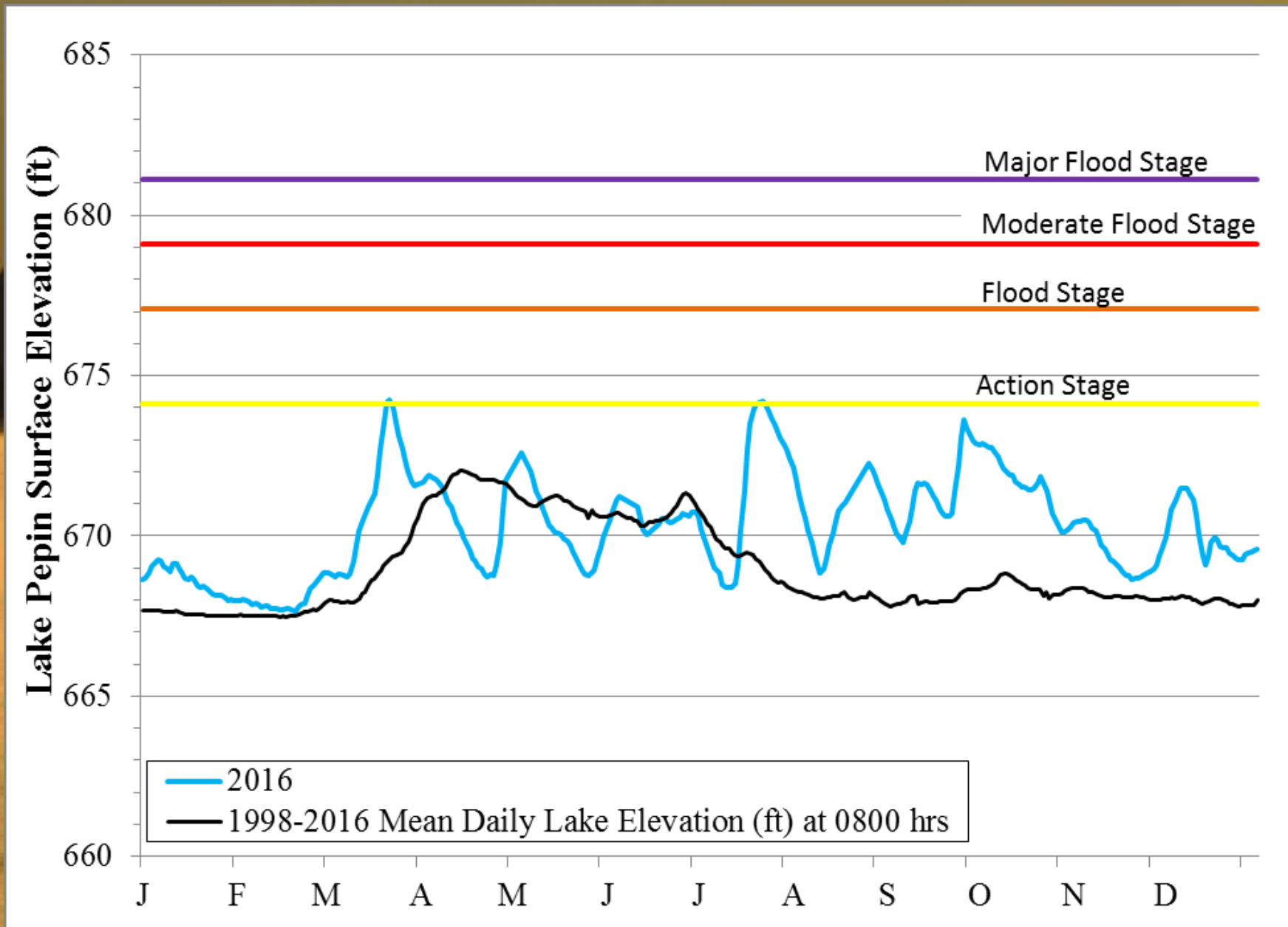




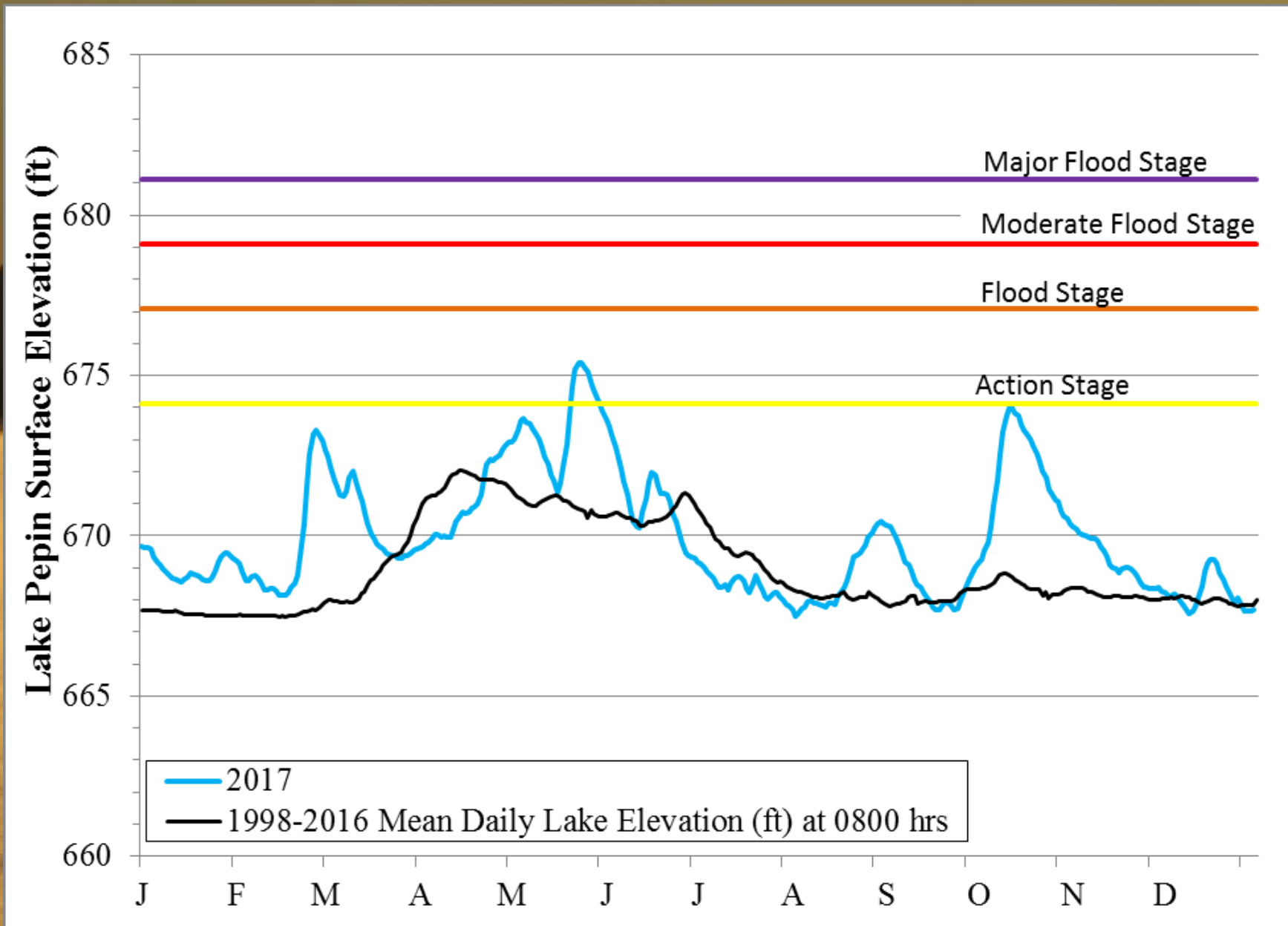
Lake Pepin / Pool 4

2017 Update

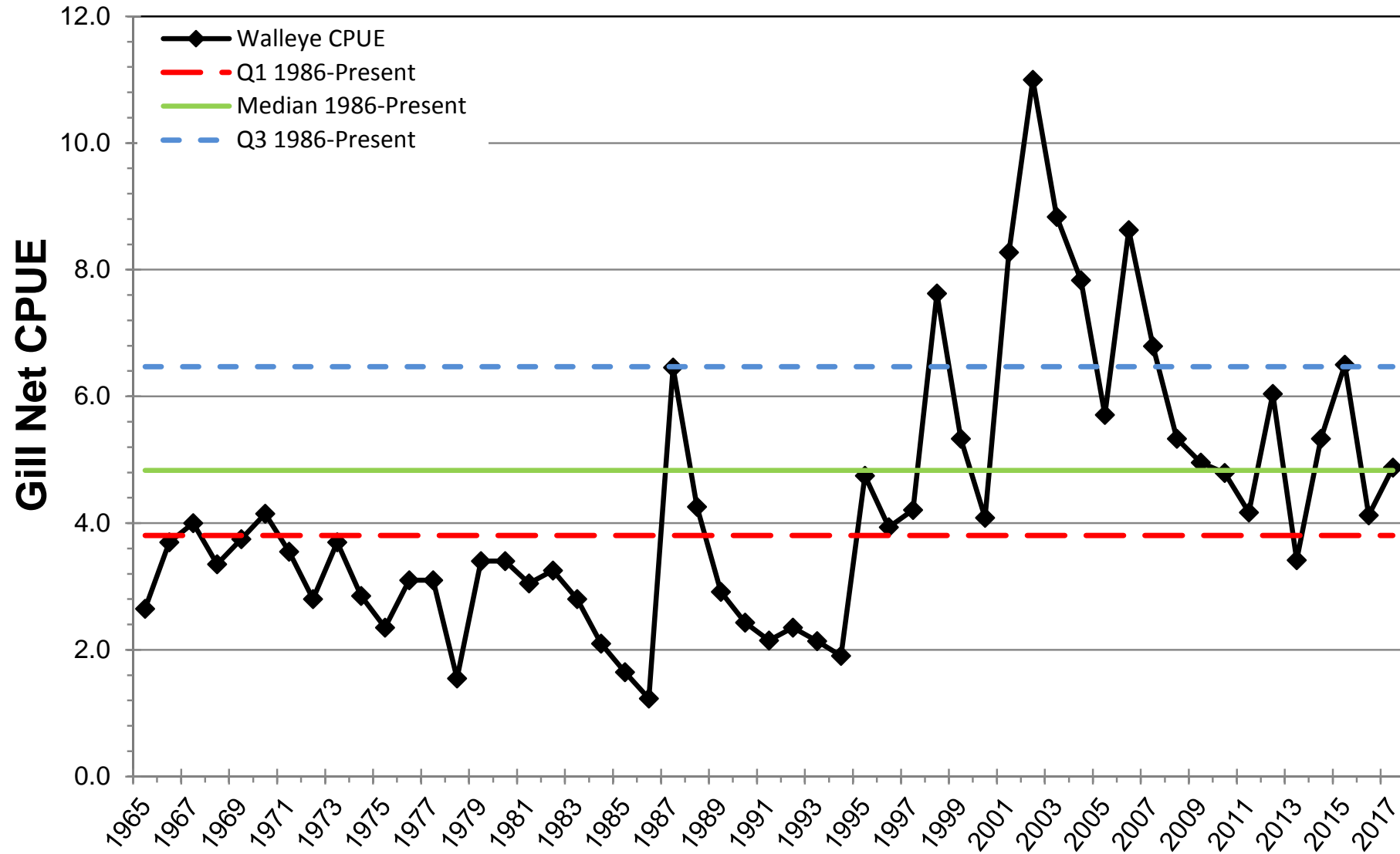
Lake Pepin Water Levels – 2016



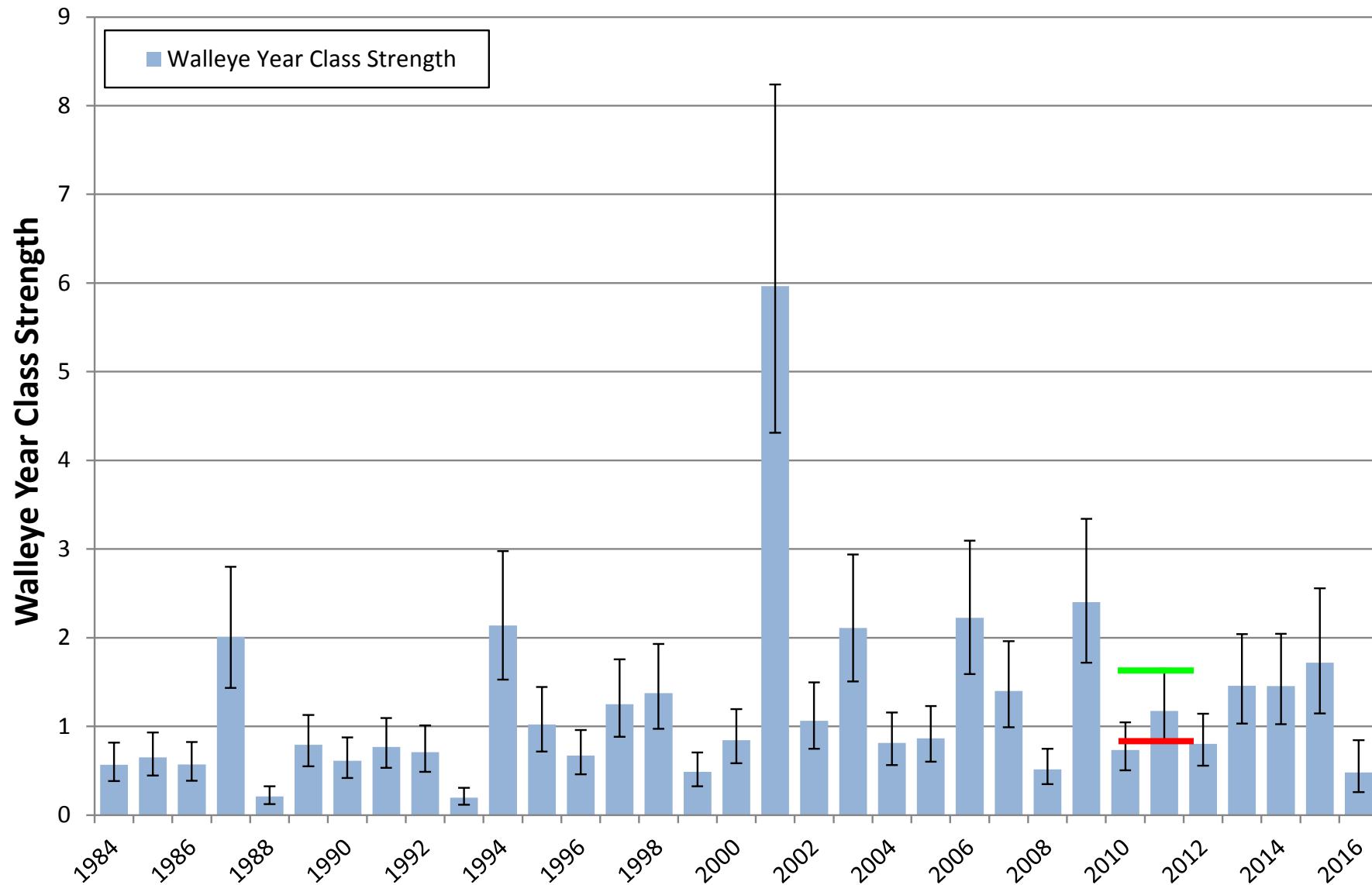
Lake Pepin Water Levels - 2017



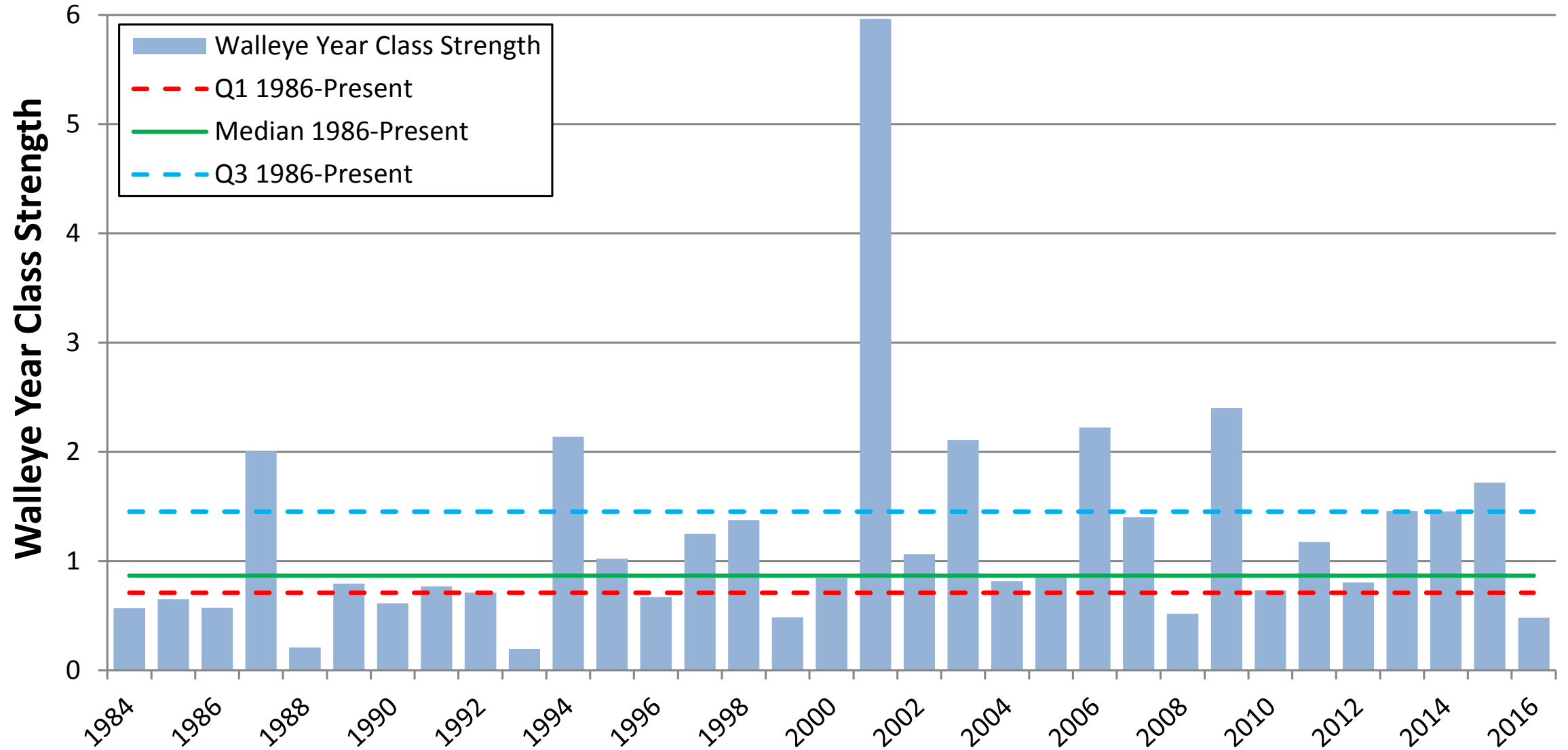
Walleye gillnet CPUE – 1965 -2017



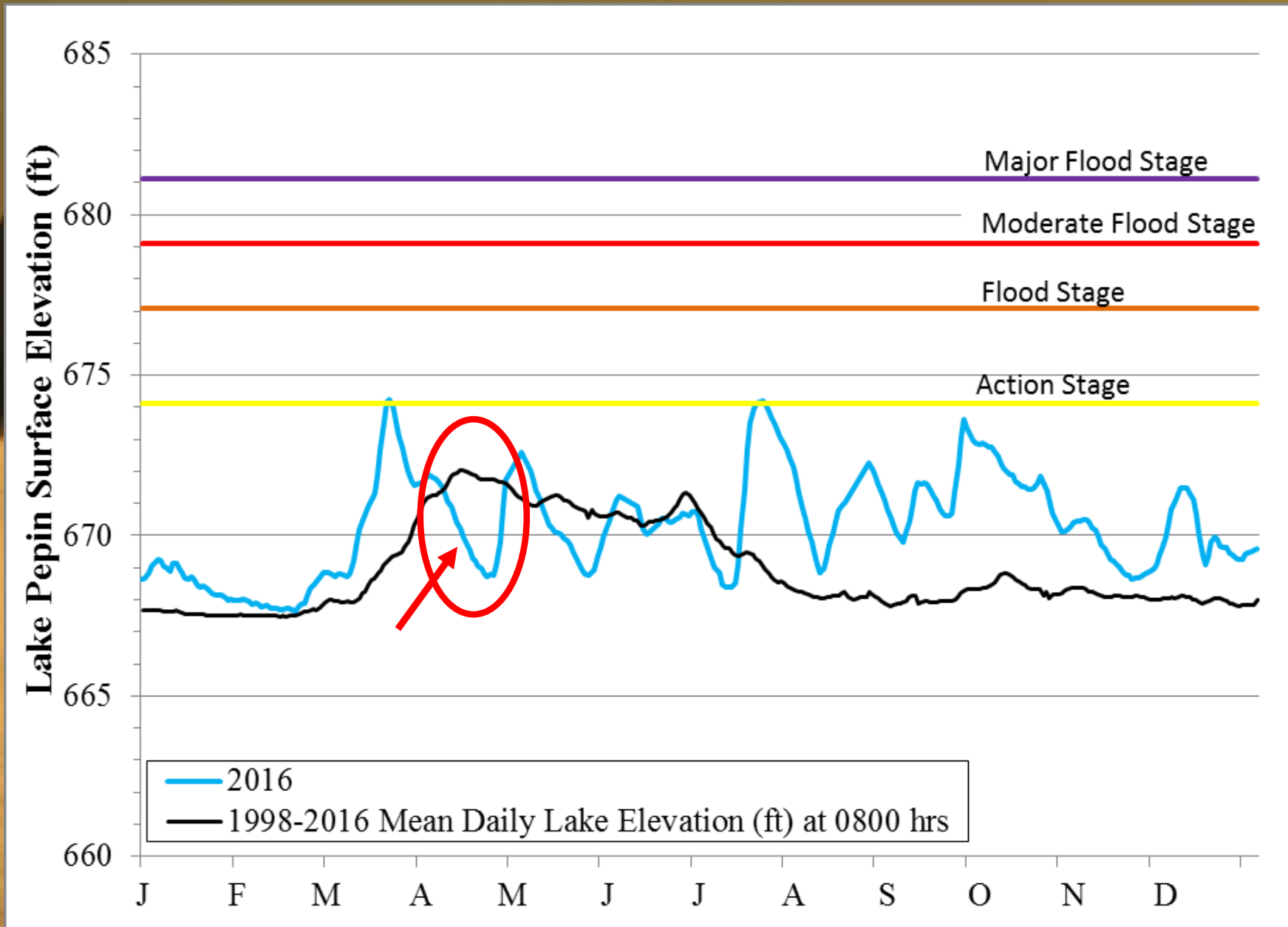
Walleye Year Class Strength Index



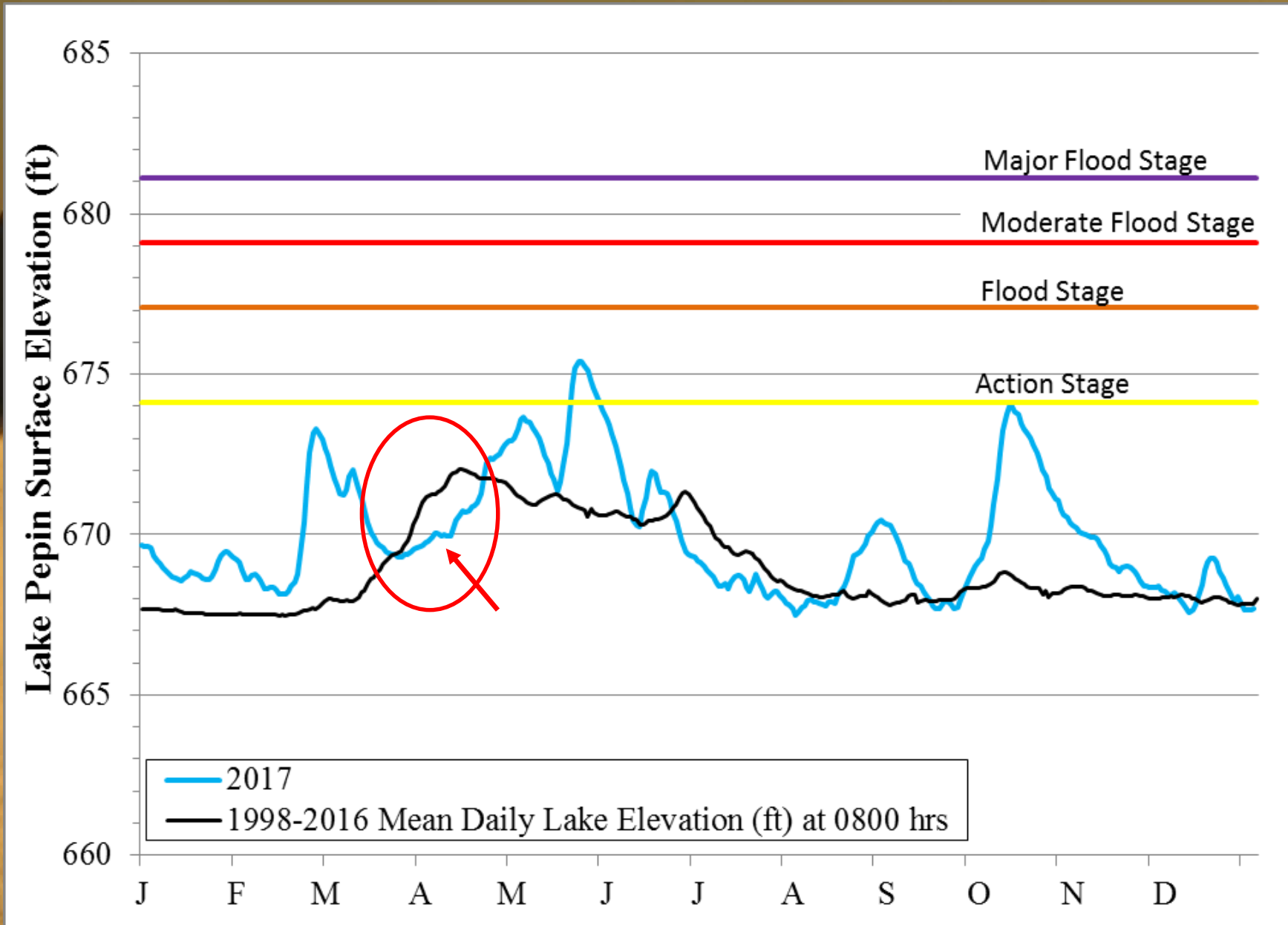
Walleye Year Class Strength Index with quartiles



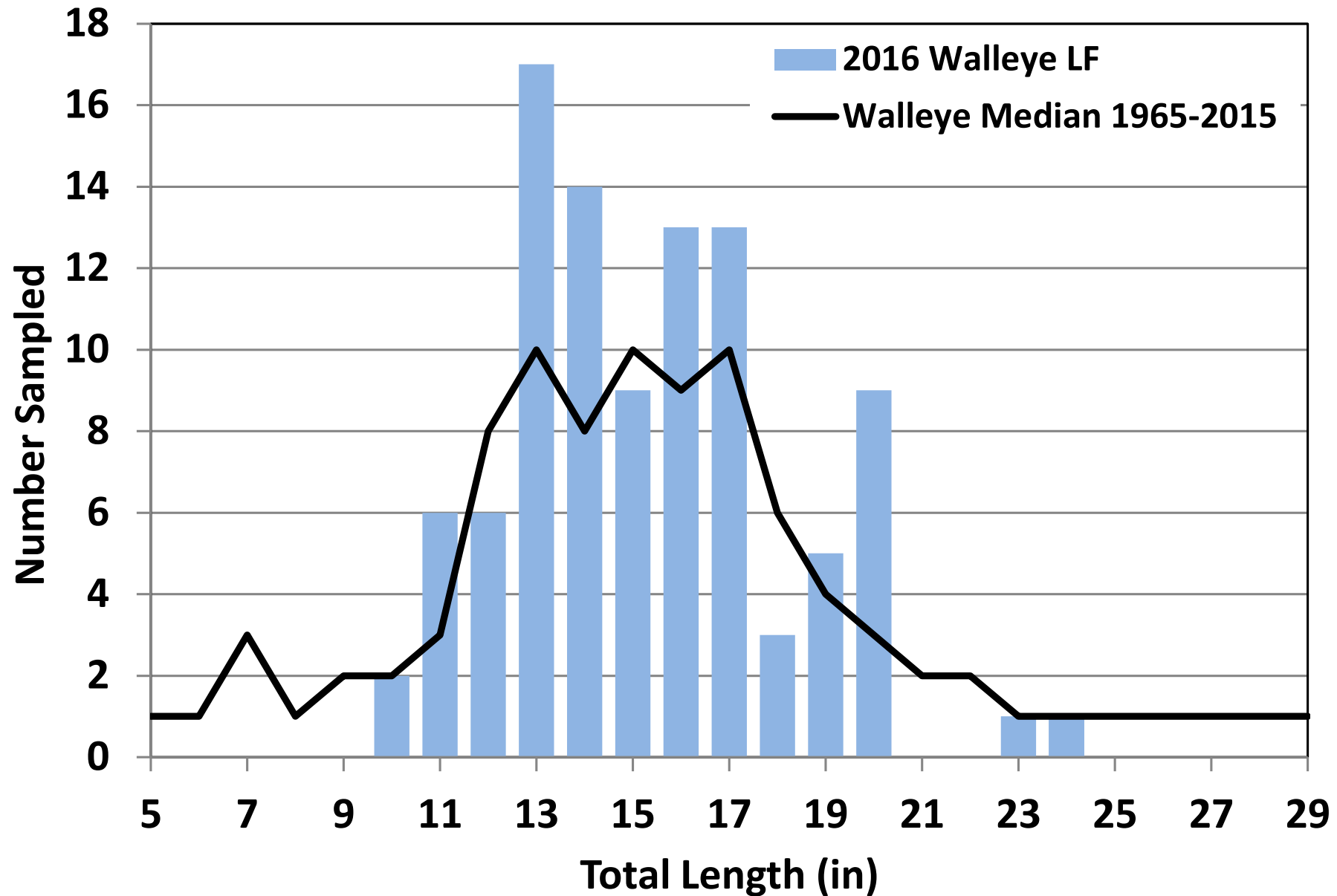
Lake Pepin Water Levels – 2016



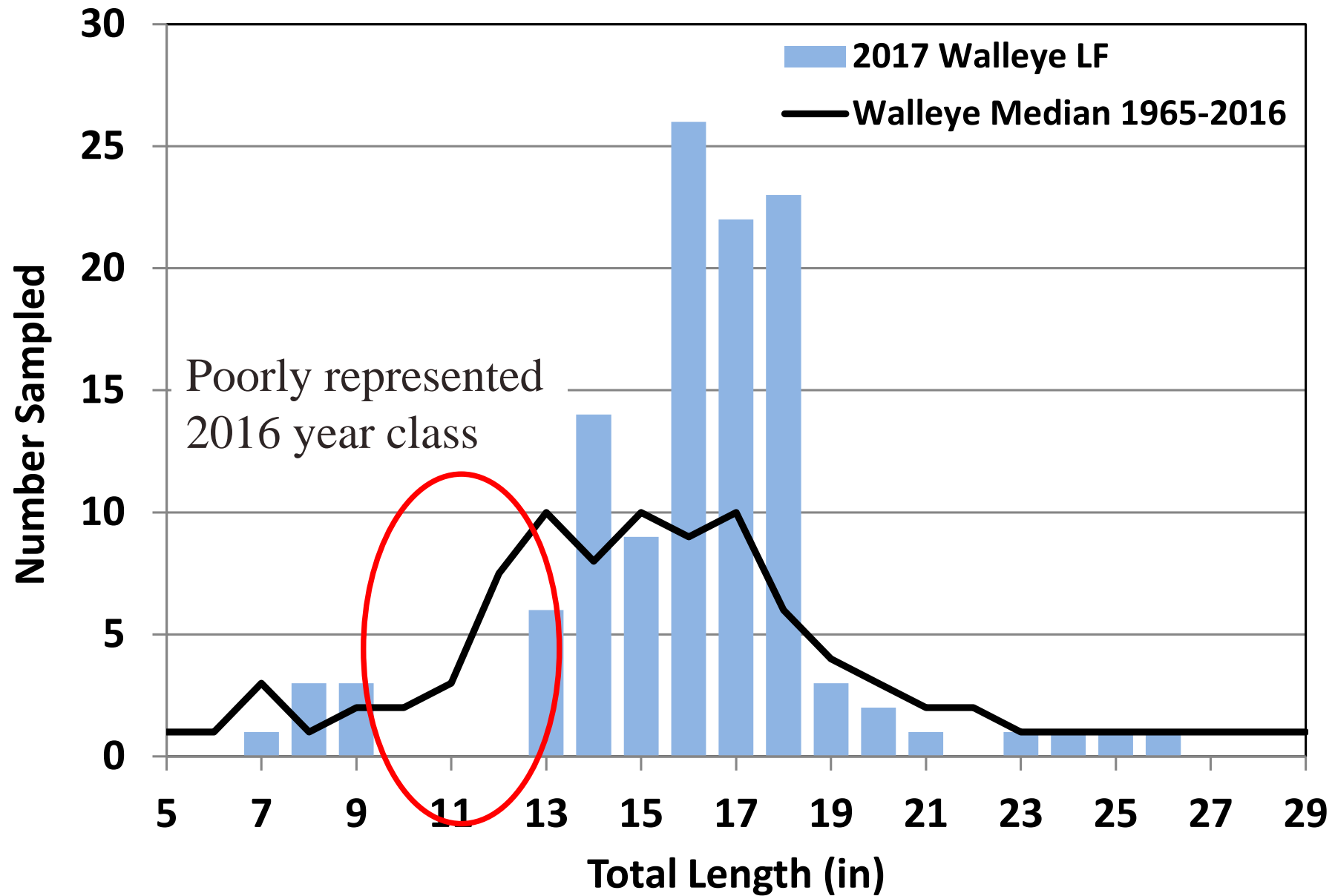
Lake Pepin Water Levels – 2017



2016 Walleye Length Frequency



2017 Walleye Length Frequency



Length Group	Sample size	Subsample size	Age											
			0	1	2	3	4	5	6	7	8	9	10	
5.0 - 5.9	0	0												
6.0 - 6.9	0	0												
7.0 - 7.9	1	1	1											
8.0 - 8.9	3	3	3											
9.0 - 9.9	3	3	3											
10.0 - 10.9	0	0												
11.0 - 11.9	0	0												
12.0 - 12.9	0	0												
13.0 - 13.9	6	6		5	1									
14.0 - 14.9	14	14		7	7									
15.0 - 15.9	9	9			9									
16.0 - 16.9	26	26			20	6								
17.0 - 17.9	22	22			19	3								
18.0 - 18.9	23	22			12	8	2	1						
19.0 - 19.9	3	3				2			1					
20.0 - 20.9	2	2				1								1
21.0 - 21.9	1	1				1								
22.0 - 22.9	0	0												
23.0 - 23.9	1	1						1						
24.0 - 24.9	1	1										1		
25.0 - 25.9	1	1										1		
26.0 - 26.9	1	1										1		
27.0 - 27.9	0	0												
Totals	117	116	7	12	68	21	2	2	1	0	3	0	1	
Percent			6.0	10.3	57.7	18.3	1.8	1.7	0.9	0.0	2.6	0.0	0.9	
	Mean Length (in)		8.9	14.1	16.8	18.2	18.5	20.6	19.2		25.5		20.1	
	Standard Deviation		0.61	0.44	1.22	1.29	0.36	3.37			1.19			
	Minimum Length (in)		7.9	13.3	13.6	16.3	18.2	18.3	19.2		24.5		20.1	
	Maximum Length (in)		9.7	14.8	18.7	21.3	18.7	23.0	19.2		26.8		20.1	

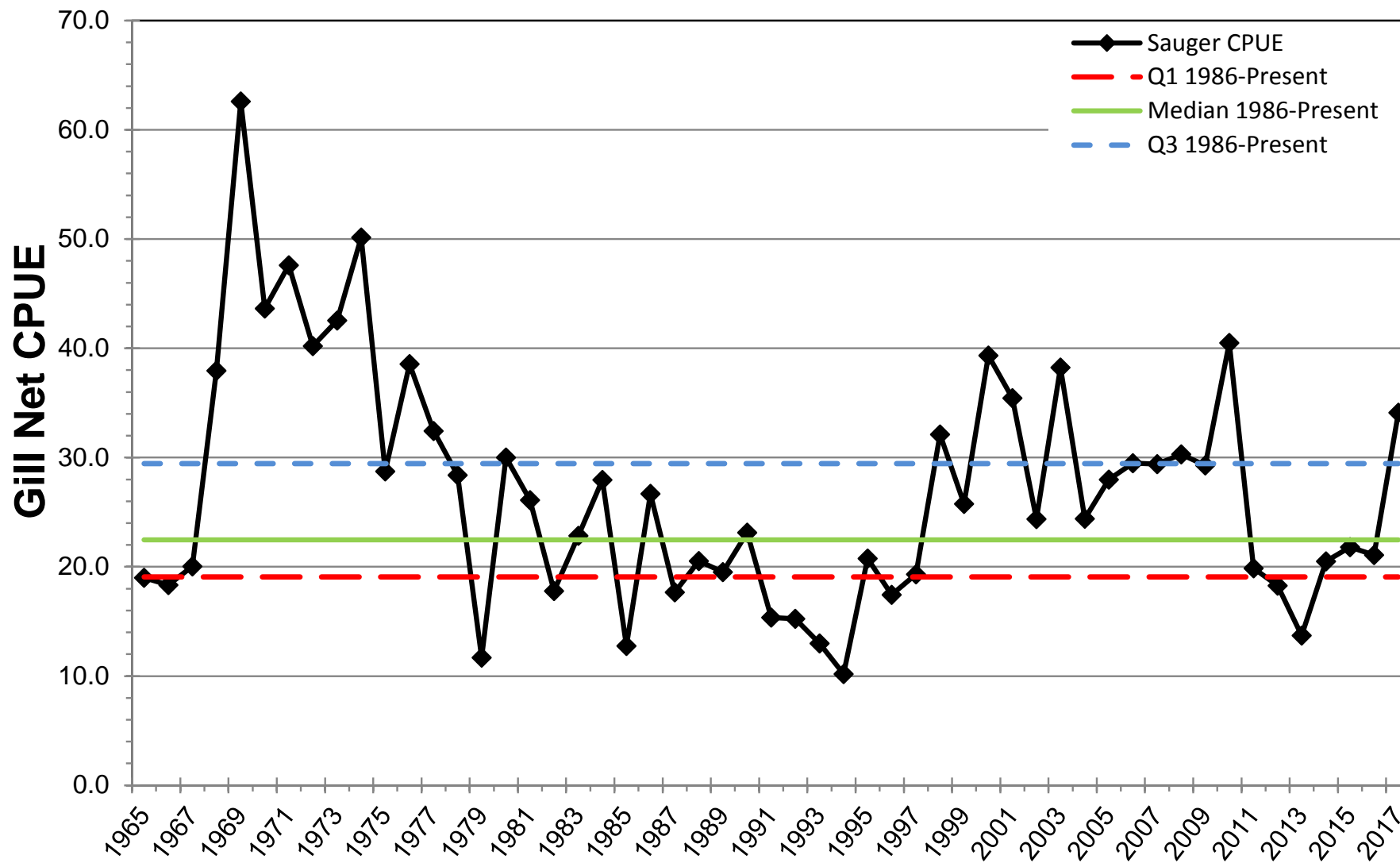
* Unable to age fish in this group.

Walleye Young-of-the-Year

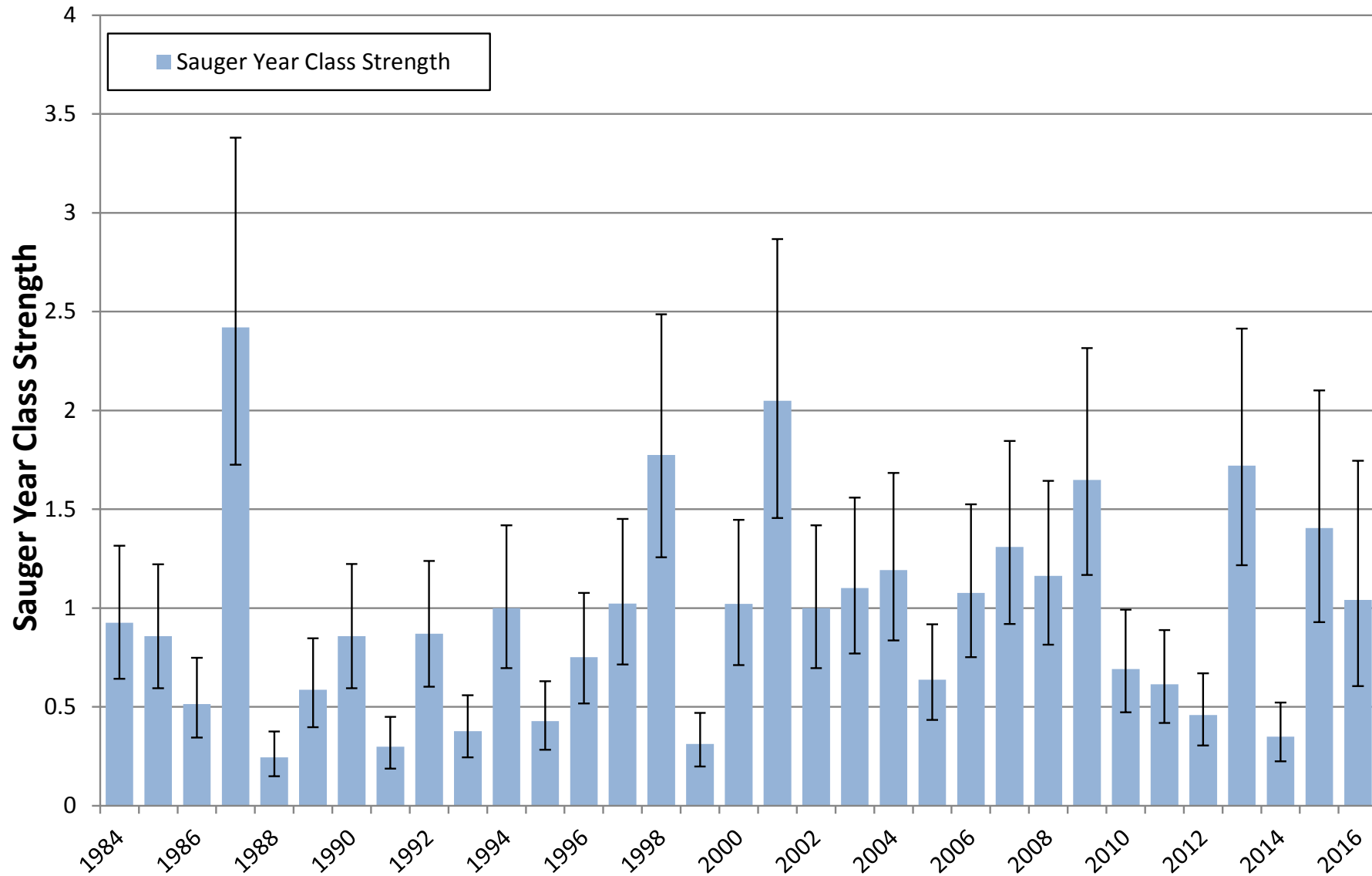


 Gear	Time of Year	Catch	Status
Trawl	August	13.2/hr	4 th highest
GN	October	0.29/net	0.35/net is a 5 year mean
Fall YOY EF	November	1.3/hr	2 nd Lowest

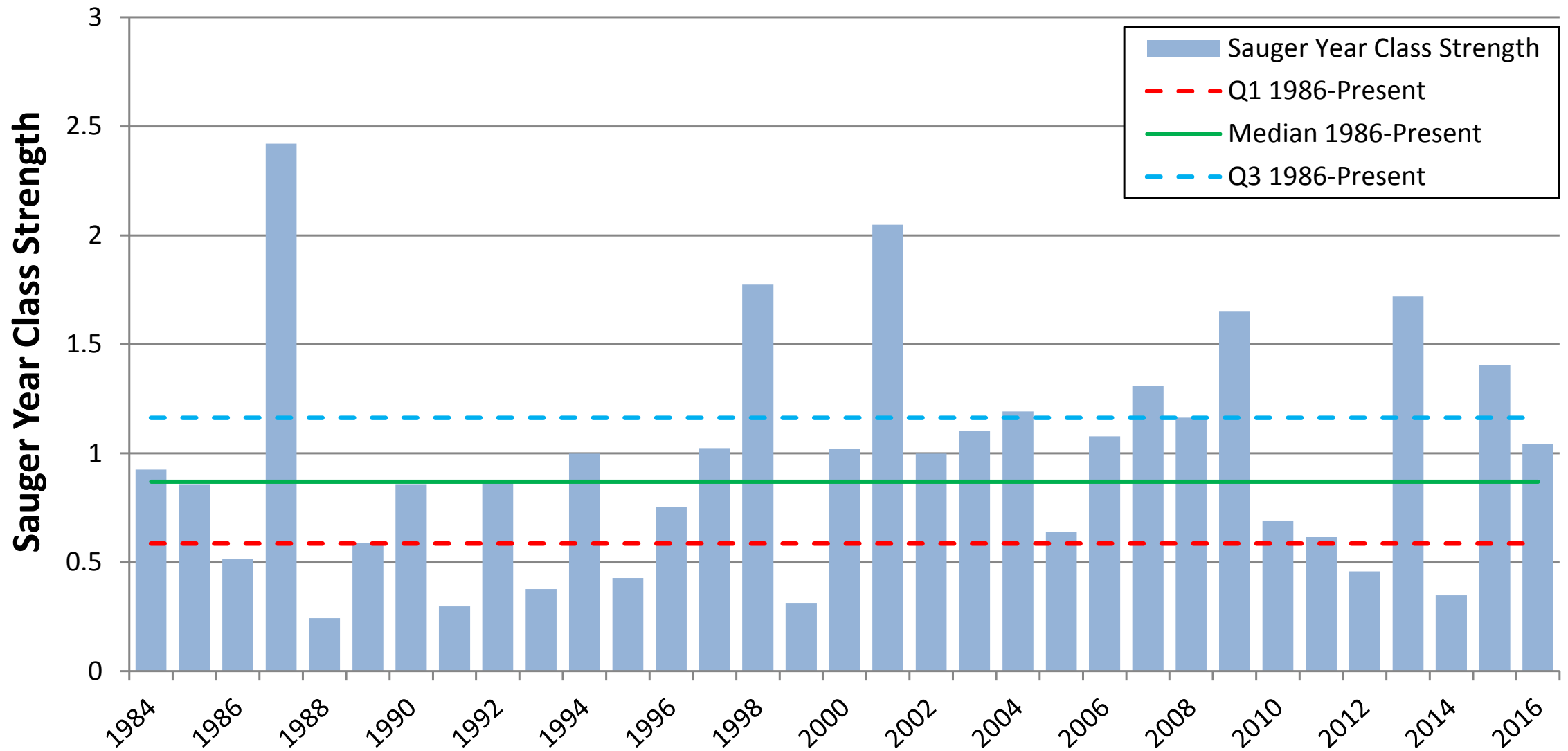
Sauger gillnet CPUE – 1965 -2017



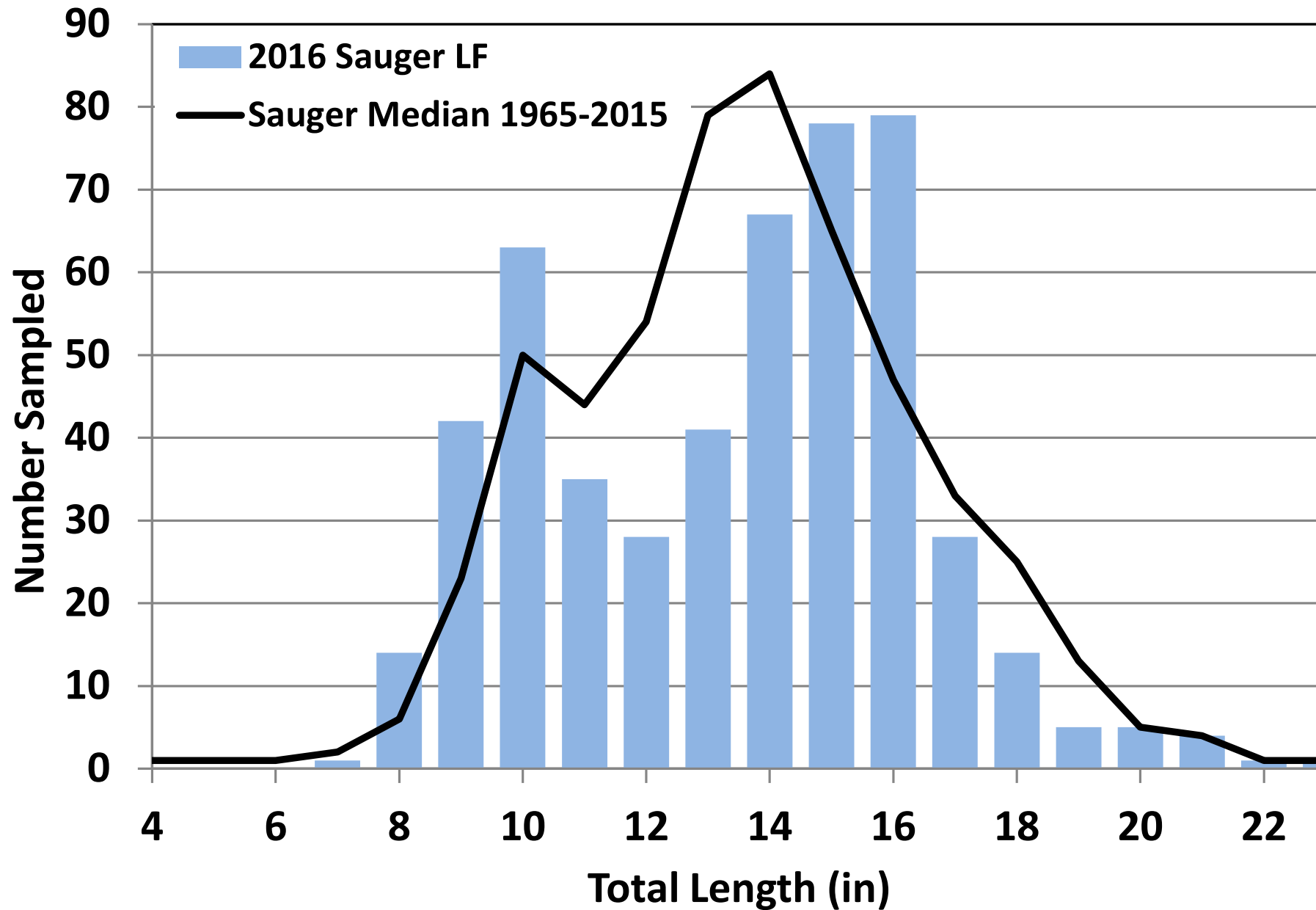
Sauger Year Class Strength Index



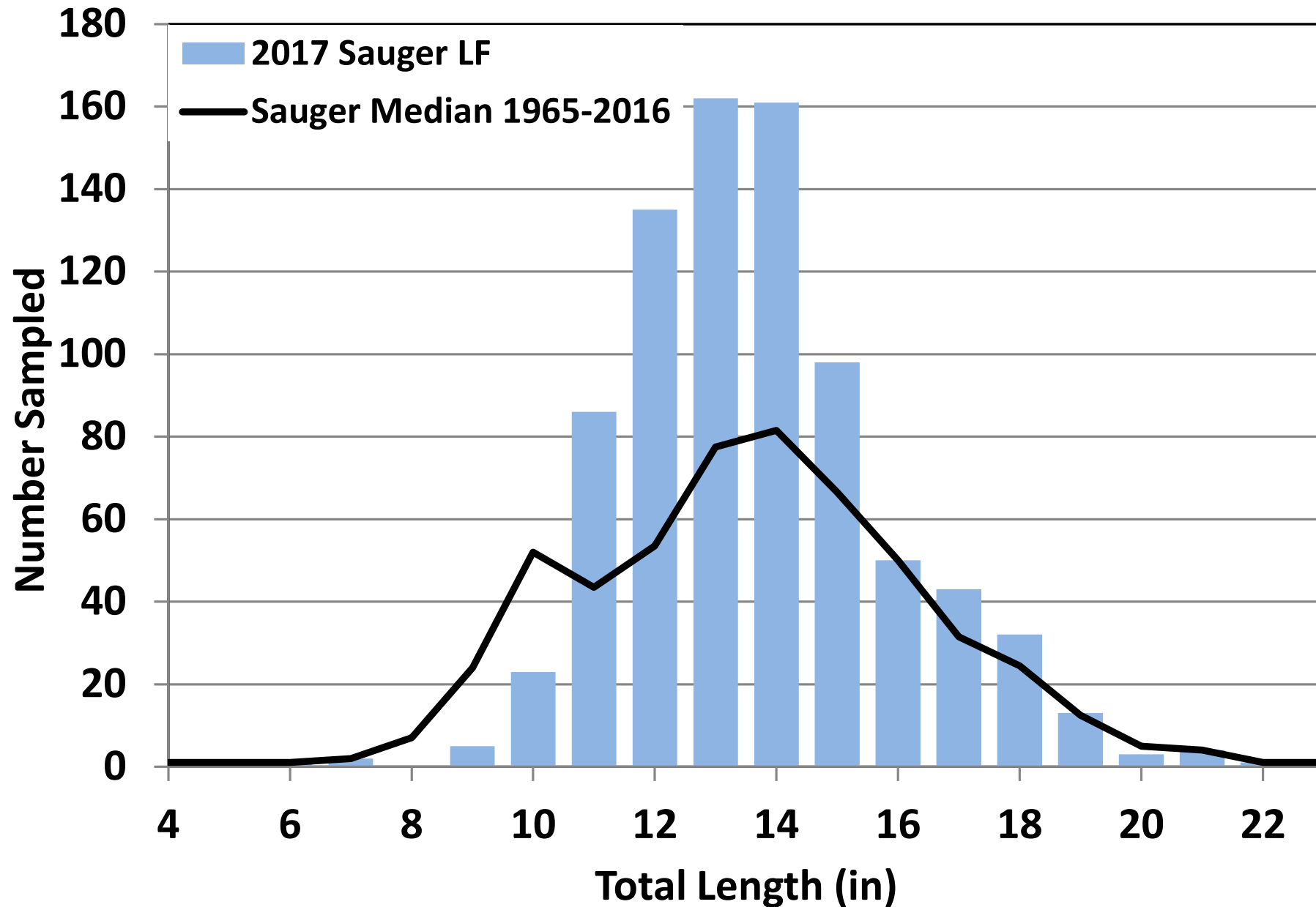
Sauger Year Class Strength Index with quartiles



2016 Sauger Length Frequency



2017 Sauger Length Frequency

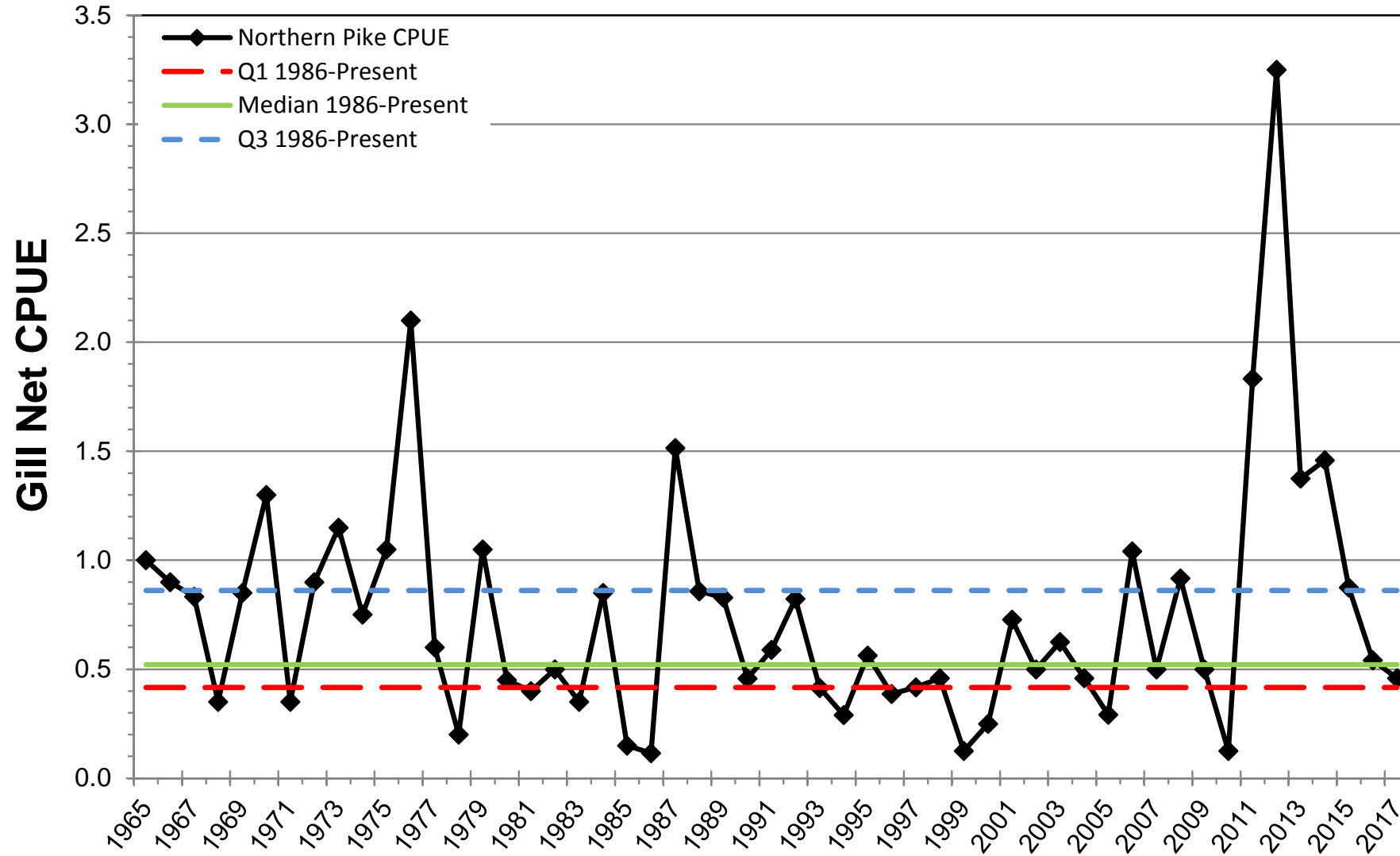


Length Group	Sample size	Subsample size	Age											
			0	1	2	3	4	5	6	7	8	9	10	
5.0 - 5.9	0	0												
6.0 - 6.9	1	1	1											
7.0 - 7.9	2	2	2											
8.0 - 8.9	0	0												
9.0 - 9.9	5	3		3	2									
10.0 - 10.9	23	22		19	4									
11.0 - 11.9	86	38		79	7									
12.0 - 12.9	135	29		61	74									
13.0 - 13.9	162	37		4	153	4								
14.0 - 14.9	161	33			156	5								
15.0 - 15.9	98	28			56	32	7	4						
16.0 - 16.9	50	34			4	15	29	1						
17.0 - 17.9	43	28				6	28	5	2	2			2	
18.0 - 18.9	32	32				1	17	4	3	4	3			
19.0 - 19.9	13	13					4	2	1	2	4			
20.0 - 20.9	3	3						3						
21.0 - 21.9	4	4								1	3			
22.0 - 22.9	1	1											1	
23.0 - 23.9	0	0												
Totals	819	308	3	166	457	63	85	19	6	9	10	3	0	
Percent			0.4	20.3	55.8	7.6	10.4	2.3	0.7	1.0	1.2	0.3	0.0	
	Mean Length (in)		7.1	11.4	13.9	16.3	17.5	18.5	18.4	19.2	19.8	19.9		
	Standard Deviation		0.88	0.71	1.26	0.96	0.98	1.57	0.76	1.24	1.21	3.15		
	Minimum Length (in)		6.1	9.8	9.8	13.9	15.5	15.4	17.3	17.4	18.1	17.6		
	Maximum Length (in)		7.7	13.1	17.0	18.1	19.5	20.7	19.4	21.7	21.9	22.1		

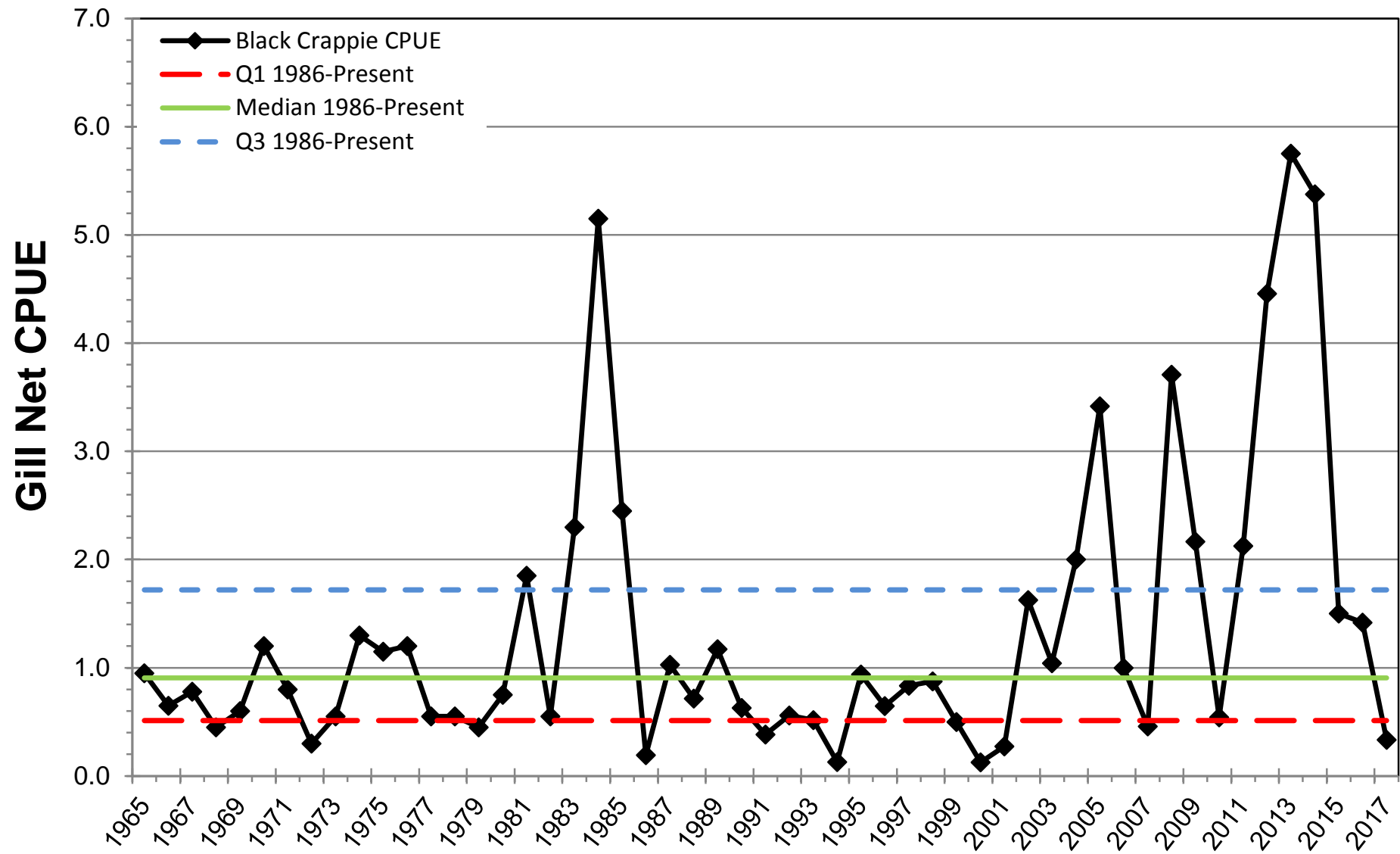
Sauger Young of the Year

Gear	Time of Year	Catch	Status
Trawl	August	16.0/hr	2.5 times the Long Term Mean
GN	October	0.13/net	0.07/net is a 5 year mean
Fall YOY EF	November	2.6/hr	Lowest ever

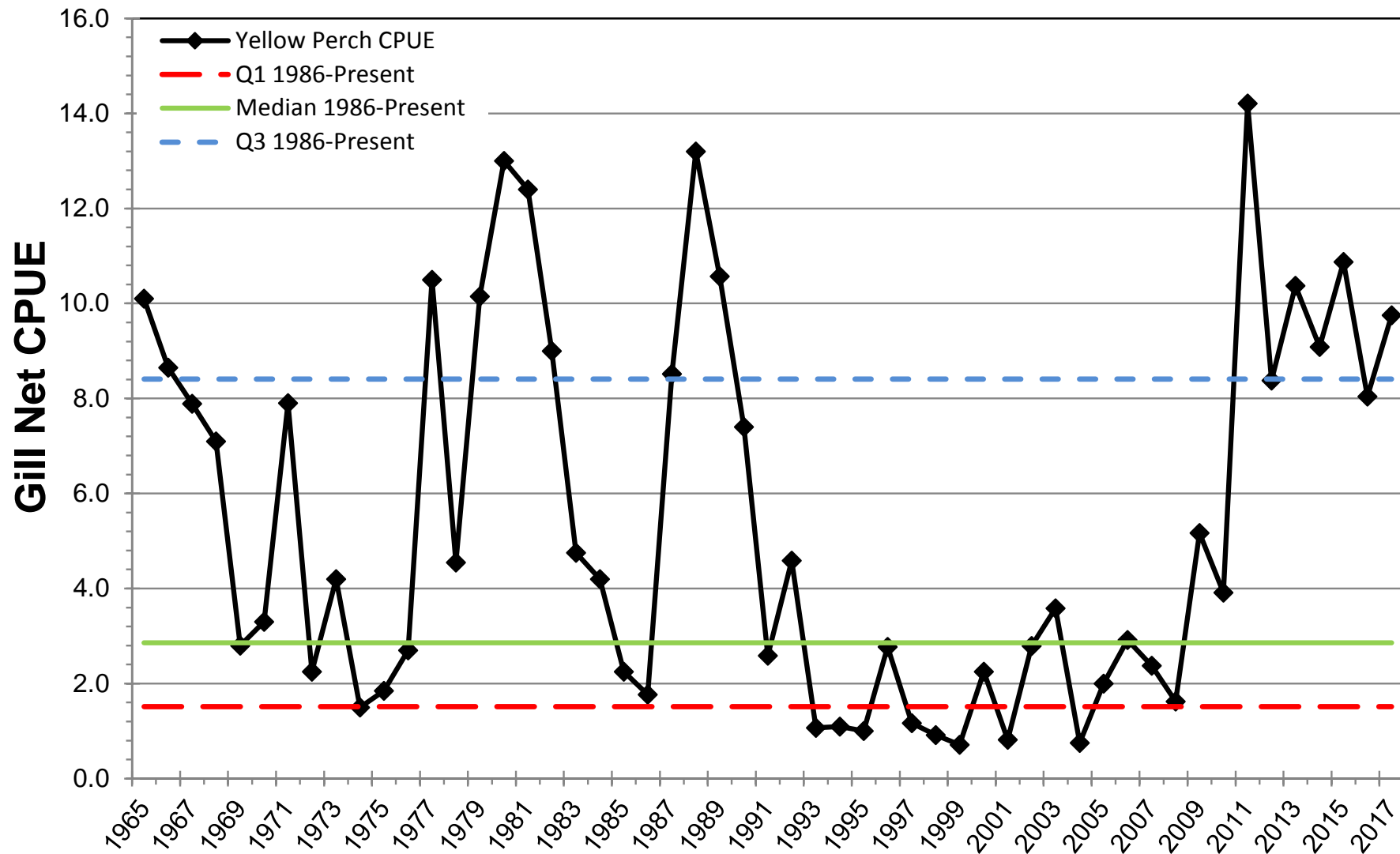
Northern Pike CPUE



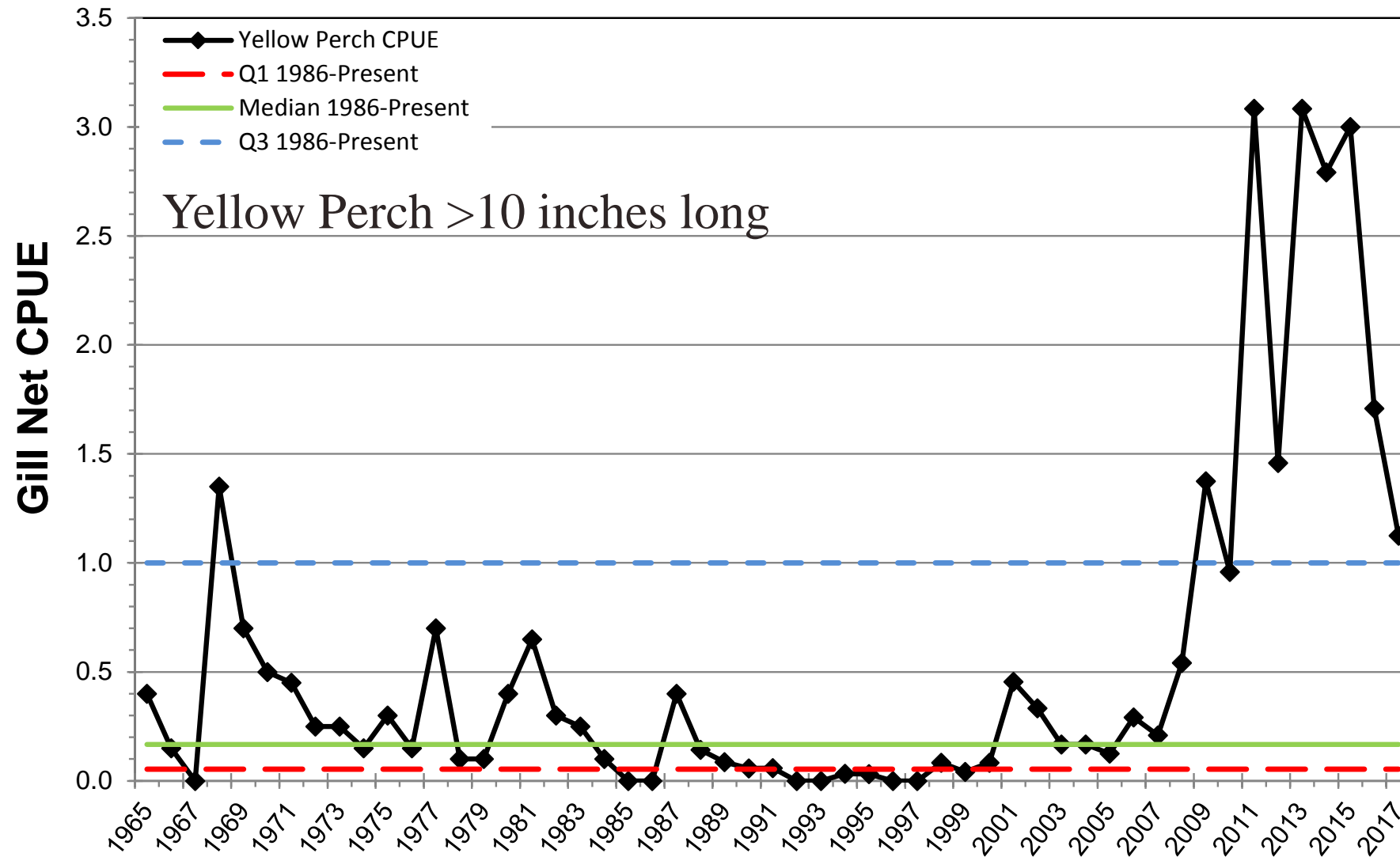
Black Crappie CPUE



Yellow Perch (all sizes) CPUE



Yellow Perch (>10 inches) CPUE





Group Questions List

- 1. What's the status on closing the commercial fishing in the hot months?**
- 2. The pike, bass and panfish populations have been at high levels for the last few years. Are they starting to show up in more “normal” levels?**
- 3. We're seeing a jump in the gizzard shad populations this year. What is the cause of this?**
- 4. Are large female Walleyes good spawners?**

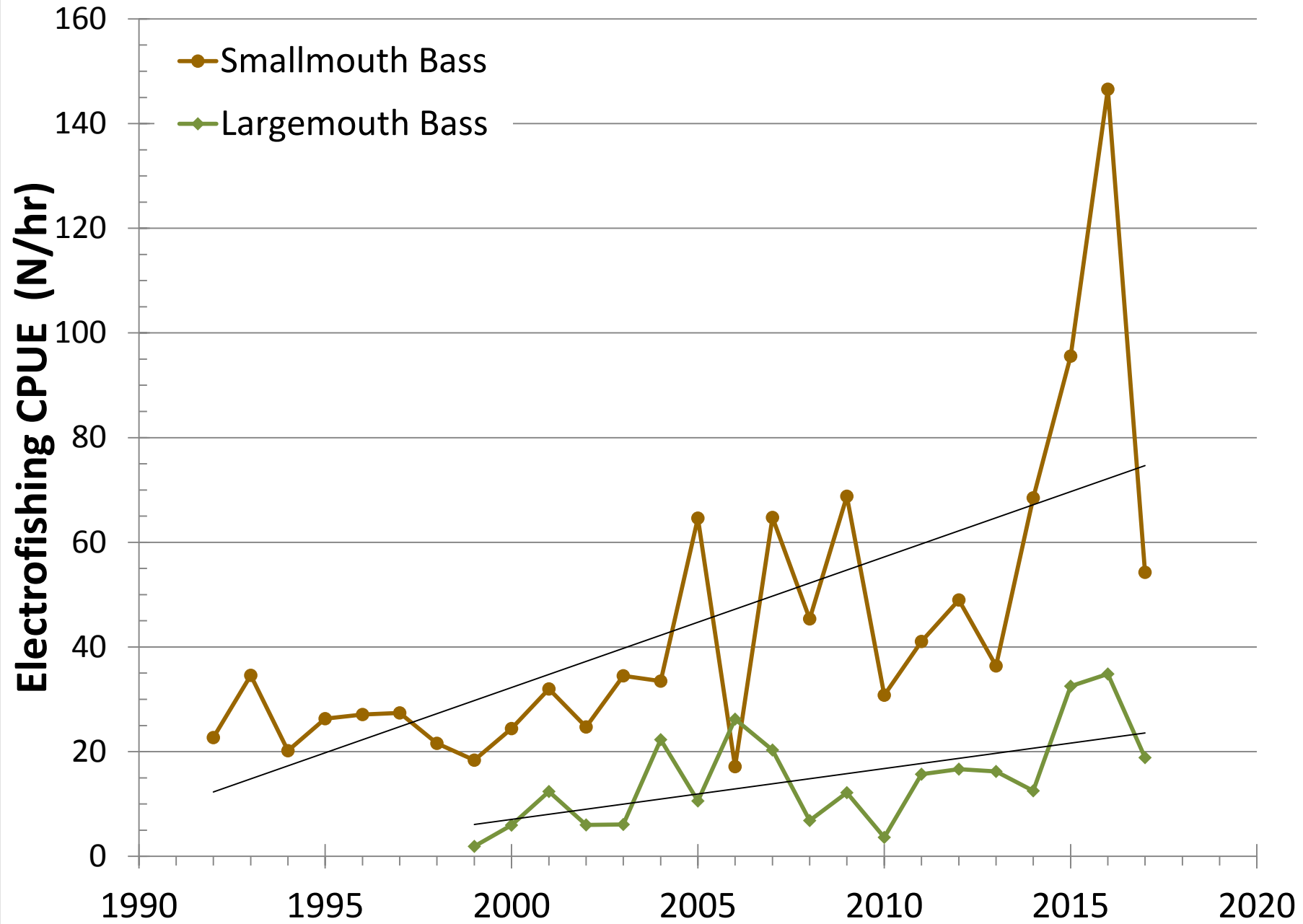
Commercial Fishery Question

1. **What's the status on closing the commercial fishery in the hot months?**
 - **MN DNR and WI DNR closed Lake Pepin to commercial fishing with gillnets after the 2015 Paddlefish and Lake Sturgeon kill event in July.**
 - **MN DNR maintains the power to close areas to commercial fishing if we deem it detrimental to game fish or commercial fish populations.**
 - **Commercial operators are required to contact our office prior to fishing, and if we have concerns about an area they plan to operate in we can tell them not to fish there.**

Pike, Bass, and Panfish Populations

2. The pike, bass, and panfish populations have been at an unbelievable high mostly from the flooding a few years back. Are they starting to show up in more “normal” levels?
- Much of the increase in numbers for these species is linked to clearer water conditions and the resulting vegetation these species rely on for spawning, foraging, or nursery habitat
 - Northern Pike numbers in the gill nets have come down to near the long term average
 - Bluegill, Black Crappie, and Yellow Perch were observed in relatively high numbers in 2017 particularly at sizes just under those sought by anglers. Barring changes 2018-2019 should provide good numbers of these species.
 - Bass sampling difficult in the last few years due to fall/winter floods.

Smallmouth and Largemouth Bass Fall Electrofishing CPUE



Gizzard Shad Population

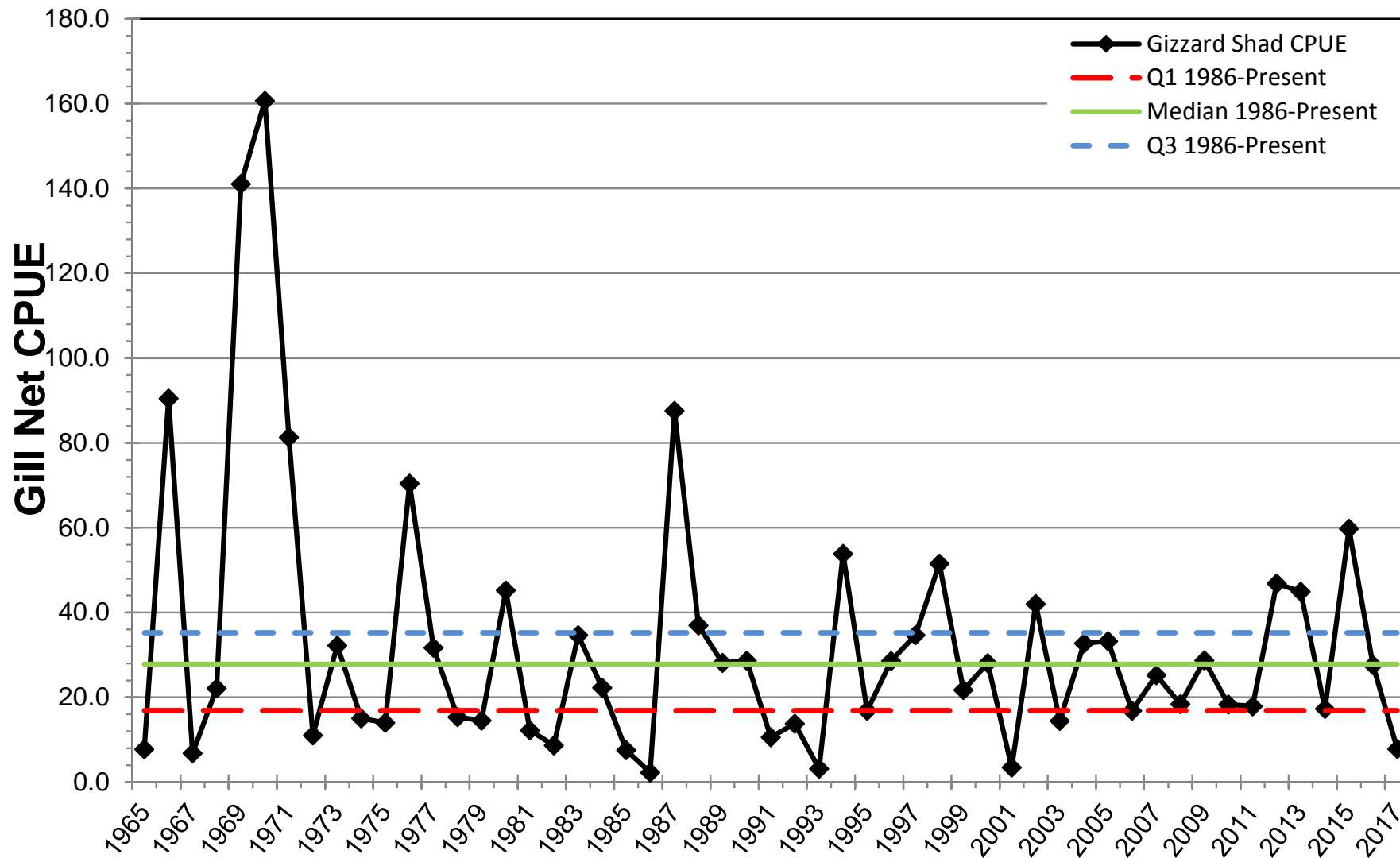
3. We're seeing a jump in the gizzard shad populations this year. What is the cause of this?
- Gizzard Shad in Pool 4 appear to have been unevenly distributed in 2017 (particularly in the fall)
 - Extraordinarily high numbers in upper Pool 4 and the Cannon River, but relatively few in lower Pepin
 - Likely driven by the past two mild winters that allowed a build up of spawners due to unusual overwinter survival for the species
 - Despite 4 week long fish kill in early April on Pepin that killed MANY 8"-10" Gizzard Shad
 - These 1-2 year old fish were mature in 2017 and provided a large spawning group for this season

Gizzard Shad Fish Kill, Lake Pepin Harbor, April 2017

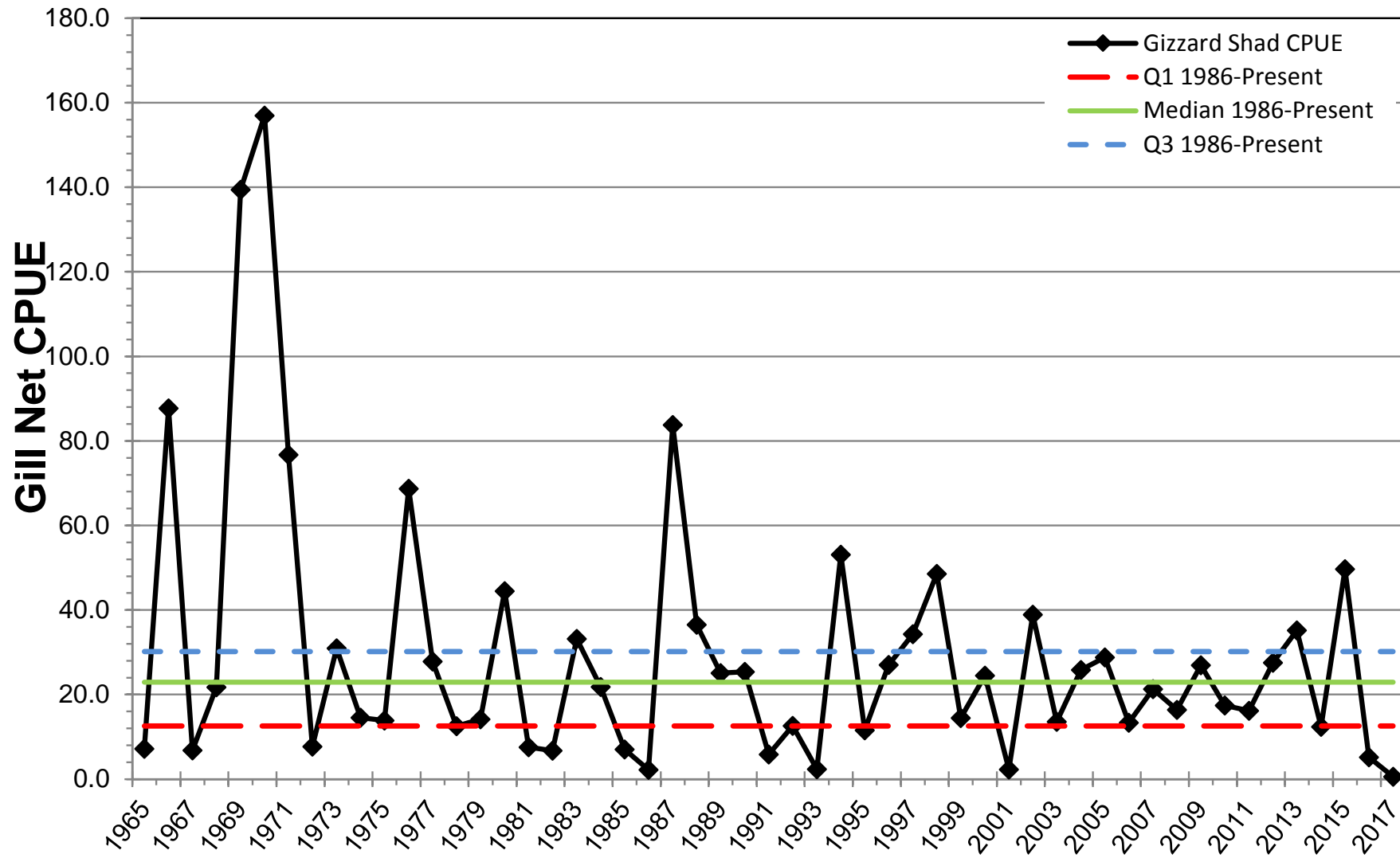


- **First noted March 21st 2017**
- **Almost entirely Gizzard Shad**
- **Lasted for approximately 4 weeks**
- **Fish collected in areas around the lake depending on wind direction**
- **Fish collected and sent to the Path Lab showed no sign of viral or bacterial infection**

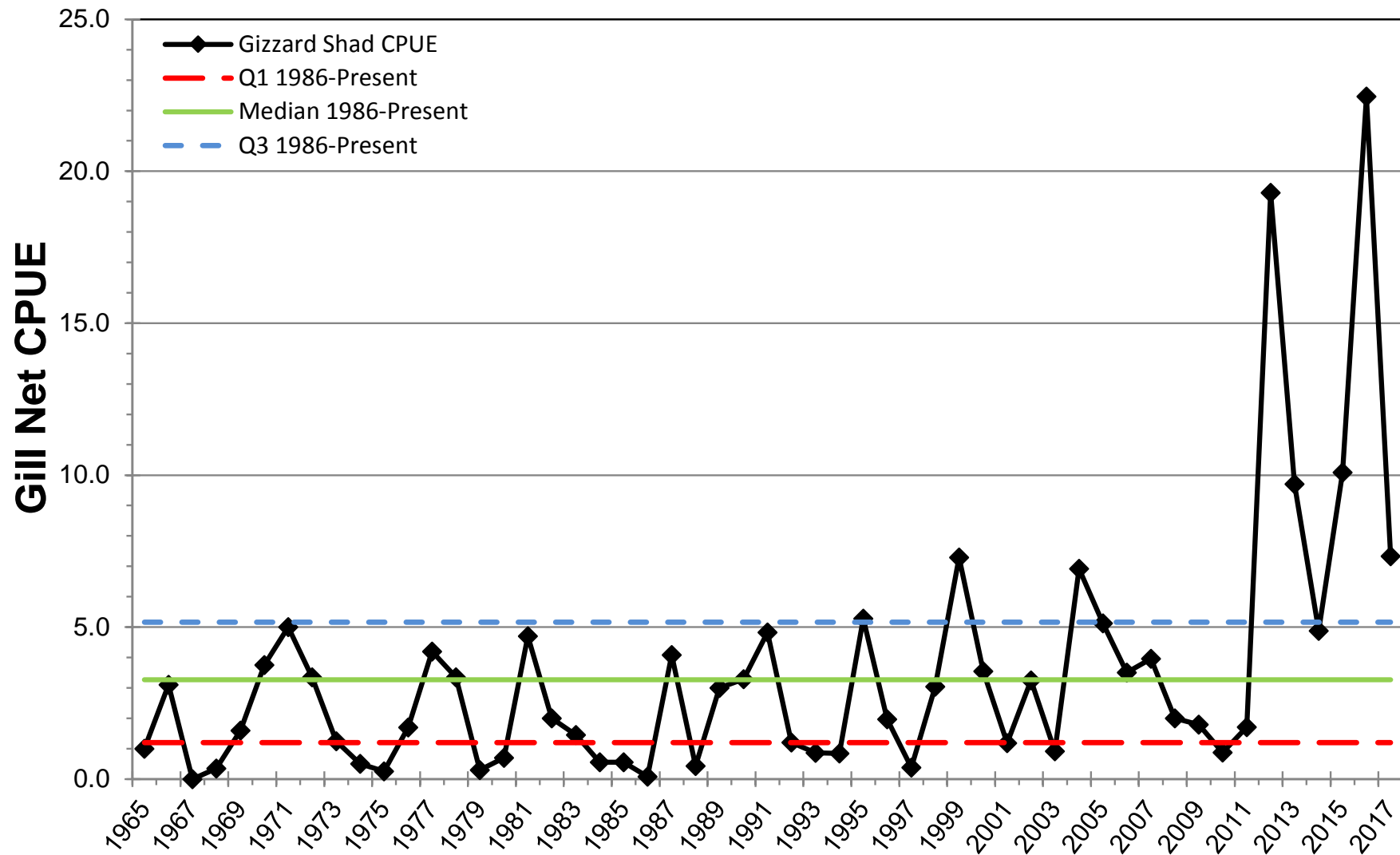
Gizzard Shad (all sizes) CPUE



Gizzard Shad (<7 inches (YOY)) CPUE



Gizzard Shad (>7 inches (Spawning Adults))



Female Walleye Size and Spawning

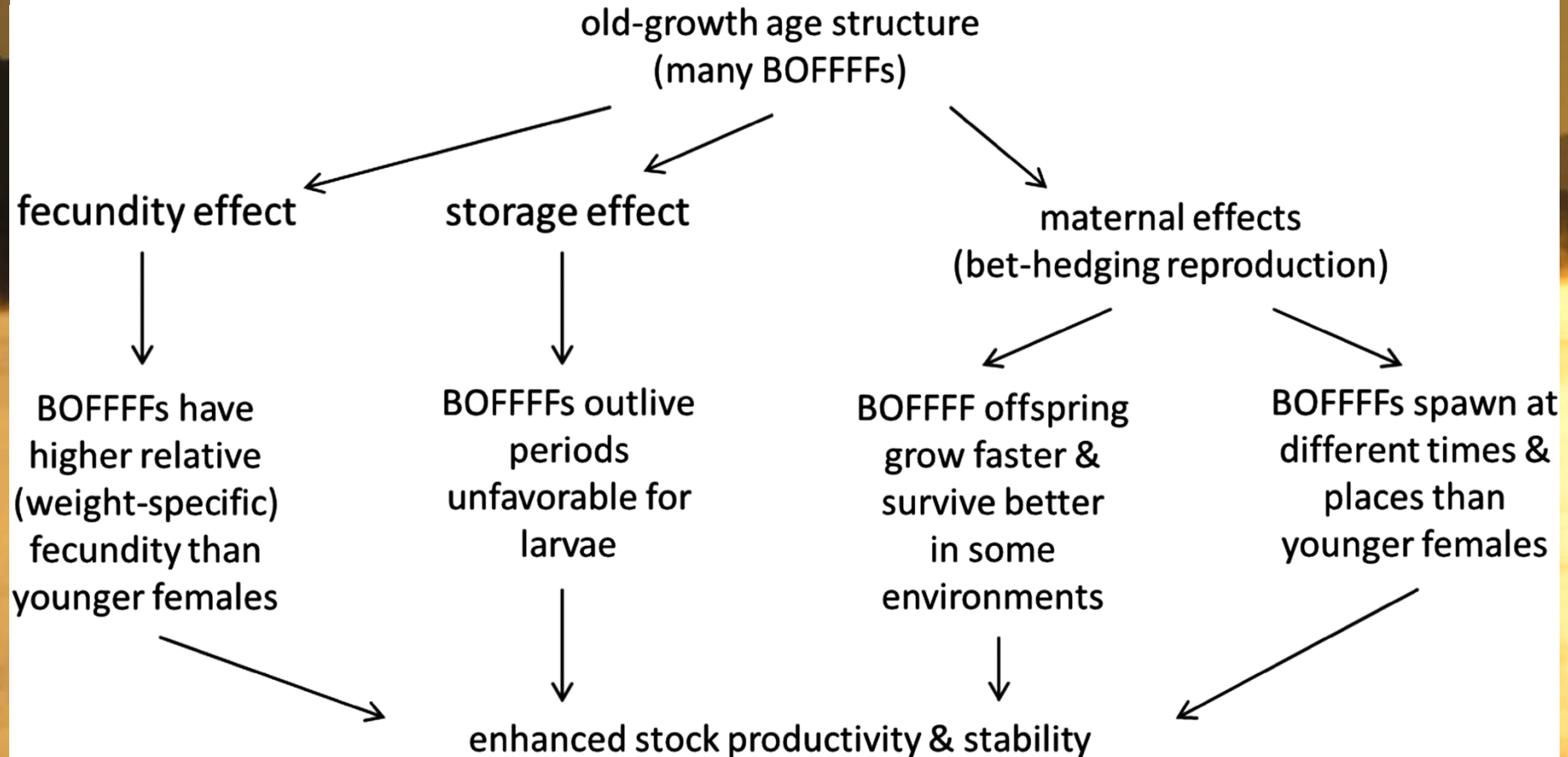
4. Are large female Walleyes worse spawners than smaller females?

- Previous research indicated that hatching rates for larger fish may decrease with size/age, BUT higher total numbers of eggs and proven genetics make large spawners valuable contributors
- Hatchery run by Exelon in IL will attempt to evaluate this spring for Mississippi R. Walleye by jarring eggs from individual fish
- “Maternal age appears to be one of the more important maternal traits influencing early life survival in fishes, including walleye.” (Johnston et al. 2007)
- **Large females can provide numerous other benefits to a population**

BOFFFFs: on the importance of conserving old-growth age structure in fishery populations
ICES J Mar Sci. 2013;71(8):2171-2185. doi:10.1093/icesjms/fst200

BOFFFF Conceptual Diagram

BOFFFF = Big Old Fat Fecund Female Fish



Hixon et al. BOFFFFs: on the importance of conserving old-growth age structure in fishery populations ICES J Mar Sci. 2013;71(8):2171-2185.



Questions?

Contact Information
for

Follow-up Questions:

Nick Schlessor

Large Lake Specialist

1801 S Oak St

Lake City, MN 55041

nicholas.Schlessor@state.mn.us

(651) 345-3365 ext 235