Great Lakes Mass Marking Program

Great Lakes RESTORATION

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New Franken, WI

Great Lakes Sport Fishermen Club
Chapter
2018

Outline

Updates from the Great Lakes Mass Marking Program

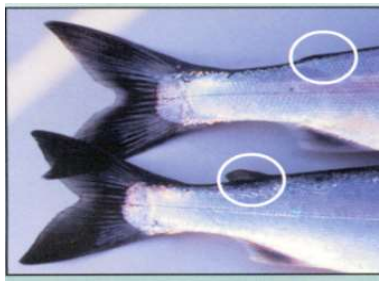
- Program overview
- Chinook salmon results
- Lake trout results

The Great Lakes Mass Marking Program

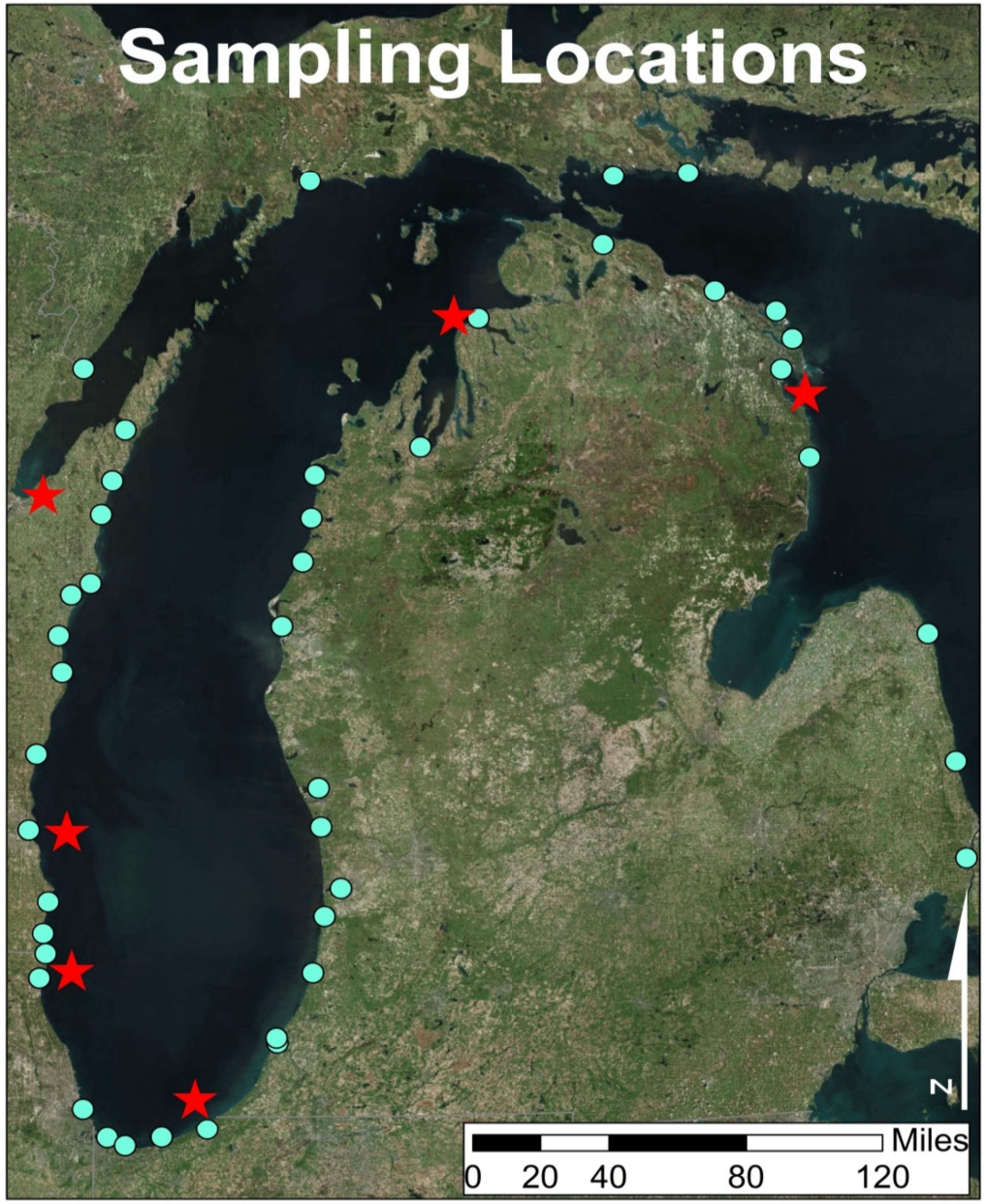
- A collaboration among federal, state, and tribal agencies coordinated by the U.S. Fish and Wildlife Service
- Established to help address questions and management objectives for salmon and trout fisheries
- Provides tagging, marking, field data collection, and analytical support services for Great Lakes fisheries management

Tagging and Marking Operation

- Mass marking – lake trout began in 2010, Chinook salmon in 2011, Steelhead in 2017
- About 10 million fish tagged/year; over 80 million fish since 2010
- Tags lots identify fish to stocking location, year class, and genetic strain



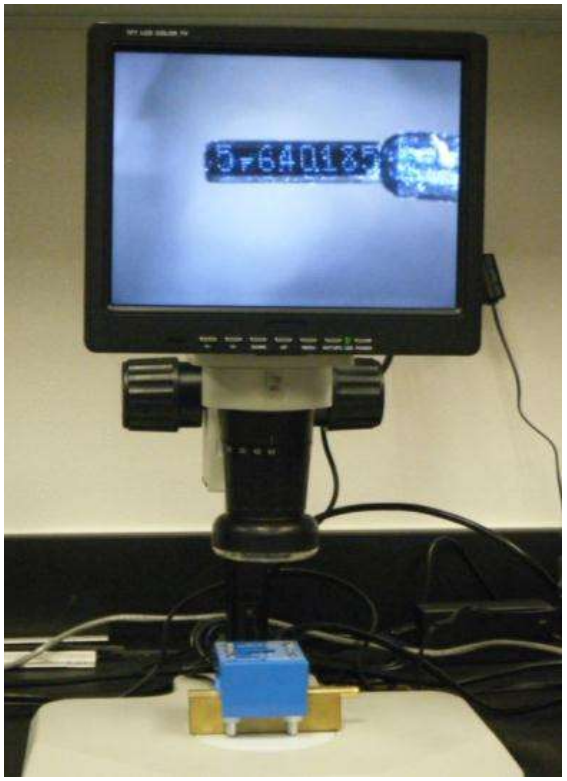
Data Collection and Tag Recovery Field Operation



- Appx. 21,000 fish examined each year in Lake Michigan and 1,000 in Lake Huron
- Field survey costs ~$250,000 per year salary for field staff
- About 450 sampling days per year (April – September)

Tag Extraction and Reading Operation

- Over 100,000 snouts have been processed, with more than 86,000 CWTs recovered through 2017



Thanks to *your* support we have 7 years of data on over 130,000 fish from open-water angling.

2018 – 2019 GLRI Funding Outlook

Year	Funding Millions $	Source	Use	Millions Tagged and or marked	Fish sampled
2019	1.50	GLRI – FHU Template	Operations/ analysis	same as FY 18	
2018	0.50 1.00	GLRI – FHU Template GLRI – carryover	Operations/ analysis	same as FY17	
2017	0.69 0.60	GLRI – FHU Template GLRI – carryover FY17	Operations/ analysis	1.9 Chinook salmon 3.8 lake trout 2.8 steelhead/RBT	10,474
2016	0.85 0.48	GLRI – FHU Template GLRI – LAT/LAS Template	Operations/ analysis	2.8 Chinook salmon 4.9 lake trout	22,154
2015	1.00 0.44	GLRI – FHU Template GLRI – LAT/LAS Template	Operations/ analysis	2.9 Chinook salmon 6.4 lake trout	21,189
2014	1.50	GLRI – FHU Template	Operations/ analysis	2.9 Chinook salmon 6.4 lake trout	21,778
2013	1.50	GLRI – Fish Habitat Utilization Template	Operations/ analysis	2.9 Chinook salmon 5.7 lake trout	16,879
2012	1.50	GLRI – FHU Template	Operations/ analysis	4.3 Chinook salmon 6.1 lake trout	11,712
2011	1.50	GLRI – FHU Template	Operations	4.7 Chinook salmon 5.8 lake trout	
2010	3.60	Congress and GLRI through Great Lakes Fish and Wildlife Restoration Act	Equipment/ operations	1.1 Chinook salmon 4.6 lake trout	
2009	1.50	Congress	Equipment		
2008	1.73	Congress	Equipment		

115TH CONGRESS
1ST SESSION

S. 1331

To establish the Great Lakes Mass Marking Program, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 8, 2017

Ms. STABENOW (for herself, Mr. PETERS, and Mr. BROWN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To establish the Great Lakes Mass Marking Program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Great Lakes Mass Marking Program Act".

SEC. 2. FINDINGS.

Congress finds that—

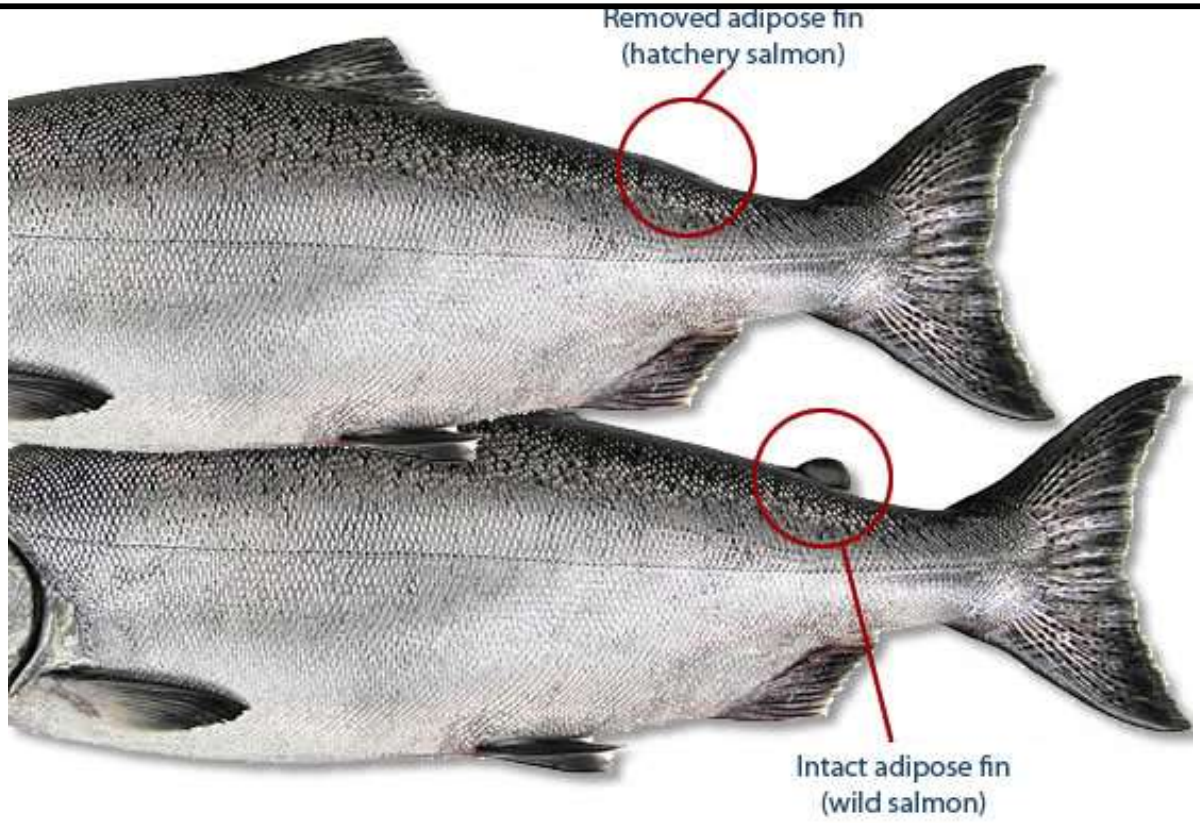
(1) the Great Lakes have experienced rapid changes in recent years due to—

Great Lakes Mass Marking Program Act

Introduced by Stabenow, Debbie [D-MI]; June 2017; Cosponsors: Peters, Gary C. [D-MI], Brown, Sherrod [D-OH], Schumer, Charles E. [D-NY]

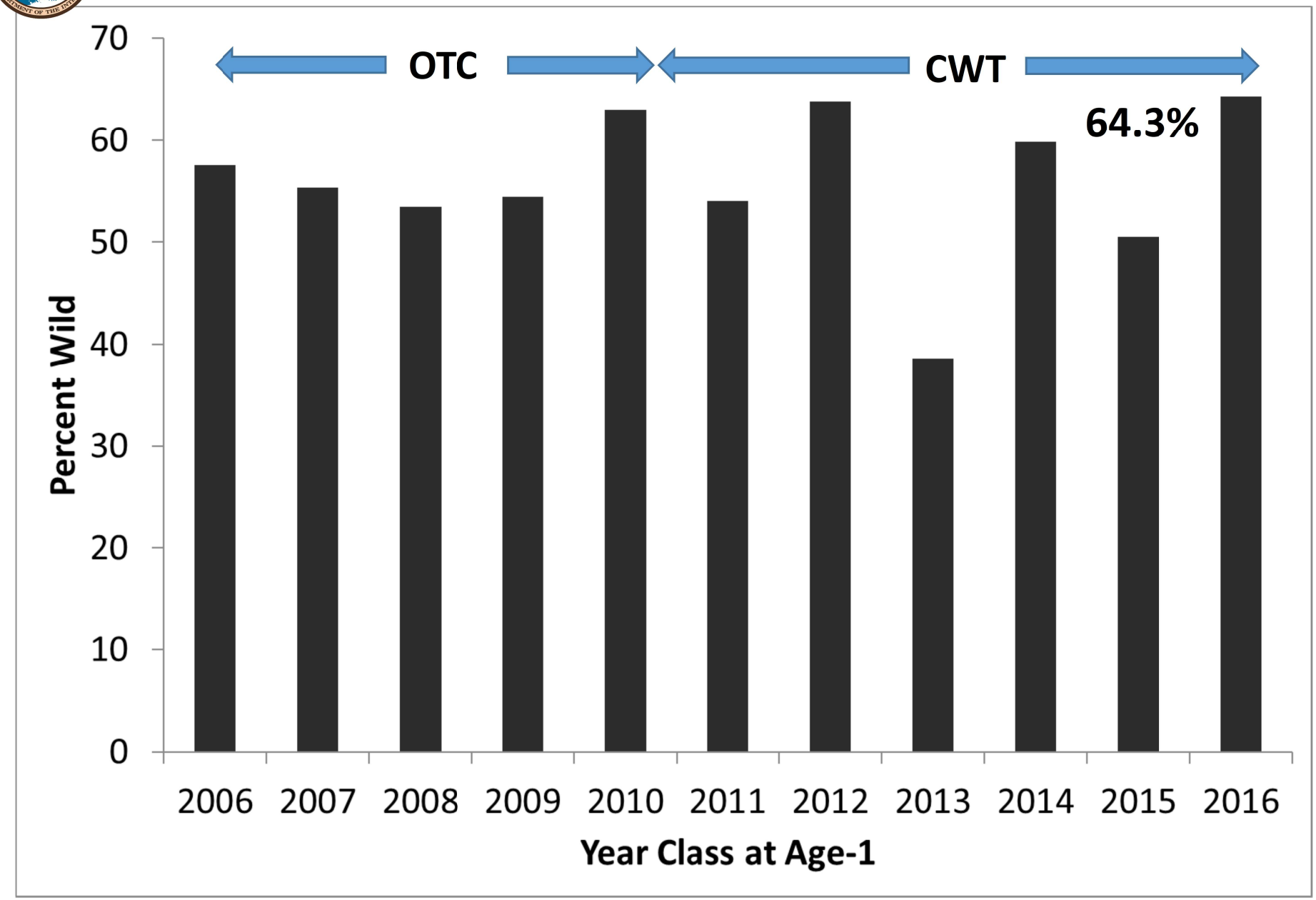
- formally establishes the program in the FWS
- specifies collaboration with states, tribes and other federal agencies
- make all data available to applicable agencies
- authorization of $5.0 million annually during 2018-2022.

Chinook Salmon Wild Recruitment

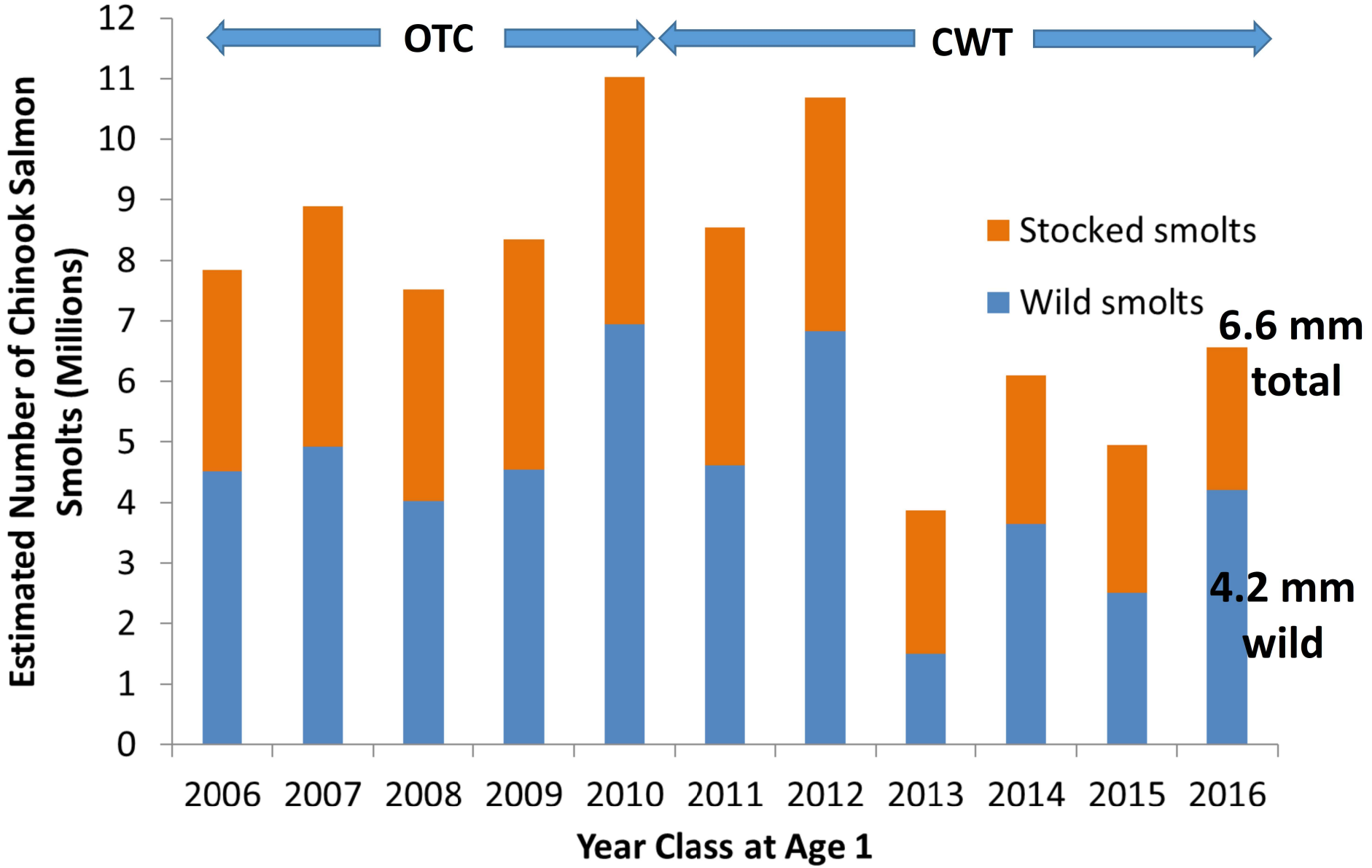


- "Stocked" fish have AD clip only or a AD clip with CWT
- "Wild" fish have no clip or CWT
- Only ~0.5% of stocked fish are not clipped due to error
- Little fin regeneration; 99.5% unclipped fish are wild

Chinook salmon year class strength



Lakewide Smolt Estimates at Age 1



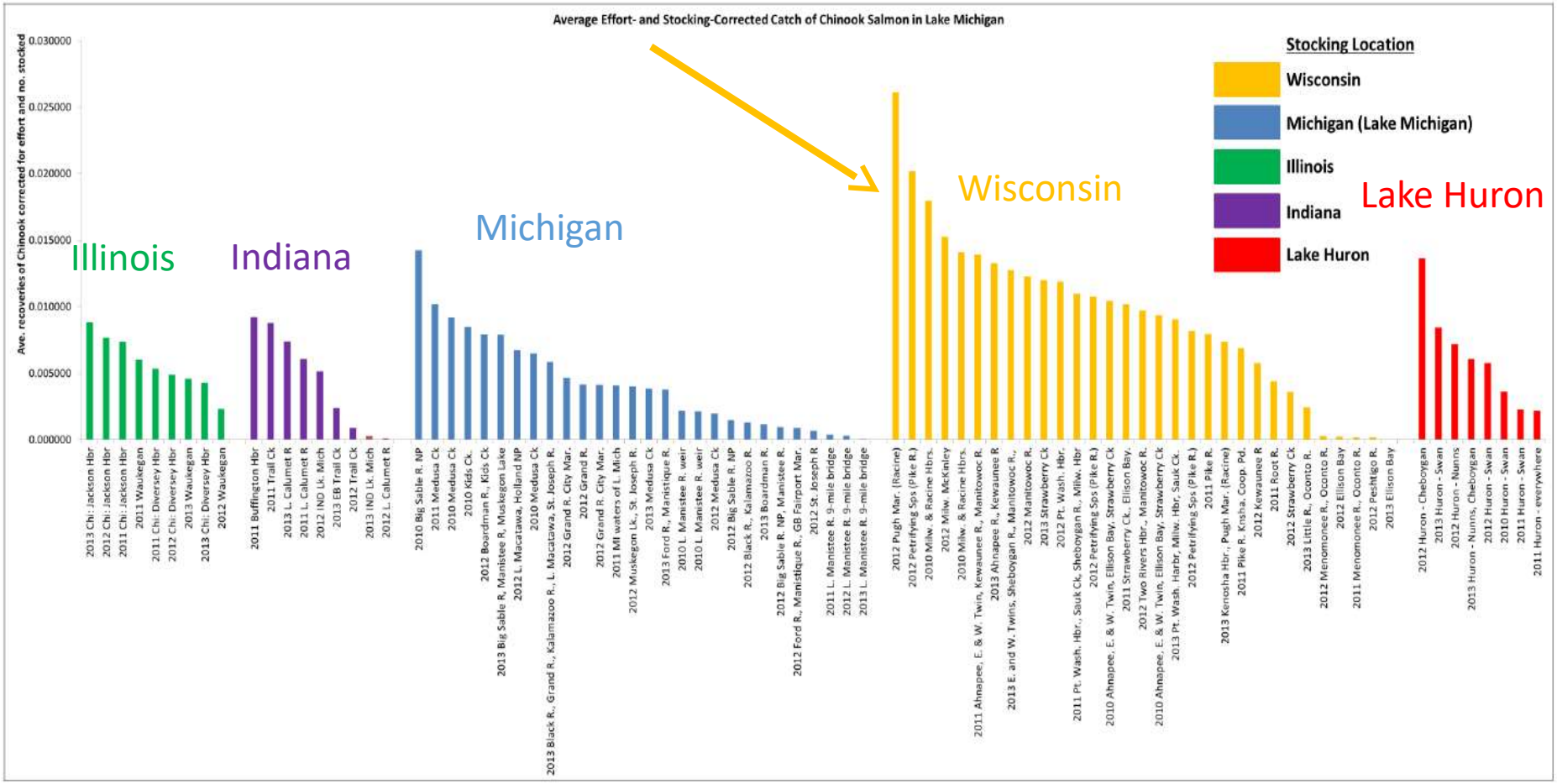
Chinook Salmon Wild Recruitment

Most Chinook salmon in Lakes Michigan and Huron are wild

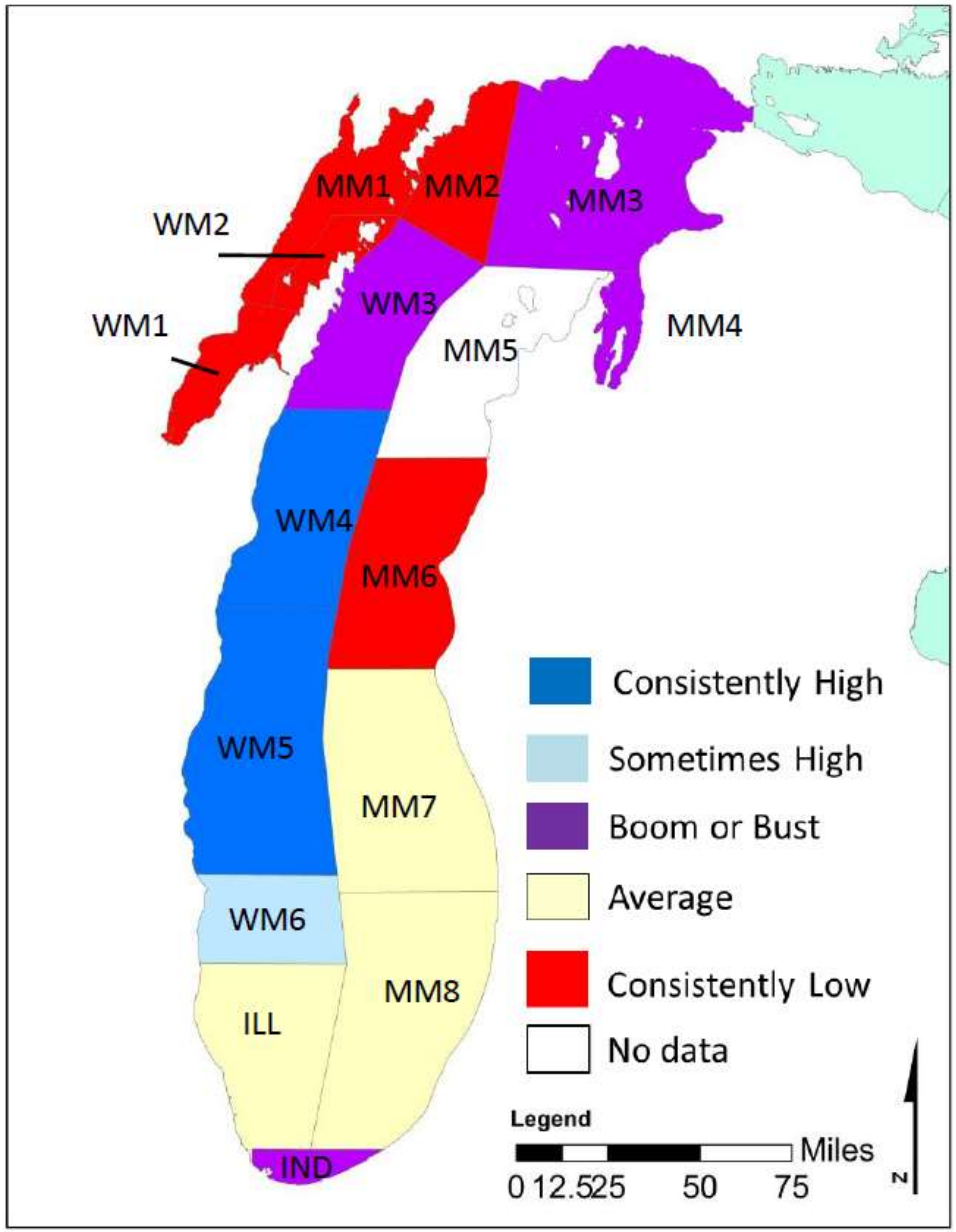
Wild recruitment is variable and needs to be monitored annually

Chinook Salmon Survival

High survival of Wisconsin-stocked Chinook salmon



Chinook Salmon Survival

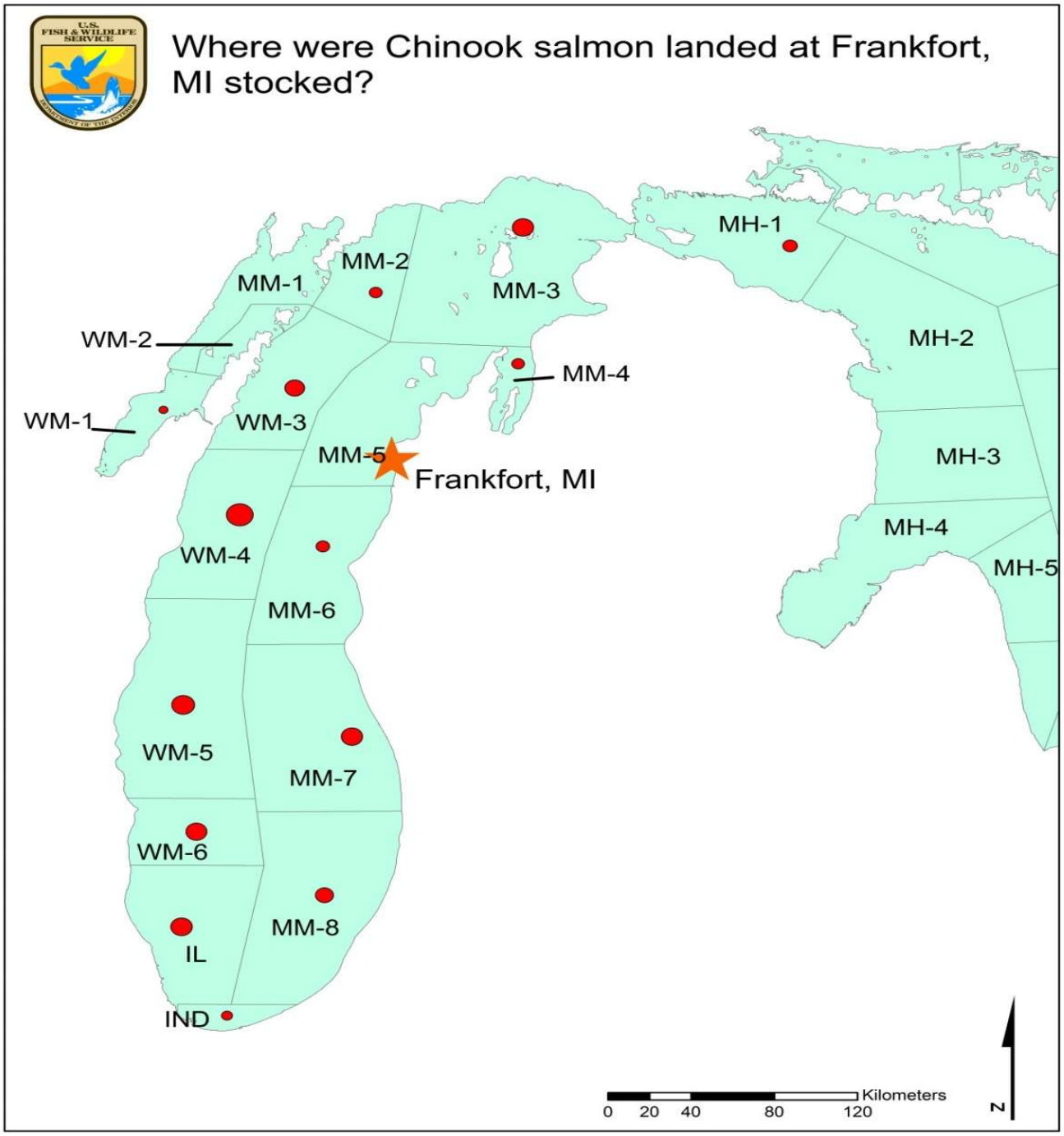


- Favorable temperatures
- More alewives
- Rocky shoreline for invertebrates
- Predation in Green Bay

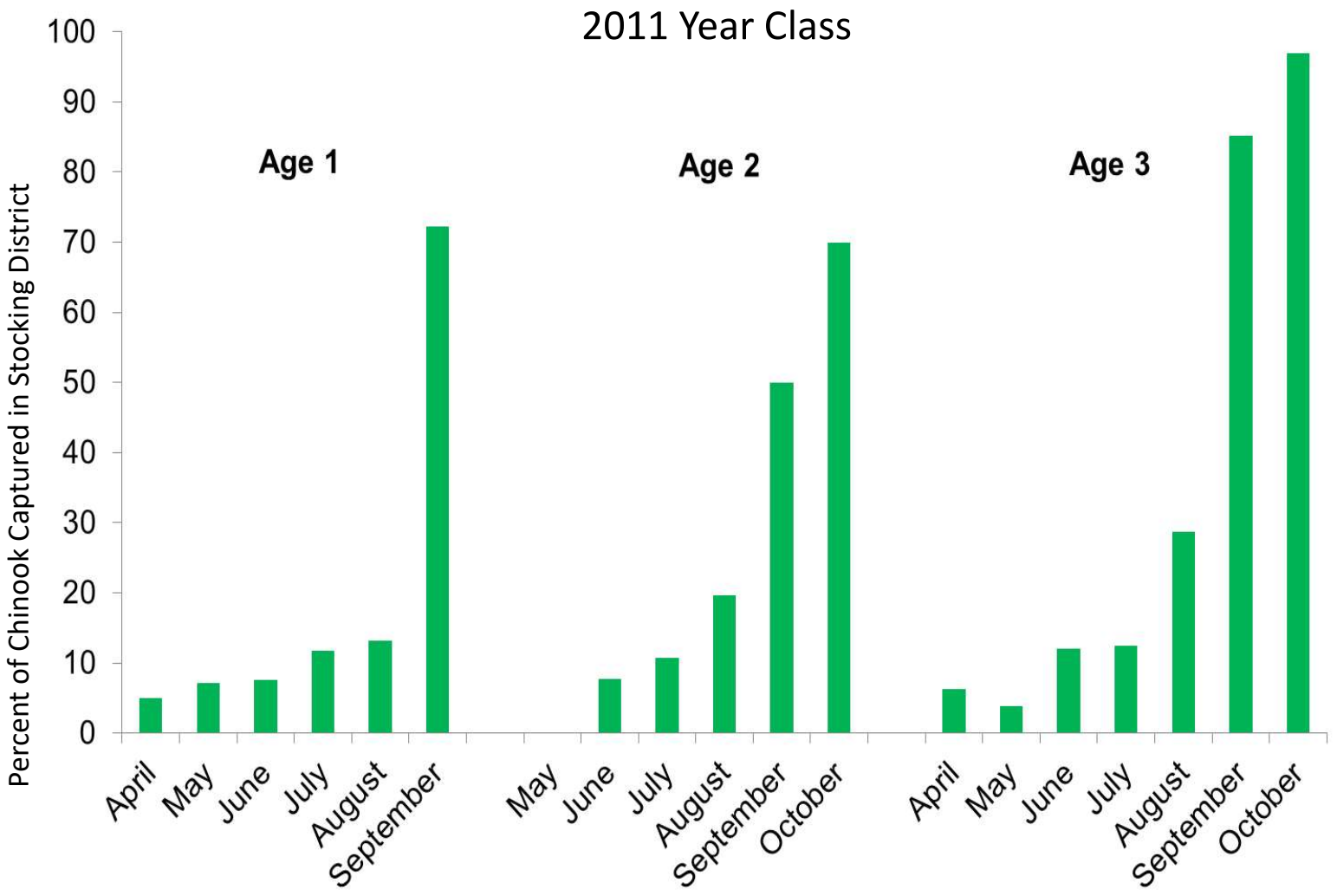
Chinook Salmon Survival

Fish stocked on the western shore survive the best

Poor survival for fish stocked in Green Bay and MM6


Where were Chinook salmon landed at Frankfort, MI stocked?
U.S. FISH & WILDLIFE SERVICE
MH-1
MM-2
MM-1
MM-3
MH-2
WM-2
MM-4
WM-1
WM-3
MM-5
Frankfort, MI
MH-3
MH-4
WM-4
MH-5
MM-6
WM-5
MM-7
WM-6
MM-8
IL
IND
Kilometers
0 20 40 80 120
N

Chinook Salmon Movement



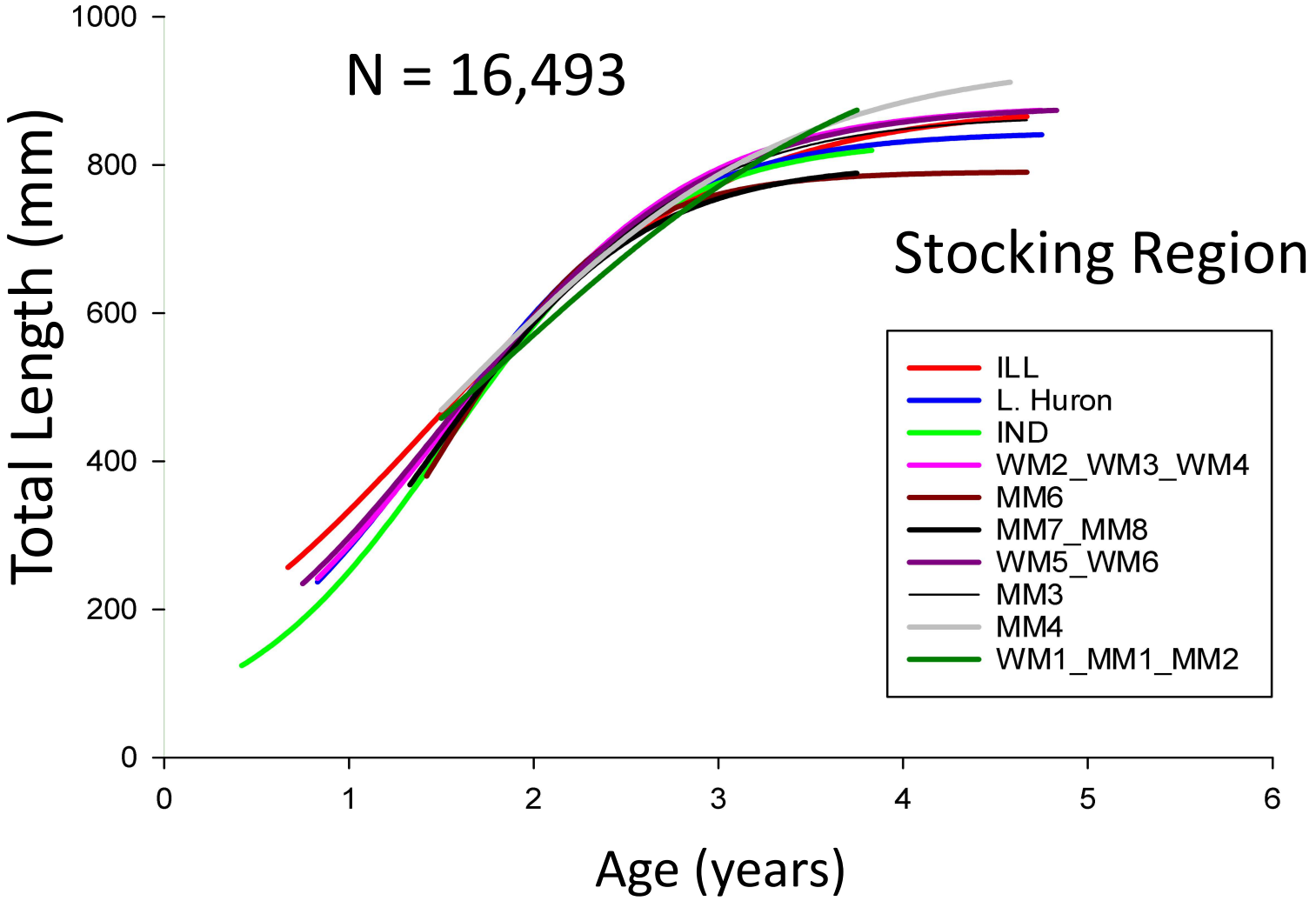
Chinook Salmon Movement

Lakewide movement during summer

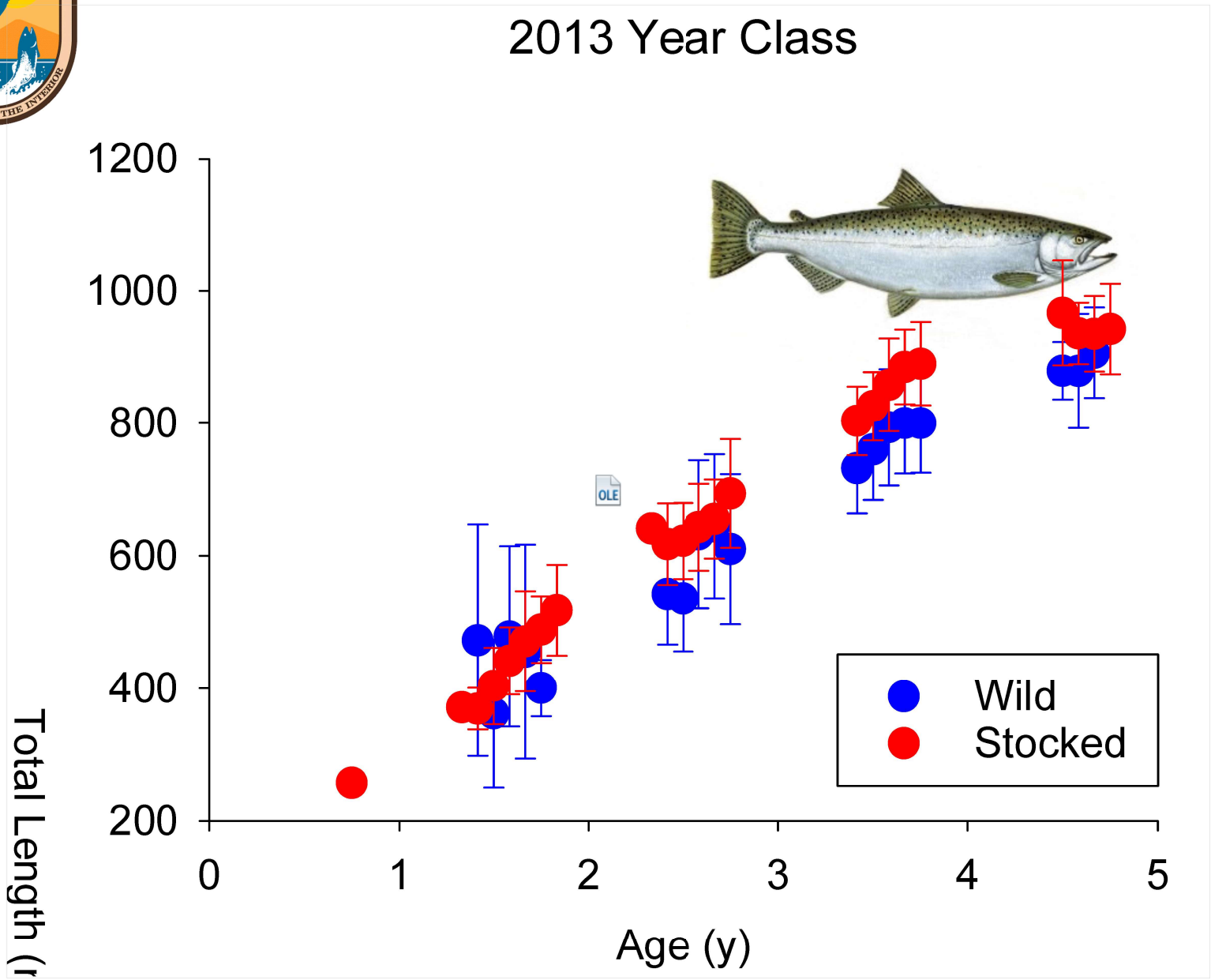
Summer capture location not likely to be stocking location

Fall fishery determined by stocking location

Chinook Salmon Growth – Stocked Fish

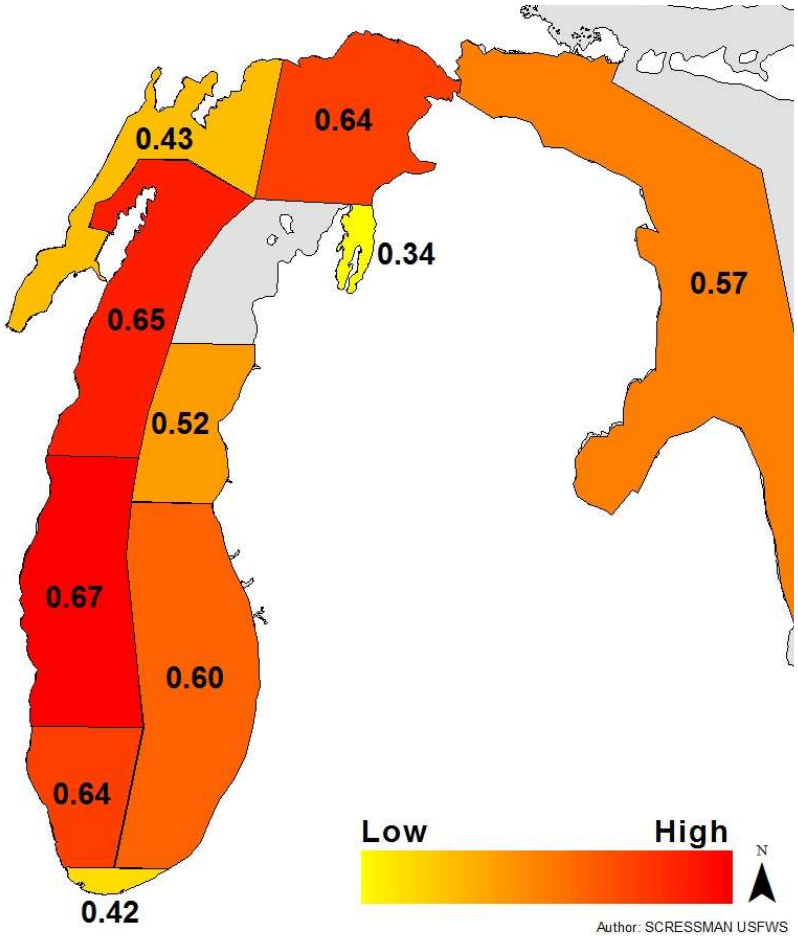


Wild Fish Grow Slower than Stocked Fish

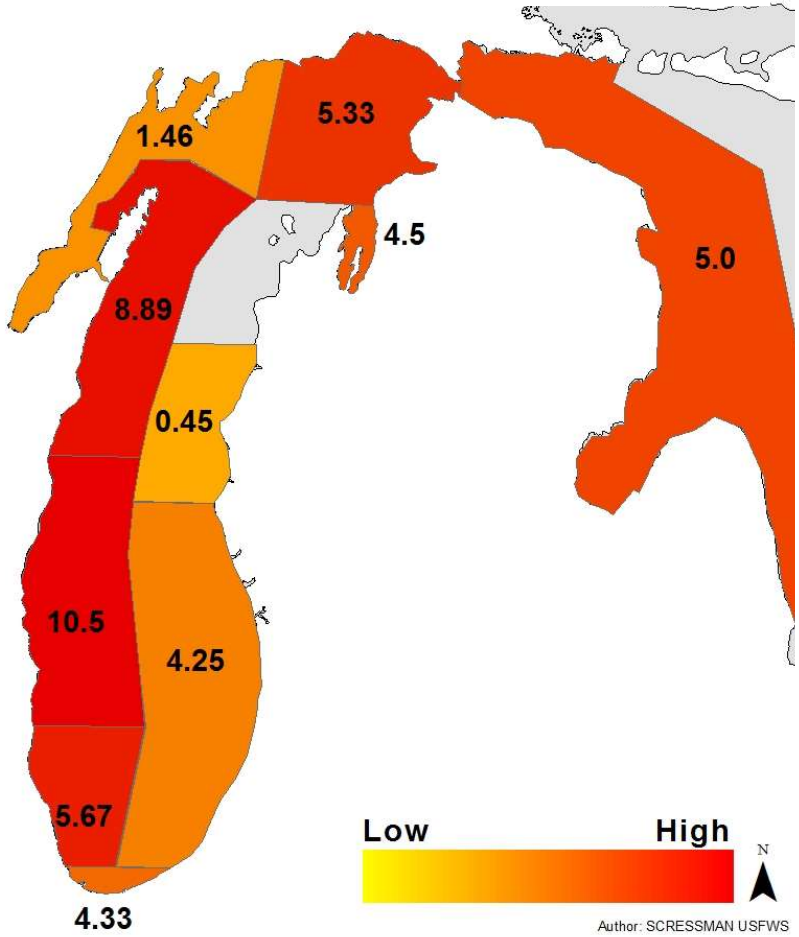


Chinook Salmon Growth

Growth



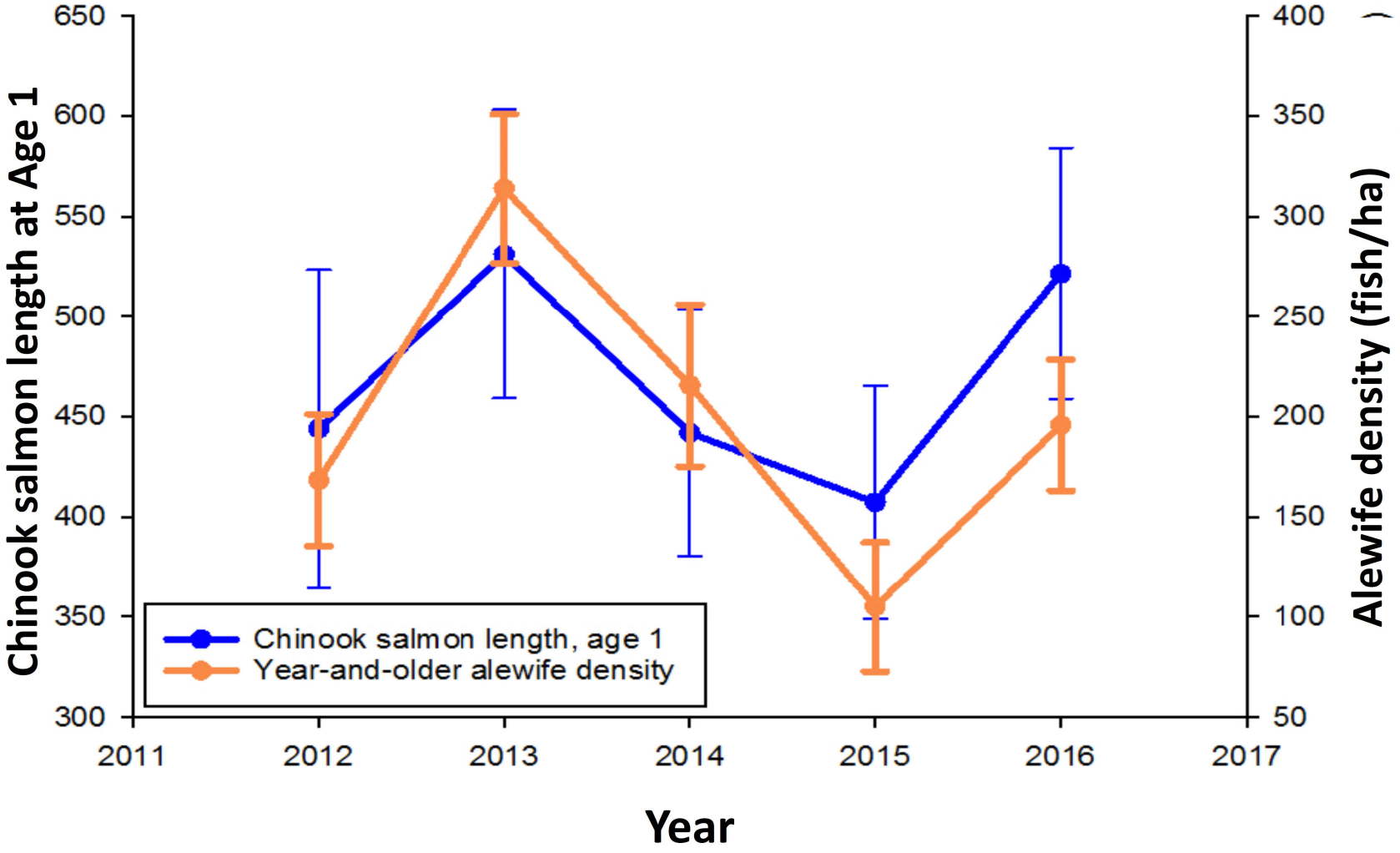
Survival



- Growth may lead to good survival
- May relate to food or temp differences

Chinook Salmon Growth

- Correlation with alewife density suggests a limited food supply



Chinook Salmon Growth

Growth similar among locations

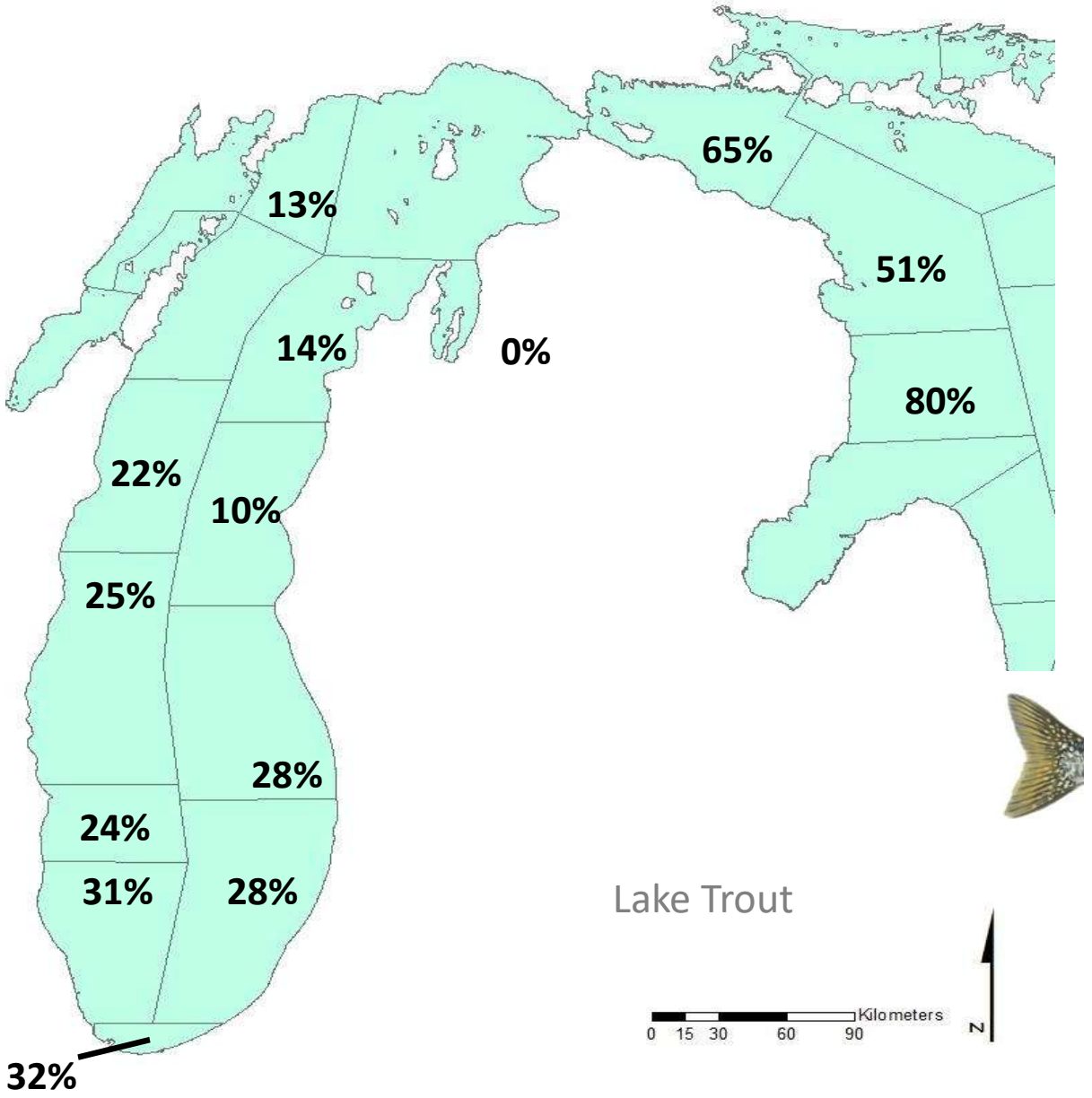
Growth and survival seem to be related

Stocked fish grow faster than wild fish

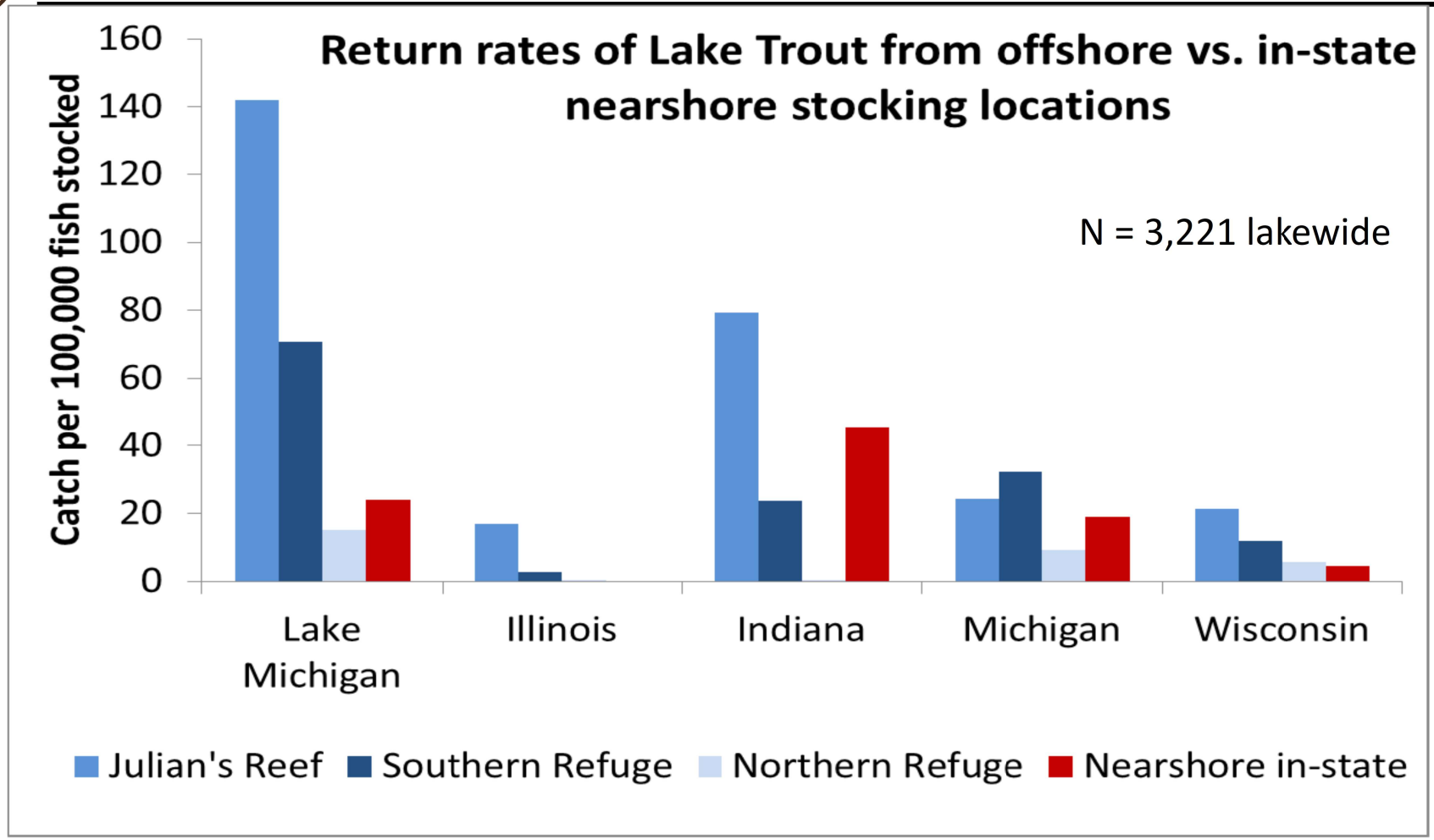
Annual variability in growth linked to annual abundance of alewife – not expected if alewife were not limited

Lake Trout Wild Recruitment

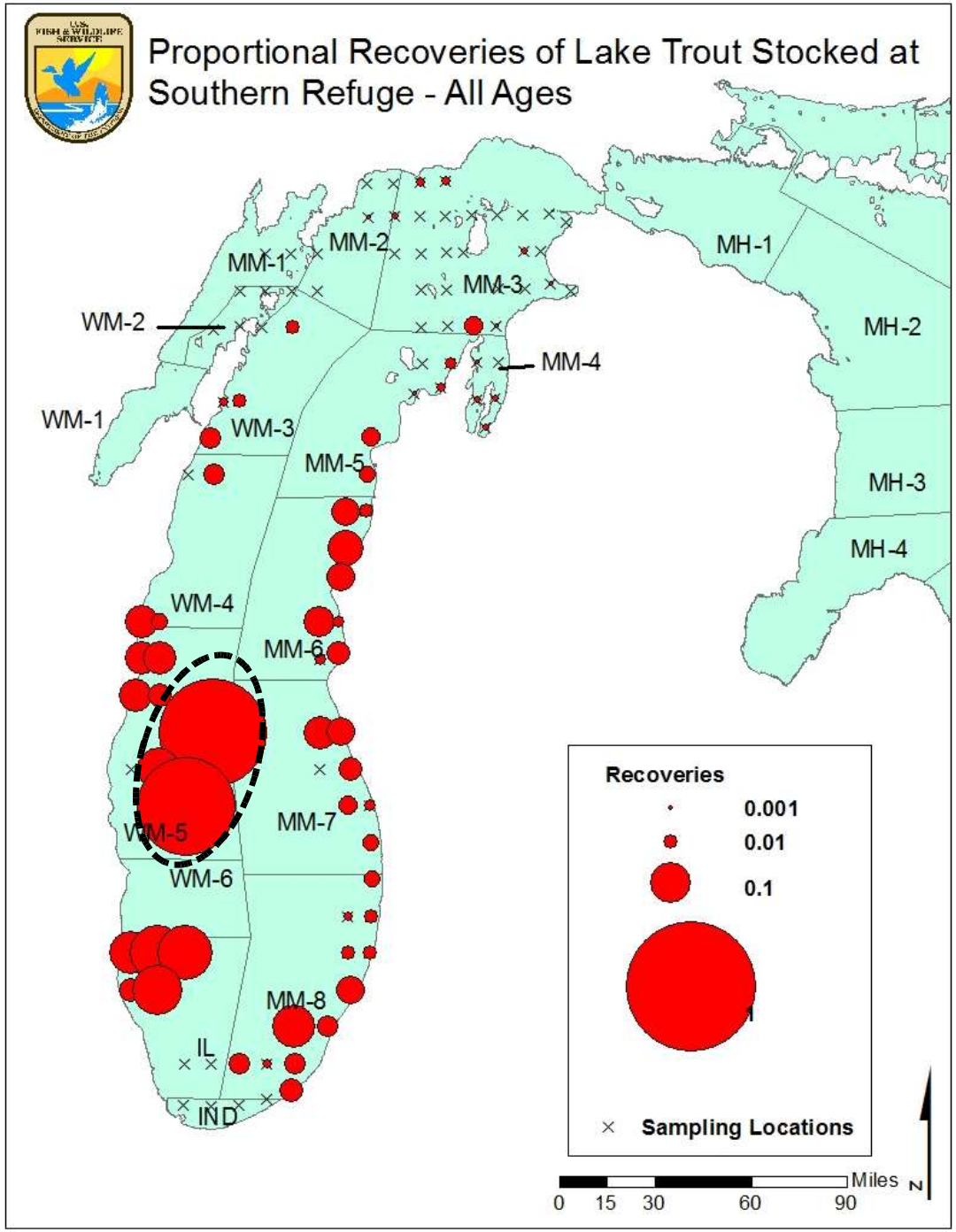
- Percent of wild fish up 3 – 19 % from last year
- Population is not rehabilitated, but progress is positive

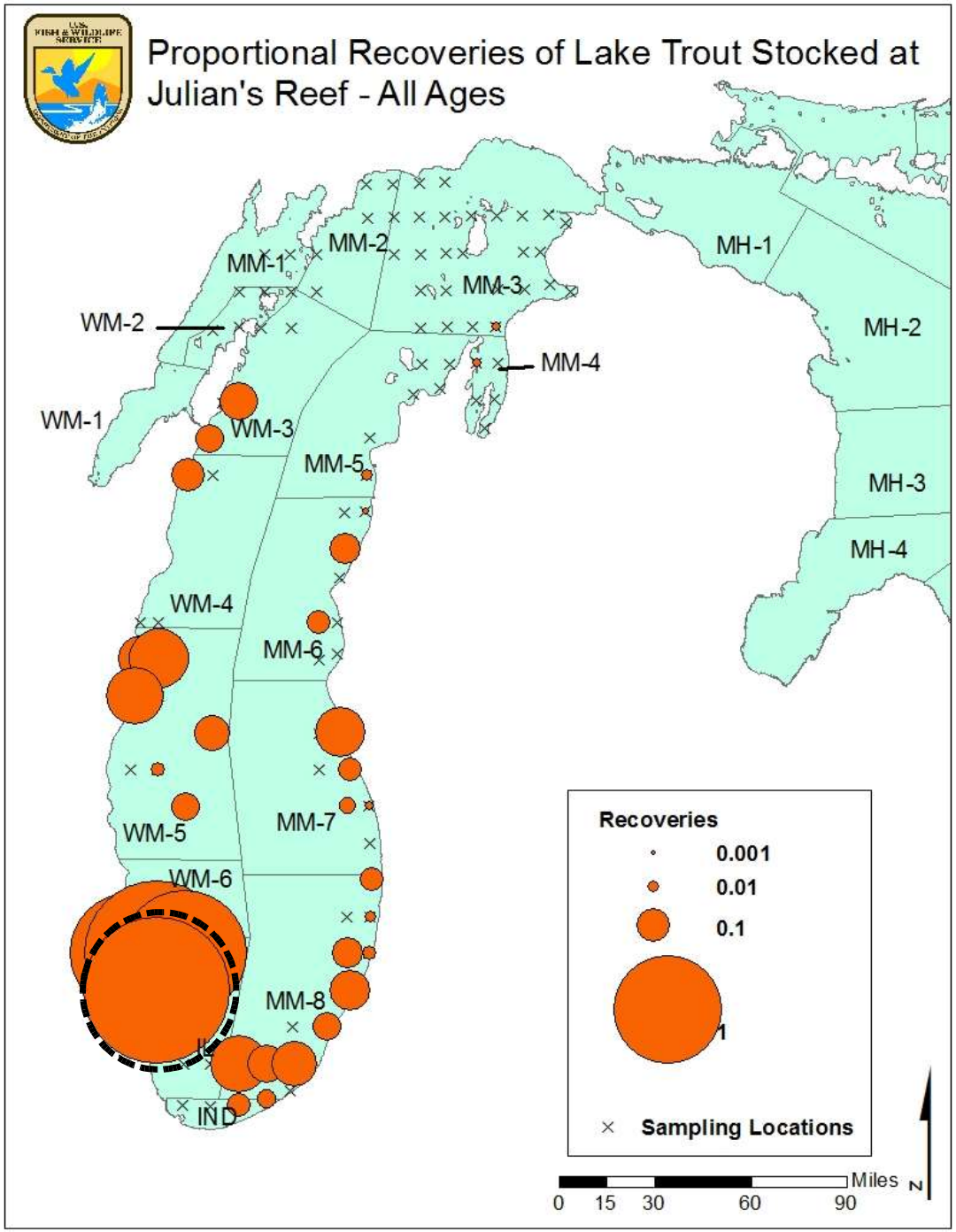


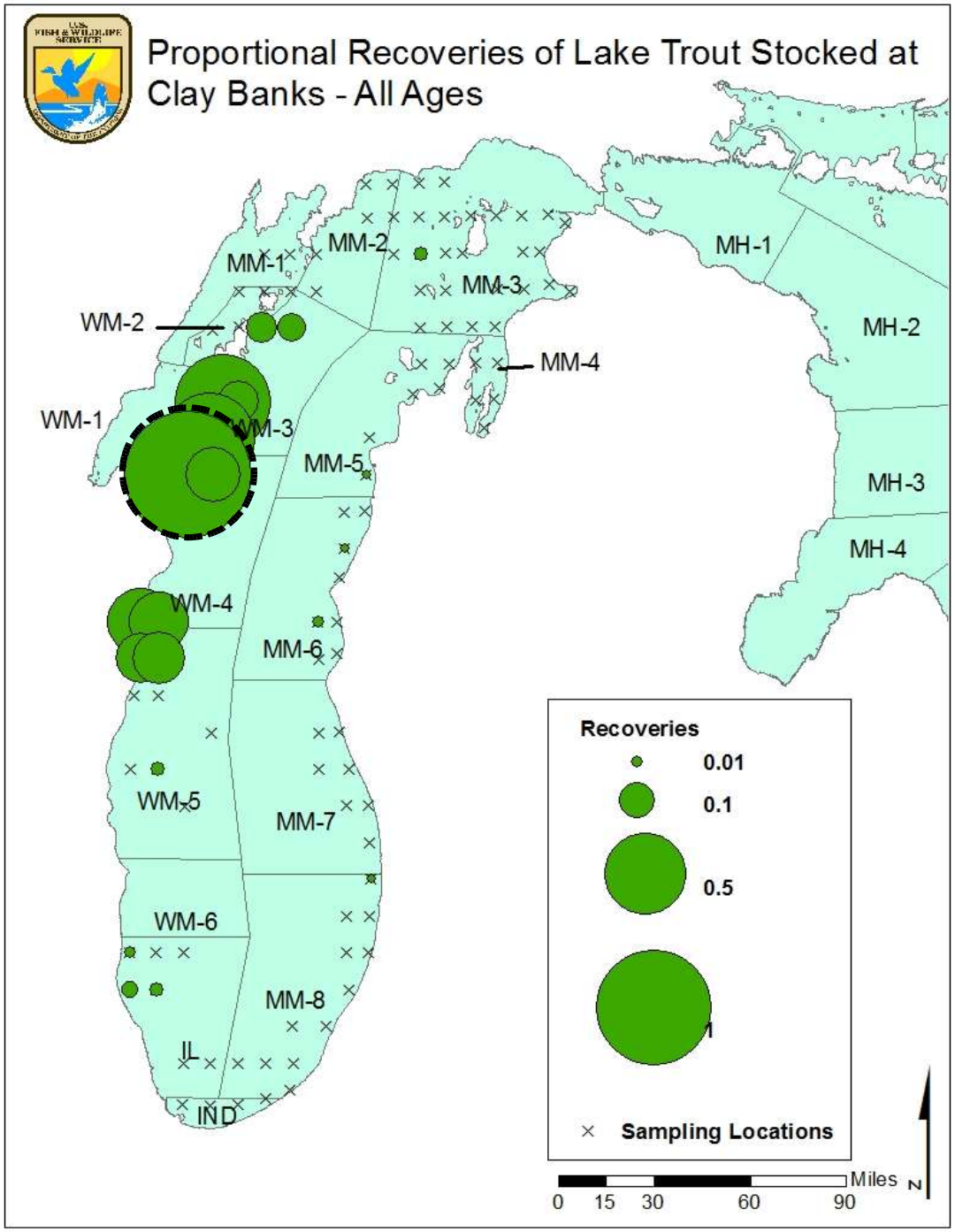
Lake Trout Contributions to Fishery

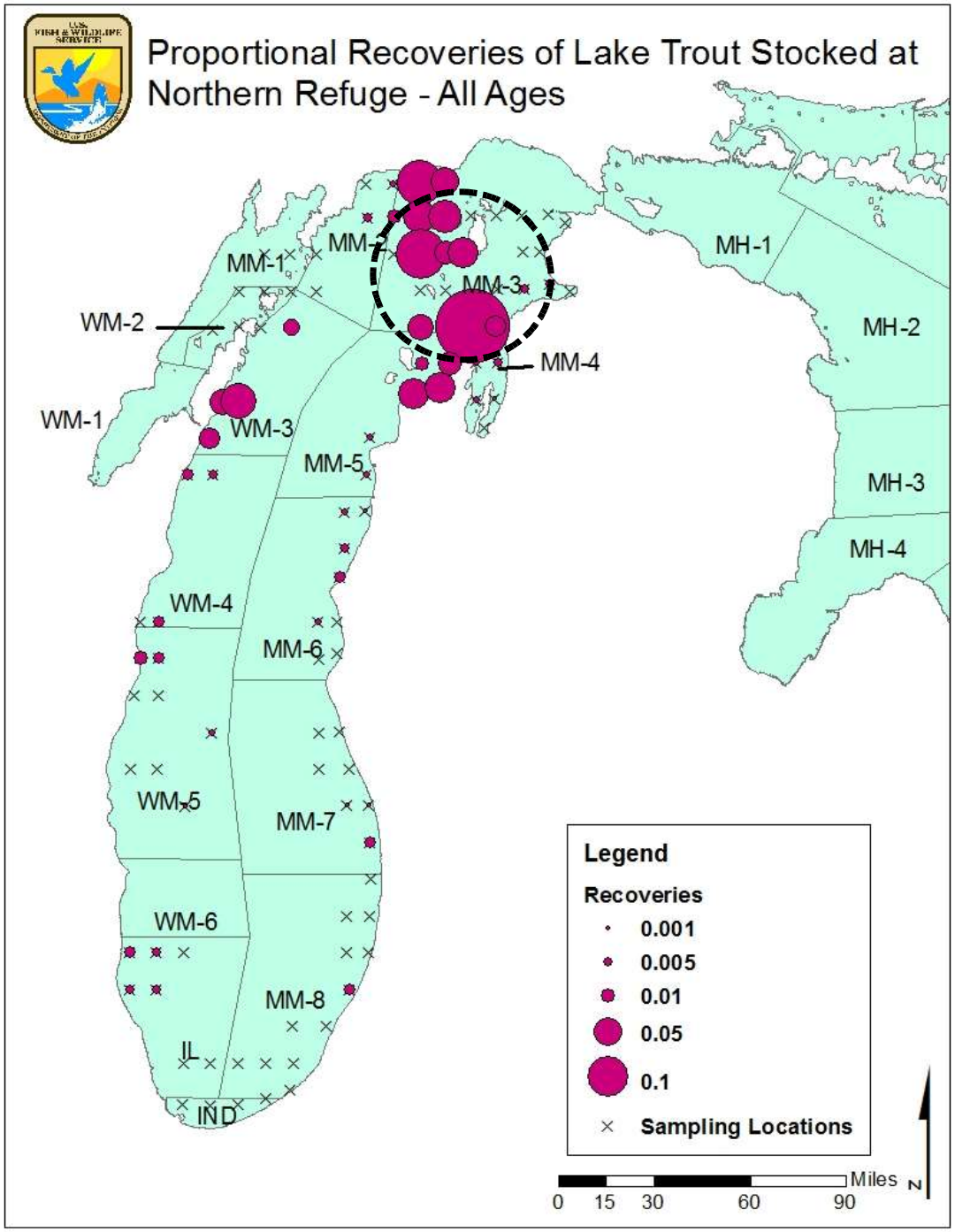


- **Greater returns per fish stocked from offshore**
- **62% of stocked lake trout in angler creels are from offshore locations**
- **Higher survival offshore may offset need to move nearshore**


Proportional Recoveries of Lake Trout Stocked at Southern Refuge - All Ages
MM-1
MM-2
MM-3
MM-4
MM-5
MM-6
MM-7
MM-8
MH-1
MH-2
MH-3
MH-4
WM-1
WM-2
WM-3
WM-4
WM-5
WM-6
IL
IND
Recoveries
0.001
0.01
0.1
Sampling Locations
Miles
0
15
30
60
90
N


Proportional Recoveries of Lake Trout Stocked at Julian's Reef - All Ages
MM-1
MM-2
MM-3
MM-4
MM-5
MM-6
MM-7
MM-8
WM-1
WM-2
WM-3
WM-4
WM-5
WM-6
MH-1
MH-2
MH-3
MH-4
IND
Recoveries
0.001
0.01
0.1
1
Sampling Locations
Miles
0 15 30 60 90
N


Proportional Recoveries of Lake Trout Stocked at Clay Banks - All Ages
MM-1
MM-2
MM-3
MM-4
MM-5
MM-6
MM-7
MM-8
WM-1
WM-2
WM-3
WM-4
WM-5
WM-6
IL
IND
MH-1
MH-2
MH-3
MH-4
Recoveries
0.01
0.1
0.5
1
Sampling Locations
Miles
0 15 30 60 90
N


Proportional Recoveries of Lake Trout Stocked at Northern Refuge - All Ages
MM-1
MM-2
MM-3
MM-4
MM-5
MM-6
MM-7
MM-8
WM-1
WM-2
WM-3
WM-4
WM-5
WM-6
IL
IND
MH-1
MH-2
MH-3
MH-4
Legend
Recoveries
0.001
0.005
0.01
0.05
0.1
Sampling Locations
Miles
0 15 30 60 90
N

Lake Trout Results

Numbers of wild lake trout appear to be increasing

Lake trout stocked offshore contribute the most to nearshore sport catch

Thank you for your attention and support

Contact Matt: charles_bronte@fws.gov
Phone 920.866.1761

Acknowledgements

Hatcheries staff
Bio-Technicians
Creel Clerks
Lake Committees
Lake Trout and Salmonid Working Groups
Anglers