

Lake Michigan Fisheries Forum Meeting

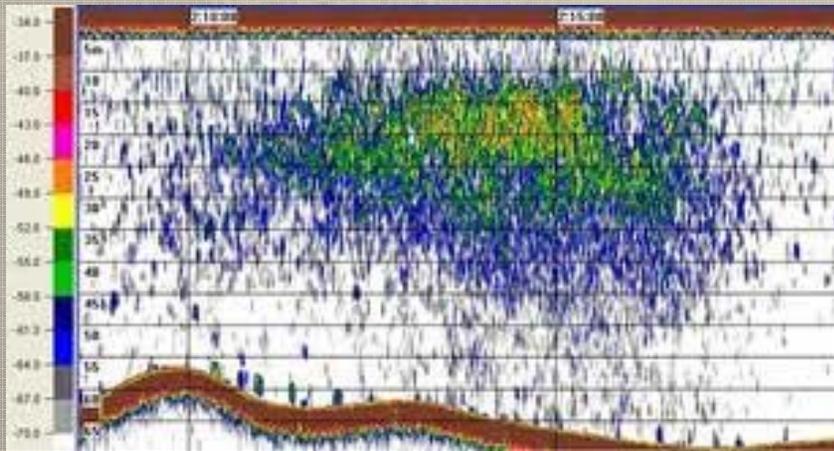
April 9, 2016
Cleveland, Wisconsin



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Forage Assessments



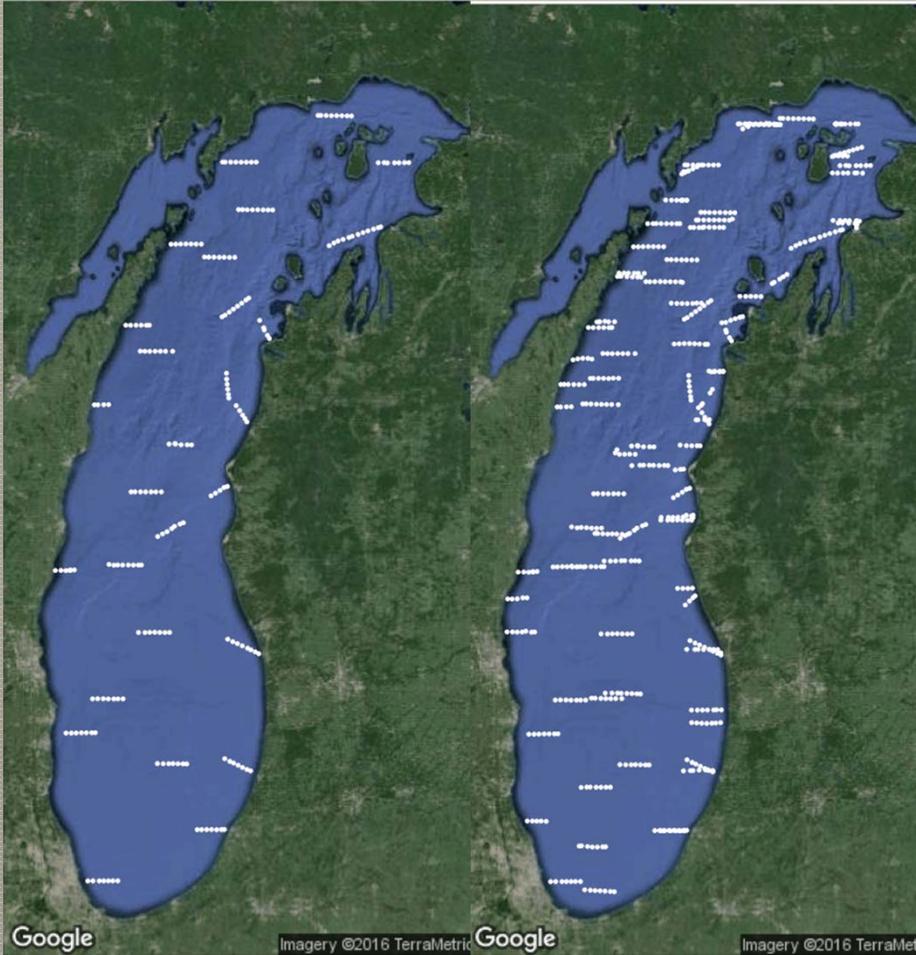
Hydro-
acoustics



Bottom
Trawl

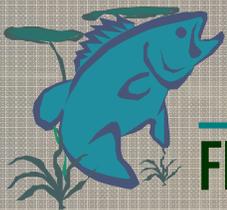
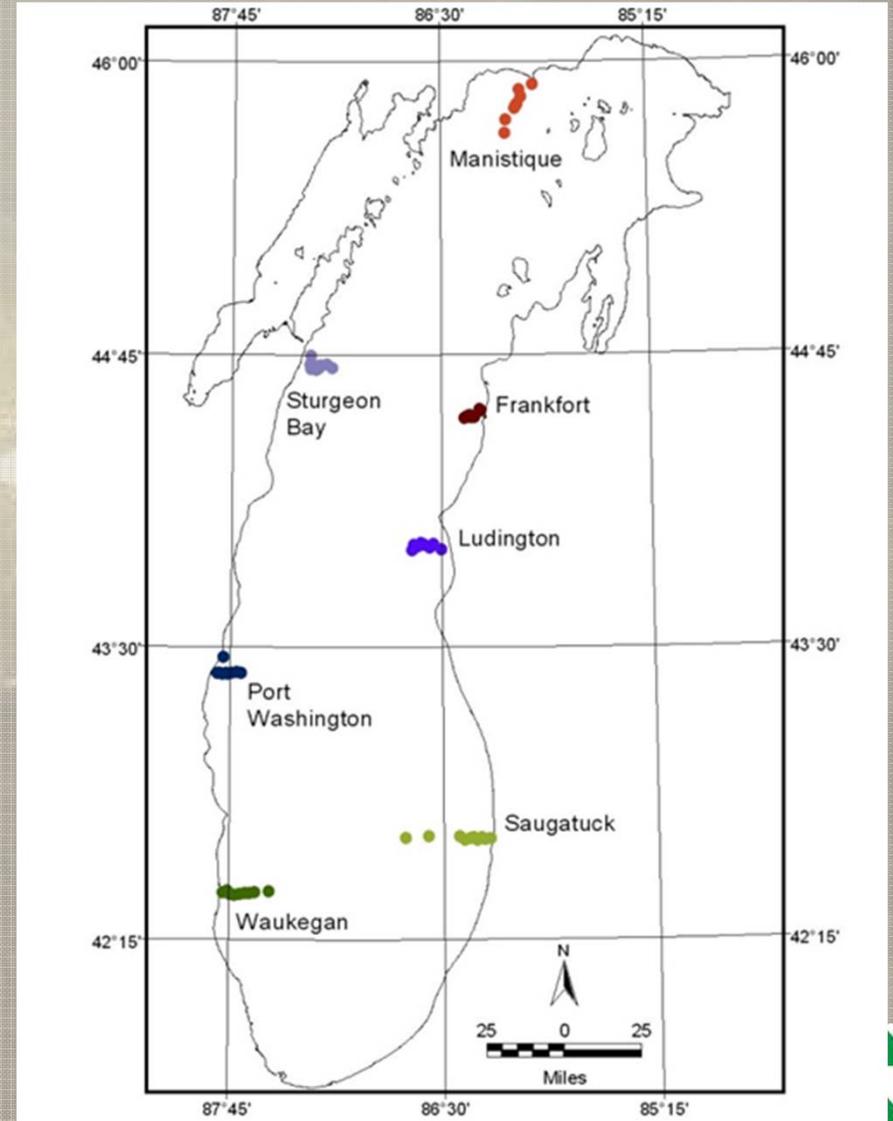


Forage Assessments

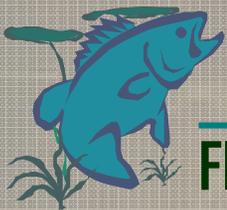
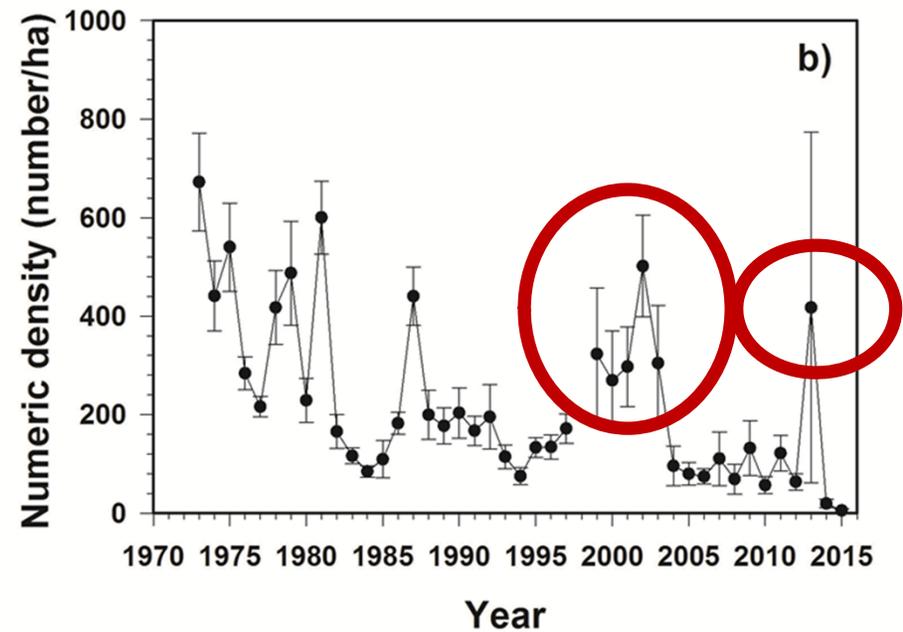
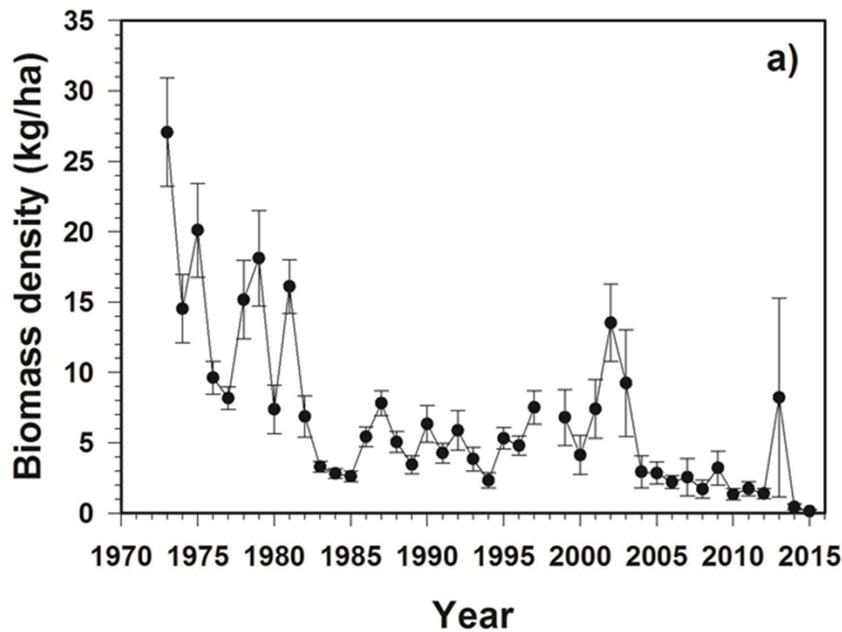


2015

2013 – 2015



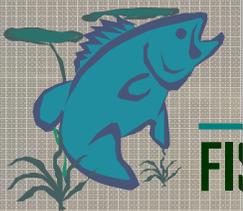
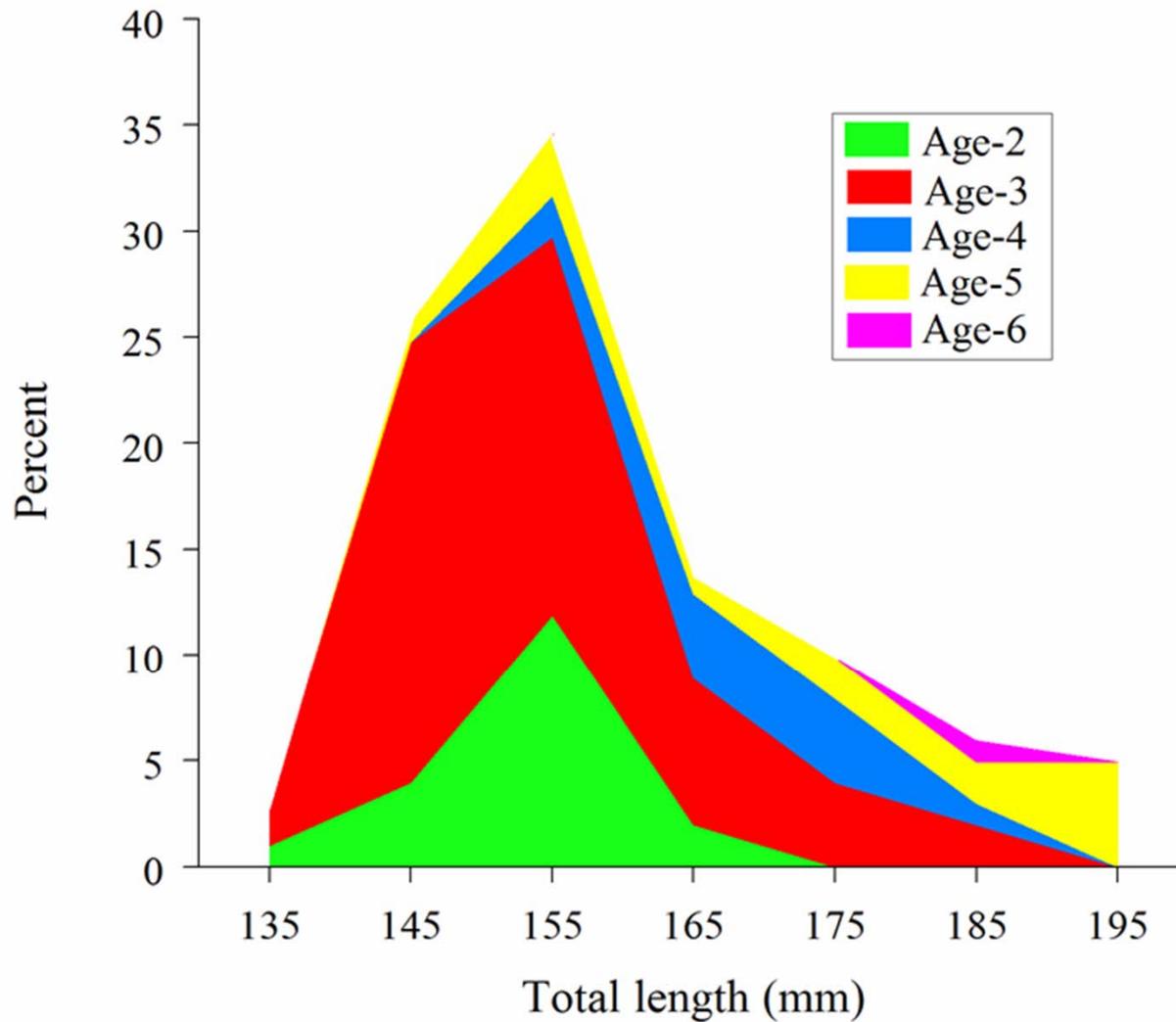
Density of adult alewives as biomass (a) and number (b) per ha (+/- standard error) in Lake Michigan, 1973-2015.



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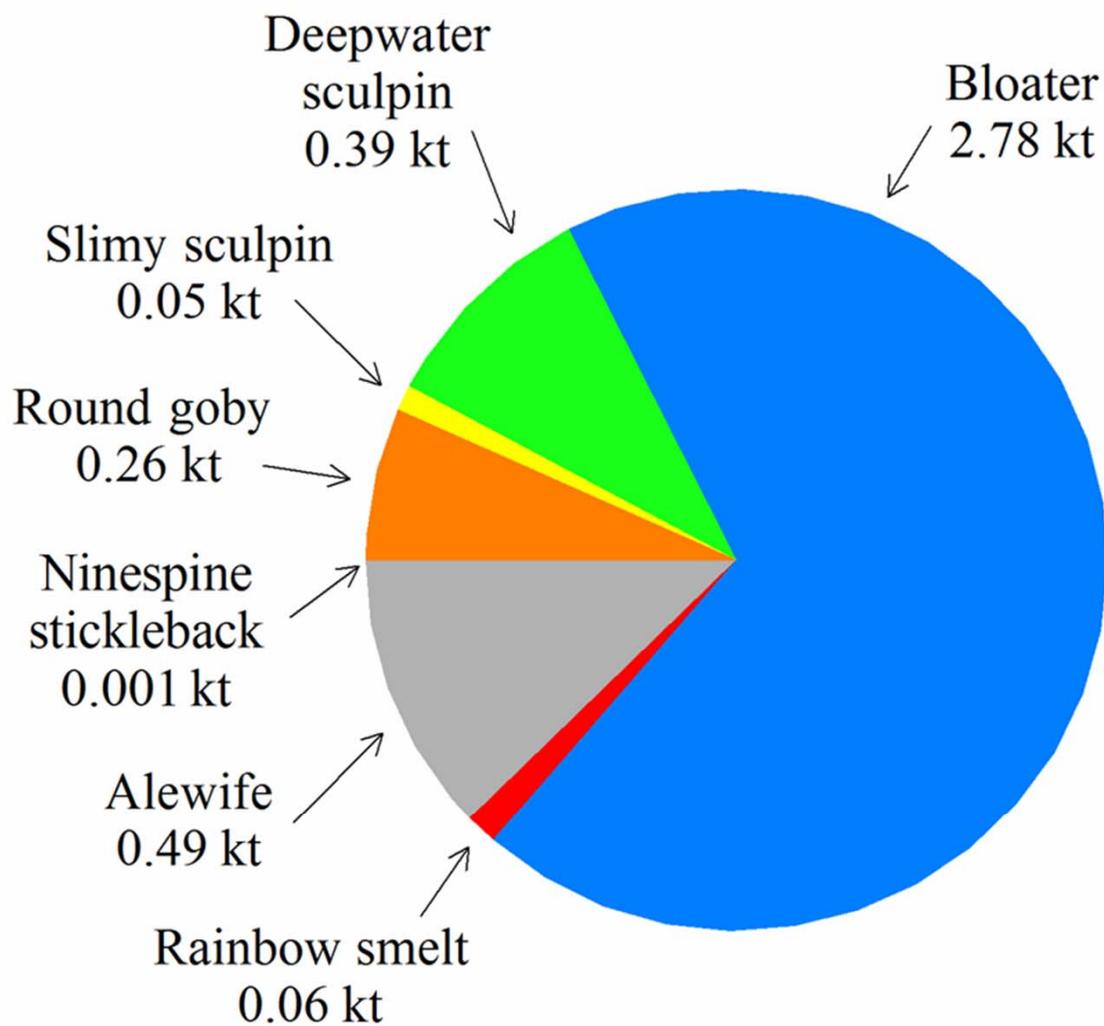


Age-length distribution of alewives ≥ 100 mm total length caught in bottom trawls in Lake Michigan, 2015.

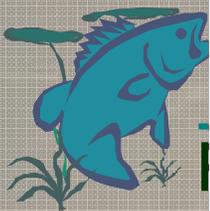


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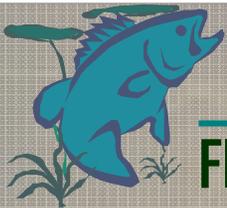
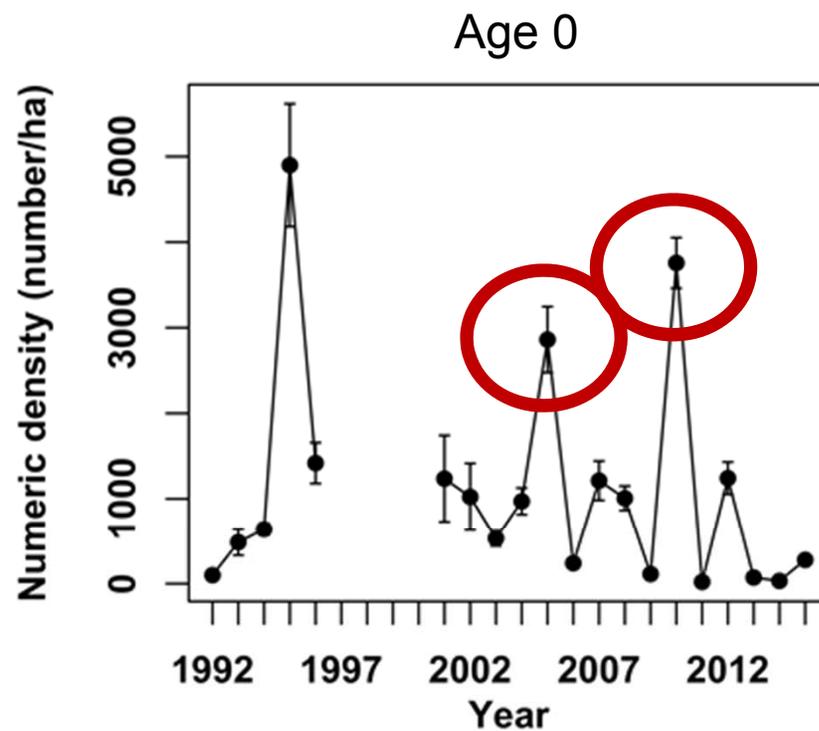
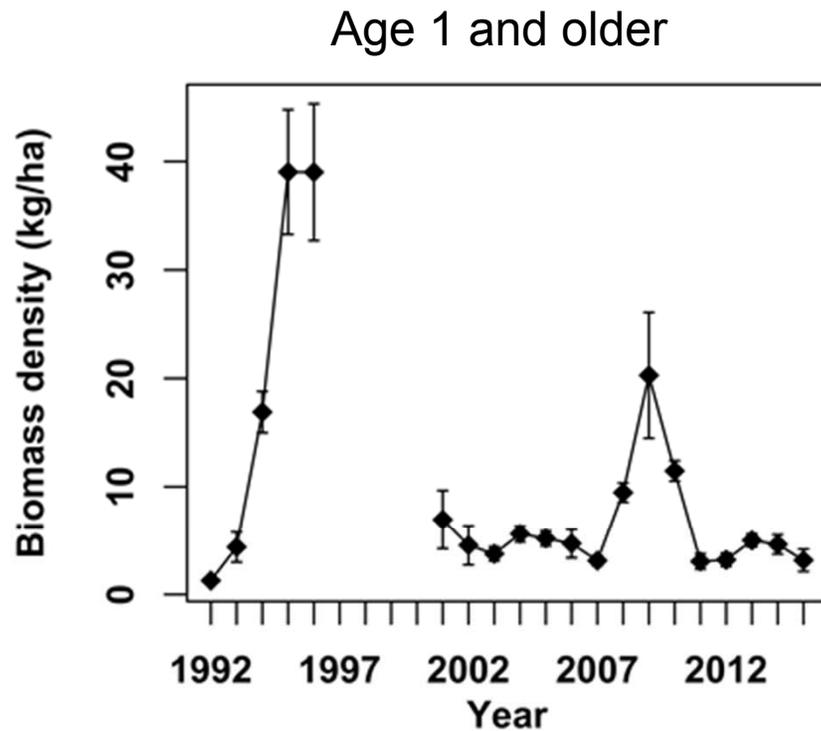


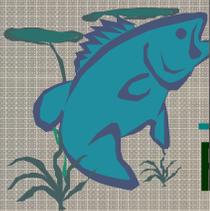


Estimated lake-wide (i.e., 5-114 m depth region) biomass by species in Lake Michigan, 1973-2015.



Biomass density of age-1 or older alewife (left panel) and Numeric density of age-0 alewife (right panel) in Lake Michigan during 1992-1996 and 2001-2016.



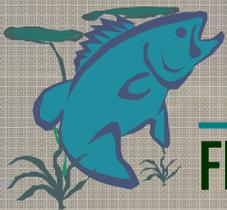


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WISCONSIN
DEPT. OF NATURAL RESOURCES

Preliminary Bottom Trawl Results for 2015 brief summary from Chuck Madenjian USGS

1. Based on the preliminary analysis, yearling and older (YAO) alewife biomass in Lake Michigan decreased by about 70% between 2014 and 2015, according to the bottom trawl survey
2. The 2015 value for alewife was the record low for the time series (0.5 kt) and overall biomass (4.0 kt) was also a record low.
3. Age distribution of alewives remained truncated with no alewife exceeding an age of 6.



Preliminary Acoustic Results for 2015, brief summary from David Warner USGS

- Mean prey fish biomass was 36% lower than in 2014.
- The numeric density of the 2015 alewife year class was 25% of the average and 8 times the 2014 density.
- Adult alewife were sparsely distributed and fewer were caught in 2015 than in 2014, which is consistent with forecasts of lower alewife biomass in 2015 based on catch at age modeling & consumption by predators.



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Lake Michigan Sport Fishing Surveys



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Creel Survey



- Collect information on sport fishing on Lake Michigan
- Modified access point design
- Randomized
- Counts, Interviews and Biological information
- Diet composition
- Fish consumption advisory
- Socio-economic



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RAMP



PIER



SHORE

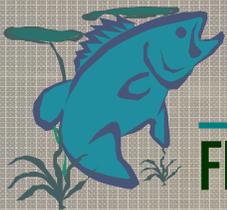


STREAM

Charter Boat Reporting



- Captains are licensed
- Mandatory monthly reports
- Information obtained included number of anglers, hours fished and number by species caught



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Moored Boat Survey



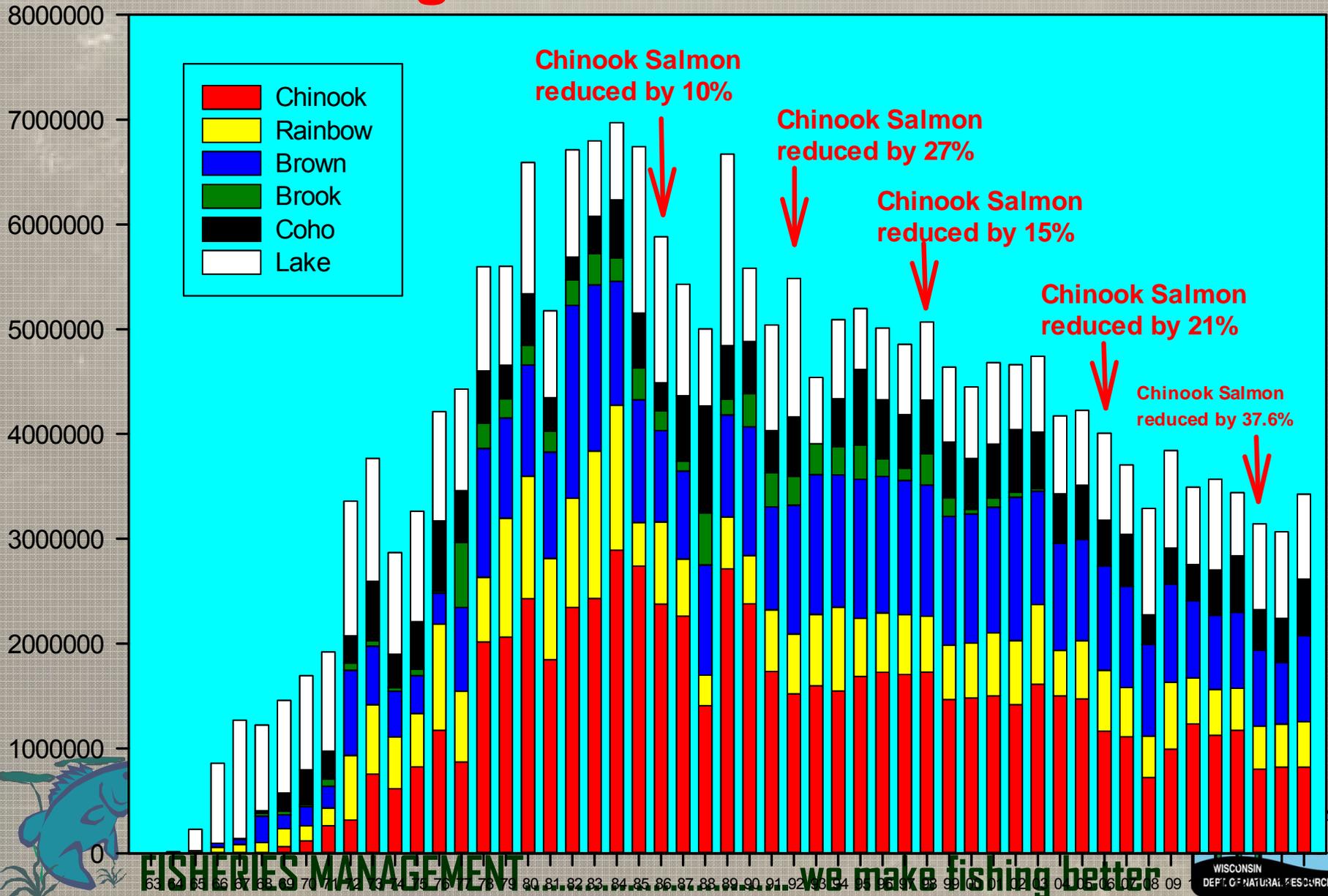
- Randomized mail survey
- Boat registration numbers are obtained to provide mailing list
- 2 – week survey period
- One survey per year



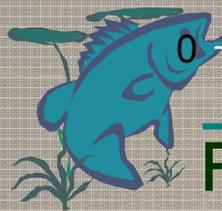
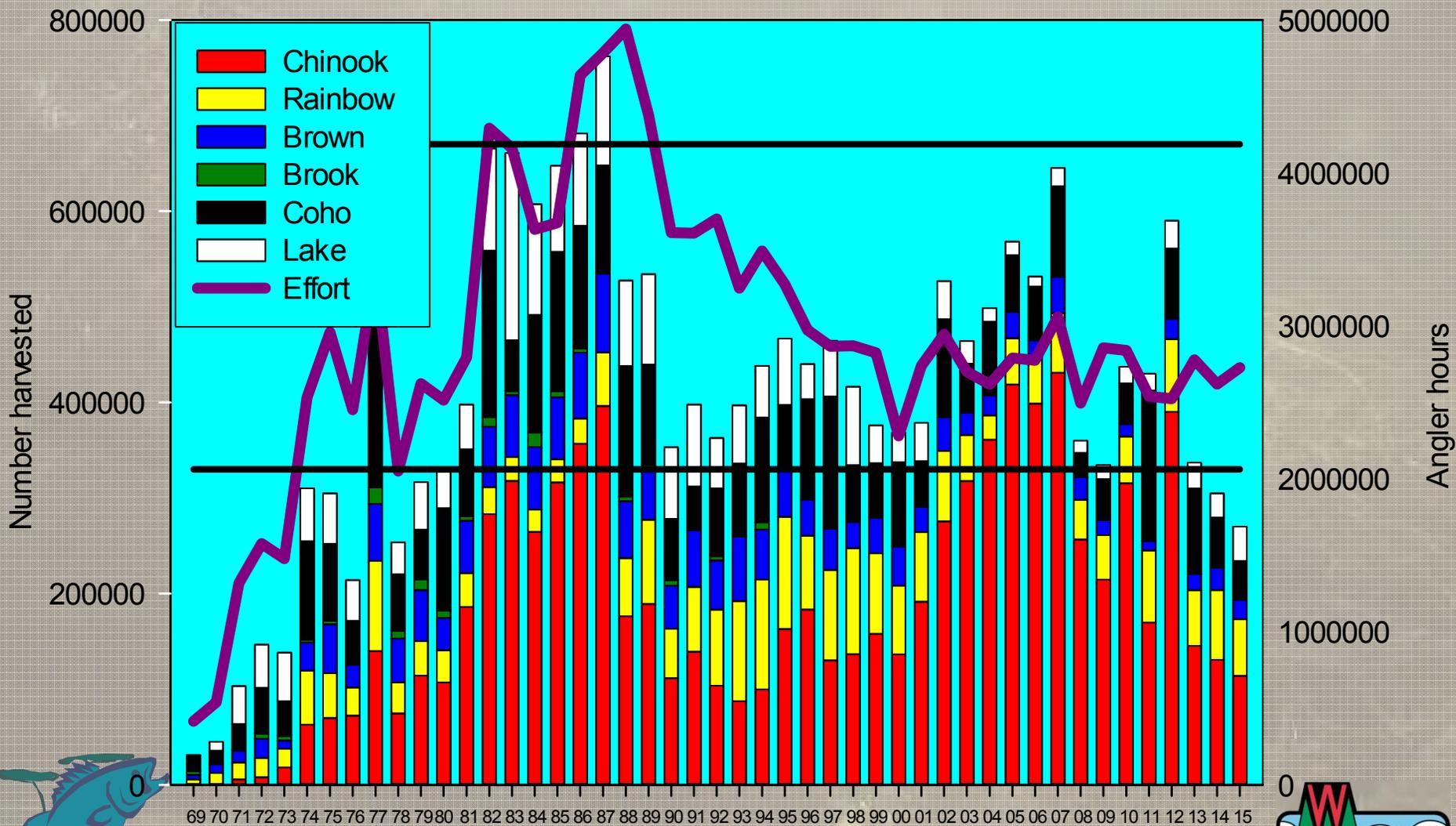
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Lake Michigan Salmon and Trout stocking numbers 1969 to 2015



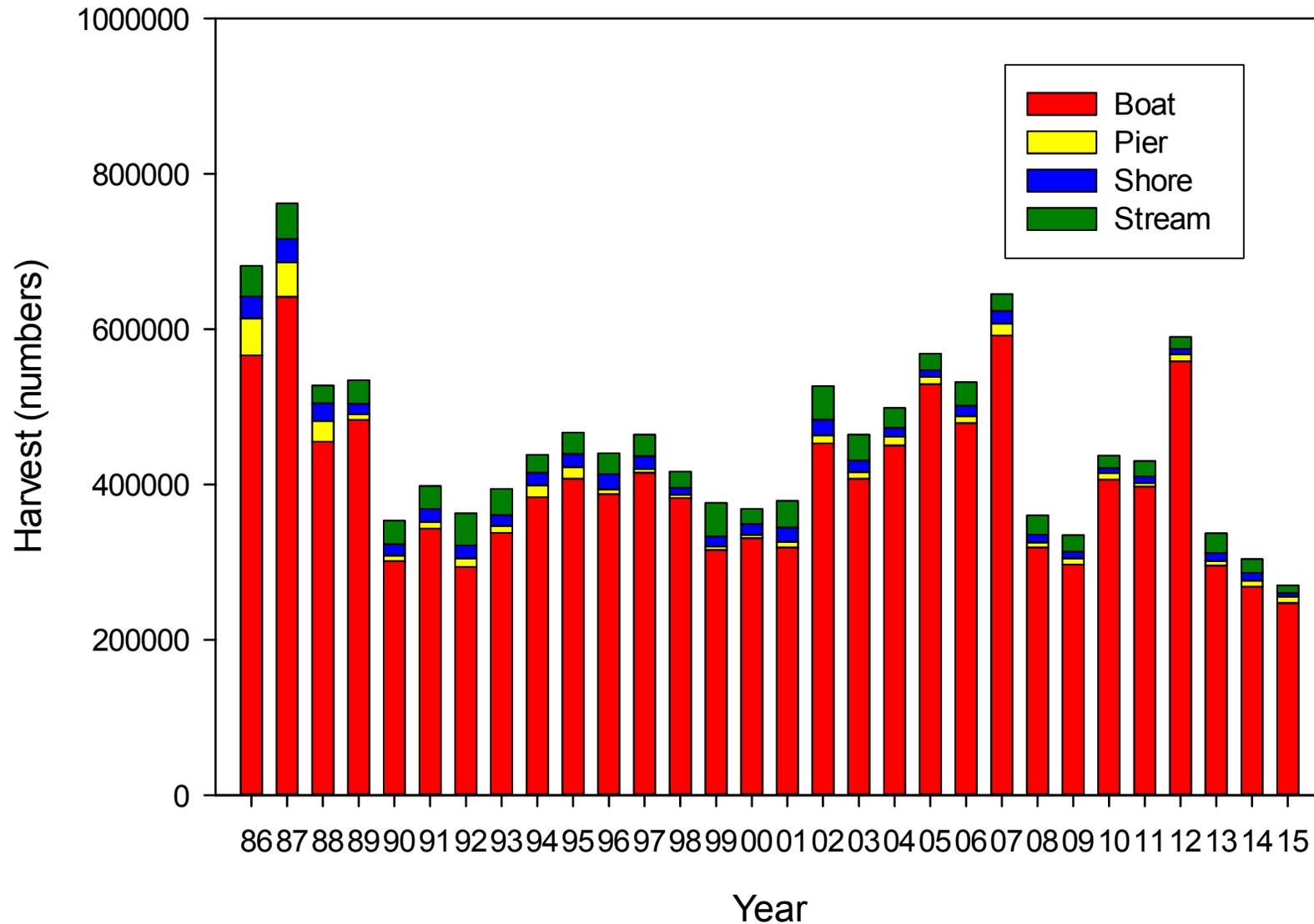
Lake Michigan Salmon and Trout harvest and effort from 1969 to 2015



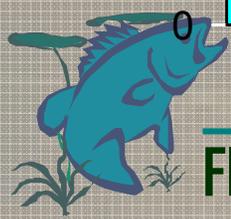
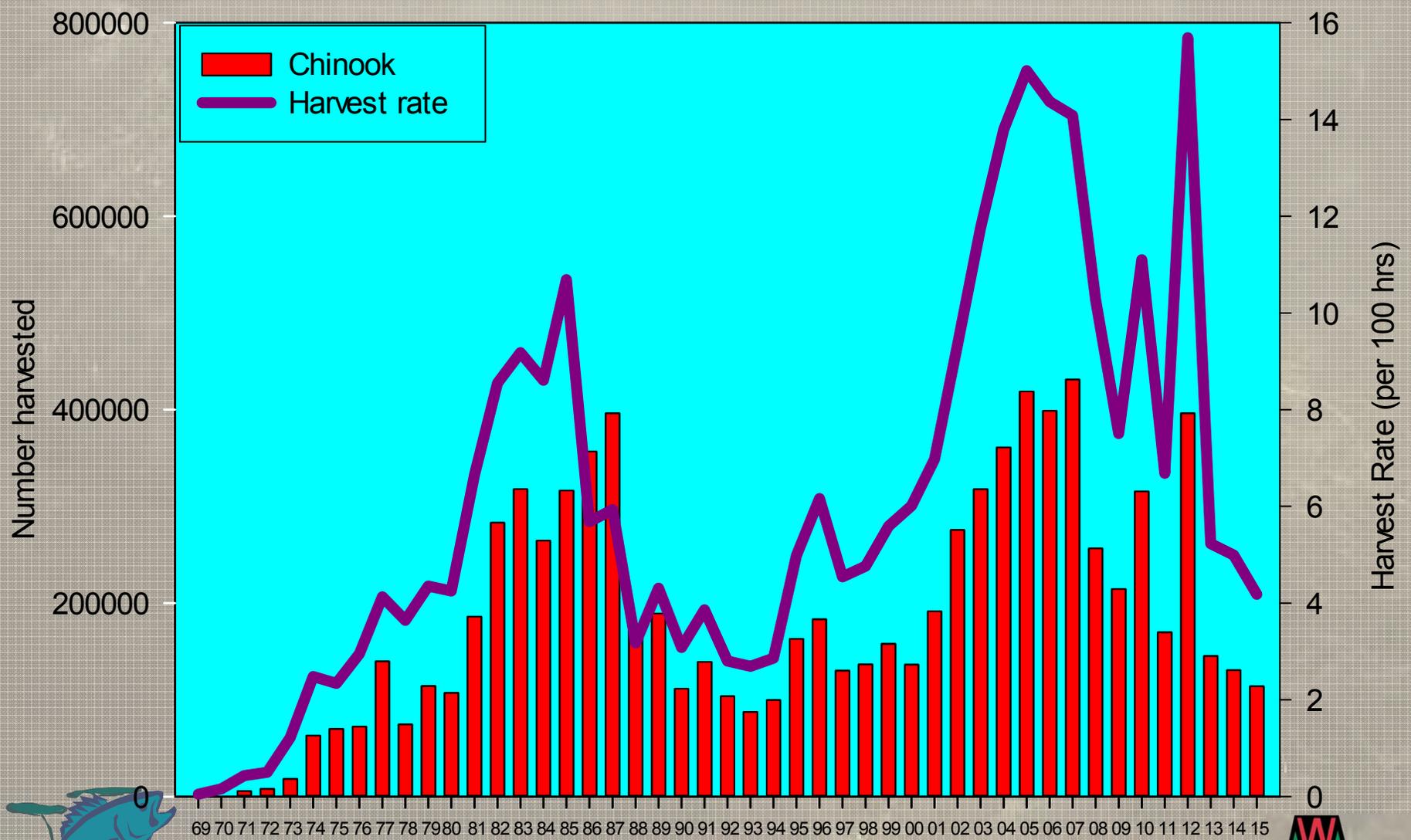
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Lake Michigan salmon and trout harvest by year and fishery type, 1986 - 2015



Lake Michigan Chinook salmon harvest and harvest rate from 1969 to 2015



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**Chinook Total
Lake Biomass**

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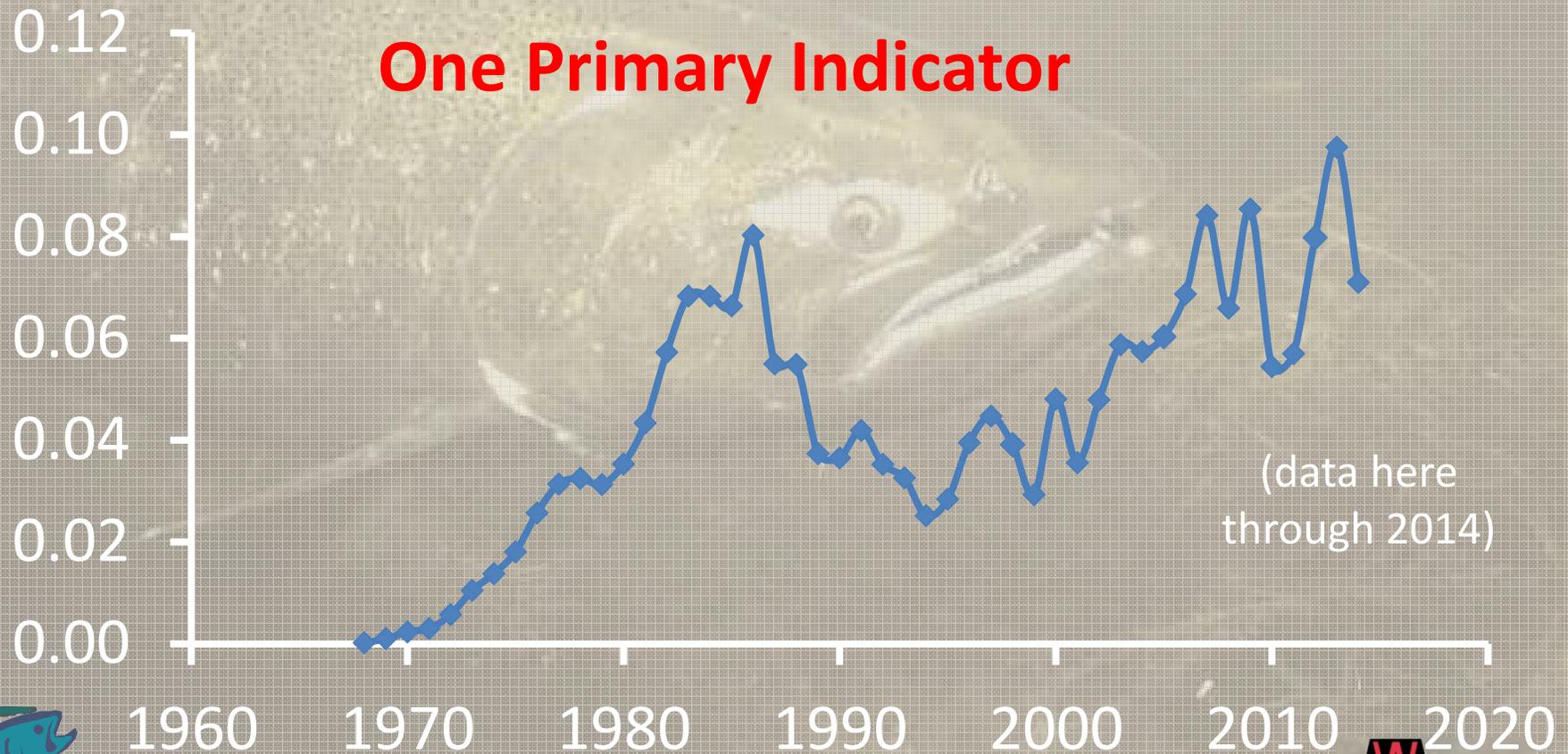
**Alewife Total
Lake Biomass**

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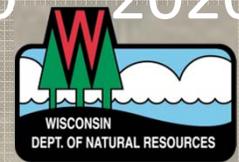
**P/P
Ratio**

P/P Ratio

One Primary Indicator



FISHERIES MANAGEMENT.....Year..... we make fishing better



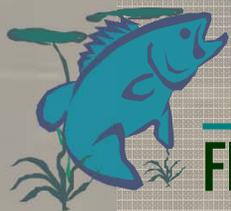
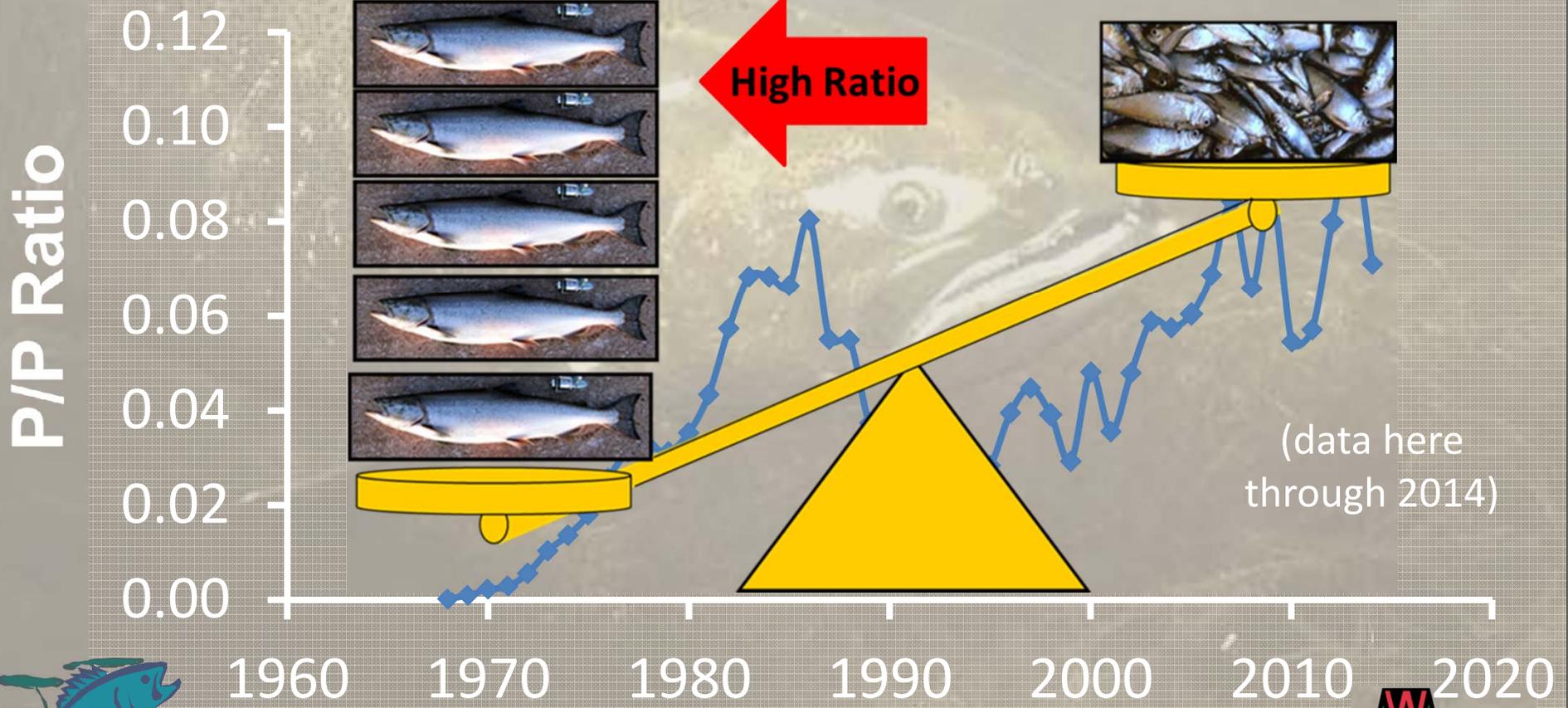
**Chinook Total
Lake Biomass**



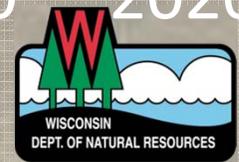
**Alewife Total
Lake Biomass**



**P/P
Ratio**



FISHERIES MANAGEMENT.....Year... we make fishing better



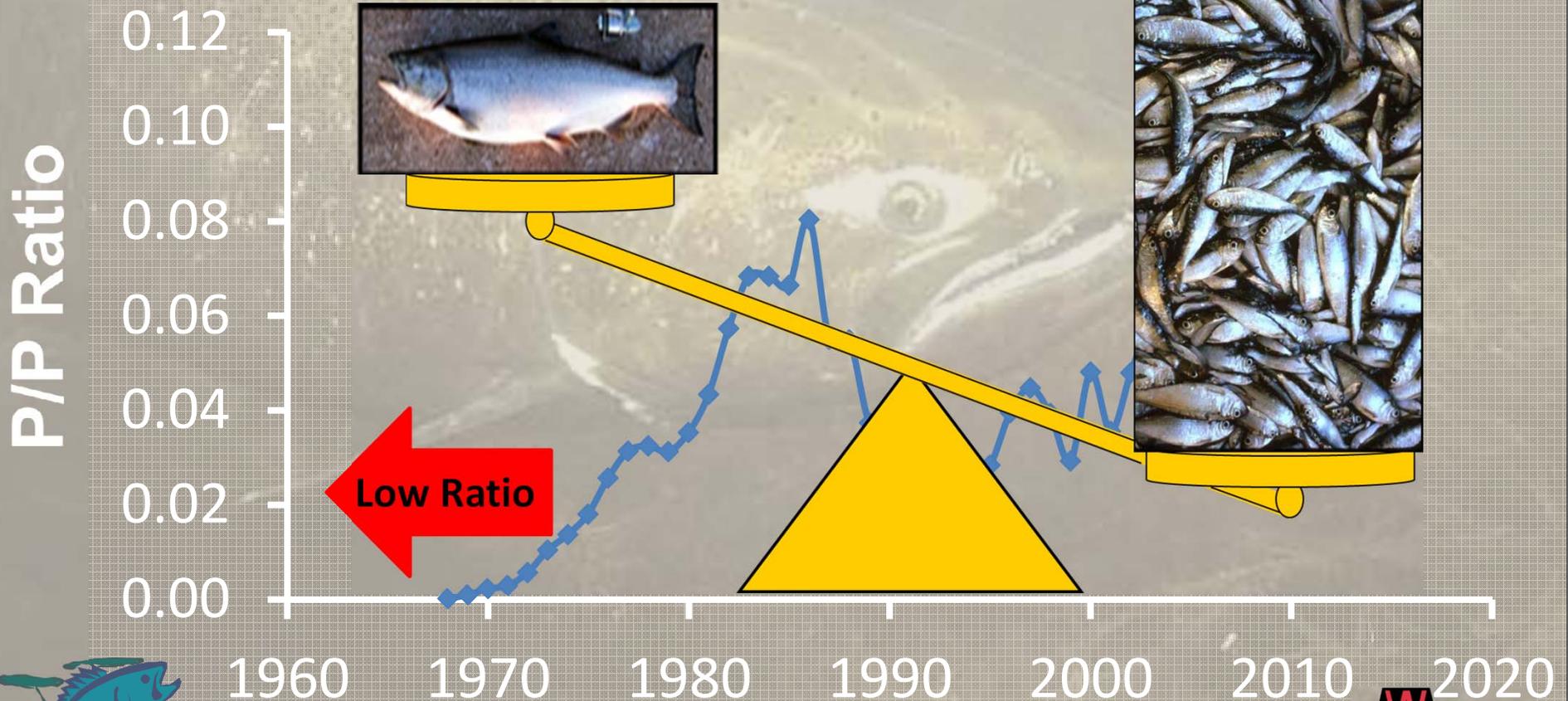
**Chinook Total
Lake Biomass**



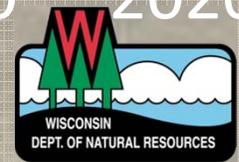
**Alewife Total
Lake Biomass**

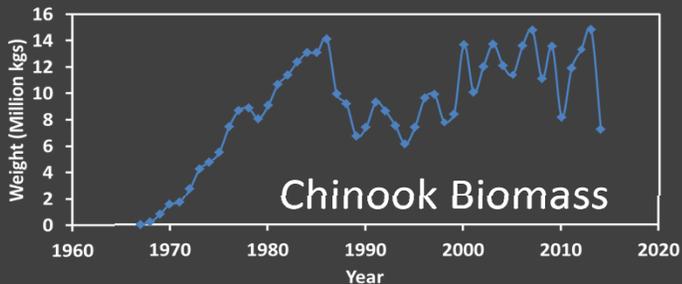


**P/P
Ratio**

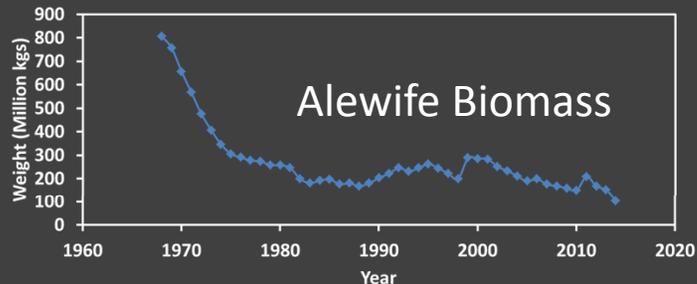


FISHERIES MANAGEMENT.....Year... we make fishing better



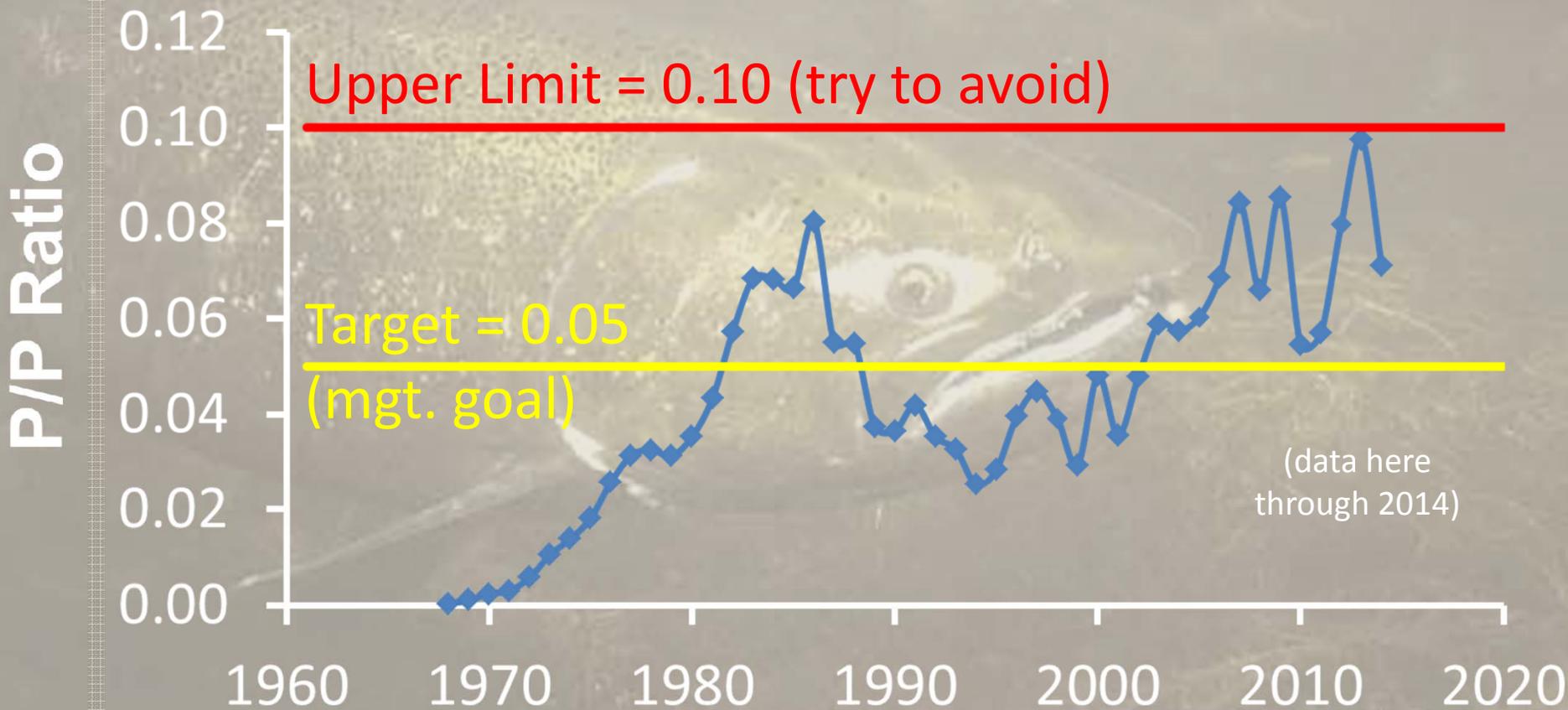


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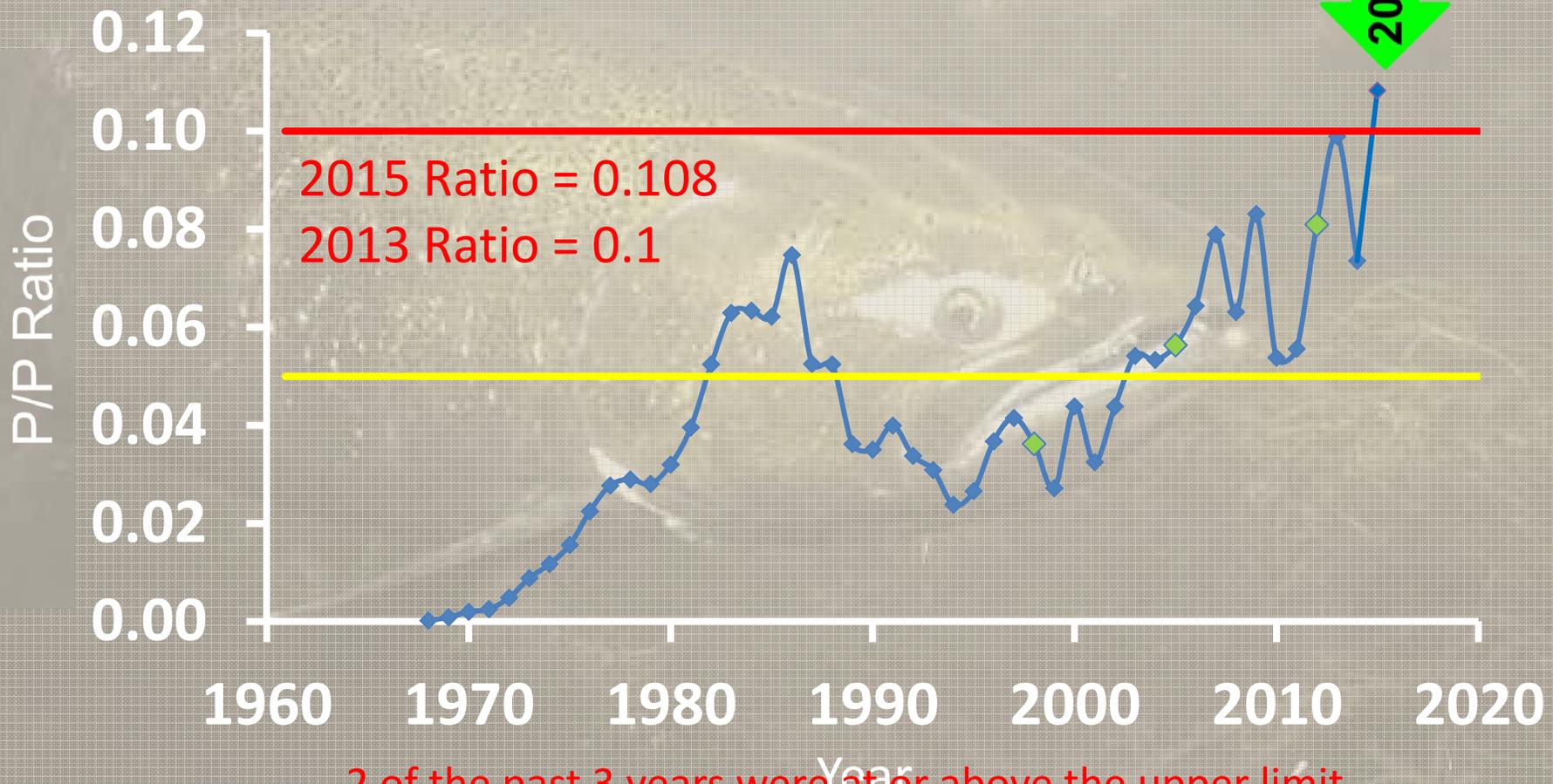
**P/P
Ratio**



Reference Points
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Chinook / Alewife Ratio Updated through 2015



2 of the past 3 years were at or above the upper limit.
Light green data points indicate recent stocking reduction decision years.

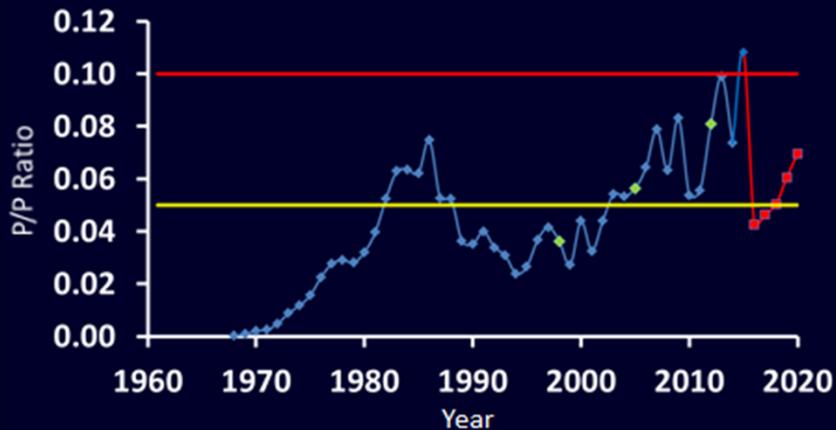


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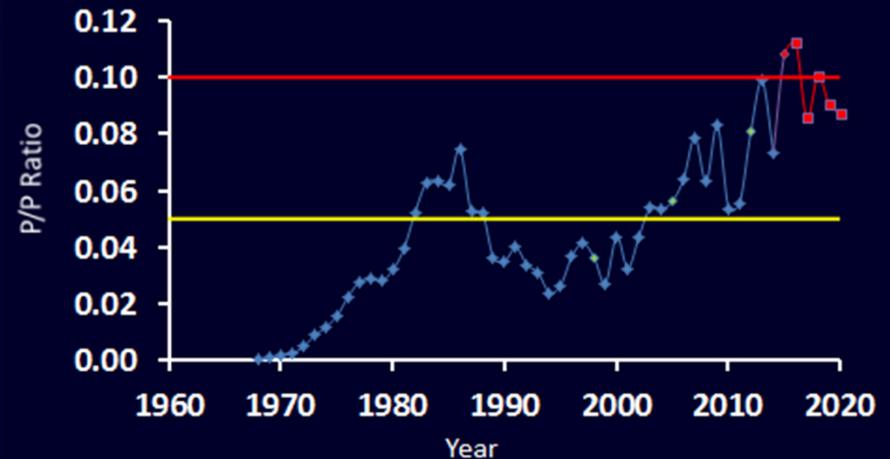
Hypothetical Example of P/P Ratio with 'Less than Average' Alewife Projections

Chinook/Alewife Ratio Updated through 2015 with projections



VS.

Hypothetical Example of P/P Ratio
with 'Less than Average' Alewife Projections



Actual 2015 Projections

Low Alewife Projections



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Chinook Weight / Condition

(Auxiliary Indicators)

Angler Caught Chinook - 2012



Angler Caught Chinook - 2013



- Standard weight of 35 inch Chinook
- Average weight of age 3 female Chinook



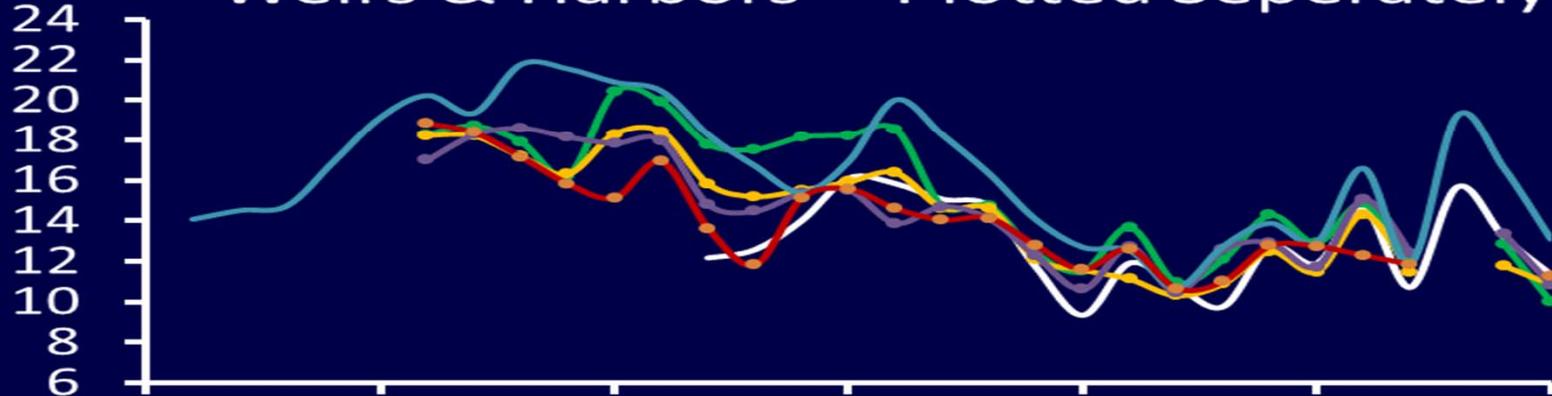
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Average Weight of Age 3 Female Chinook (Auxiliary Indicator)

Average Weight (pounds)

Weirs & Harbors -- Plotted Separately



Bordman, MI Little Manistee, MI Medusa, MI
Strawberry Creek, WI Harbors, IL Lake Huron, Swan, MI

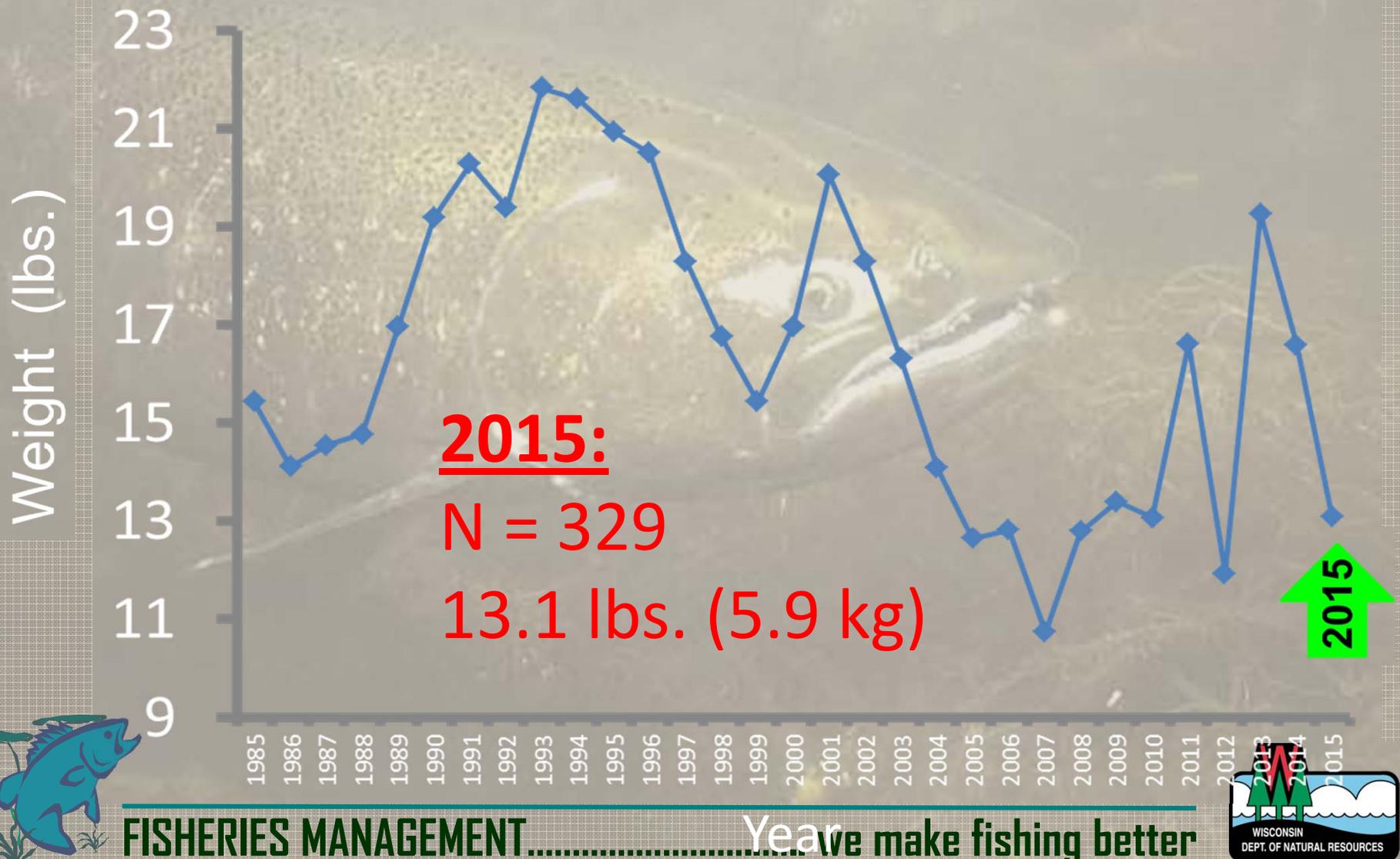
Lake MI Weirs & Harbors -- Combined



2015 = 12.4 lbs.

2015

Average Weight of Age 3 Female Chinook Salmon at Strawberry Creek

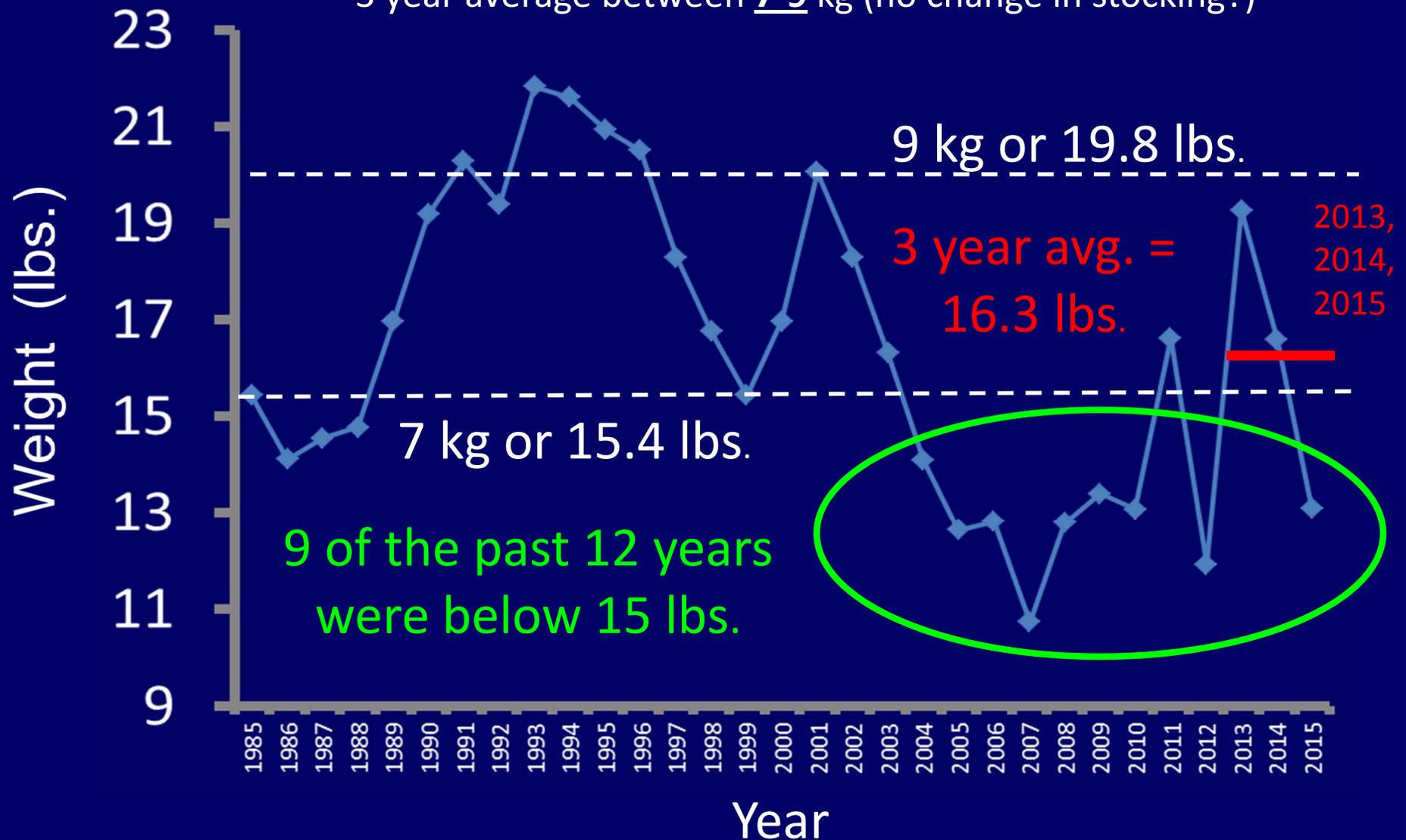


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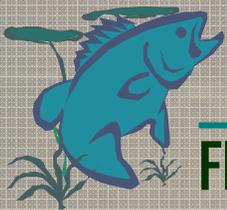
In the absence of a better indicator:

- 3 year average below **7 kg** or 15.4 lbs. (reduce stocking?)
- 3 year average above **9 kg** or 19.8 lbs. (increase stocking?)
- 3 year average between **7-9 kg** (no change in stocking?)



Chinook Salmon Stocking Numbers and Distribution 2016

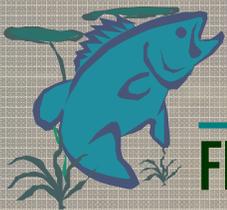
Wisconsin DNR Stocking Reduction Plans		
Chinook Salmon Actual Numbers to stock 2016		
	Number to Stock	
Wisconsin 2012 Quota	1,164,000	
Planned 37.8 % reduction	723,700	
Coho Salmon Equivalents	31,250	
Rainbow Trout Equivalents	29,167	
Lake Trout Equivalents	24,138	
FINAL NUMBER	808,255	808,255
FINAL PERCENT	30.6	
Total number to be stocked	808,255	
Total number for Strawberry Creek	120,000	
Total number for Northern Door	30,000	
Total number for rest of counties	658,255	
Number of counties	8	
Total number per county (75%)	61,711	



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County	Step 3		STEP 4			% change from 2015
	Strategy accounts for 25% of stocking		Reduction based on equal number per county			
		25%	Base stocking number is 75% of total allotment	Strategy comprises 25% of stocking number	Total stocking number per county	
Kenosha	✓	14,676	✓ 61,711	✓ 14,676	✓ 76,387	-344.90
Racine	✓	14,240	✓ 61,711	✓ 14,240	✓ 75,952	-155.28
Milwaukee	✓	22,086	✓ 61,711	✓ 22,086	✓ 83,797	209.18
Ozaukee	✓	27,826	✓ 61,711	✓ 27,826	✓ 89,538	364.76
Sheboygan	✓	23,868	✓ 61,711	✓ 23,868	✓ 85,580	110.78
Manitowoc	✓	23,182	✓ 61,711	✓ 23,182	✓ 84,894	-35.19
Kewaunee	✓	32,593	✓ 61,711	✓ 32,593	✓ 94,304	-349.70
Southern Door - Strawberry Creek					✓ 120,000	0.00
Northern Door			✓ 30,000	0	✓ 30,000	0.00
Oconto/Marinette	✓	6,092	✓ 61,711	✓ 6,092	✓ 67,803	198.95
TOTAL		164,564	✓ 523,691	164,564	808,255	-0.40

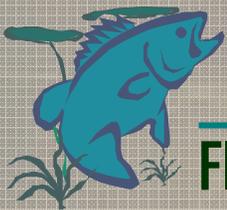


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Going forward

- Begin internal agency discussions on the need and ramifications of another stocking reduction
- Discuss the level of comfort with another Chinook salmon reduction and determine if other species should also be included in the reduction (e.g. previous reductions in 1986, 1992, 1998, 2006 and 2013 were almost exclusively Chinook salmon)
- Convene a conference call by May 1, 2016 to synthesis agency perspectives
- Determine options for stocking changes
- Discuss with public at various meetings throughout the summer, possible special LMFF meeting
- Any change in stocking numbers for 2017 would need to be decided by as early as September 1 to coincide with wild egg take plans



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Questions,
comments,
feedback?



FISHERIES MANAGEMENT..

John Komassa

Southeast Hatchery Group Leader

Wisconsin Department of Natural Resources

Bureau of Fisheries Management/Fish, Wildlife & Parks Division

**“WDNR Fish Hatcheries & Egg Collection Facilities producing fish for Lake Michigan”
Lake Michigan Fisheries Forum
Cleveland, WI
April 9th, 2016**



Why does the WDNR stock fish into Lake Michigan?

WISCONSIN STATUTES AND CODES

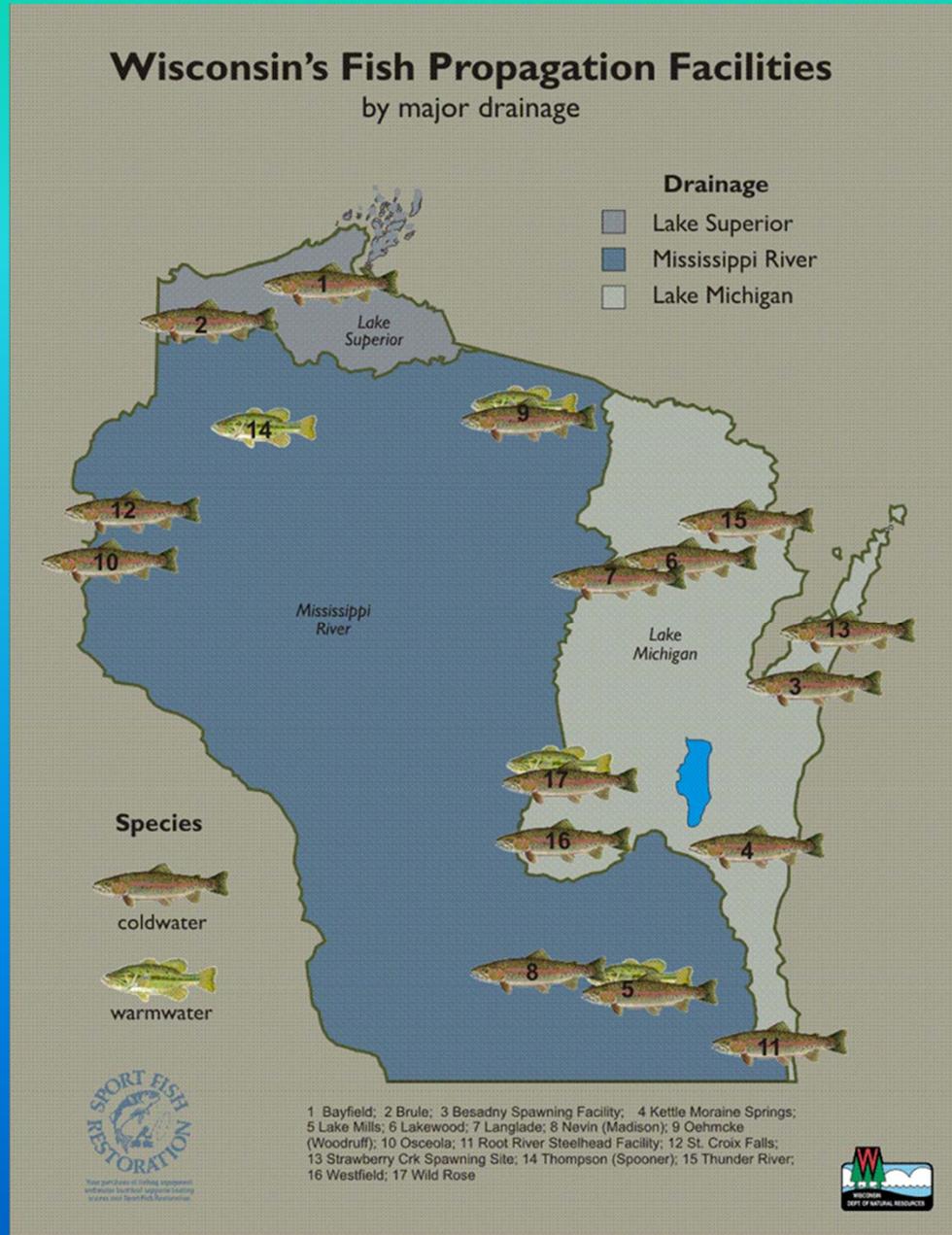
29.2285 Fishing stamps and tags.

29.2285(2)(e)(e) Use of fees. The department shall expend the receipts from the sale of Great Lakes trout and salmon stamps to supplement and enhance the existing trout and salmon rearing and stocking program for outlying waters and to administer this subsection - See more at:

<http://statutes.laws.com/wisconsin/29/29.2285#sthash.f86h89iM.dpuf>



Wisconsin DNR – Fish Hatcheries and Egg Collection Facilities

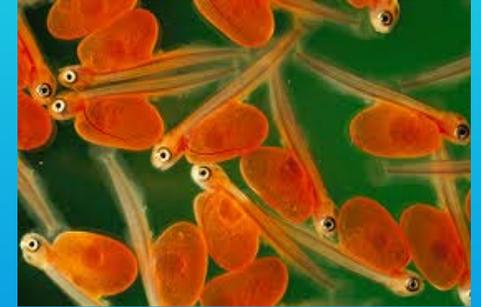


Trout and Salmon Life Stages

Adult



Spawning, Incubating and Hatching



Swim Up Fry



0 – 3 Months
(1 - 2")

Small Fingerling



4 – 5 Months
(2 – 4")

Large Fingerling



6 – 11 Months
(4 – 6")

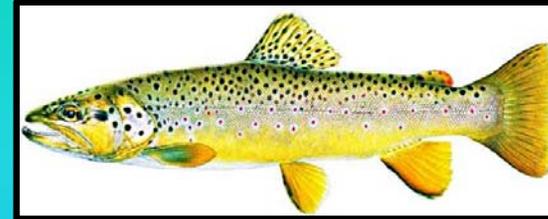
Yearling



12+ Months
(6 – 8")



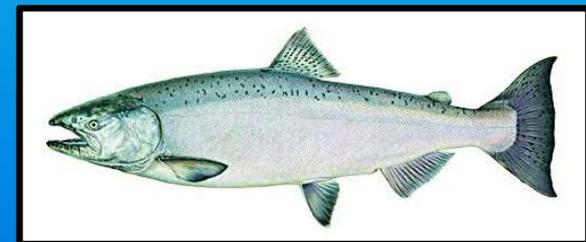
BRULE REARING STATION & LES VOIGT HATCHERY



Species: Wild Rose and Seeforellen strains of Brown Trout, Coho Salmon

Water Source: Little Bois Brule River

Average Annual Production: 125,000 Yearling Wild Rose Brown Trout, 100,000 Large Fingerling Wild Rose Brown Trout, 75,000 Yearling Coho Salmon



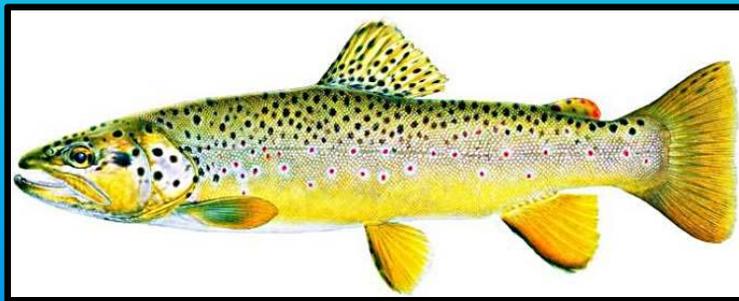
Species: Chinook Salmon

Water Source: Well water

Average Annual Production: 100,000 Small Fingerling Chinook Salmon



THUNDER RIVER REARING STATION



Species: Wild Rose Brown Trout

Water Source: South Branch Thunder River

Average Annual production: 150,000 Yearling Wild Rose Brown Trout



WILD ROSE HATCHERY



Species: Wild Rose and Seeforellen strain Brown trout, Coho and Chinook Salmon

Water Source: Well water

Average Annual Production: 400,000 Large Fingerling Wild Rose Brown trout transferred, 300,000 Yearling Seeforellen Brown Trout, 400,000 Yearling Coho Salmon, 550,000 Small Fingerling Chinook Salmon and 150,000 transferred



KETTLE MORaine SPRINGS HATCHERY

Hatchery Renovation

- USGS Groundwater Study Complete in April 2016.
- A consultant will plan modules utilizing a Partial Recirculation Aquaculture System.
- 26.6 million dollars.
- Production goals: 3 strains of yearling steelhead totaling 510,000.



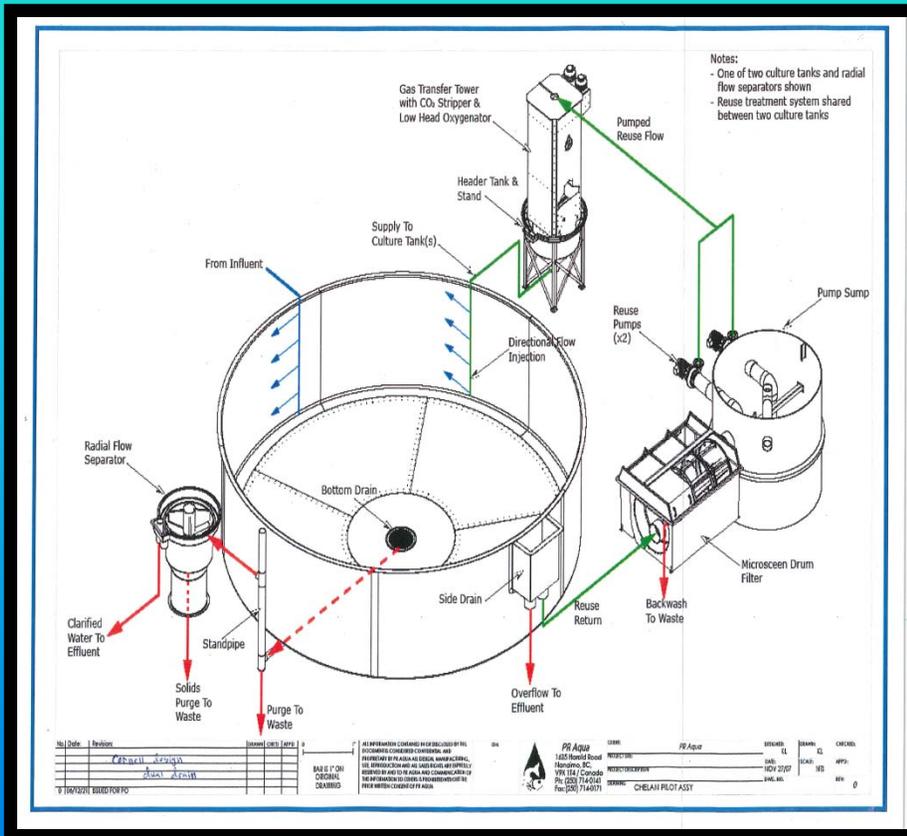
Species: Chinook and Coho Salmon; Chambers Creek & Ganaraska strains of Steelhead

Water Source: Well water and Springs

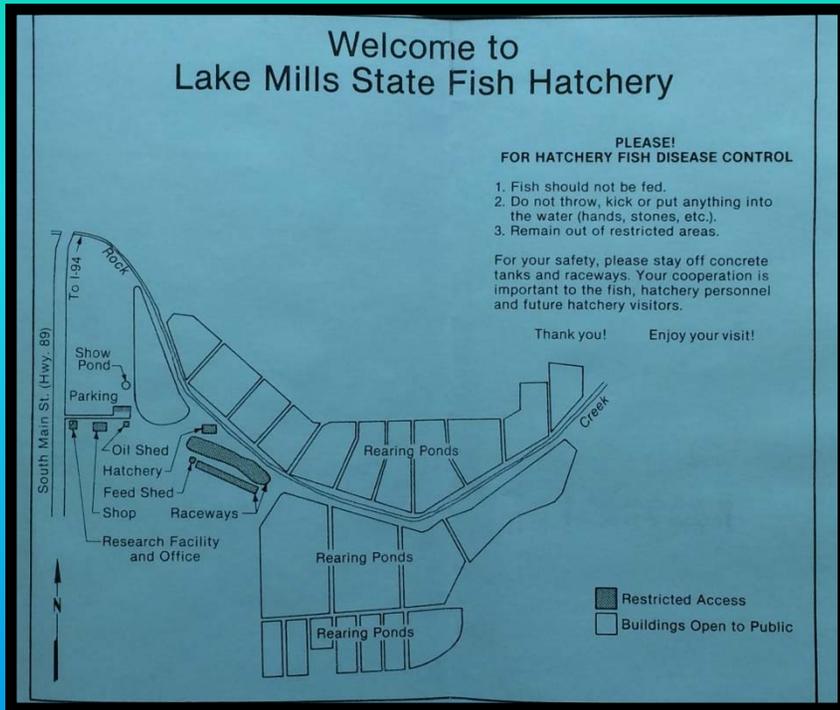
Avg. Annual Production: 270,000 Yearling Steelhead, 150,000 Small Fingerling Chinook



PARTIAL RECIRCULATION AQUACULTURE SYSTEM



LAKE MILLS HATCHERY



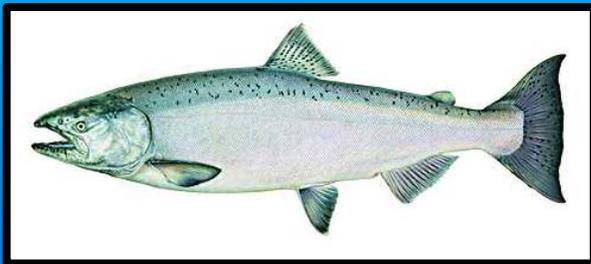
Species: Arlee strain of Rainbow Trout

Water Source: Well water December – October, Rock Lake water November - March

Average Annual Production: 120,000 Yearling Rainbow Trout



STRAWBERRY CREEK EGG COLLECTION FACILITY



Species spawned: Chinook Salmon

Water Source: Strawberry Creek and Sturgeon Bay Shipping Canal



BESADNY ANADROMOUS FISHERIES FACILITY



Species spawned: Ganaraska and Chambers Creek Steelhead, Coho Salmon
Water Source: Kewaunee River and well water



ROOT RIVER STEELHEAD FACILITY



Species Spawnd: Ganaraska and Chambers Creek steelhead, Coho Salmon
Water Source: Root River and well water



Take a kid Fishing!!!





Lake Michigan Bloater Chub Commercial Quota Change *Update*

Fisheries Forum

April 9, 2016

***Presented by David Boyarski
Northern Lake Michigan Fisheries
Supervisor - Sturgeon Bay***

Bloater Chub Rule Change Status

- **Rule change passed all necessary steps except Legislature review**
 - Public involvement (LMCFB, Fisheries Forum, hearing process, NR Board)
 - NR Board and Governor approved
- **JCRAR – introduced bill to limit rule**
 - Rule is on hold until Legislature votes on bill next session (Early 2017)
 - Current bill is to install a minimum quota of 1.8 million pounds
 - Current laws dictated by existing rules until a change is made (3.6 million pound quota)

Bloater Chub Commercial Fishery

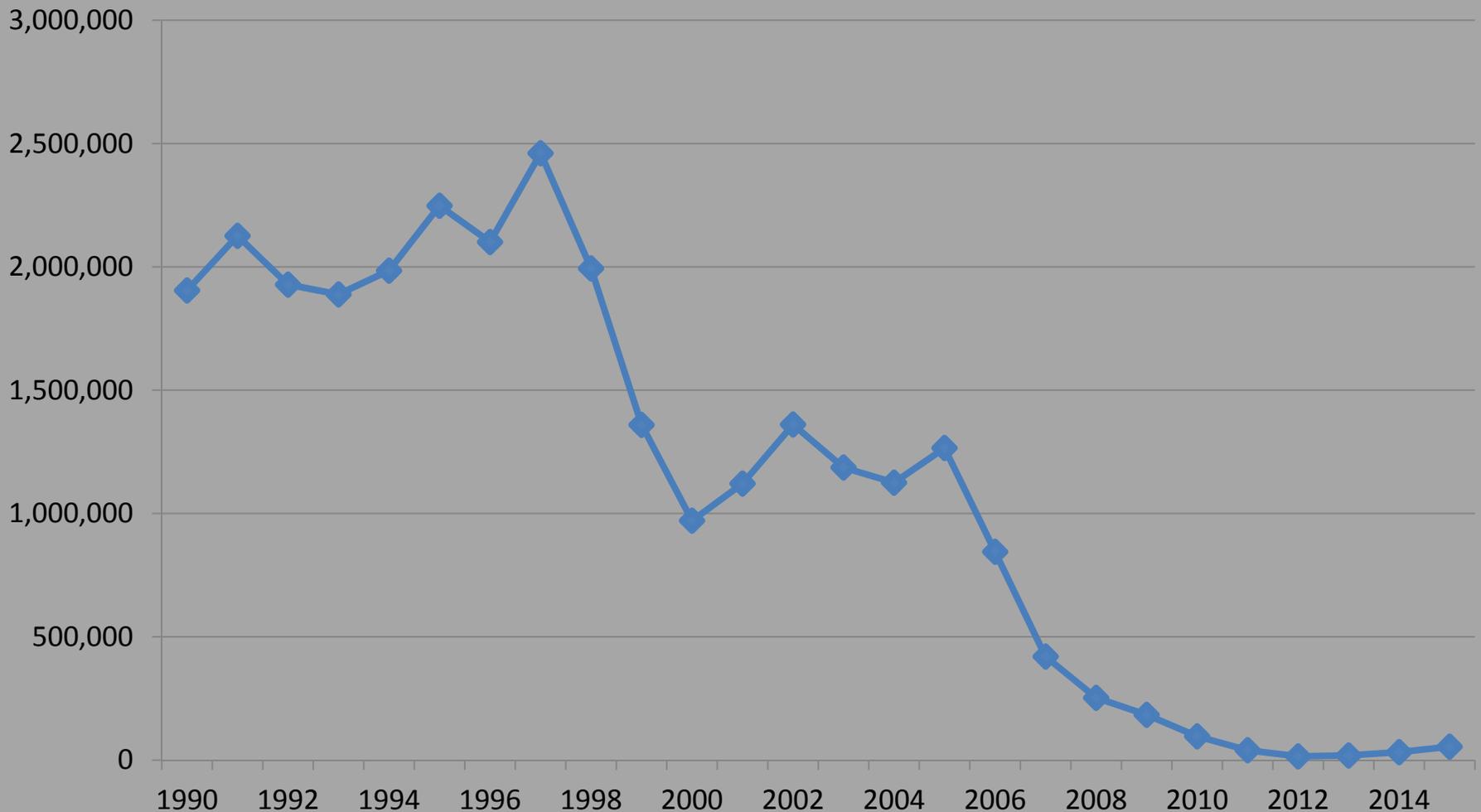


Photo Credit: Calumet Fisheries

Bloater Chub Commercial Harvest

Current quota 3.6 million pounds

WI Bloater Chub Comm. Harvest



USGS Chub Biomass Estimates

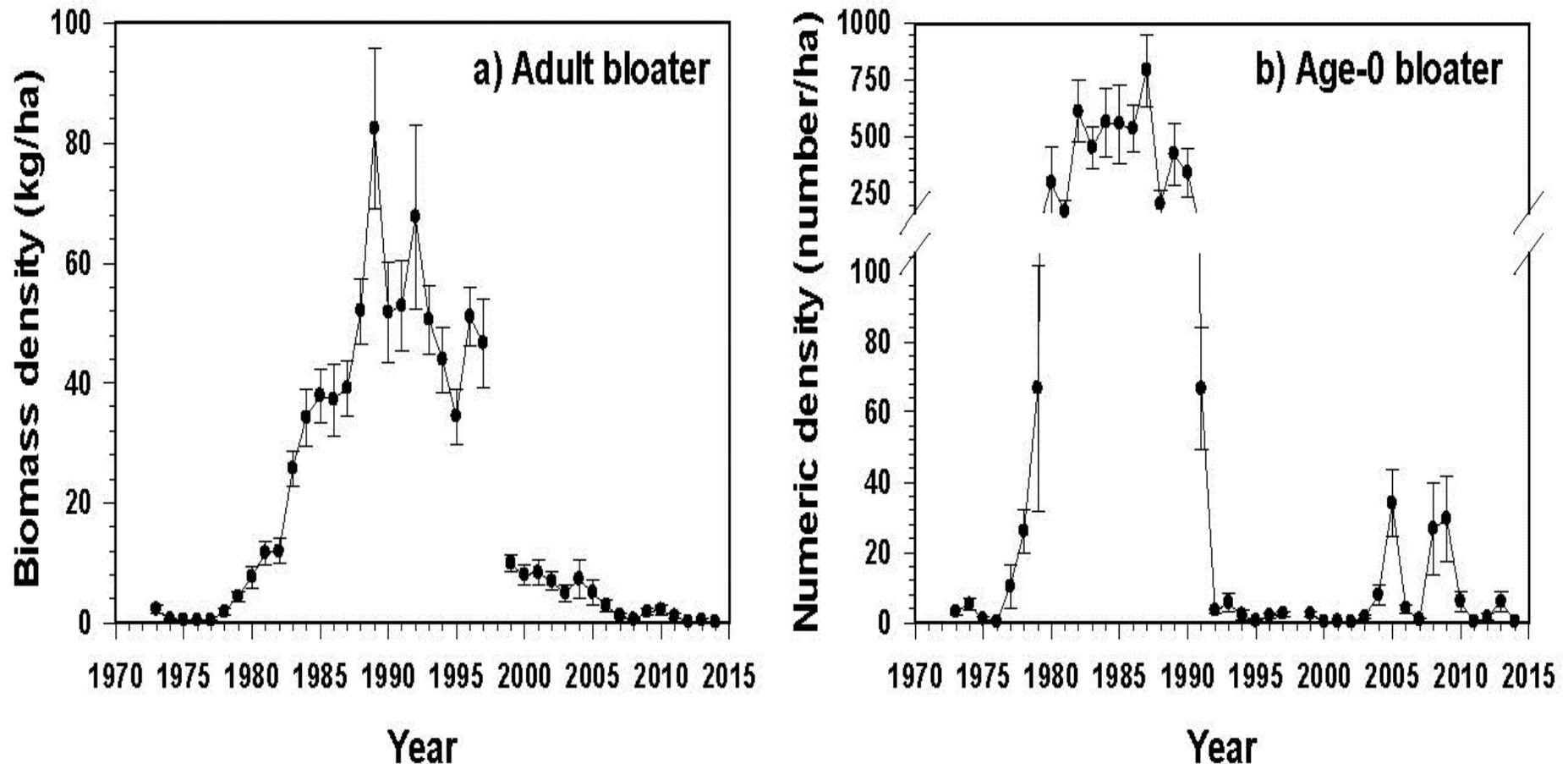


Figure 4. Panel (a) depicts biomass density (+/- standard error) of adult bloater in Lake Michigan, 1973-2014. Panel (b) depicts numeric density (+/- standard error) of age-0 bloater in Lake Michigan, 1973-2014.

Why the Low Bloater Chub Populations?

- Disappearing Diporeia?
- Natural cycling?
- Other?

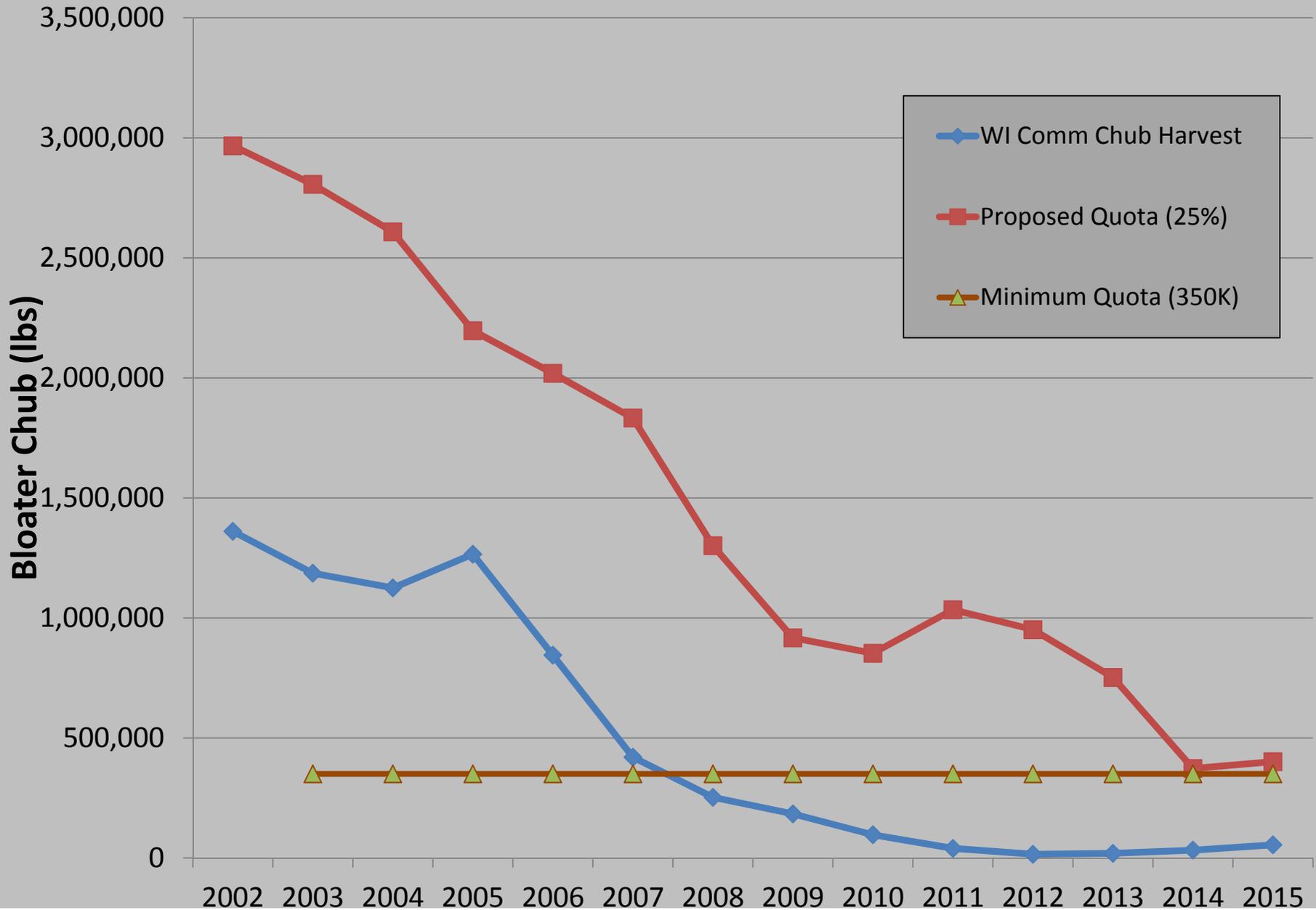


Draft Chub Quota Proposal: Components

- **Quota a function of USGS bloater chub biomass estimates**
 - **Average of Bottom Trawl and Acoustic density estimates for past 3 years * Area of Lake Michigan in Wisconsin * 25% exploitation rate**
- **To be adjusted annually based on updated USGS estimates**
- **Minimum quota of 350,000 lbs.**

WI Bloater Chub Comm. Harvest and Proposed Quota

**Chart represents what quota would have been given biomass estimates for past 14 years*



Lake Michigan Commercial Fishing Board

- **Governor appointed Board to advise the Department**
- **Required to advise DNR on license, quotas, and allocation issues**
- **Can advise DNR on other commercial fishing issues**
- **7 members who reside in LM counties**
 - **5 licensed, active fishers (2 southern Green Bay, 3 northern Green Bay and Lake Michigan); 1 license wholesaler; 1 citizen at large**

Public Involvement

- **Lake Michigan Commercial Fishing Board**
- **Lake Michigan Fisheries Forum**
- **Public review and hearing (Cleveland)**

LMCFB Feedback

- **LMCFB supports current proposal – voted during Jan 2015 meeting to pass a resolution of support this proposal**

Questions

