as the season progresses and analysis is updated.*

Testing available through participating USDA approved lab only for these areas

- County with CWD detected** and previous intensive surveillance
- County with previous intensive surveillance
- County considered in future CWD rotational surveillance plans

***CWD has also been detected in Isabella and Hillsdale counties where active surveillance continues.*

II. TARGETED SURVEILLANCE

Carcasses from deer with CWD-like symptoms accepted statewide, year-round

All deer tested for CWD are also tested for bovine tuberculosis.

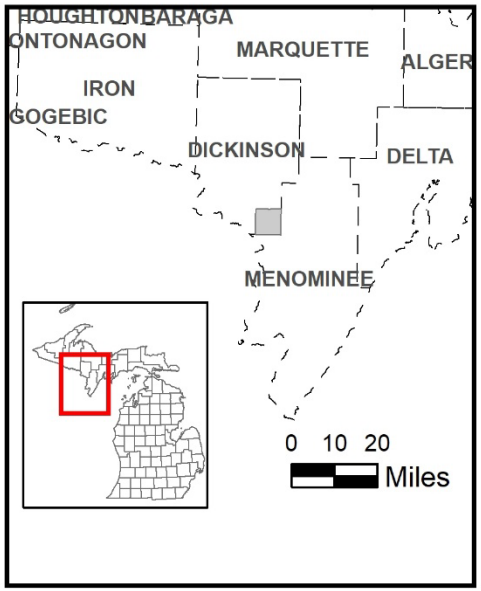
0 25 50 Miles

0 50 100 Kilometers

April 20, 2023 (MC)

Estimated Potential Undetected Chronic Wasting Disease (CWD) Prevalence*, Lower Peninsula Michigan

Based on 2008-2023 Testing



Legend

- CWD Positive Township
- Met design prevalence
- Working towards 0.25% design prevalence
- Working towards 0.5% design prevalence
- CWD Surveillance Population
- County Line

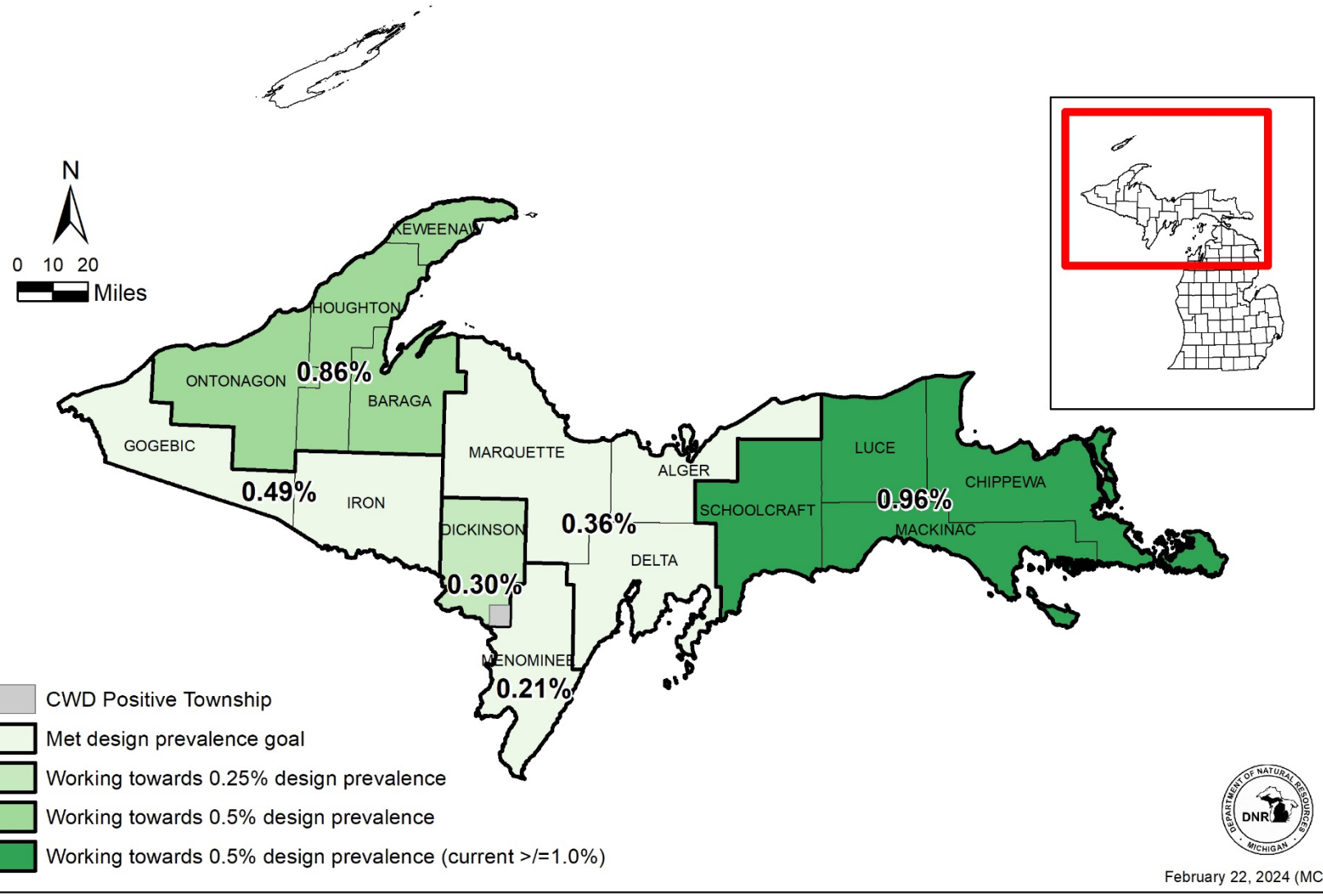
Numbers represent the upper 95% credible limit for undetected prevalence.

*To the extent that CWD is clustered on the landscape and/or the deer tested are not represenative of the underlying population, prevalence could be higher.

February 20, 2024 (MC)

Estimated Potential Undetected Chronic Wasting Disease (CWD) Prevalence in the Upper Peninsula, Michigan

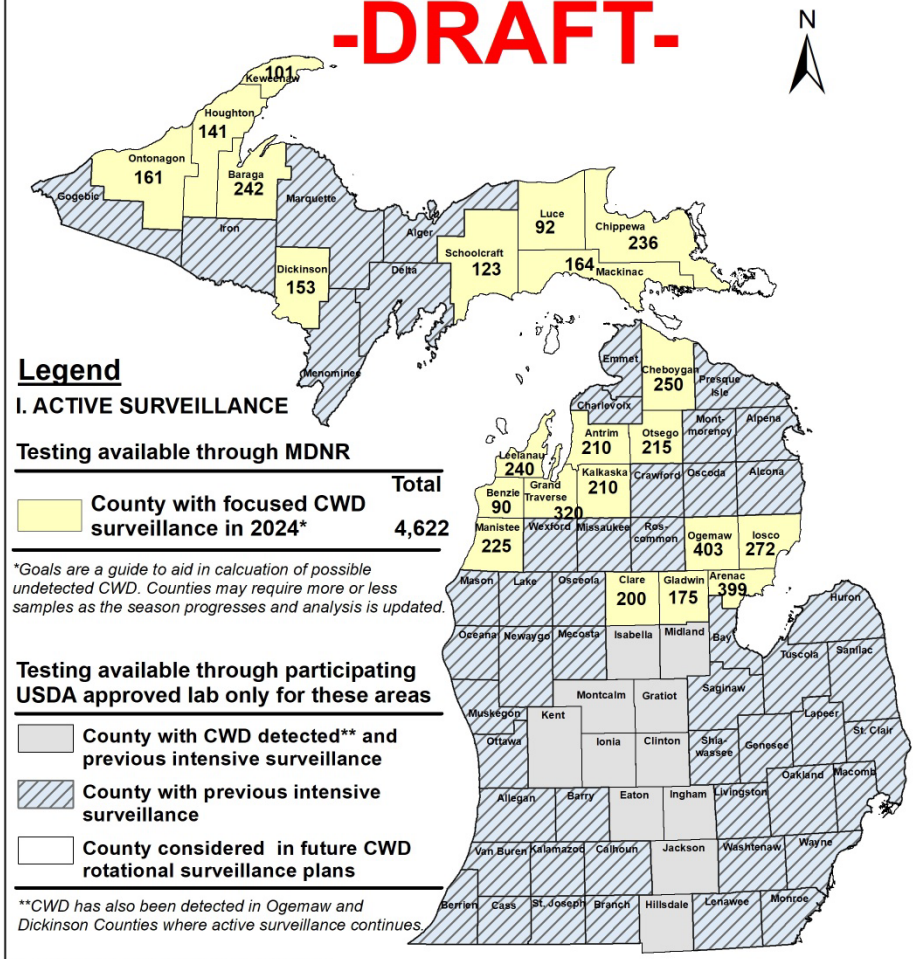
Based on 2008-2023 Testing



February 22, 2024 (MC)

2024 Michigan Chronic Wasting Disease (CWD) Surveillance Plan for Free-ranging White-tailed Deer

-DRAFT-



Legend

I. ACTIVE SURVEILLANCE

Testing available through MDNR

	Total
County with focused CWD surveillance in 2024*	4,622

**Goals are a guide to aid in calcuation of possible undetected CWD. Counties may require more or less samples as the season progresses and analysis is updated.*

Testing available through participating USDA approved lab only for these areas

- County with CWD detected** and previous intensive surveillance
- County with previous intensive surveillance
- County considered in future CWD rotational surveillance plans

***CWD has also been detected in Ogemaw and Dickinson Counties where active surveillance continues.*

II. TARGETED SURVEILLANCE

Carcasses from deer with CWD-like symptoms accepted statewide, year-round

All deer tested for CWD are also tested for bovine tuberculosis.

0 25 50 Miles

0 50 100 Kilometers

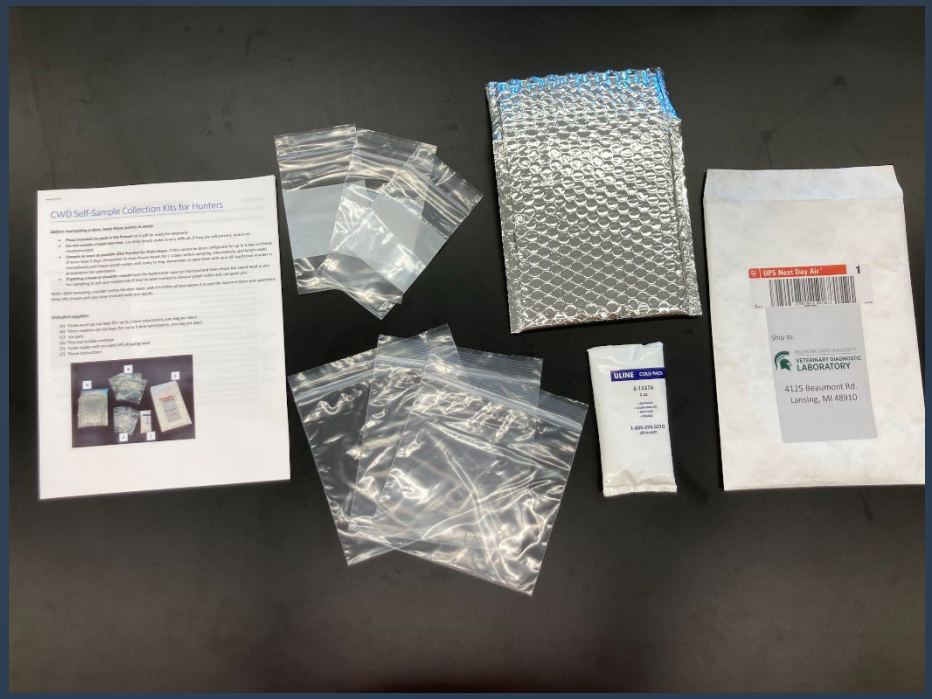
February 22, 2024 (MC)

Hunter Self-Submissions

- Began in 2020 to ensure testing available to anyone in the state
- Samples were submitted by hunter directly to diagnostic labs and paid for by hunter
- In 2022, the DNR received a grant from USDA and was able to offer this same option at no cost to hunters in counties were CWD had been previously detected
- Grant was extended for one additional year and this no-cost option was available again in 2023.

Hunter Self-Submissions

- Free kits containing supplies and instructions, were made available and overnight shipping was included.



Hunter Self-Submissions

Method	2020	2021	2022	2023*	Total
Hunter Paid	284	181	67	102	634
Free Kit	-	-	212	295	507
Total	284	181	279	397	1141

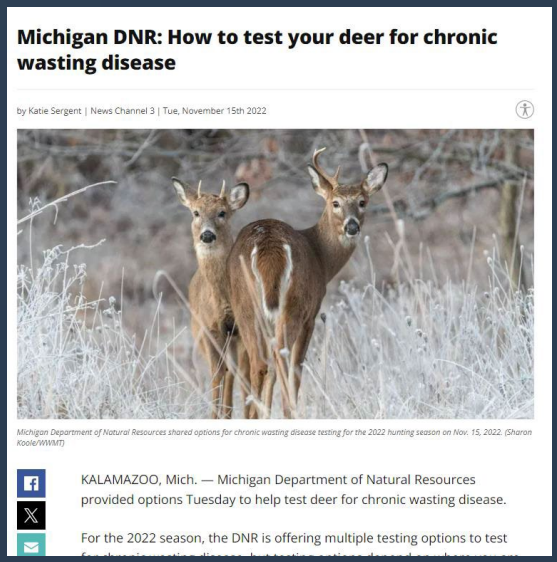
*2023 numbers not final. Some listed under paid are actually free kits. Waiting data from diagnostic lab for final numbers.

Hunter Self-Submissions

	2020	2021	2022	2023	Total
CWD Positive	2	0	8	9	19

The positives have come from Eaton (1), Gratiot (2), Kent (5), and Montcalm (11) counties.

- Use DNR resources to build confidence in our understanding of CWD across the state with a focus on early disease detection.
- Collect the necessary samples to achieve objectives without overburdening the system.
- Continue to provide access to testing for hunters outside of current CWD surveillance areas by partnering with diagnostic labs for direct submission of samples by hunters.



Michigan DNR: How to test your deer for chronic wasting disease

by Katie Sergent | News Channel 3 | Tue, November 15th 2022

Michigan Department of Natural Resources shared options for chronic wasting disease testing for the 2022 hunting season on Nov. 15, 2022. (Sharon Koole/WWMT)

KALAMAZOO, Mich. — Michigan Department of Natural Resources provided options Tuesday to help test deer for chronic wasting disease.

For the 2022 season, the DNR is offering multiple testing options to test

I. ACTIVE SURVEILLANCE
- Addressing gaps in historical surveillance, early detection goal
- Intensive sampling in priority areas
- Partnerships with hunters, taxidermists, and processors

II. PASSIVE SURVEILLANCE
- Cervids with CWD-like symptoms accepted statewide, year-round

2024 and beyond, the goals of our CWD surveillance are to:

- Assess if disease is present in new areas (i.e. catch it early)
- Provide options for hunters who want to have their deer tested
- Determine appropriate frequency and effort needed for long-term monitoring
- Continue to use research and models to better understand how the disease moves on the landscape, and effective management approaches

Thank you!

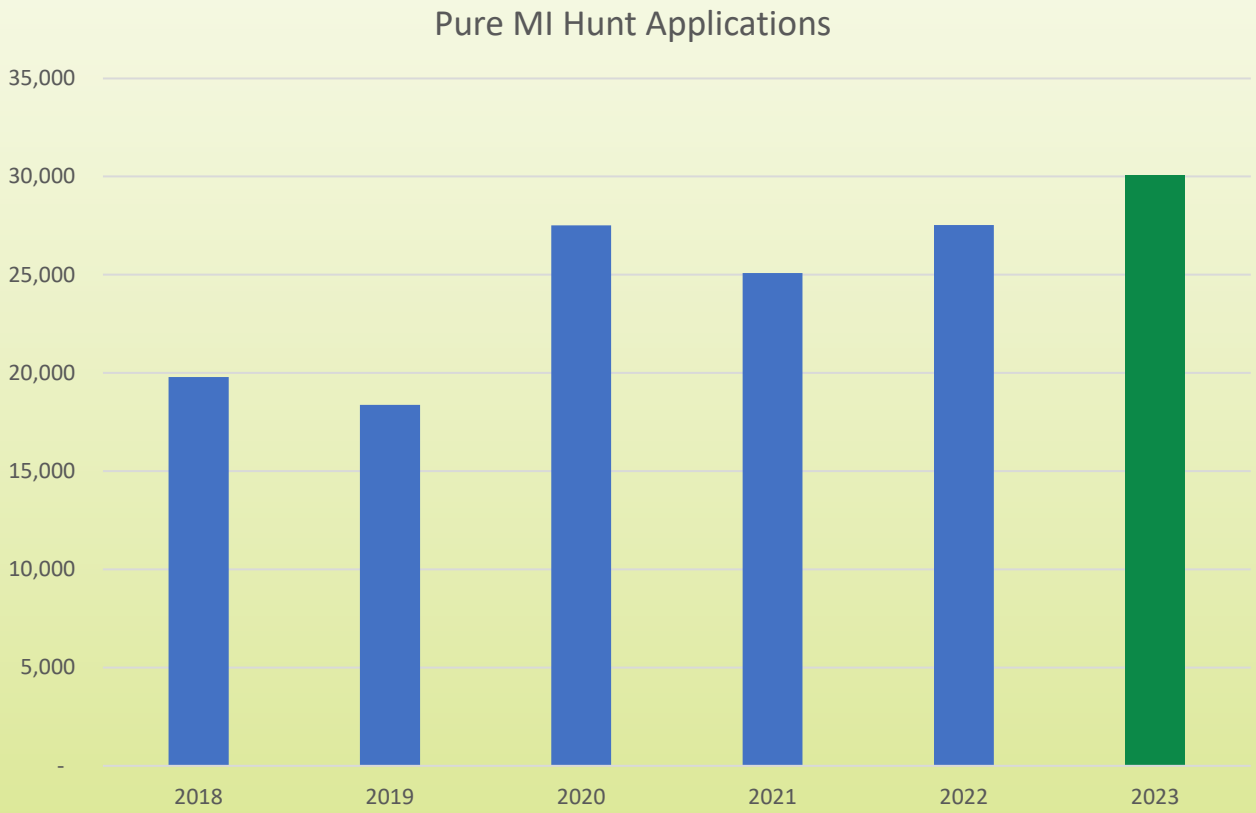
Melinda Cosgrove
cosgrovem1@michigan.gov

Pure Michigan Hunt

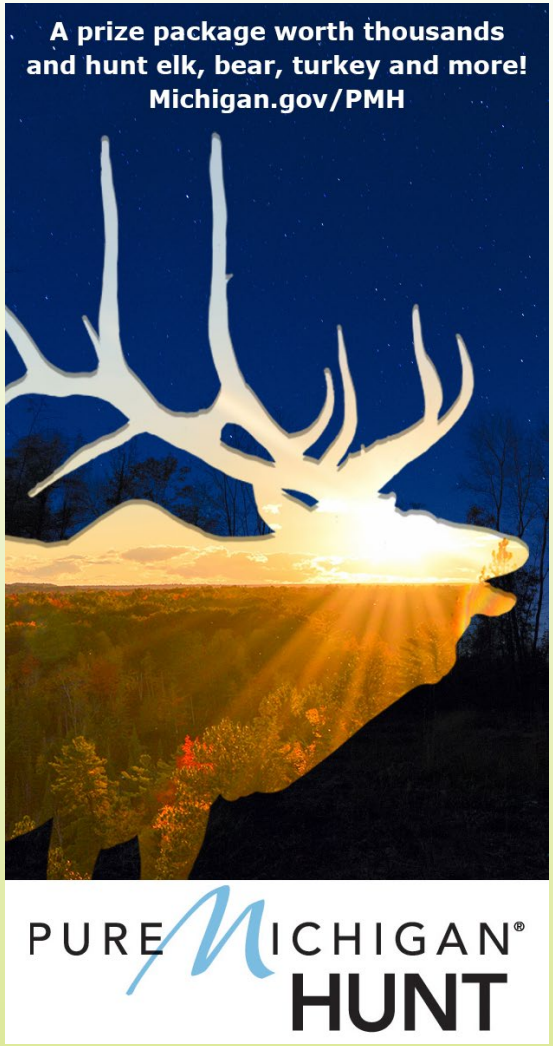
Presented to the Natural Resources Commission
April 11, 2024

Pure Michigan Hunt Sales Trends

30,037 Unique purchasers (new record)



Pure Michigan Hunt Sales



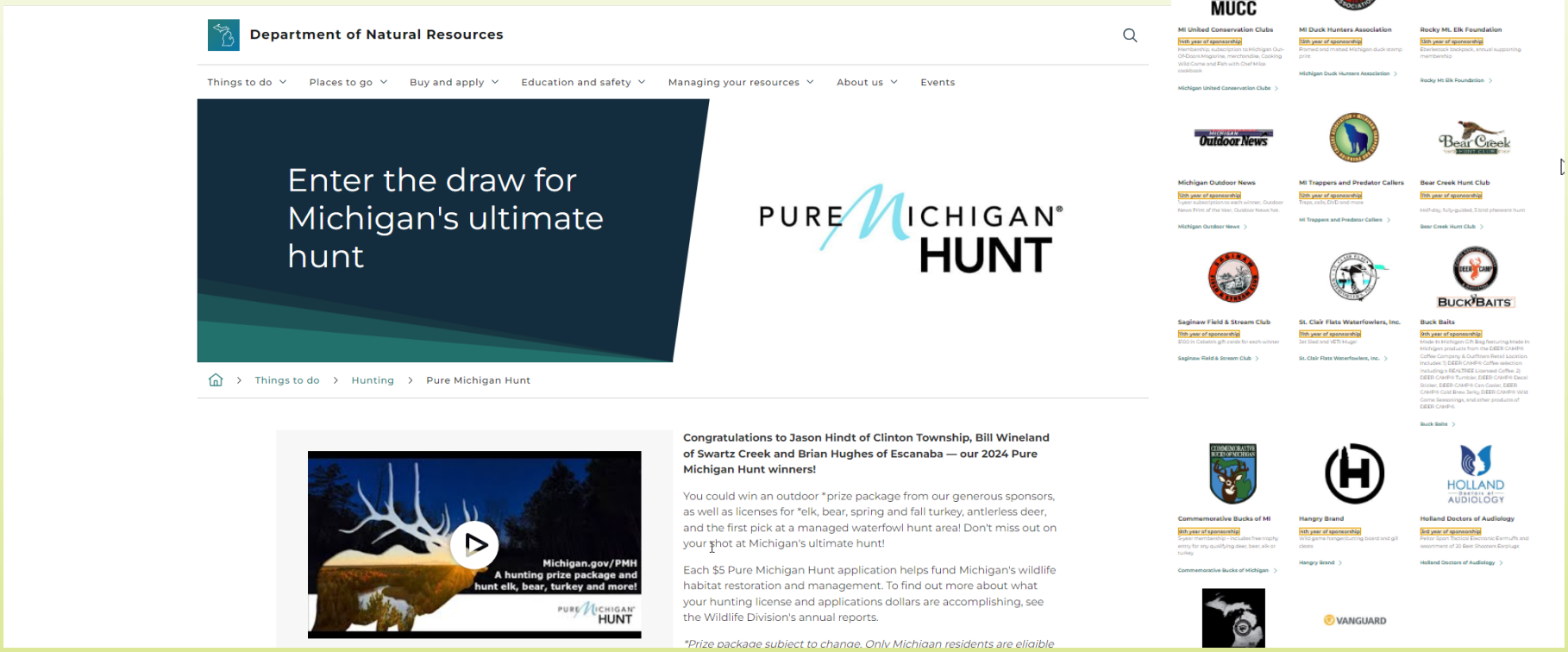
Record year (again)!

84,515 applications sold

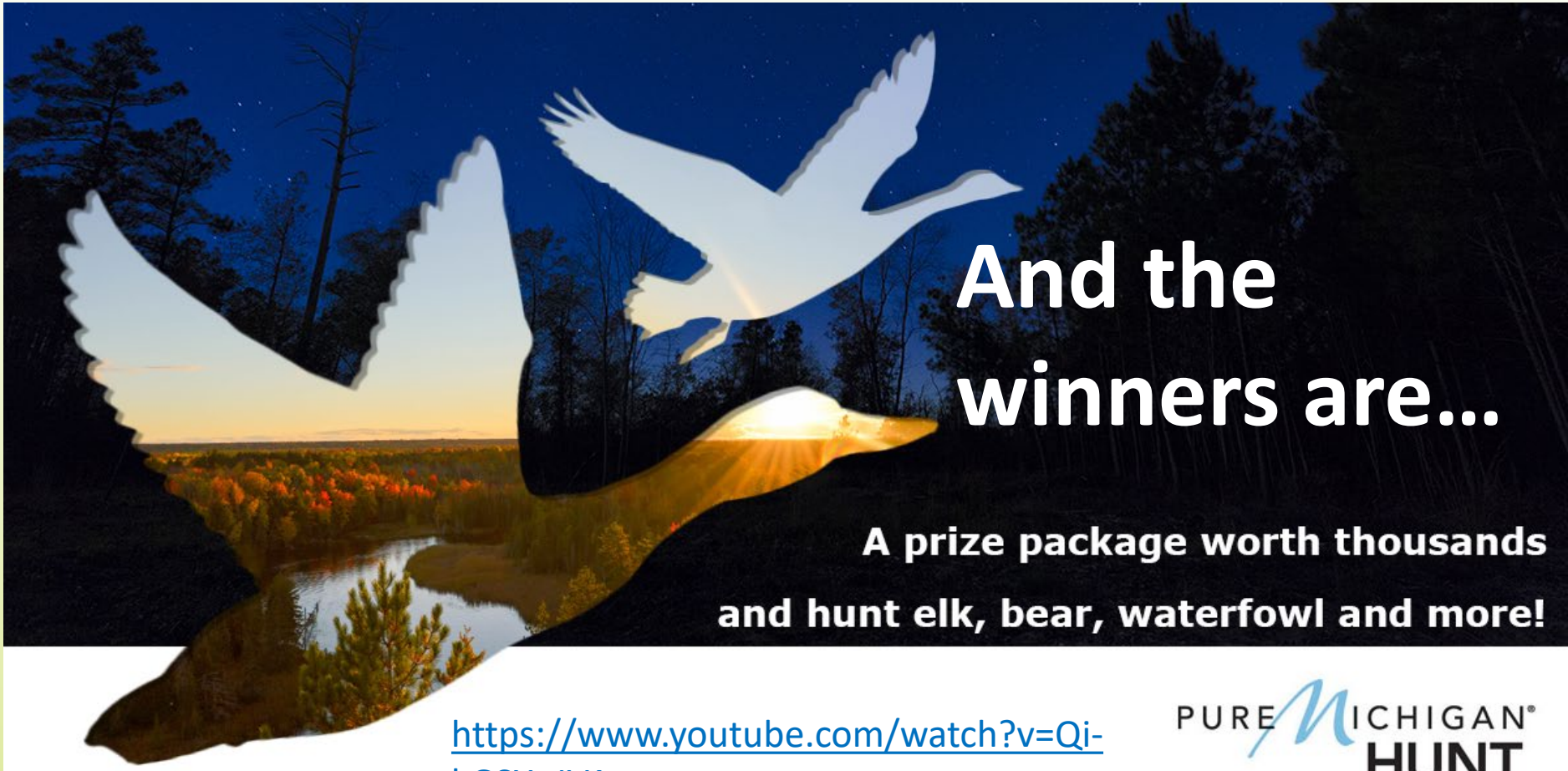
Each $5 Pure Michigan Hunt application helps fund Michigan's wildlife habitat restoration and management. To find out more about what your hunting license and applications dollars are accomplishing, see the Wildlife Division's annual reports.

Pure Michigan Hunt Web Traffic

16,288 page views



Pure Michigan Hunt



https://www.youtube.com/watch?v=Qi-kGSX_JVA

PURE MICHIGAN HUNT

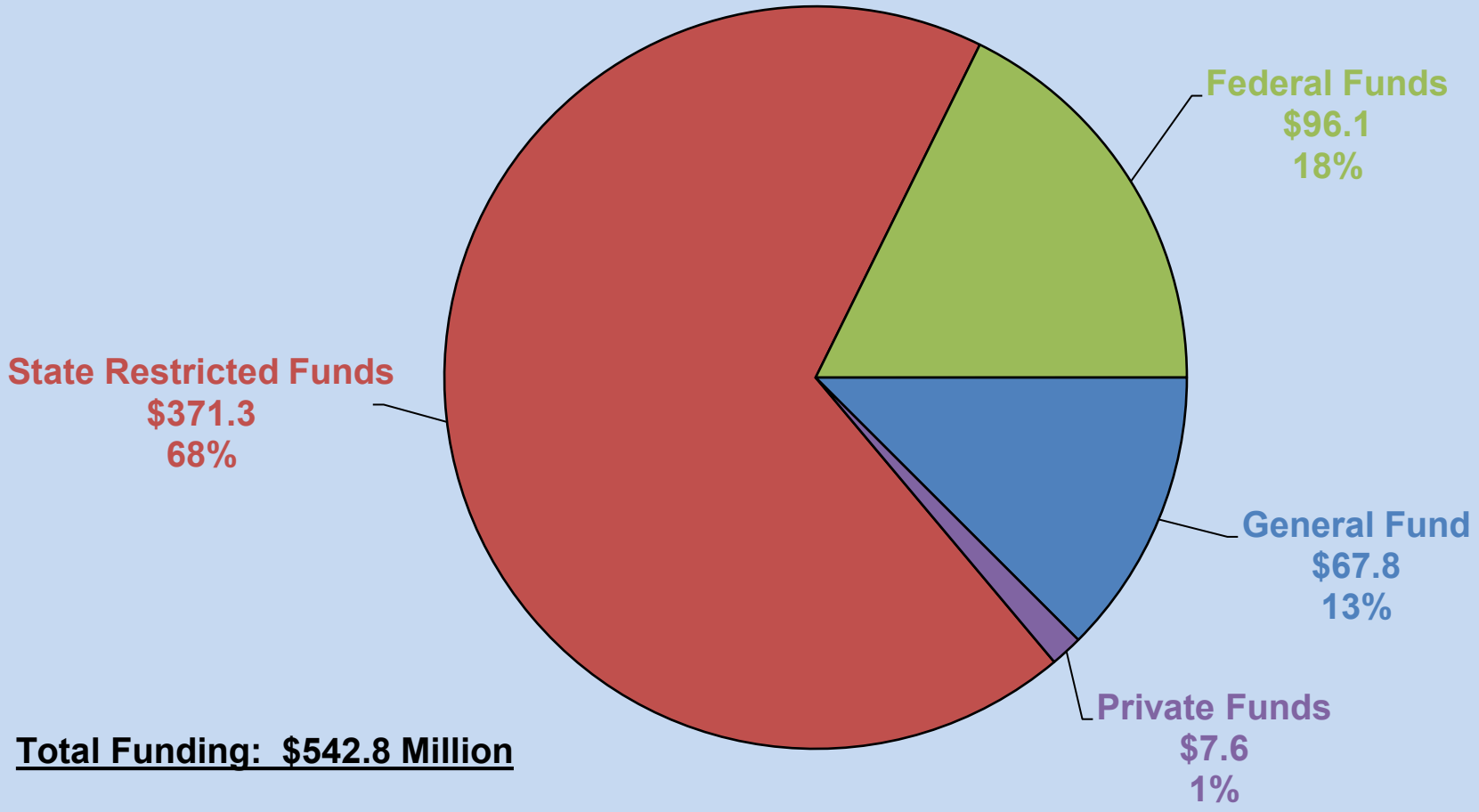
FY 2025 Executive Budget Overview

Jason Crandall, Acting Chief Budget Officer

April 11, 2024

FY 2025 DNR Executive Budget Funding Sources

($ in Millions)



Total Funding: $542.8 Million

Recreation Passport Opt-Out and Resident Military Exemption

- **Objective:** Honor the state's military service members by providing them free lifetime access to Michigan's celebrated state parks while enabling greater investment in Michigan state parks by converting the Recreation Passport to an opt-out model.

- **Investment:** $17.2 million ongoing State Restricted Funds

Recreation Passport Opt-Out and Resident Military Exemption

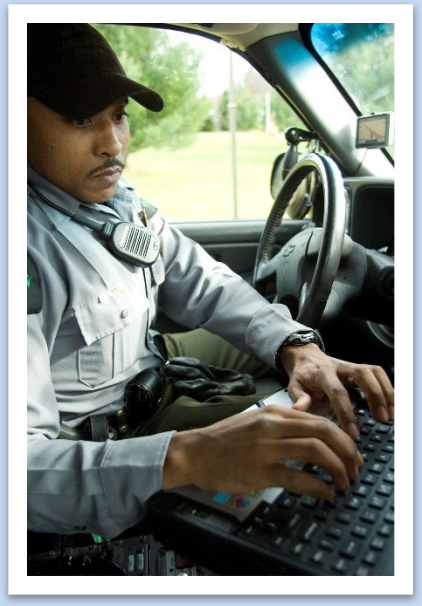
Additional Recreation Passport Revenue Will Support the Following:

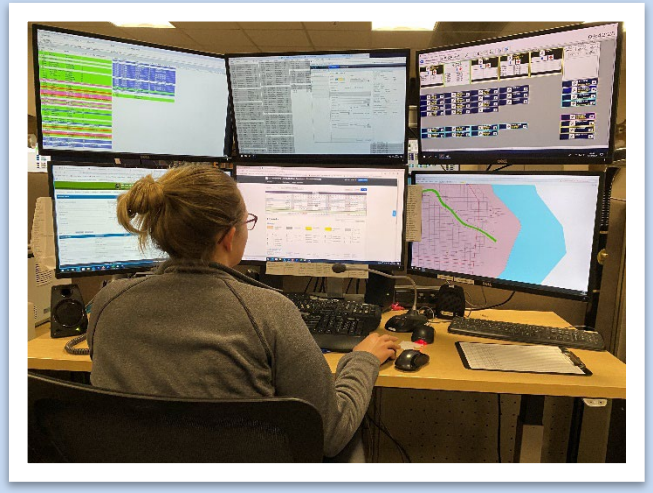
• State Park Capital Outlay	$8.6 million
• State Park Operations & Maintenance	$5.2 million
• Local Public Recreation Facilities Grants	$1.7 million
• State Forest Campgrounds & Pathways	$1.2 million
• State Park Cultural & Historic Resources	$0.5 million
• Promotion of State Parks & Recreation Areas	< $0.1 million
	≈ $17.2 million

Estimated increase in annual revenue at a 60% participation rate

Law Enforcement Records Management System

- **Objective:** Consolidate and improve DNR Law Enforcement Division's incident and records management system through the implementation of a new software solution.





- **Investment:** $700,000 ongoing General Fund

Communications Equipment Modernization

- **Objective:** Support a radio lifecycle replacement plan for DNR conservation officers and firefighting staff.
- **Investment:** $878,300 ongoing General Fund

Land and Water Conservation Fund Compliance and Stewardship

- **Objective:** Help prevent and resolve grant compliance issues so communities can access new funding opportunities for public outdoor recreation investments.

- **Investment:** $151,100 ongoing ($76,100 General Fund and $75,000 Federal); 1.0 FTE

Nature Awaits

- **Objective:** Provide fourth grade classes across the state the opportunity to visit a state park and participate in outdoor learning sessions facilitated by the DNR.

- **Investment:** $4 million ongoing General Fund (represents a $4 million reduction from FY 2024 to align with the annual budget need)

Fleet Rate Increases

- **Objective:** Accommodate increased vehicle mileage rates due to higher fuel and vehicle repair costs for leased vehicles managed by DTMB-Vehicle Travel Services (VTS).

- **Investment:** $890,300 ongoing ($343,100 General Fund and remainder from Federal and State Restricted Funds)

Archives of Michigan Transfer to DTMB

- **Objective:** Facilitate the transfer of the Archives of Michigan from DNR to DTMB pursuant to Executive Order 2023-6 (Transfer effective December 1, 2023; budget transfer proposed for FY 2025).

- **Investment:** DNR General Fund reduction of $1.9 million and reduction of 14.5 FTEs *

* Additional General Fund reduction of approximately $600,000 tied to DTMB building occupancy charges that will no longer be paid by the DNR for space occupied by the Archives of Michigan.

Other Adjustments

- **Accounting Service Center:** $120,000 to support increase in Michigan Cashiering and Receivables System contractual costs
- **Cultural Resources Management:** Additional 3.5 FTEs supported by the reallocation of existing funding for contractual services
- **Capital Outlay:** State park repair & maintenance; state/local boating infrastructure; wetland restoration, enhancement, and acquisition
- **Spending Authorization Adjustments to Align with Available Revenue:**
  - $570,000 increase in Private authority for Forestry
  - $100,000 increase in Fisheries Settlement spending authority
  - $326,800 decrease in Belle Isle Subaccount spending authority

FY 2024 Supplemental Requests

- Straits State Park Native American History Project: $3.6 million (Private)
- 2023 Great Lakes Consent Decree: $2.3 million (General Fund)
- Brandon Road Interbasin Project: $1.5 million (General Fund)
- One-Time Lump Sum Payments: $561,900 (General Fund)
- Michigan Natural Resources Trust Fund: $27.3 million (State Restricted)

Questions?

Learn more about outdoor recreation opportunities at Michigan.gov/DNR.

Falconry Regulations

Casey Reitz
Permit Specialist
Wildlife Division
April 11, 2024

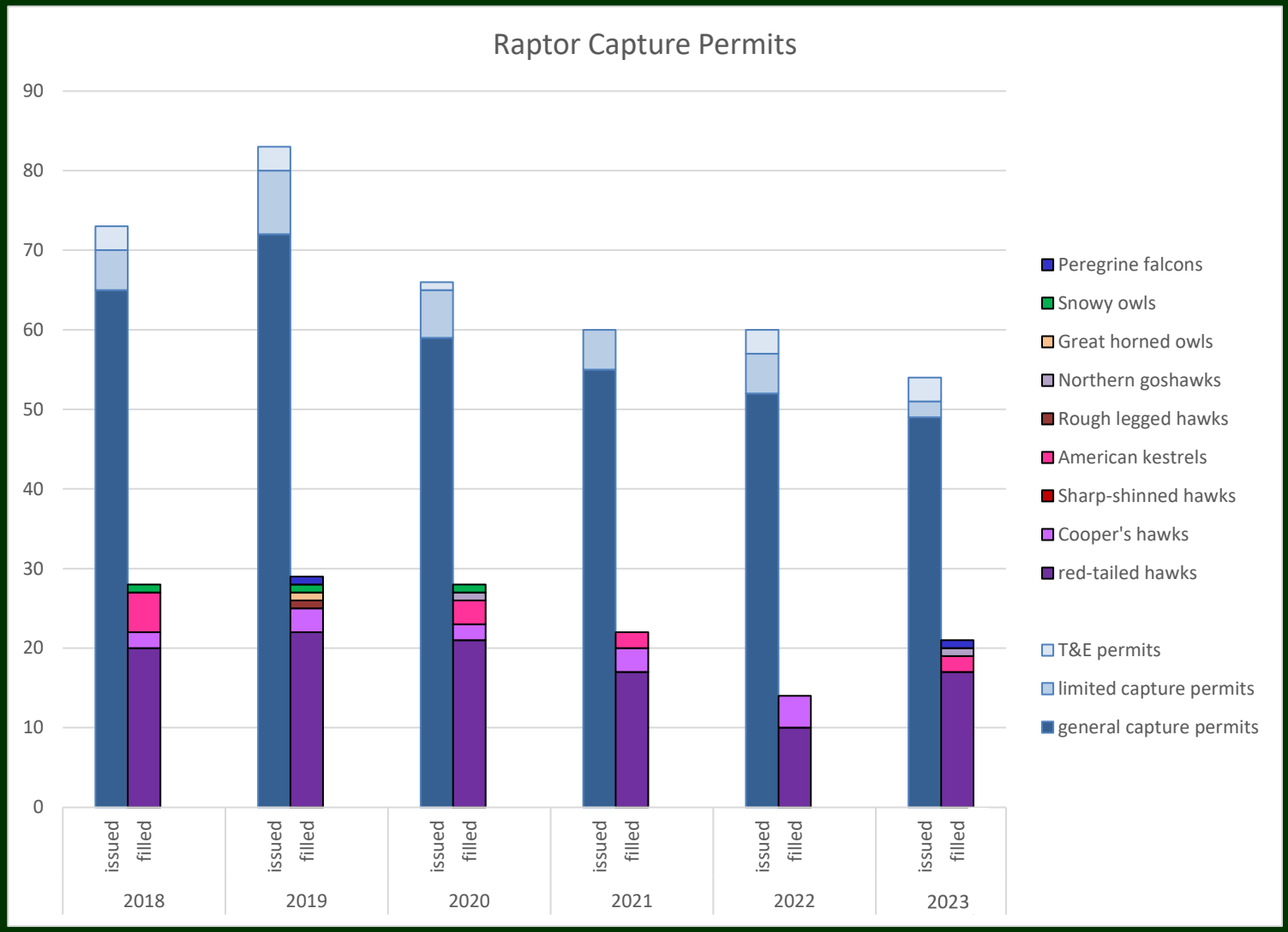
Falconry Regulations Cycle

- 3-year regulations cycle
- Verify compliance with federal regulations
- Consultation with stakeholders
  - Michigan Hawking Club
  - Detroit Bird Alliance (formerly Detroit Audubon Society)
- Request from MHC to allow trapping of merlins for falconry
- American goshawk added to Michigan T&E list

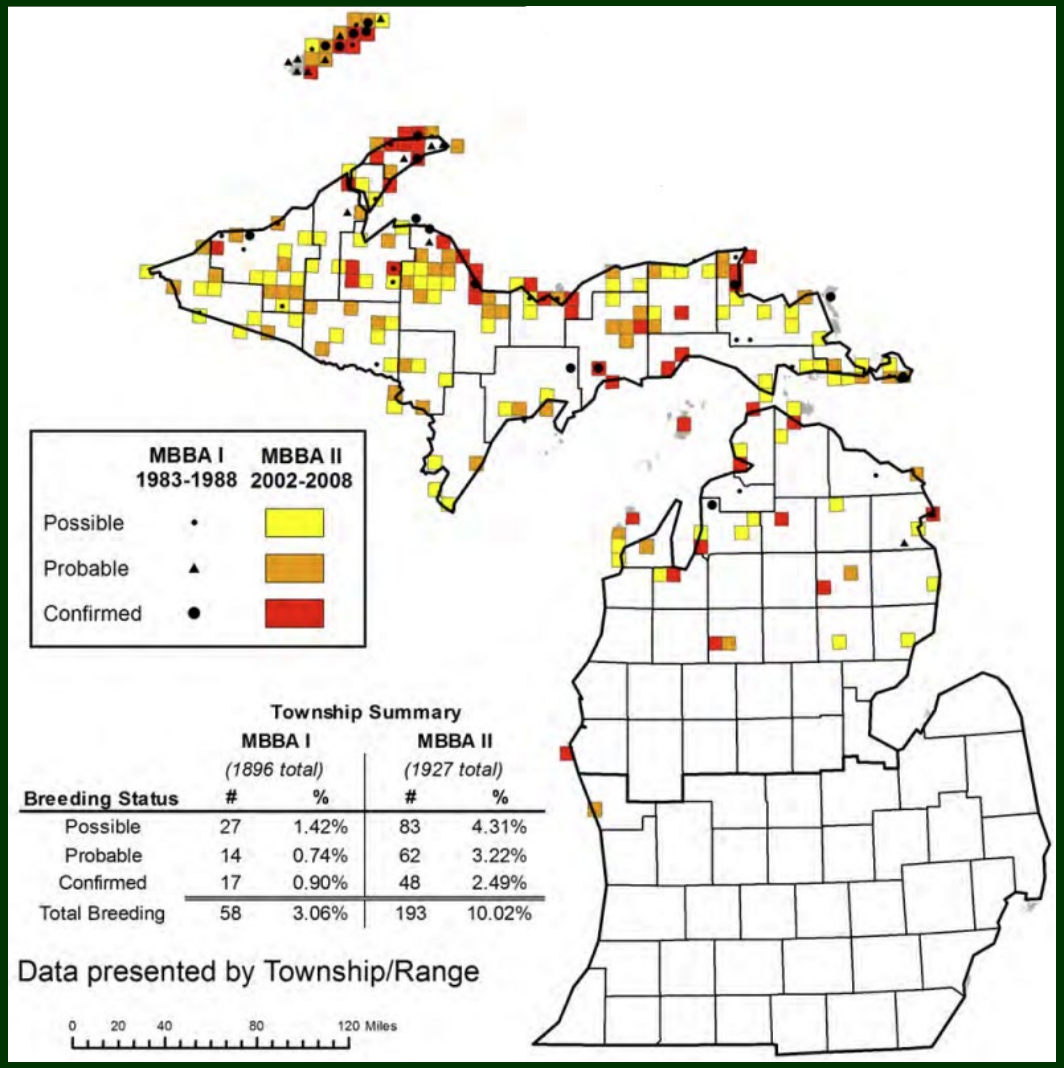
Falconry Trapping

- Falconers hunt with raptors
  - Captive bred or wild
- Restrictions on birds trapped from the wild
  - When
  - How many
  - Which species
  - Chicks or juveniles
- Wild falconry birds can be returned to the wild

Capture Permits



Status of merlins

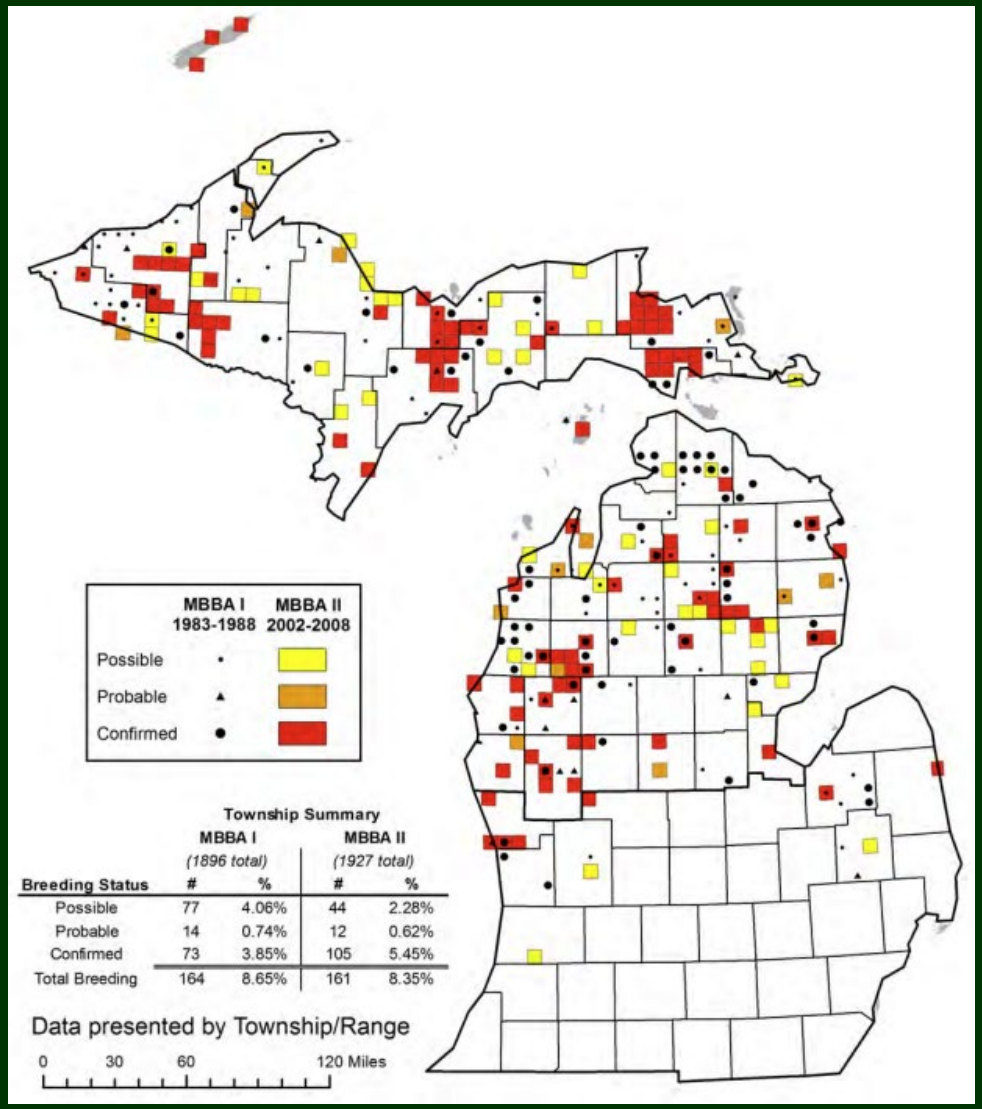


- Merlin removed from T&E species list in 2023
- BBS: 12.85% annual increase 2002-2012
- BBA 1 (1983-1988): 17 counties
- BBA 2 (2002-2008): 32 counties
- eBird (May-July 2022-2023): 68 counties

Merlin recommendation

- Allow take with restrictions
  - Permit take with a General Raptor Capture Permit
  - Same season dates as all other General Raptor Capture Permit species
  - Maximum of 10 merlins to be taken in a calendar year
  - Take only allowed in the Upper Peninsula

Status of American goshawk



- Goshawk added to T&E species list in 2023

Goshawk recommendation

- Remove American goshawk from the list of species that can be taken under a Limited Raptor Capture Permit in WCO
- Monitor population trends
- T&E Program

Thank You

2023 Bovine Tuberculosis Surveillance and Monitoring

Natural Resources Commission Update

April 11, 2024

Mitch Marcus, Wildlife Health Section Supervisor, MDNR

Emily Sewell, Wildlife Health Specialist, MDNR

Dr. Shannon Cerveny, Assistant State Veterinarian, MDARD

Presentation Outline

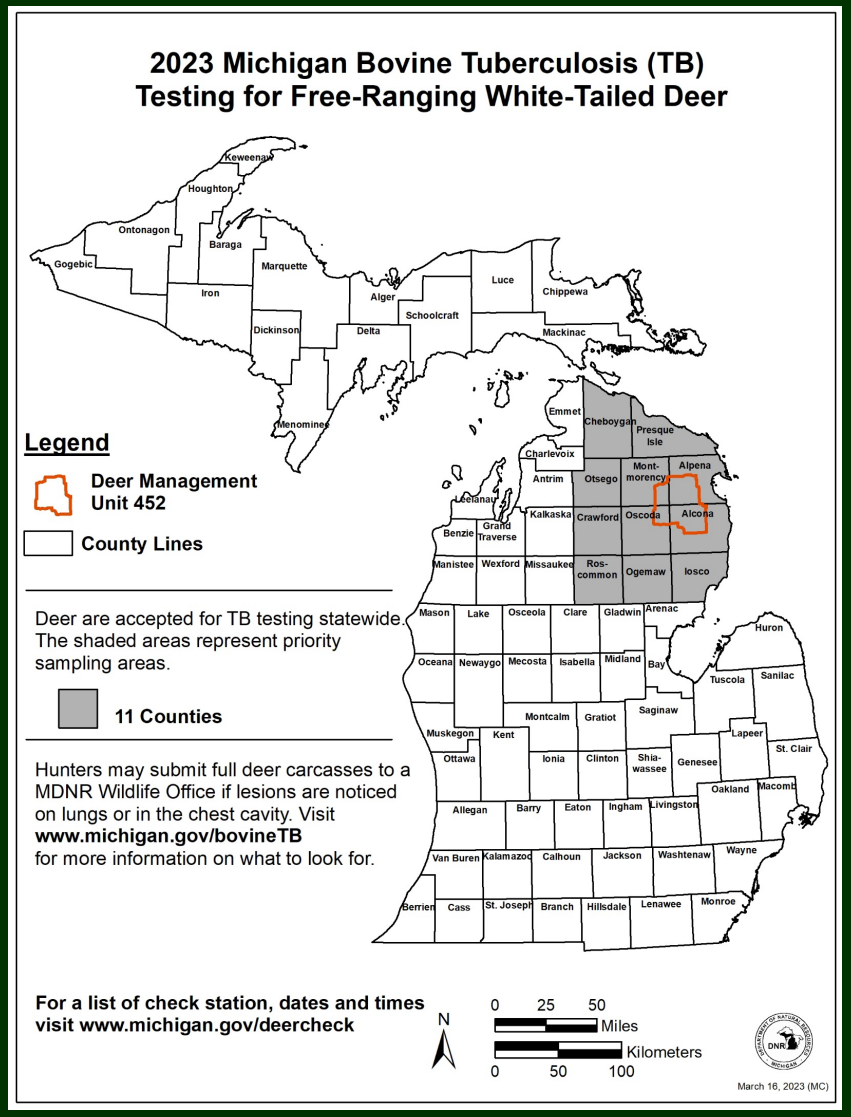
- bTB and One Health
- Sample collection
- Data analysis
- Cattle Update
- Future Directions
- Questions

Bovine Tuberculosis (bTB): One Health

https://twitter.com/WHO/status/918572952517521408

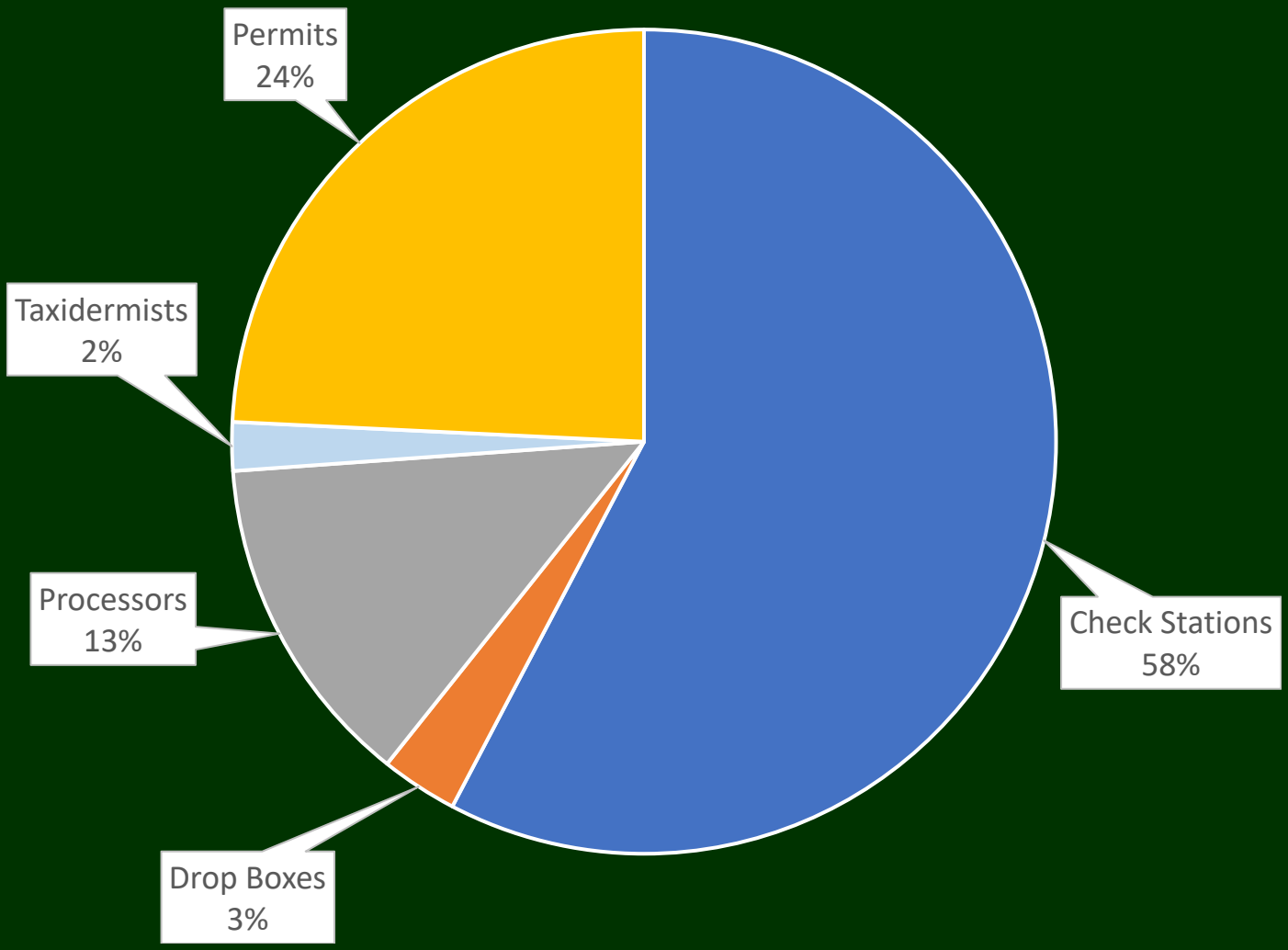
Sample Collection

2023 Bovine TB Efforts

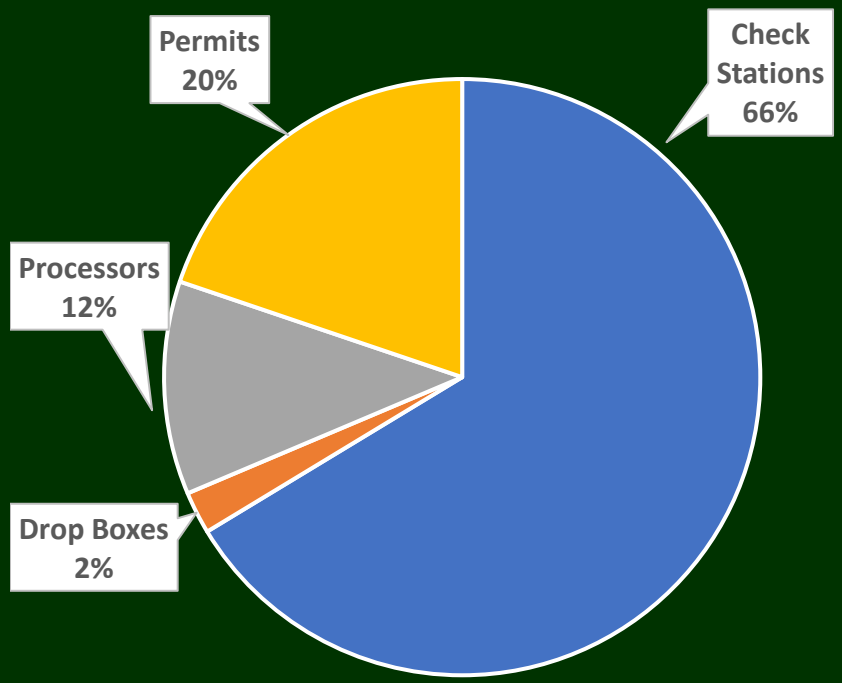


- Deer check stations
- 24-hr. self-service drop boxes
- Permits
- Processors and taxidermists
- Communications

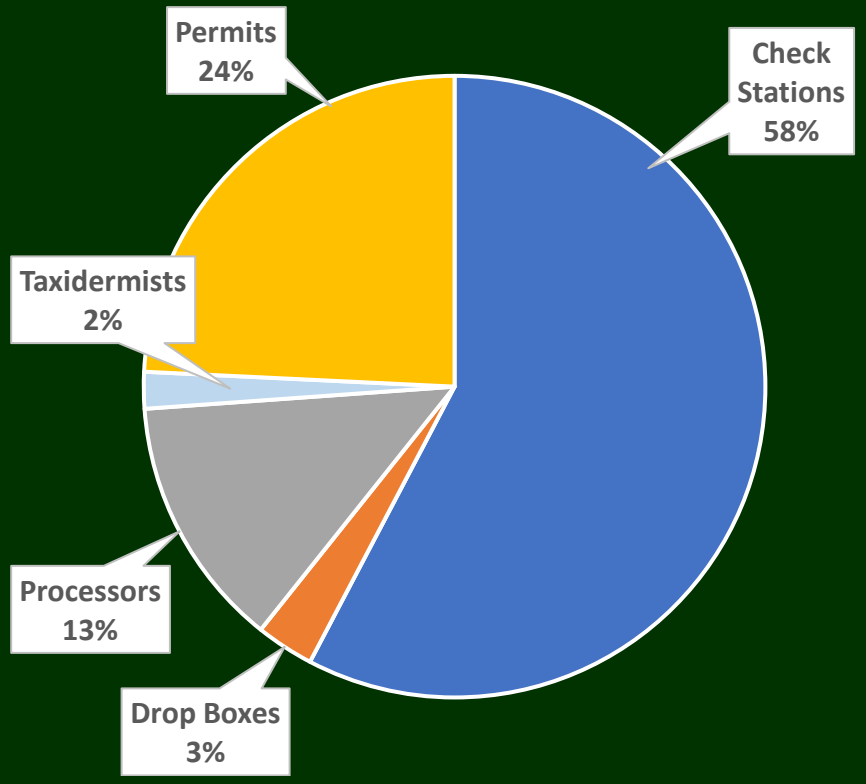
bTB Sample Submission Method



2022 vs. 2023 Sample Submission



2022



2023

2023 Bovine TB Cooperator Program

- Reported collecting avg. of 26% of heads handled
- Primary reasons sample not collected:
  - Keeping head for mount
  - Didn't want DNR to test deer
  - Harvest report not completed

- All very likely to participate again

Photo: M. Cosgrove, MDNR

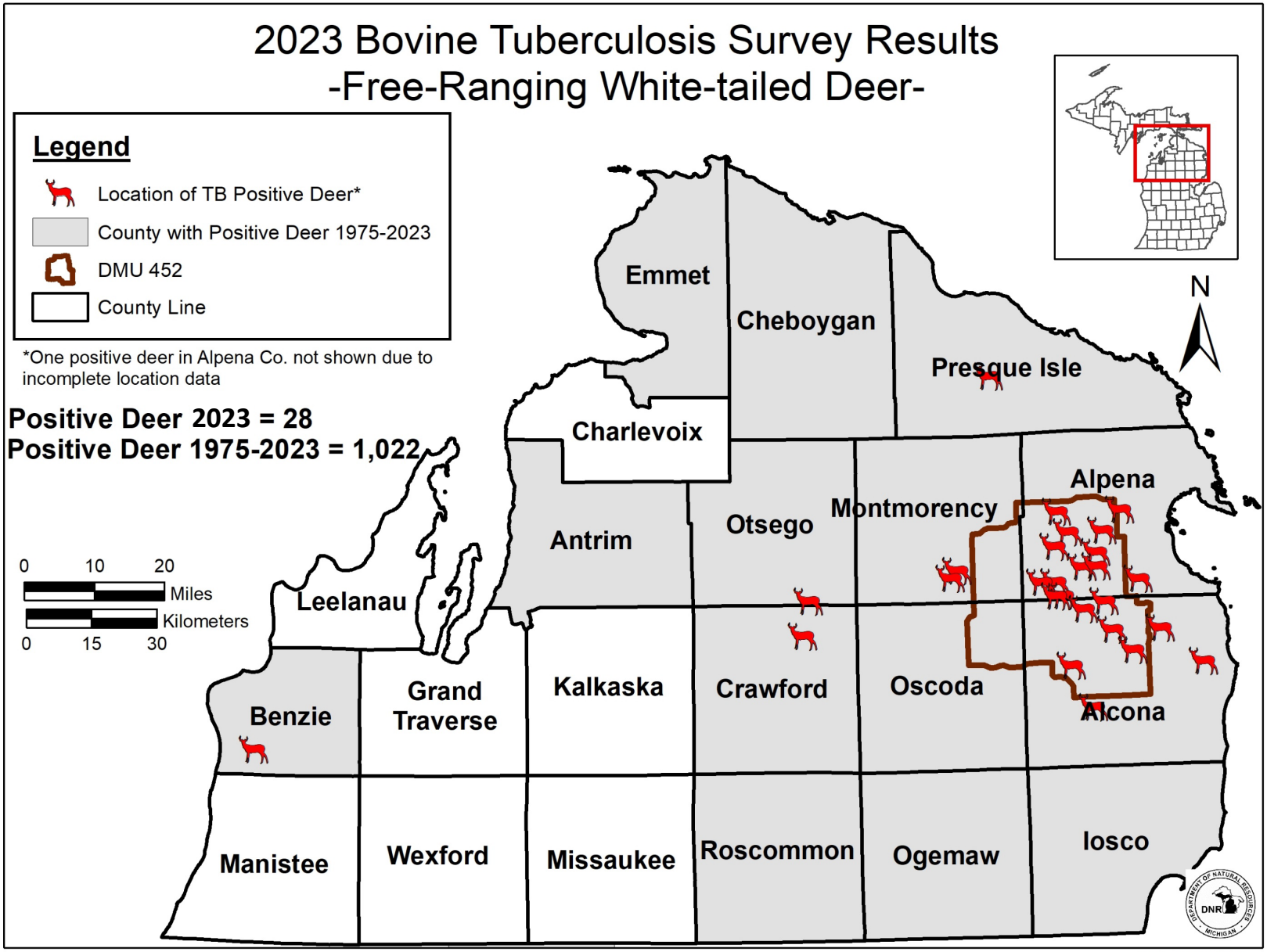
Data Analyses

Michigan White-tailed Deer TB Surveillance

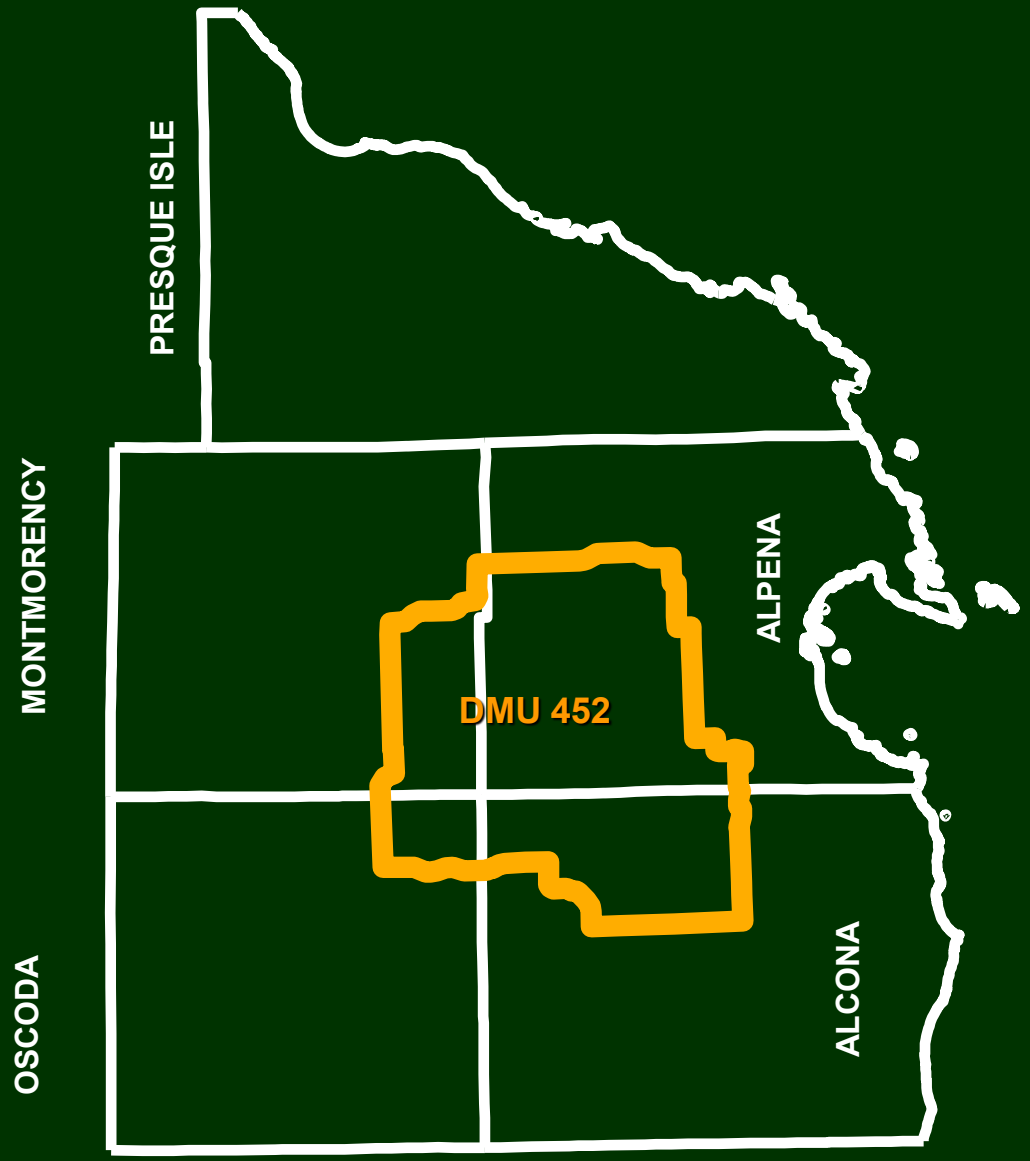
Year	Positive	Total Deer Tested
1975 & 1994	2	2
1995	18	403
1996	56	4,966
1997	73	3,720
1998	78	9,058
1999	58	19,497
2000	53	25,855
2001	61	24,278
2002	51	18,092
2003	32	17,273
2004	29	15,096
2005	16	7,349
2006	41	7,913
2007	27	8,307
2008	37	16,264
2009	31	5,716
2010	24	4,974
2011	17	6,026
2012	23	4,725
2013	21	5,903
2014	12	4,266
2015	34	8,458
2016	20	12,031

Year	Positive	Total Deer Tested
2017	49	23,062
2018	26	35,620
2019	31	25,100
2020	20	7,460
2021	18	11,803
2022	28	16,062
2023	28	7,339
Grand Total	1,023	356,618

As of March 19, 2024


2023 Bovine Tuberculosis Survey Results
-Free-Ranging White-tailed Deer-
Legend
Location of TB Positive Deer*
County with Positive Deer 1975-2023
DMU 452
County Line
*One positive deer in Alpena Co. not shown due to incomplete location data
Positive Deer 2023 = 28
Positive Deer 1975-2023 = 1,022
0 10 20
Miles
Kilometers
0 15 30
N
Emmet
Cheboygan
Presque Isle
Charlevoix
Antrim
Otsego
Montmorency
Alpena
Leelanau
Benzie
Grand Traverse
Kalkaska
Crawford
Oscoda
Alcona
Manistee
Wexford
Missaukee
Roscommon
Ogemaw
Iosco
March 18, 2024 (MC)

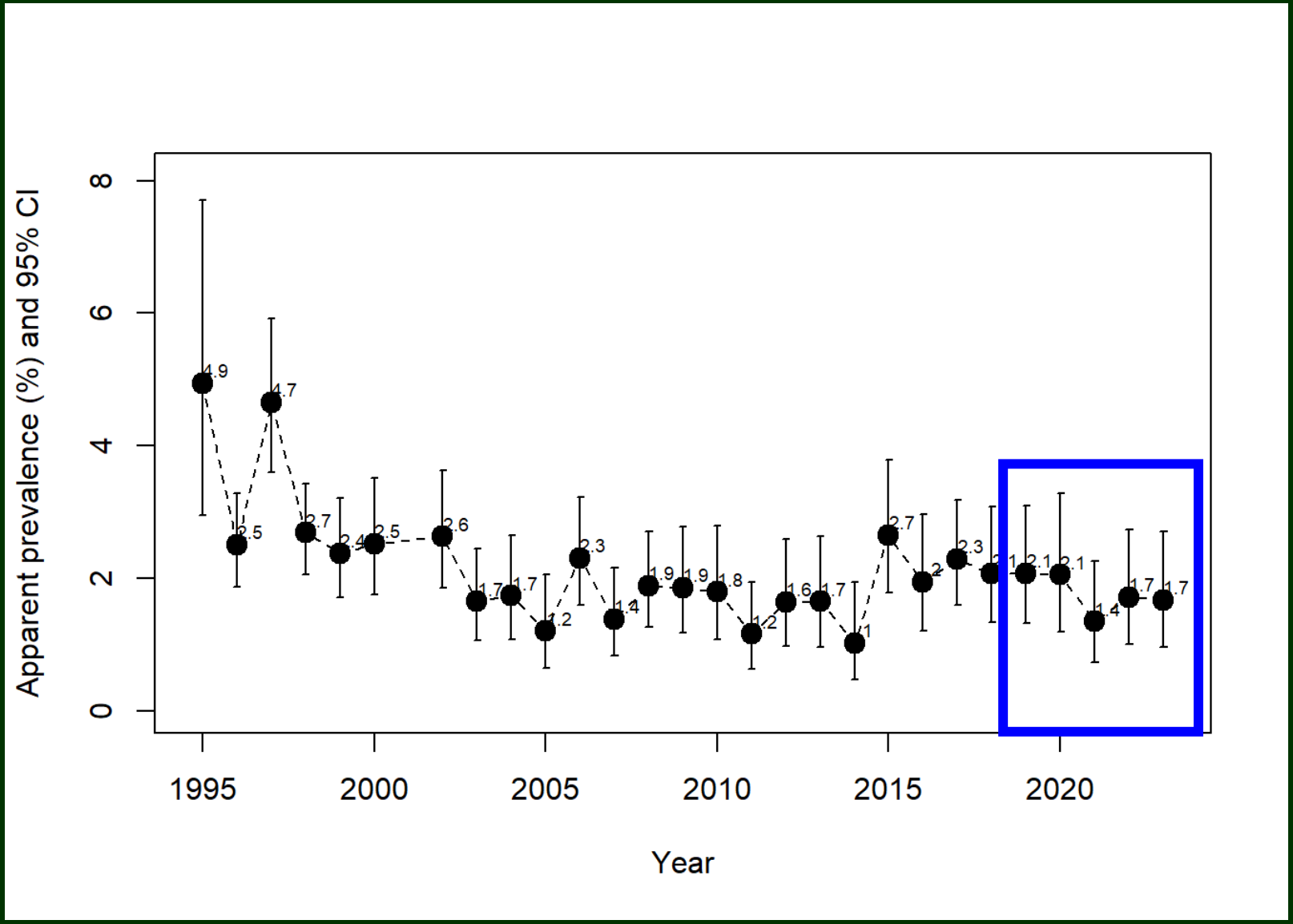
Apparent bTB Prevalence in Deer in DMU 452



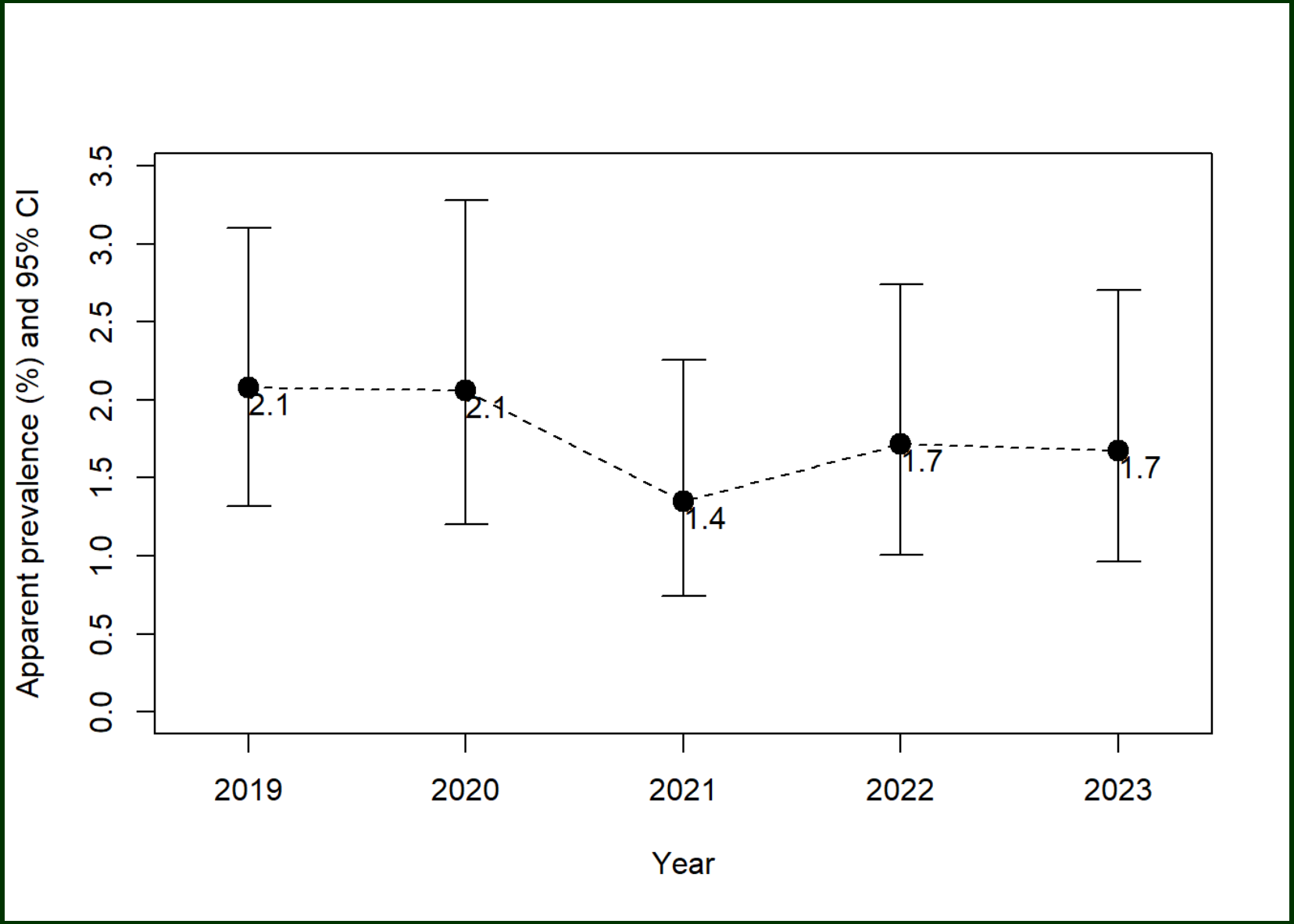
Year	DMU 452	5-Co.Outside DMU 452
1995	4.9%	(no testing)
1996	2.5%	0.2%
1997	4.7%	0.4%
1998	2.7%	0.3%
1999	2.4%	0.2%
2000	2.5%	0.4%
2001	2.3%*	0.5%
2002	2.6%	0.5%
2003	1.7%	0.2%
2004	1.7%	0.2%
2005	1.2%	0.1%
2006	2.3%	0.3%
2007	1.4%	0.2%
2008	1.9%	0.3%
2009	1.9%	0.4%
2010	1.8%	0.2%
2011	1.2%	0.1%
2012	1.7%	0.3%
2013	1.7%	0.2%
2014	1.0%	0.2%
2015	2.7%	0.3%
2016	2.0%	0.3%
2017	2.3%	0.6%
2018	2.1%	0.1%
2019	2.1%	0.4%
2020	2.1%	0.1%
2021	1.4%	0.1%
2022	1.7%	0.4%
2023*	**1.7%**	**0.4%**

*Estimates subject to potential bias due to drop in reporting of section level harvest locations by hunters in 2023

Apparent Prevalence in Deer in DMU 452



Apparent Prevalence in Deer in DMU 452



Infected Deer Outside the 5-county Area

- 3 bTB positive deer outside of MAZ + Presque Isle
  - Benzie (1), Crawford (1), Otsego (1)
- Previous bTB positive deer in these counties
  - Benzie (none), Crawford (2022), Otsego (2002)

- Consistent sampling effort in Crawford and Otsego

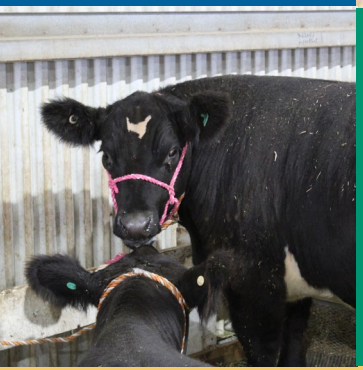
County	2020	2021	2022	2023
Crawford	149	191	201	119
Otsego	229	286	233	202

- bTB likely persists at very low prevalence in buffer counties.

- Last big effort in Benzie 2000-2004

County	2000	2001	2002	2003	2004	2023
Benzie	204	319	172	152	113	73

- CWD Surveillance in Benzie Co. continues in 2024 – all of these deer are also screened for bTB.



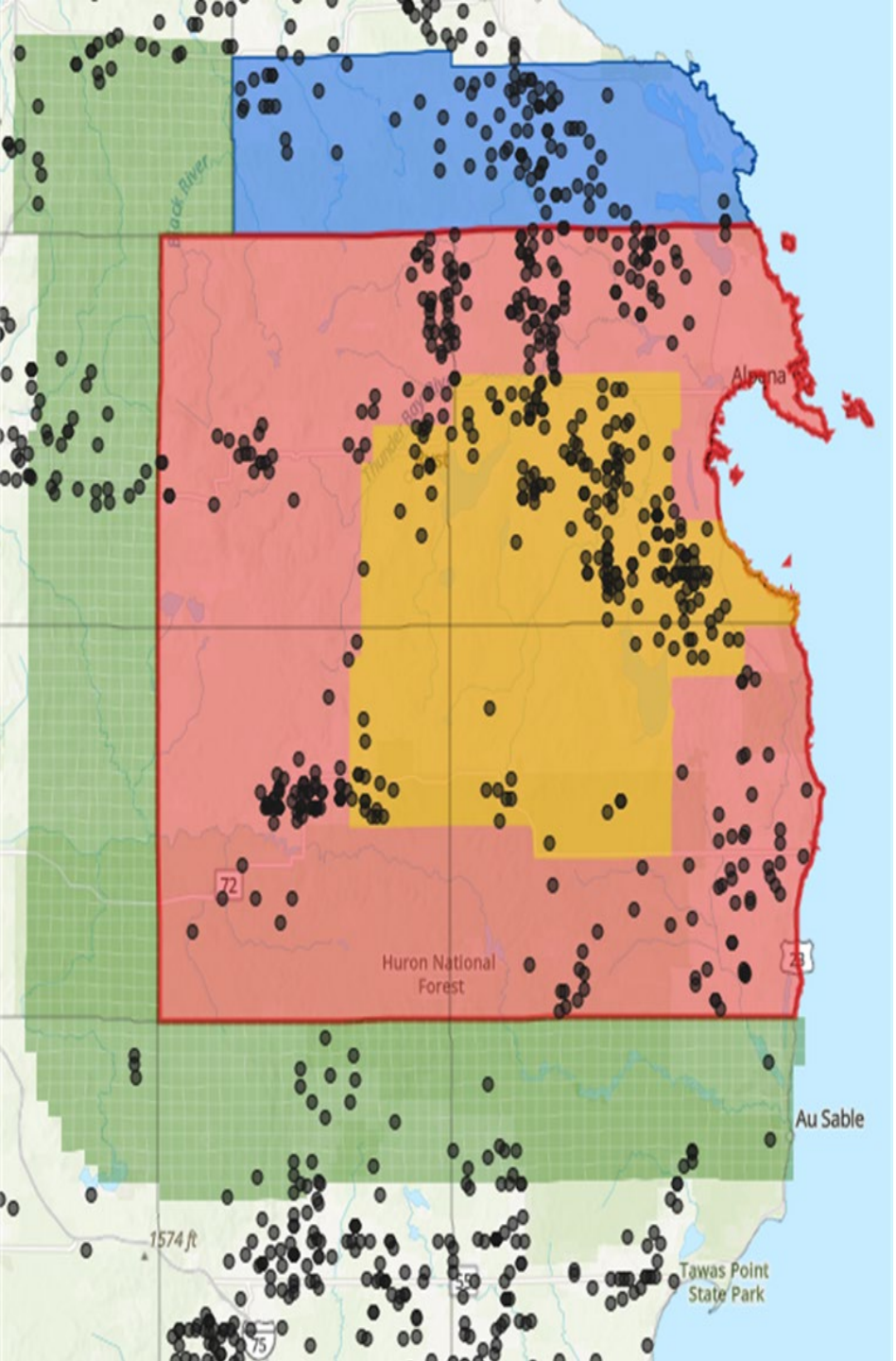
Cattle Update and Status of Bovine Tuberculosis Efforts

Shannon Cerveny, DVM, Dipl. ACZM

Assistant State Veterinarian and Bovine Tuberculosis Program Coordinator

April 11, 2024

Michigan Department of AGRICULTURE & Rural Development



Cattle Farm Surveillance

Modified Accredited Zone (MAZ) / Presque Isle County

- MAZ includes Alcona, Alpena, Montmorency, and Oscoda counties
  - 485 cattle farms
- Enhanced Wildlife Biosecurity (EWB) Area
  - 159 cattle farms

Buffer Area

- Includes portions of Cheboygan, Crawford, Iosco, Ogemaw, Otsego, and Roscommon counties
- 72 cattle farms

Michigan Department of Agriculture & Rural Development

2023 Bovine TB Surveillance in Cattle

- Caudal fold tests: 21,572
  - 202 suspects
  - 0.94% suspect rate
- Comparative cervical tests: No suspects
- Gamma interferon reactors: 3

Michigan Department of AGRICULTURE & Rural Development

2023 Bovine TB Surveillance in Cattle

- Gross necropsy: 3
  - No gross lesions: 2
  - Hepatic lymph node nodule: 1
  - Histopathology not compatible with bovine TB: 3
    - Eosinophilic granuloma: 1
  - Culture:
    - Negative: 3
- No cattle farms infected with bovine TB identified

Michigan Department of AGRICULTURE & Rural Development

Bovine TB Infections in Cattle

2022

- Last TB-infected cattle herd identified

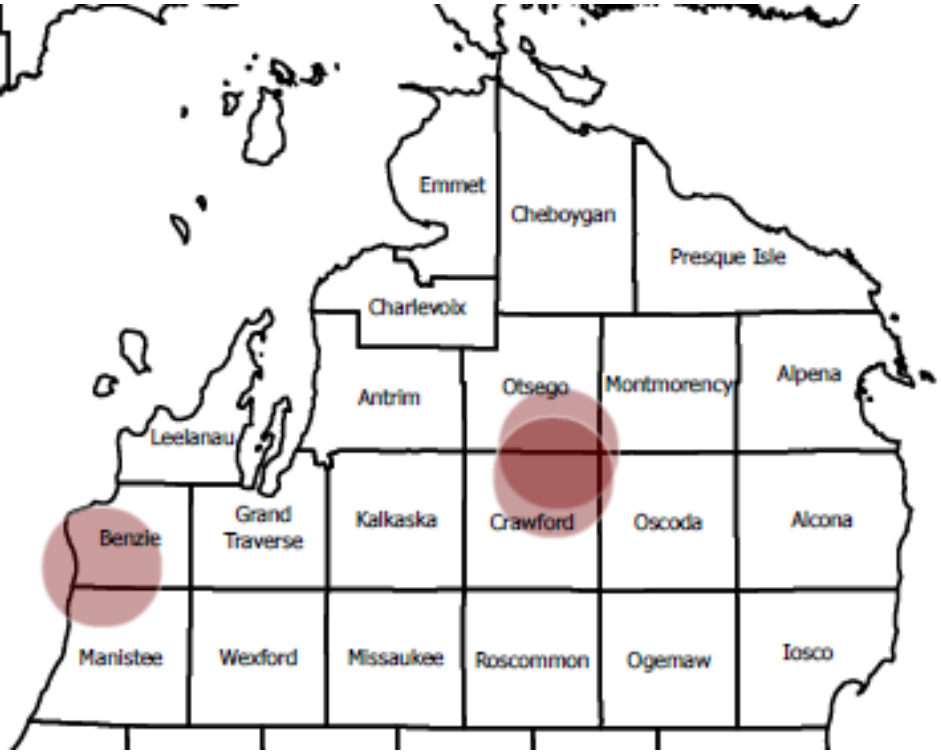
February 2023

- TB-infected animal born in Iosco County, went through feedlot, identified at a Michigan slaughter plant
- December 2022 – Animal from the same source identified at a Wisconsin slaughter plant
- Whole-genome sequencing (WGS) showed isolates from Alcona County
- No positive herds identified
- Investigation ongoing

October 2023

- TB-infected animal originating from Charlevoix County identified at a Michigan slaughter plant
- WGS most closely matches deer sequence from Alcona County
- No positive herds identified
- Investigation is ongoing

Michigan Department of AGRICULTURE & Rural Development

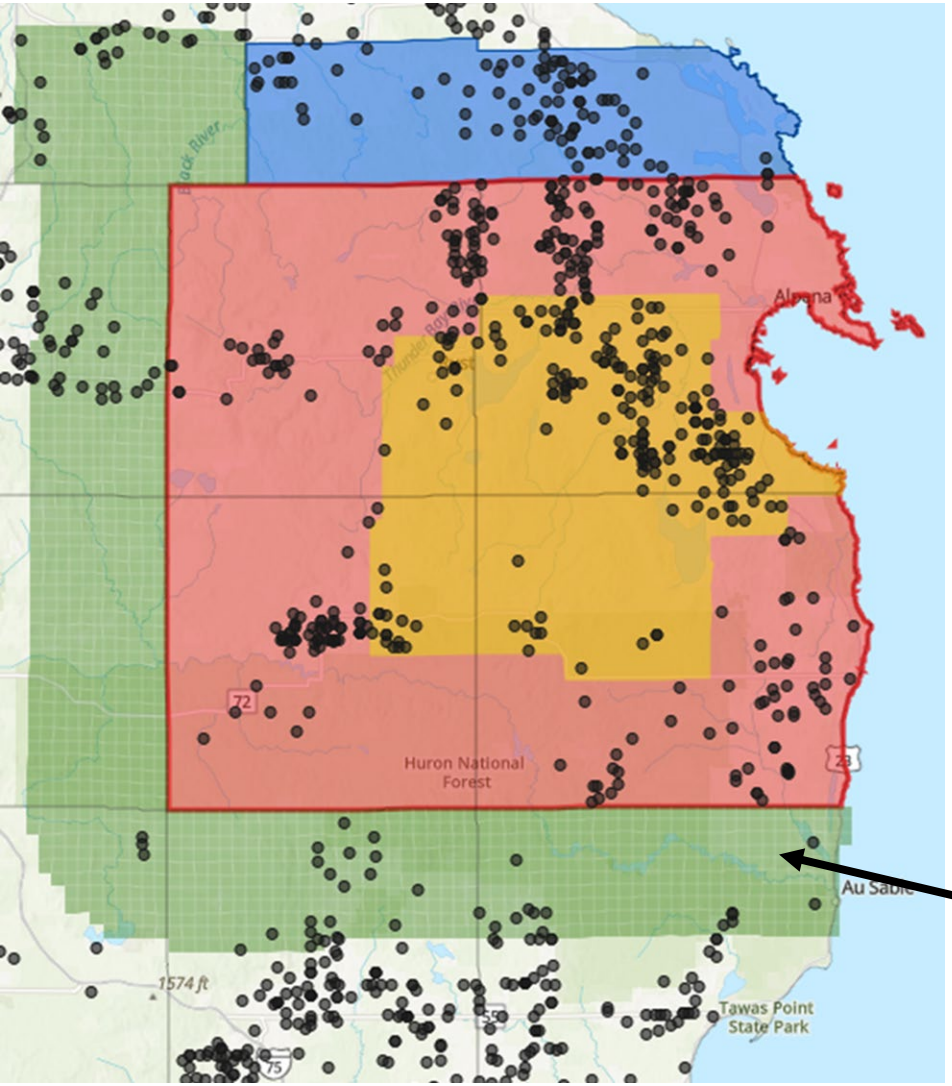


2024 Circle Testing

Per the current Memorandum of Understanding with the U.S. Department of Agriculture and Michigan Departments of Agriculture and Rural Development and Natural Resources:

- Circle testing outside MAZ – All cattle and bison herds inside a 10-mile radius within 12 months
  - 12 months of age or older
  - Non-natural additions to herd of any age
- TB-positive wild deer in Benzie County
  - 103 herds
- TB-positive wild deer in Crawford and Otsego counties
  - 37 herds

Michigan Department of AGRICULTURE & Rural Development



2024 Zoning Order Updates

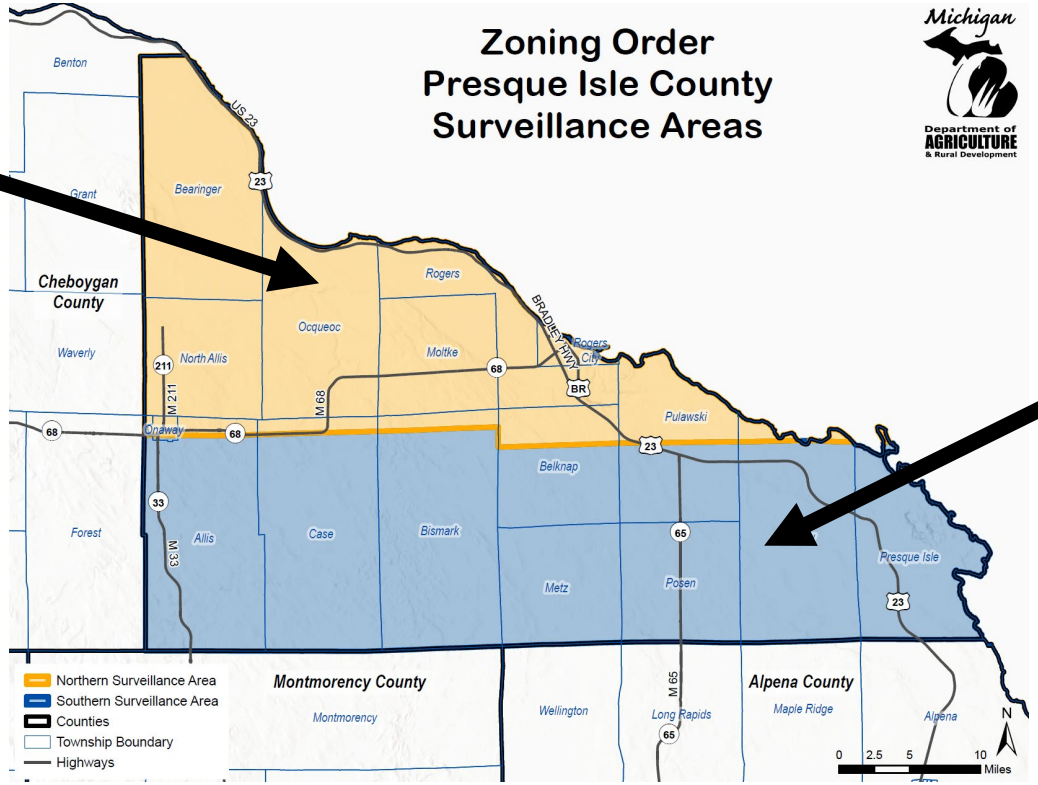
- Last update in 2020
- Buffer surveillance area testing period establishment
  - September 2025 to December 2026

Buffer Surveillance Zone

Michigan Department of Agriculture & Rural Development

2024 Zoning Order Updates
Presque Isle County: Herds Not Enrolled in EWB

Test every three years & no movement testing

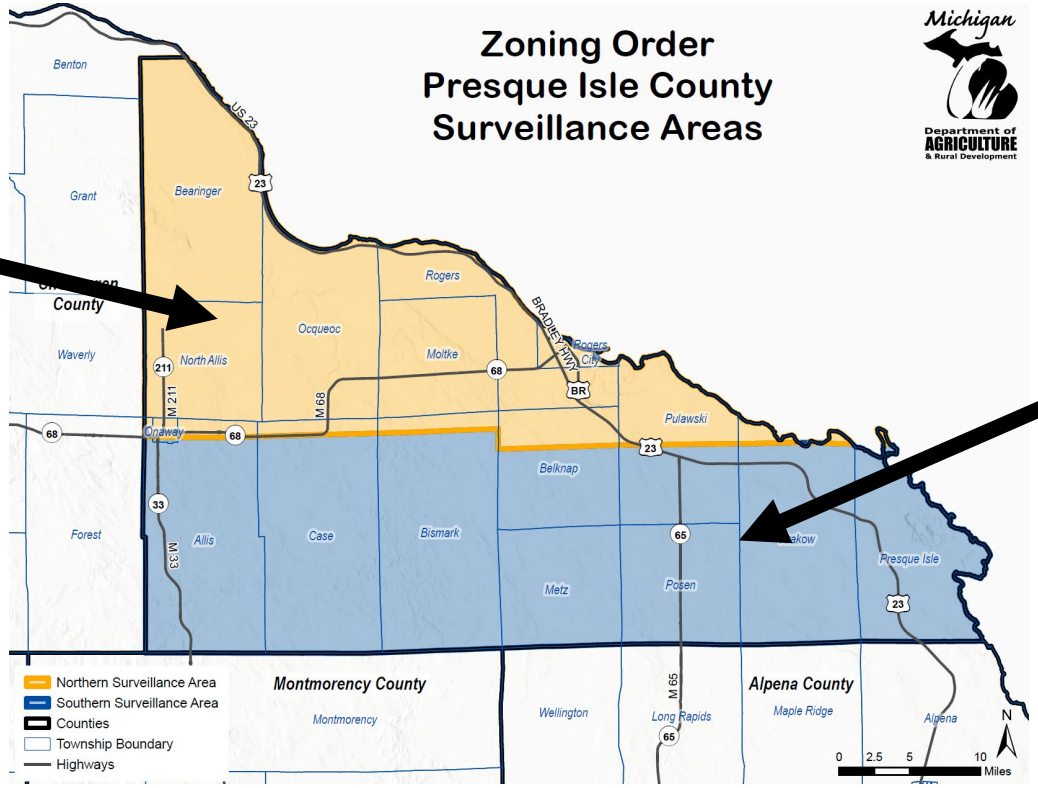


Test every year & must do movement testing

Michigan Department of AGRICULTURE & Rural Development

2024 Zoning Order Updates
Presque Isle County: EWB Enrolled Herds

No surveillance testing & no movement testing



Test every three years & no movement testing

Michigan Department of AGRICULTURE & Rural Development

Thank you!

@MichDeptofAg

Shannon Cerveny, DVM, Dipl. ACZM
CervenyS@Michigan.gov
Assistant State Veterinarian and
Tuberculosis Program Coordinator

Michigan Department of AGRICULTURE & Rural Development

Future Directions

Future bTB Connections

- Efficient head collection – building partnerships
  - Expand processor and taxidermist program
  - Cooperation with groups, clubs, etc.
- Herd & Hunter TB meetings
  - Next meeting April 30th

Further Prevention Strategies in Wildlife

bTB vaccine for deer

- National Wildlife Research Center (USDA-APHIS Wildlife Services) and Michigan State University
- Field trial late February - April
  - Private land in southern Alpena County

Thank You! Questions?

Mitch Marcus: MarcusM2@Michigan.gov

Emily Sewell: SewellE@Michigan.gov

Dr. Shannon Cerveny: CervenyS@Michigan.gov