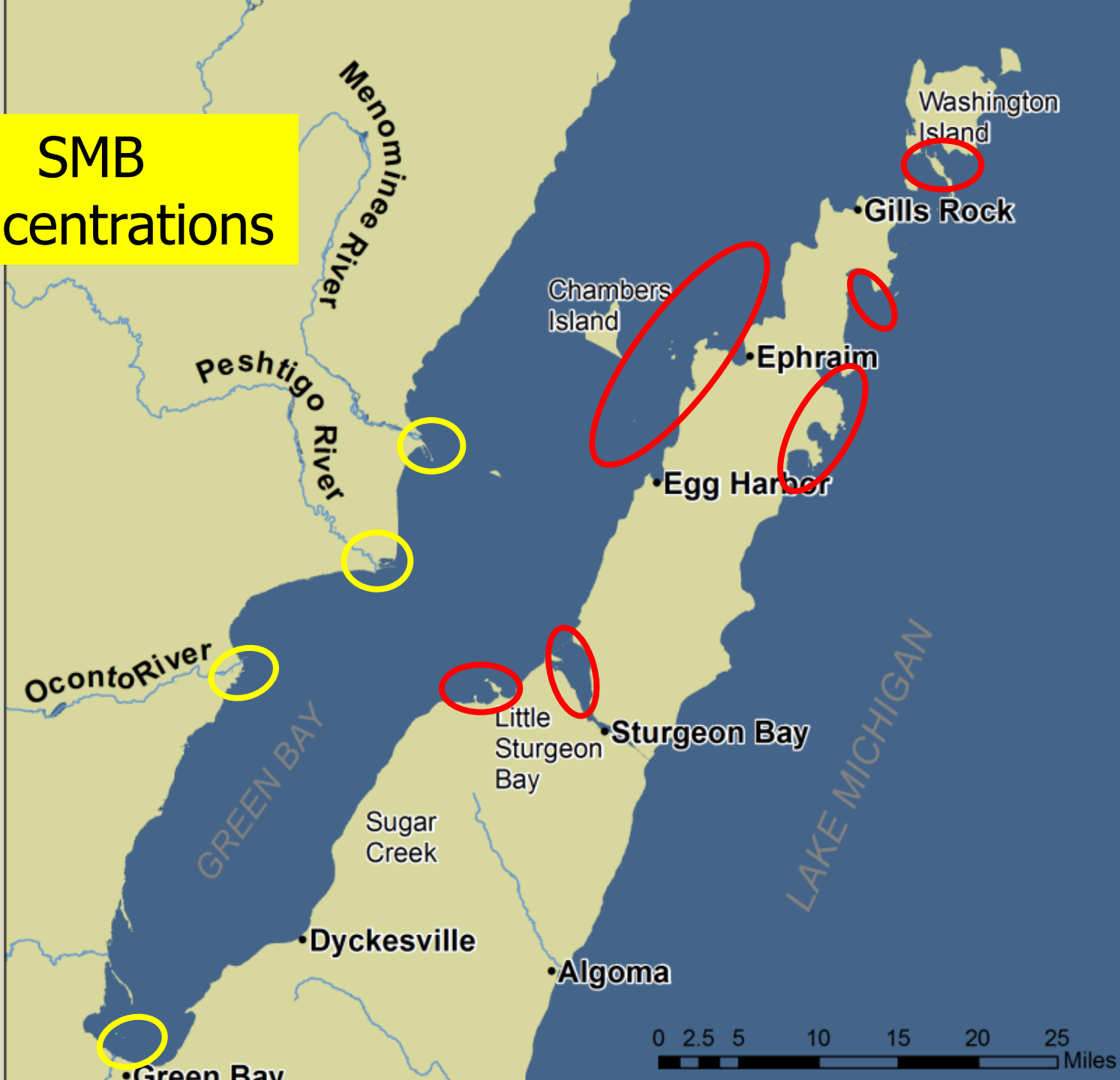




Smallmouth Bass in Door County

Door Co. SMB Mgt. Mtg.
Sturgeon Bay, WI
15 October 2019

SMB Concentrations

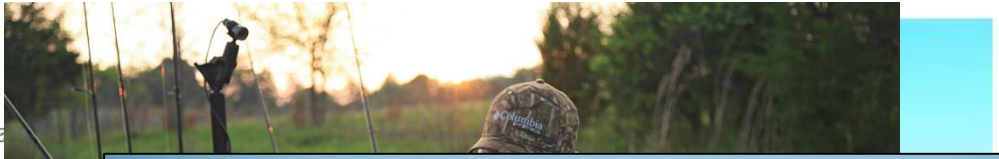


Bassmaster's 100 Best Bass Lakes of 2014 announced

By James Hall

APR 28, 2014

Bassmaster Magazine's annual ranking of America's best bass lakes has been announced. The 2014 champion, Lake Michigan, beat out the hottest contender, Lake Okechobee, to take the No. 1 spot. Florida's and California's ties were broken by Michigan's m... la... st... co...



DOOR COUNTY

An aerial view of Door County, Wisconsin, showing a cluster of houses and churches along a lake. The trees are in autumn colors. The text "DOOR COUNTY" is overlaid in large black letters at the top, and "COMMUNITIES" is overlaid in large white letters at the bottom.

COMMUNITIES



The Smallmouth Fishery

- Diverse opportunities, diverse interests
 - Bass mecca (sport fishers/tournaments/guides)
 - Shore/family opportunities
 - Catch and release predominant
- Why does Door County have such a good smallmouth population?
 - Quality habitat for all life stages
 - Areas protected from high energy
 - Abundant forage
 - Moderate harvest



Smallmouth Bass Assessments

- Spring population assmnt.
 - Pre-spawn period (mostly adults)
 - Rotate among populations
 - Fish Creek area minim. sampled
- Smallmouth YOY (recruits)
 - Inconsistent results
 - Mini fyke nets/seining
 - Goby interaction
 - Year class strength
 - Stock-recruitment relationship?
- Snorkeling assessments
 - Nest success
 - Goby impacts
 - Angling pressure

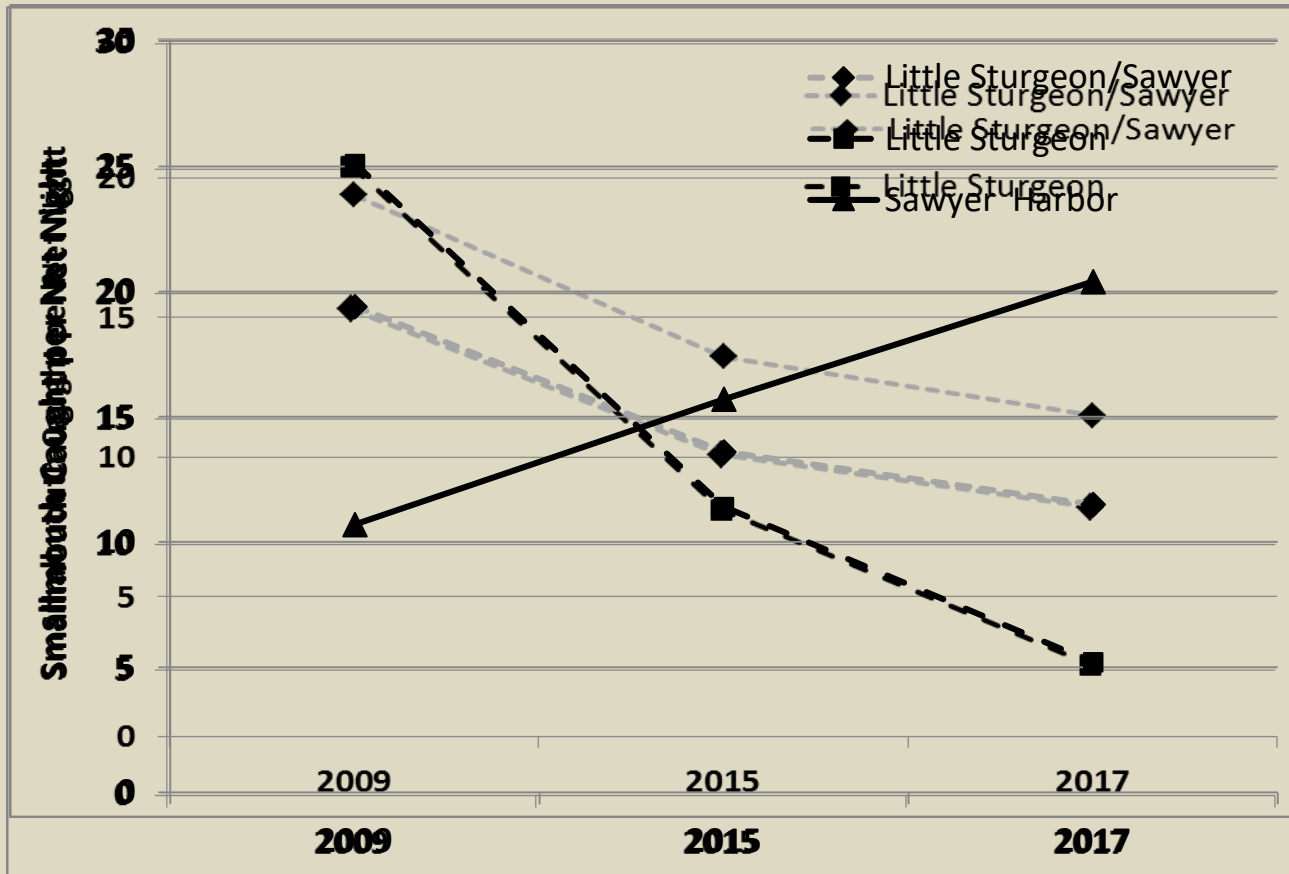


Adult Assessment Data



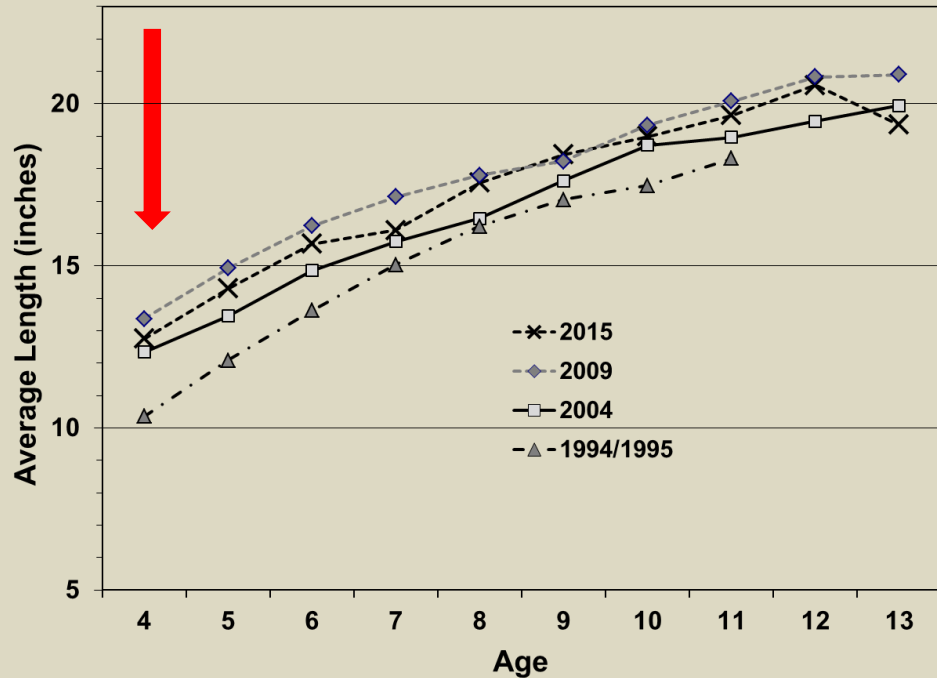
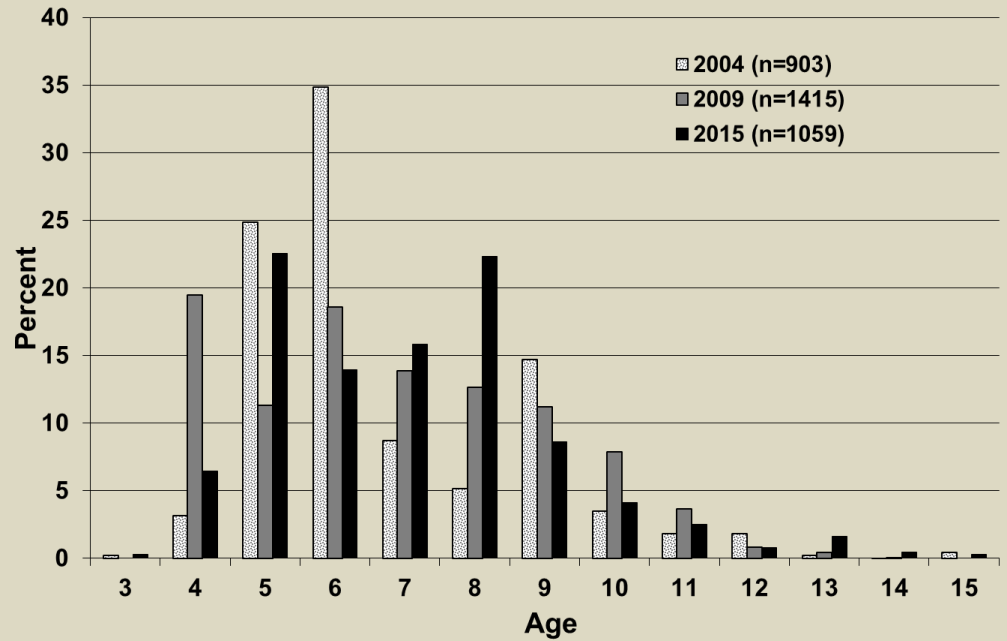
Catch Per Unit Effort

- Index of relative abundance
 - Spring fyke netting
 - Need consistency in sampling time, conditions



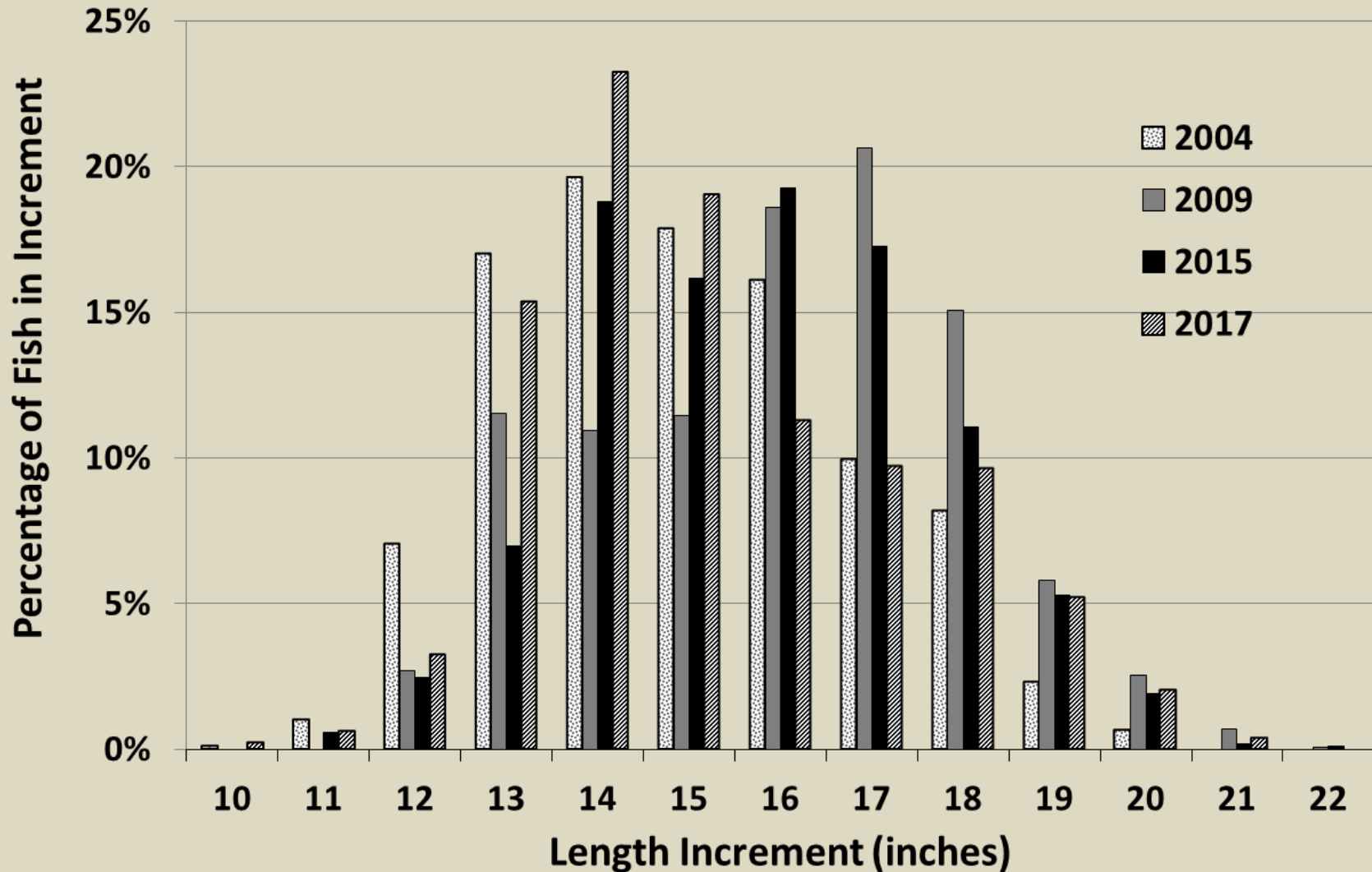
Sturgeon/Little Sturgeon Bay

Good recruitment.....

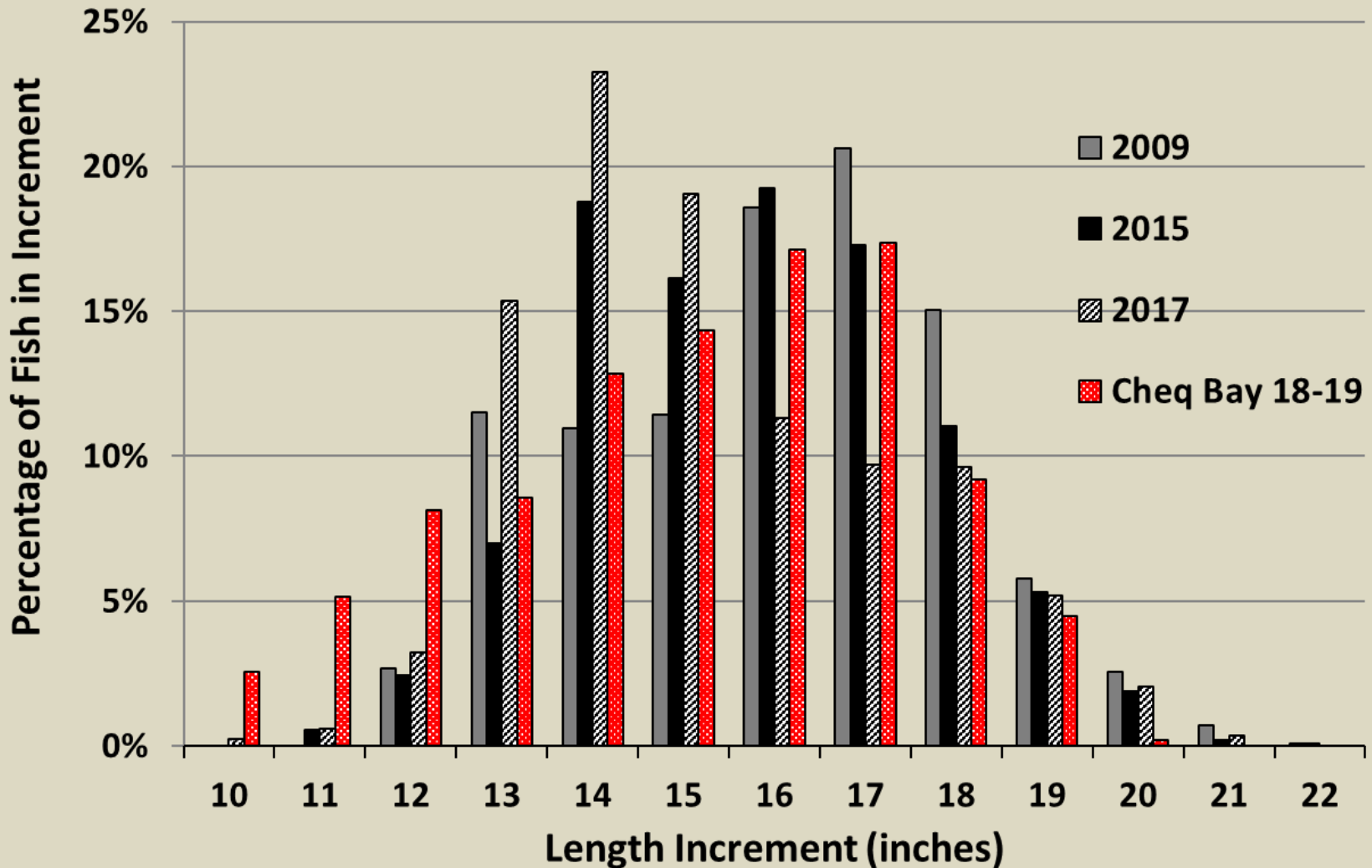


Improved growth.....

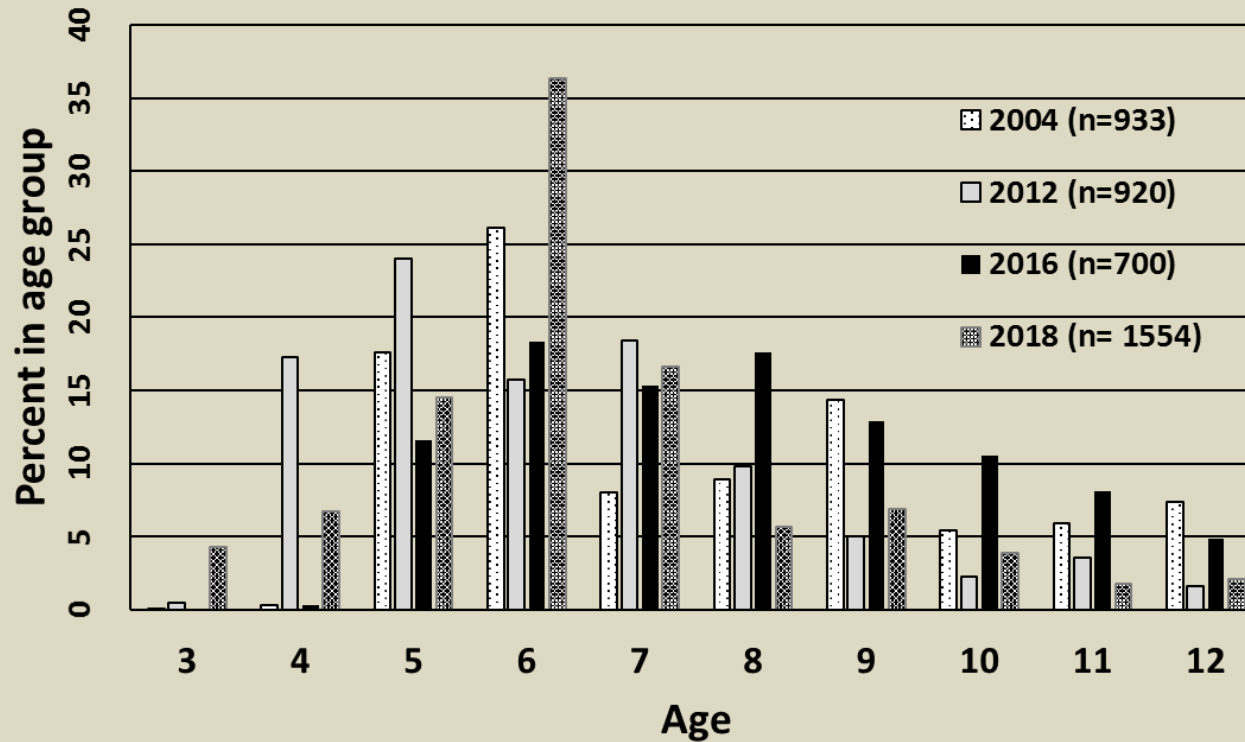
Sturgeon Bay Size Structure



Sturgeon Bay Size Structure

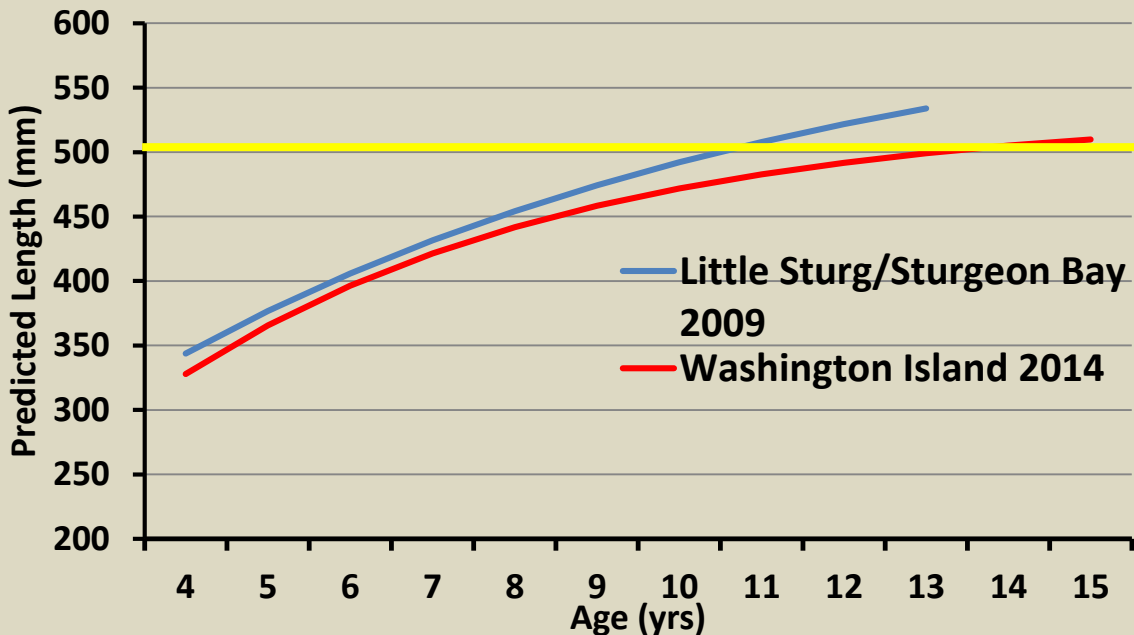
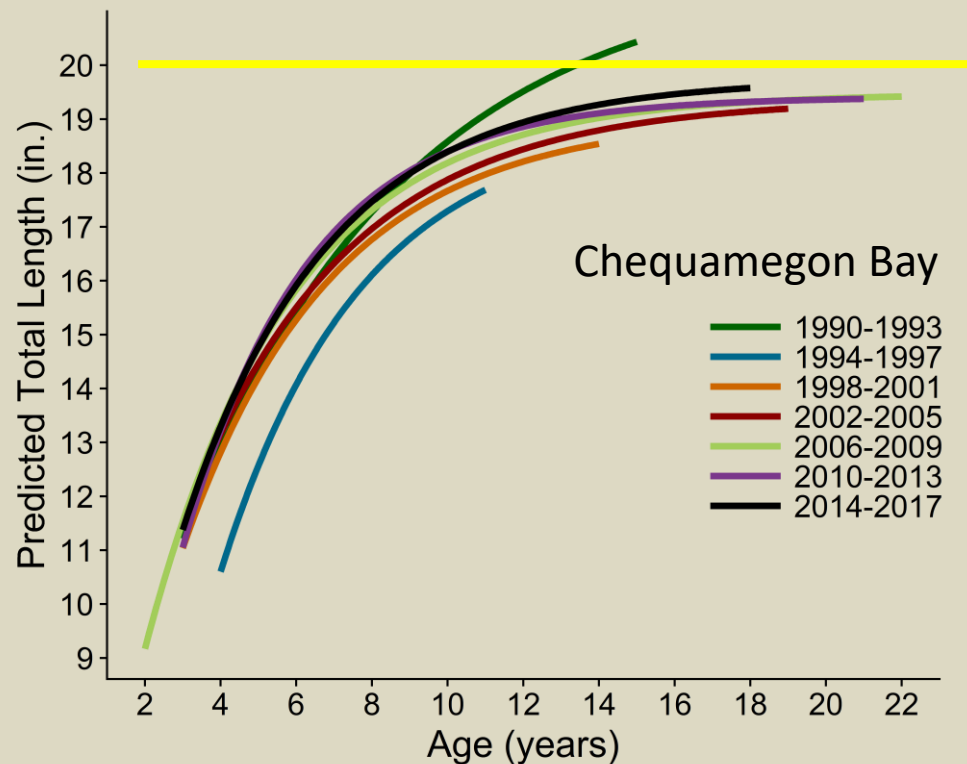


Rowley Bay



- Good recruitment historically
 - Recently diminished
 - CPE decline 2012-2016 but increased in 2018 by nearly 2x

Growth



Relative Stock Density

Location	YEAR	RSD-18*
Sturgeon Bay/Little Sturgeon	2009	24
Sturgeon Bay/Little Sturgeon	2015	18
Rowley Bay	2012	17
Washington Island	2014	23

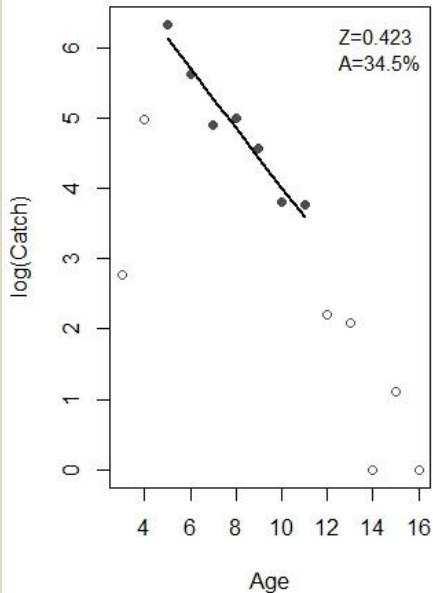


- Typically near or above statewide 95th percentile

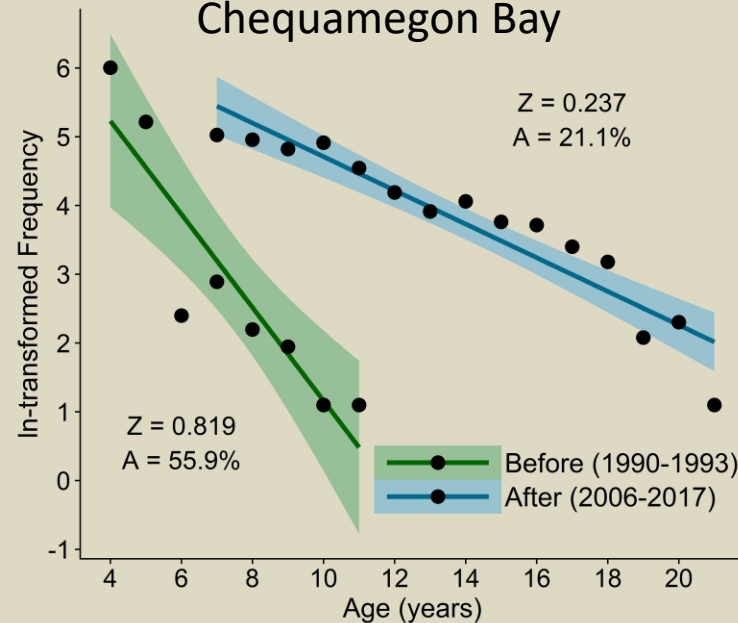
* $\frac{\text{No. fish} > 18''}{\text{No. fish} > \text{stock} (7'')} \times 100$

Mortality CC

Sturgeon Bay Area



Chequamegon Bay



- Our mortality estimates (A) in last couple years range from $\sim 35\%$ - 40% depending on where and when sampled
 - But these are annual, NOT pooled like CB
 - Also using mostly scale samples so estimates may be inaccurate to a point
 - But I also selected for ages with largest samples and more confident age ranges
 - Further evaluation needed to refine our estimates

Recruitment

- Young-of-year (YOY) index
 - Typical for other species – challenging for smallmouth
 - Beach seine
 - Mini-fyke net
- Index of production
 - Late summer/early fall
 - Forecast year class strength?
 - Year class set?



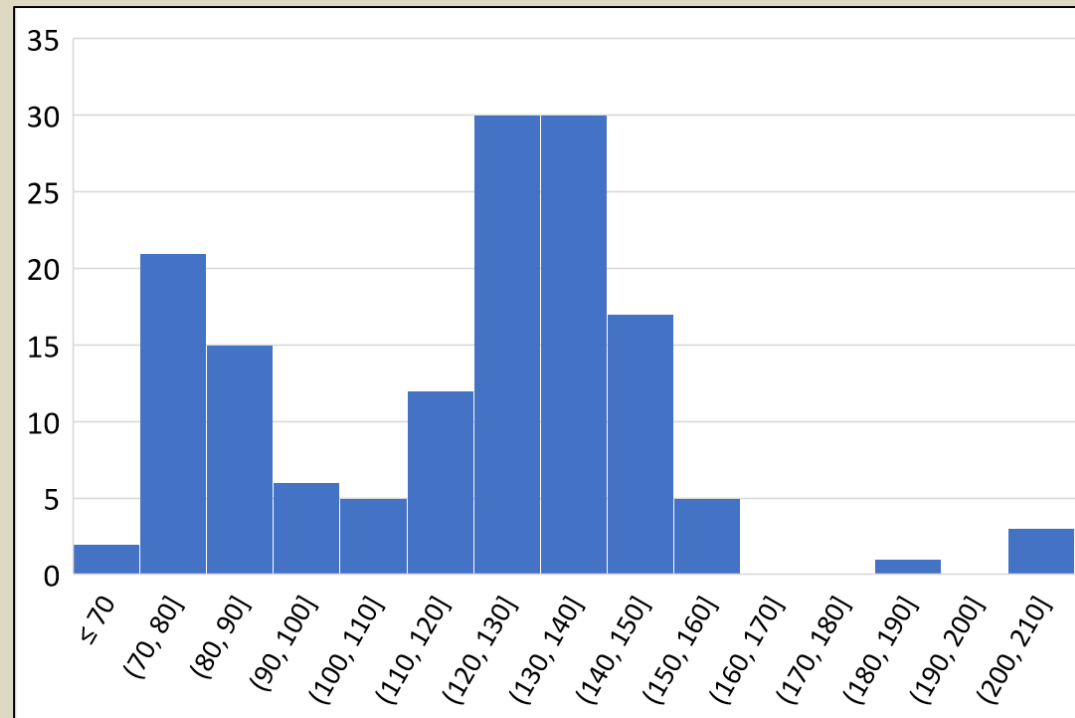
Beach Seining*

	1995	1996	1997	2007	2008	2014
WA Island (Detroit Harbor)	-	-	1.5 (9)	-	-	0.5 (8)
Newport State Park	15 (5)	9 (6)	0 (7)	3 (3)	-	-
Rowley Bay/Mink R	1 (2)	0 (4)	0.5 (2)	-	-	-
North Bay	50 (7)	6 (6)	1.5 (3)	-	-	-
Moonlight Bay	4 (4)	3.5 (13)	0 (4)	2 (9)	-	-
Peninsula Park	?	3 (12)	3 (1)	?	-	-
Fish Creek	4 (6)	0 (1)	0 (1)	-	-	-
Egg Harbor	3 (3)	3 (5)	0 (2)	0.5 (3)	-	-
Murphy Park	1.5 (2)	1.5 (4)	1.5 (2)	0 (1)	-	-
Stone Quarry	-	66 (2)	4 (1)	-	-	-
Sunset Park	-	39 (2)	1 (5)	1 (1)	-	-
Little Sturgeon	-	-	0 (1)	.5 (3)	-	-
Sawyer Harbor					0.5 (3)	

*Young of year per haul (No. hauls)

Recruitment

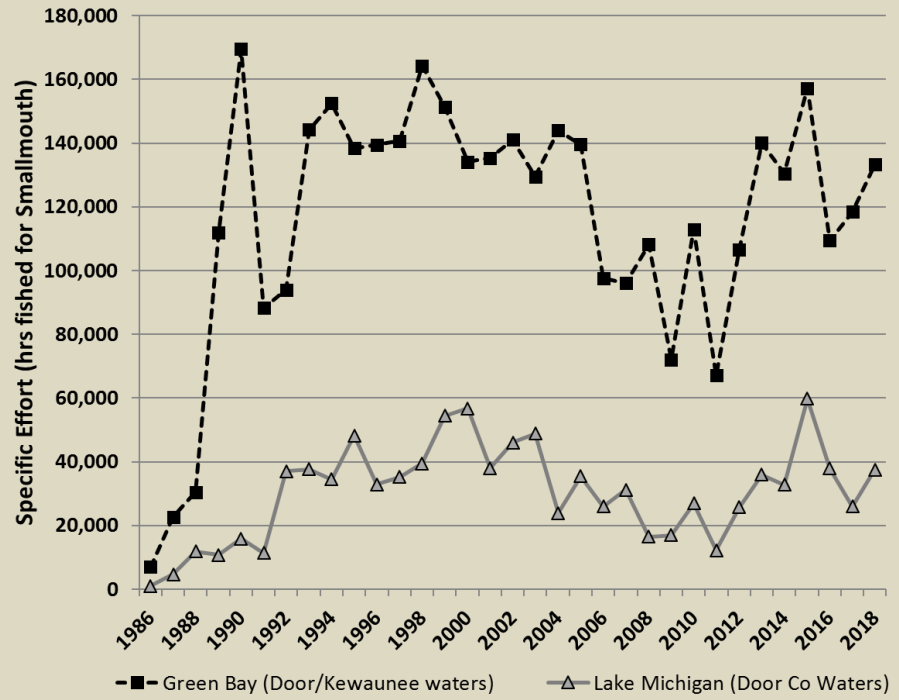
- Several apparent strong year classes entering Rowley Bay pop
- Seine (75') haul of 335 mostly YOY and YRLNG smallmouth in 2018
 - Decent number of YOY in mini-fykes also
- But other hauls with considerably less which is typical
 - Still resulted in >100/haul



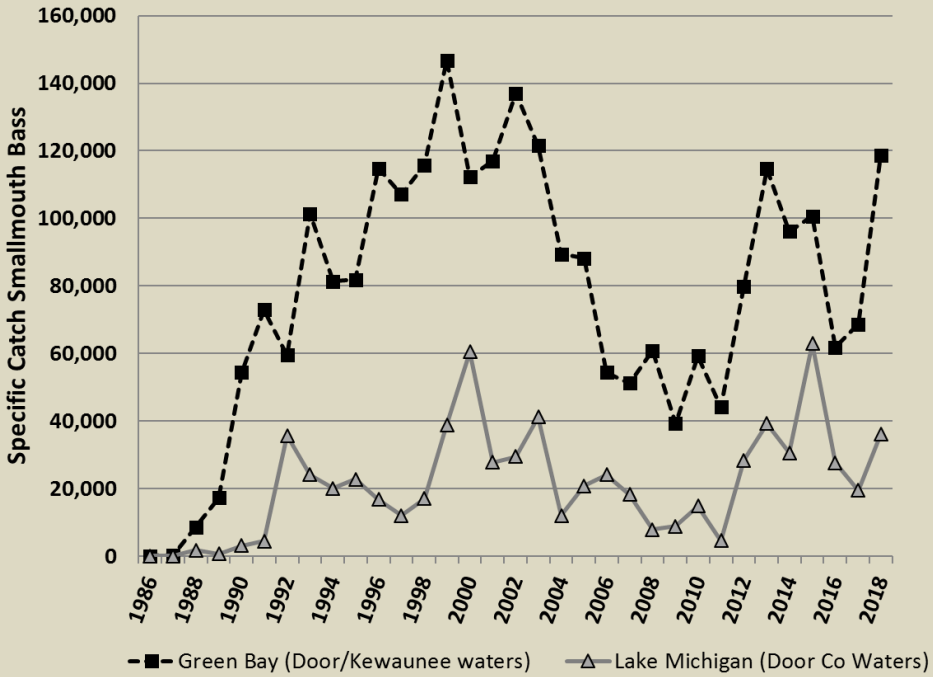
Sport Fishery Data



Effort

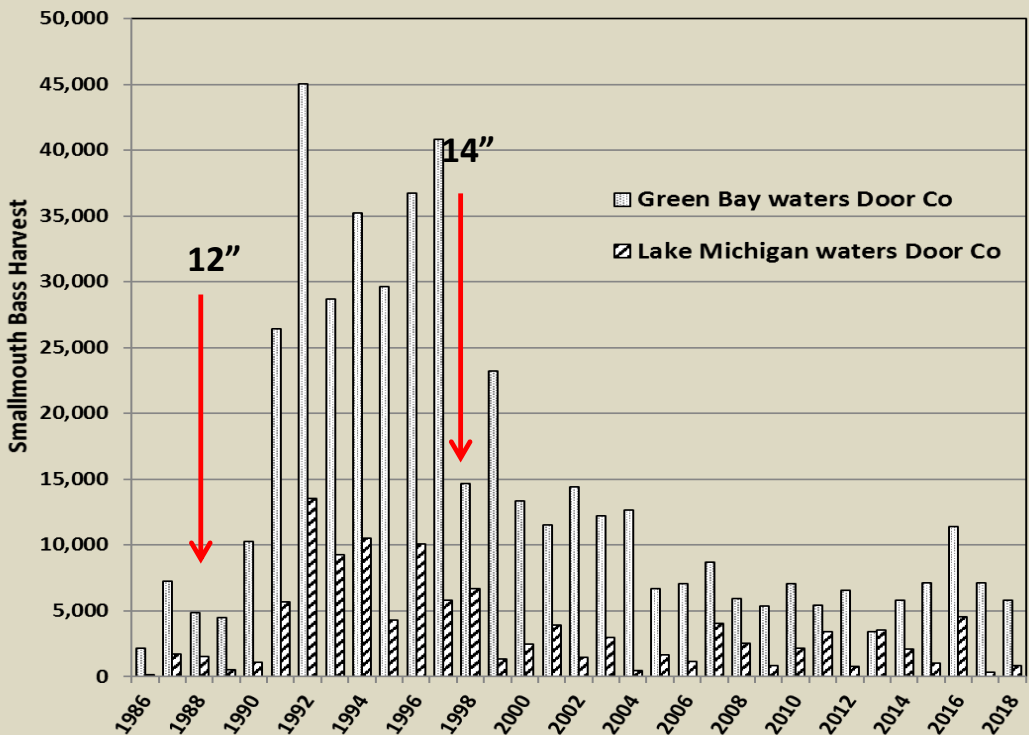
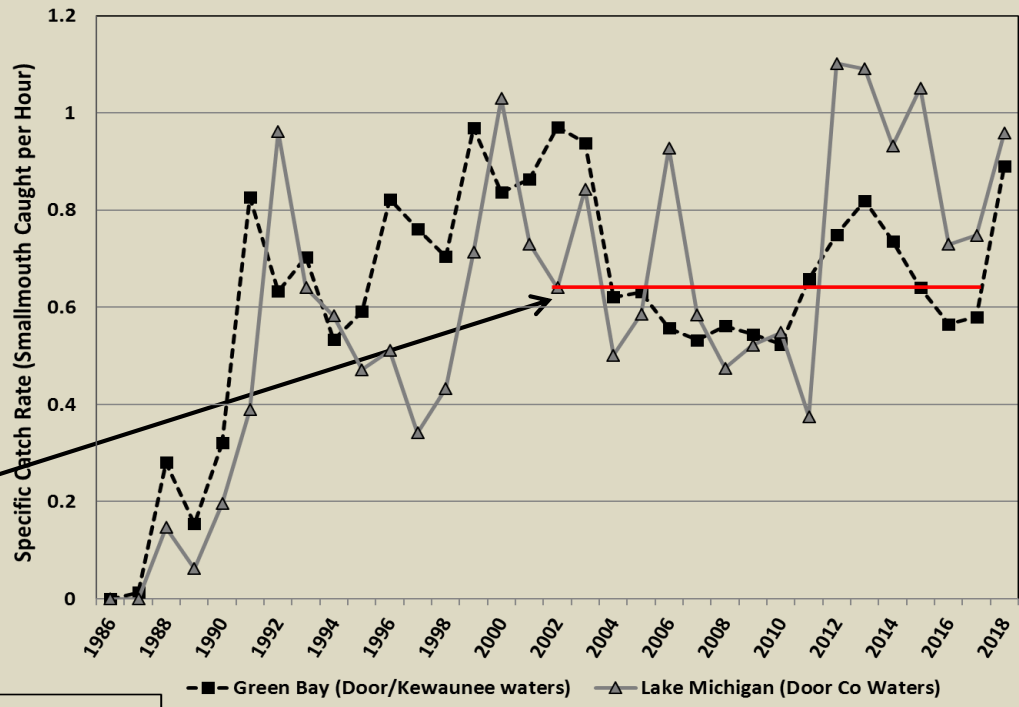


Specific Catch



Catch rates

Prev. 15 yr avg.
Green Bay



Harvest

Concerns

- Disease
 - High prevalence of lesions in 2009 and 2015
 - VHS/secondary infection, *Columnaris* suspected in 2015

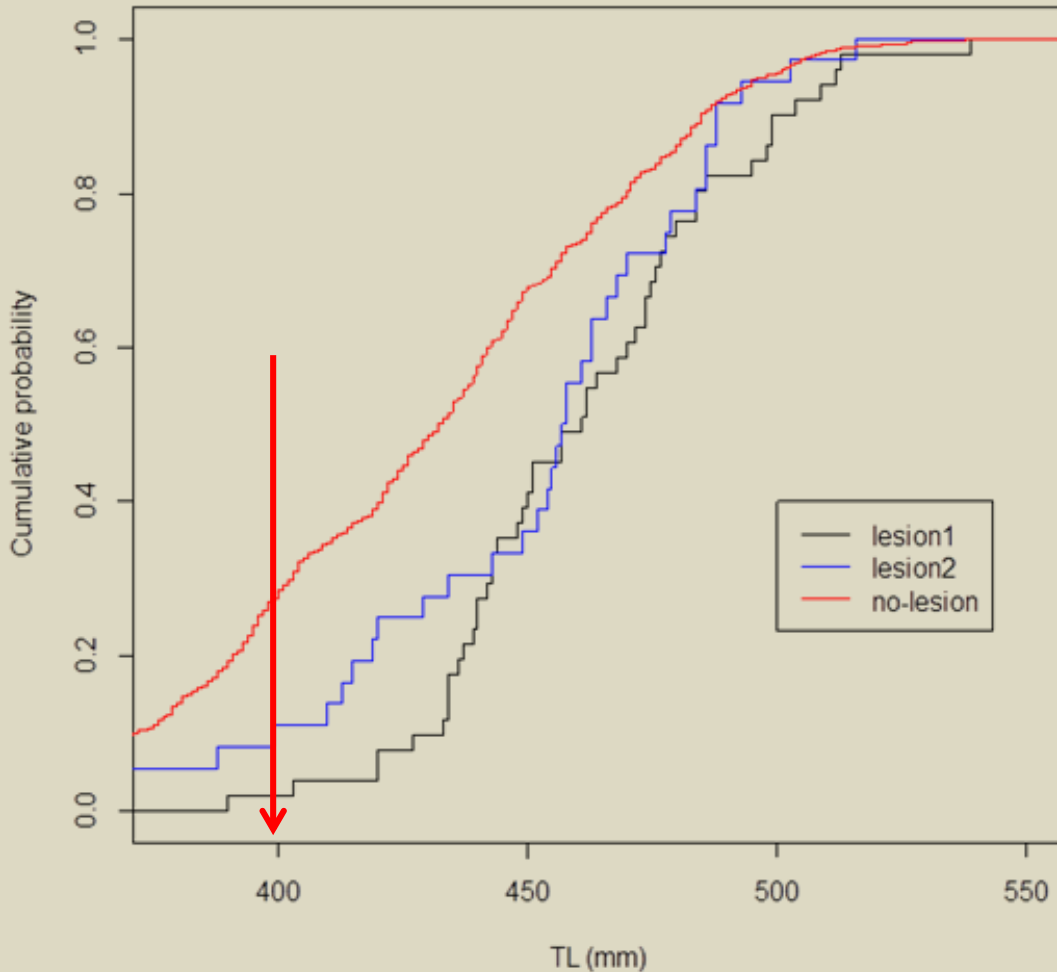


Concerns

- Disease

- High prevalence of lesions in 2009 and 2015
 - VHS/secondary infection, *Columnaris* suspected in 2015
- Diagnosis from 2016 **inconclusive**
 - Only able to rule out diseases - diagnosis pending
 - Prevalence appears to have been low since 2016 outbreak-few isolated reports
- Larger fish appear pre-disposed to infections
 - Up to 15% infection in tournament-caught fish
 - Lower in overall population (7% and 12% Rowley Bay)
 - Have observed apparently healed fish
 - Apparently not happening elsewhere

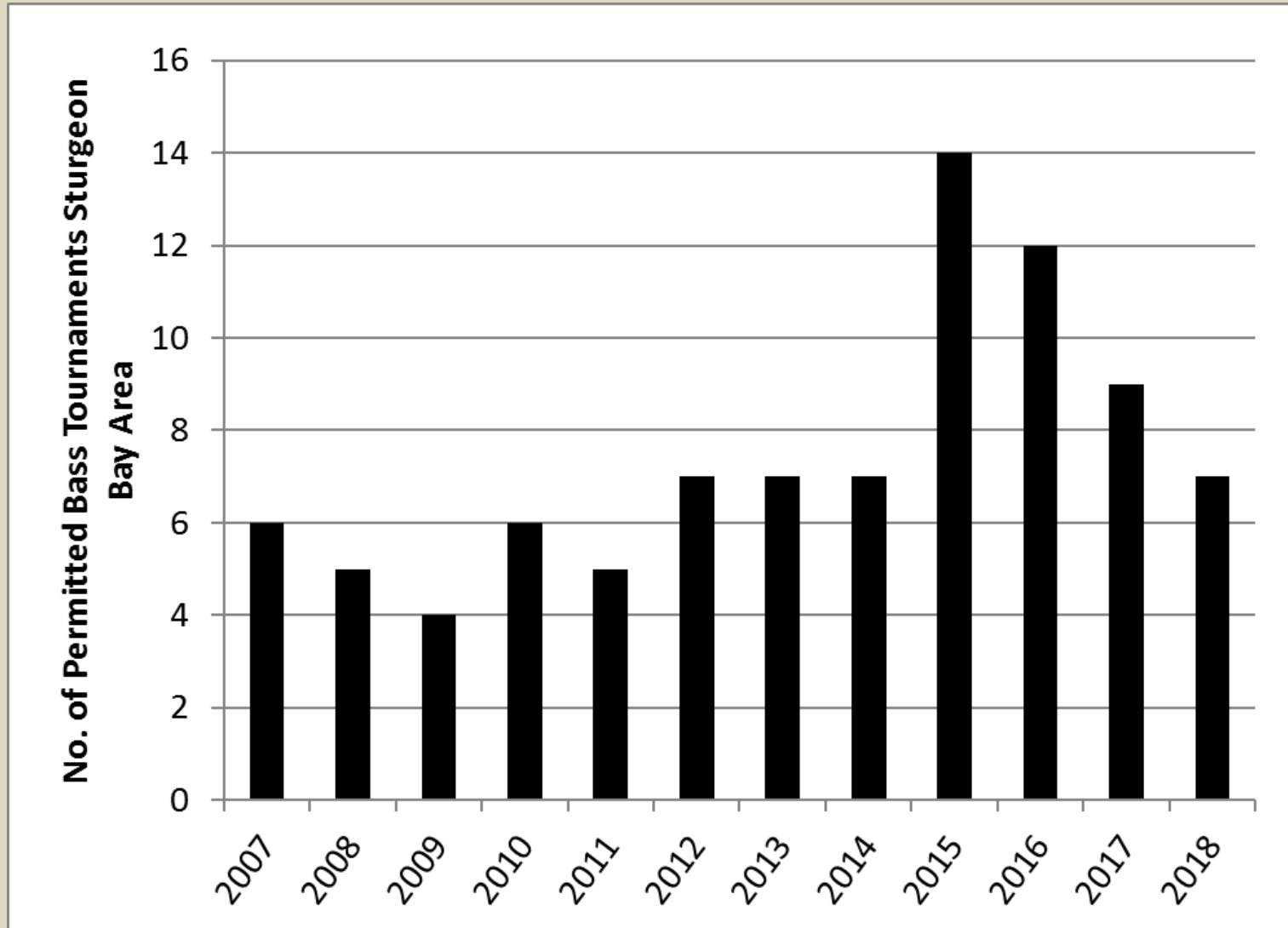
Size Distribution of Affected Fish



Proportion of fish that are less than each observed length for each group of affected and unaffected fish in Rowley Bay 2016.

- Lesion1 = fish with most severe lesions
- Lesion2 = fish with minor or healed over lesions
- No-lesion = unaffected fish

Tournament Permits

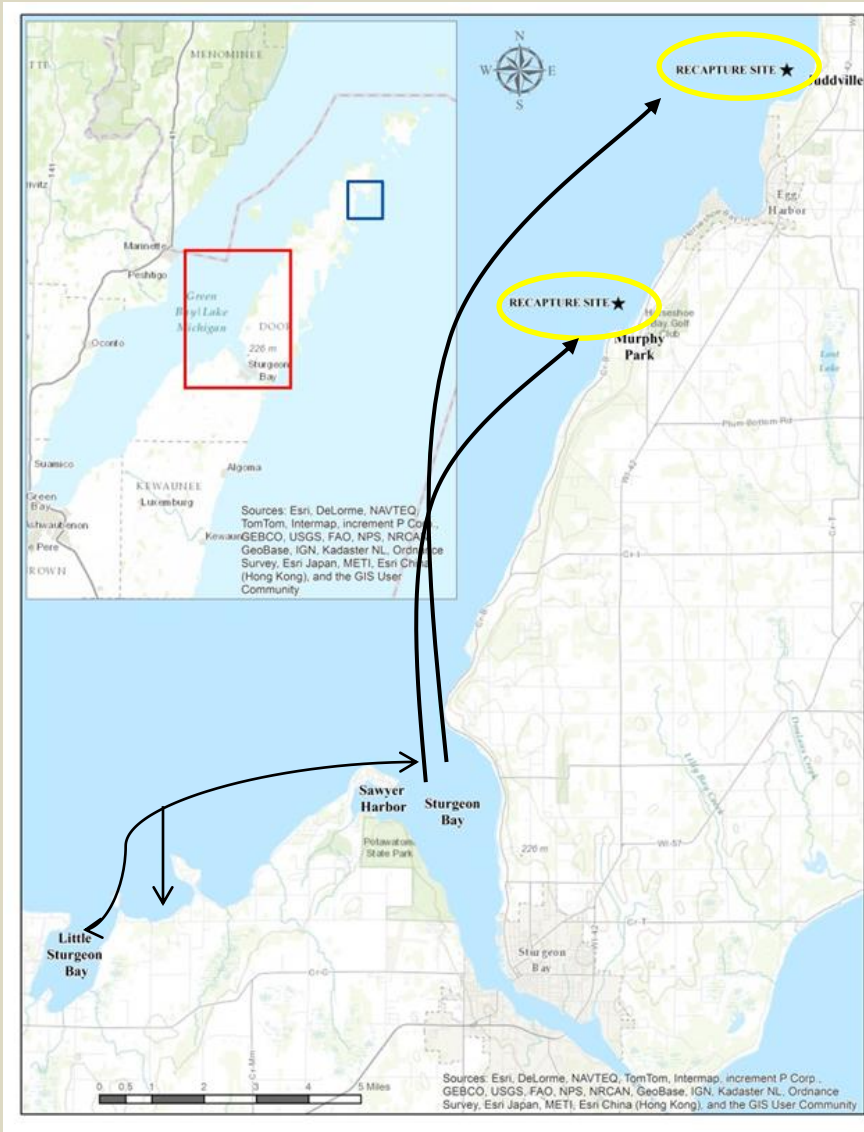


Information Needs

- Better discrete population assessments (LMIFMP)
 - Recruitment surveys important
- Smallmouth movement characteristics – may help w/tournament management concerns
 - Acoustic telemetry
 - Receiver arrays (GLATOS)



Bass Movement



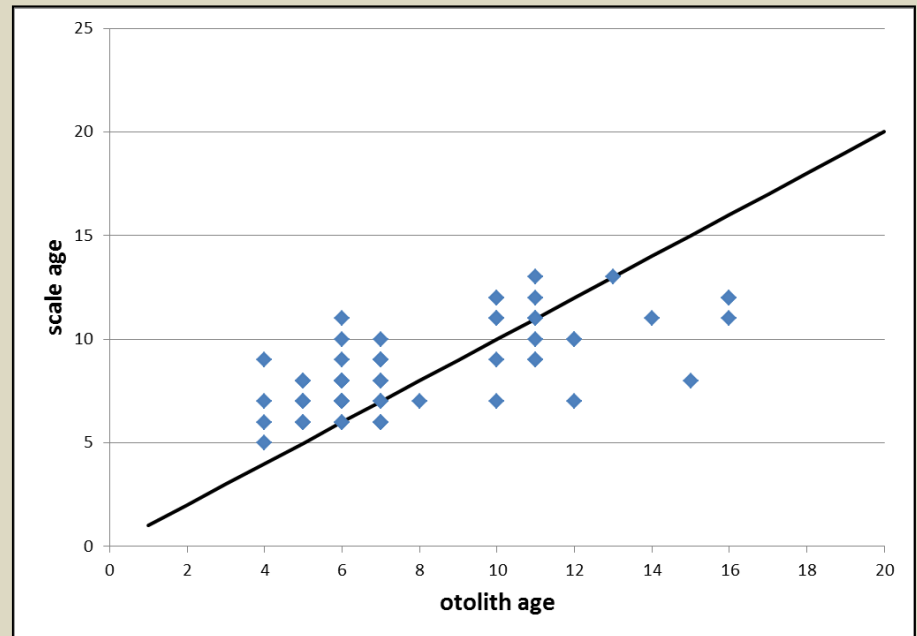
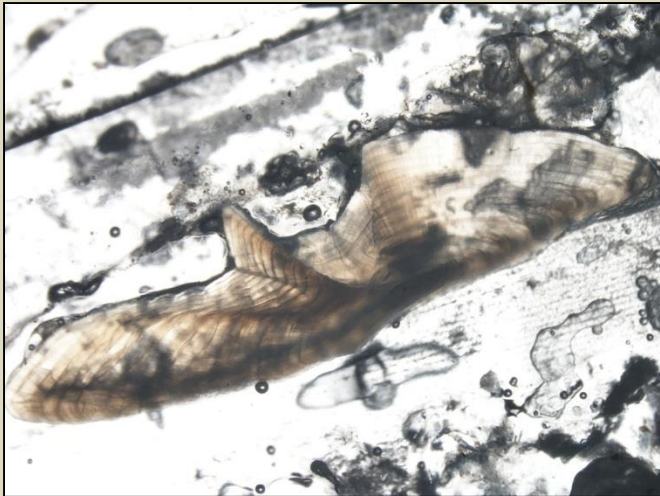
- Floy tagging during 2009 Sturgeon Bay area survey
- All but one of 53 survey recaps in same area tagged
- Of 79 angler recaps, 8 moved out of area of tagging
 - Most between SB and LS (9-10 mi)
 - Longest movement: Sturgeon Bay to Juddville (15.5 mi) and Sawyer Harbor to Murphy Park (11 mi)

Information Needs

- Better discrete population assessments (LMIFMP)
 - Recruitment surveys important
- Smallmouth movement characteristics – may help w/tournament management concerns
 - Acoustic telemetry
 - Receiver arrays (GLATOS)
- **Specific habitat requirements**
 - Impacts from riparian and in water activities
 - Can we do better (e.g., Best Management Practices) to minimize fisheries impacts?
 - Estimating scale of dredging/solid structure impacts

Information Needs

- Aging error
 - Otolith sampling



Questions/Discussion

