2015 Lake Winnebago Bottom Trawling Assessment Report

Adam Nickel, Winnebago System Gamefish Biologist, January 2016

Another year has gone by and the 2015 Winnebago bottom trawling assessment results have now been entered and summarized. Over 20 volunteers (a mix of new and veteran) boarded the Calumet in 2015 and the survey could not have been completed without their dedicated help. The bottom trawl assessment is the most critical fisheries assessment conducted on the Winnebago System and data collected are instrumental in guiding fisheries management on the Winnebago System. The objectives of the trawling assessment are 1) provide critical information on year class strength of game and nongame fish species, 2) monitor trends in the forage base , and 3) monitor general population trends.

The same 46 GPS waypoints have been sampled annually during the first week of August, September, and October using standardized methods dating back to 1986. The standardized methods involve dragging the trawl net along the bottom for 5 minutes at 4 miles per hour that equates to about a 1 acre sample area. The sampling gear does capture a fair amount of adult fish, but it is most effective at catching small fishes (young of year (YOY) and yearlings) so this report will primarily focus on catch rates of YOY fish. In total, there were 17 different fish species sampled including freshwater drum, walleye, sauger, lake sturgeon, white bass, yellow perch, black crappie, channel catfish, trout perch, gizzard shad, burbot, bigmouth buffalo, common carp, white sucker, quillback, emerald shiner, and bullhead.

Trawling crew holding up some fish sampled during the October survey. Crew in the photo include DNR fisheries staff Ryan Zernzach (center) and Jake Richter (left) with a host of local volunteers including Dewey Haviland, Rick Schuchart, Michael Arrowood, Stacy Frakes, and Emily Christenson.

Walleye

The 2015 catch rate of YOY walleye was 1.4/trawl (Figure 1). Although this catch rate was slightly higher than in 2014 (0.4/trawl), it still indicates a weaker 2015 walleye year class relative to historic data. The weak year class can likely be attributed to the low spring water levels observed on the Wolf and upper Fox Rivers that could be attributed to a lack of snowmelt and spring rain events. Many of the walleye spawning marshes did not have enough water to provide access to suitable habitat, while also providing adequate flows to keep eggs well aerated and flush out newly hatched fry. Without these components walleyes are forced to spawn on less suitable habitat that often results in a poor walleye hatch.

Weak year classes are not uncommon in walleye fisheries and represent the balancing act that takes place in Mother Nature on an annual basis. Although the Winnebago System experienced weak walleye year classes in 2014 and 2015, strong year classes from 2008 and 2011 continue to drive a robust walleye fishery. In addition, the 2013 year class was the third strongest on record and will soon contribute to the fishery. However, it should be noted that the 2013 year class has exhibited slower growth, averaging approximately 12.0 inches during the October trawling survey. On average a 3 year old male walleye in the Winnebago System is 14.9 inches and female is 16.9 inches. The slower growth can likely be attributed to below average forage base levels in 2013-2015. Despite having slower growth rates about 99% of males should make their first spawning run in the spring of 2016 and the majority of females will become mature in the next 1-2 years. Therefore, the 2013 year class is poised to contribute to the spawning population and fishery in the very near future.

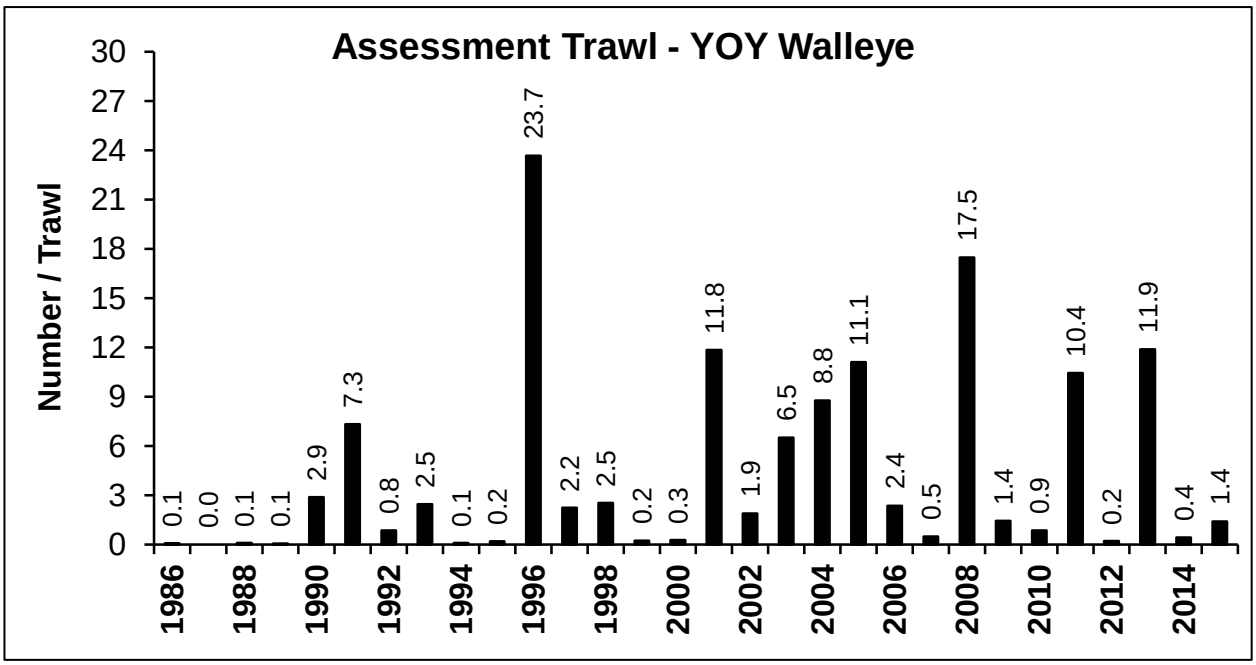

Figure 1. Average number of YOY walleye/trawl in Lake Winnebago from 1986-2015.

Sauger

One surprise from the 2015 trawling survey was the presence of YOY sauger. A sauger rehabilitation program that aimed to rebuild the Lake Winnebago adult sauger population and create a self-sustaining, naturally reproducing population was conducted on Lake Winnebago from 2001-2010. The program was largely conducted by dedicated local volunteers from Walleyes for Tomorrow and the Otter Street Fishing Club. The program included the installation of rock reefs on the north end of the lake to bolster sauger spawning habitat. Spawn from adult fish was also collected annually resulting in the stocking of 7,998,000 fry, 10,000 fingerlings, and 6,576 extended growth fingerling sauger in Lake Winnebago from 2001-2010.

During stocking years, the number of YOY sauger sampled during annual trawl surveys increased, indicating that fry survival was adequate enough for there to be recruitment to the YOY stage (Figure 2). The stocking program also appeared to be successful in rebuilding adult sauger numbers as the average number of adult sauger increased from 0.24/trawl in 2001 to 2.49/trawl in 2010 (Figure 3). Stocking ceased in 2010 to allow for a 5 year evaluation period by monitoring hatch strength observed via bottom trawl surveys. From 2011-2014 only 2 YOY sauger were sampled indicating limited natural recruitment. However, 10 YOY sauger were captured in 2015 (0.07/trawl) marking the highest catch rate since stocking was halted in 2010. Although the presence of YOY sauger indicate that some natural reproduction is occurring it should be noted that the 2015 catch rate is considered low and will likely still result in a weak year class. Continuing to track YOY sauger abundance during future annual trawling surveys will be important for evaluating trends in natural reproduction and verifying if the increase noted in 2015 is an anomaly or a trend that could continue in future years.

Image of two YOY sauger that were captured during the 2015 Lake Winnebago trawling assessment.

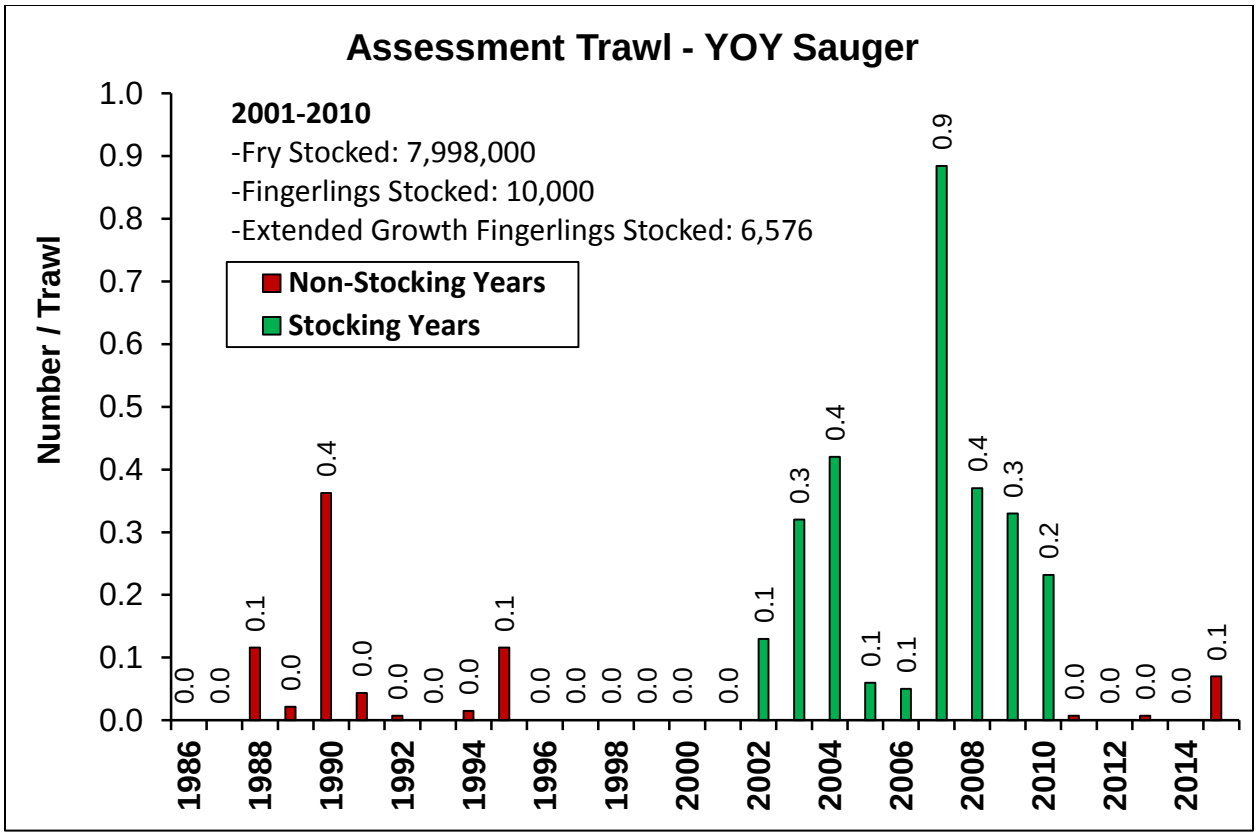

Figure 2. Average number of YOY sauger/trawl in Lake Winnebago from 1986-2015 with red bars indicating years that stocking did not occur and green bars indicating years when stocking was conducted.

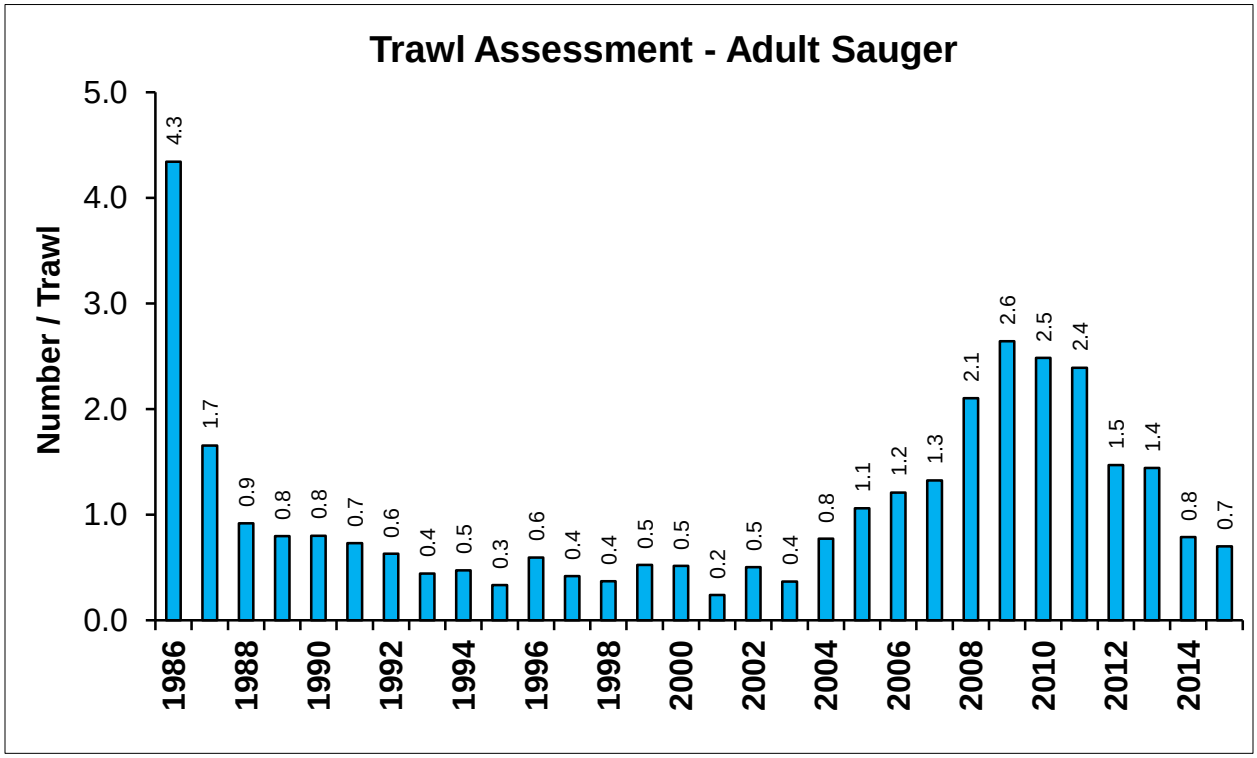

Figure 3. Average number of adult sauger/trawl in Lake Winnebago from 1986-2015.

Yellow Perch

The 2015 YOY yellow perch catch averaged 0.7/trawl. Although the 2015 average was greater than the 0.1/trawl average noted in 2014, both are considered weak year classes based on historical trawl data (Figure 4). In fact, 2011 was the last strong yellow perch year class (5.7/trawl) noted during trawling surveys. Anglers reported catching nice sized (9-11 inches) yellow perch over the past summer; however, reports also indicated that they were difficult to catch on a consistent basis. The trend of difficult yellow perch fishing will likely continue in 2016, largely due to the lack of strong year classes since 2011. Stay tuned for a more detailed yellow perch update from Ryan Koenigs.

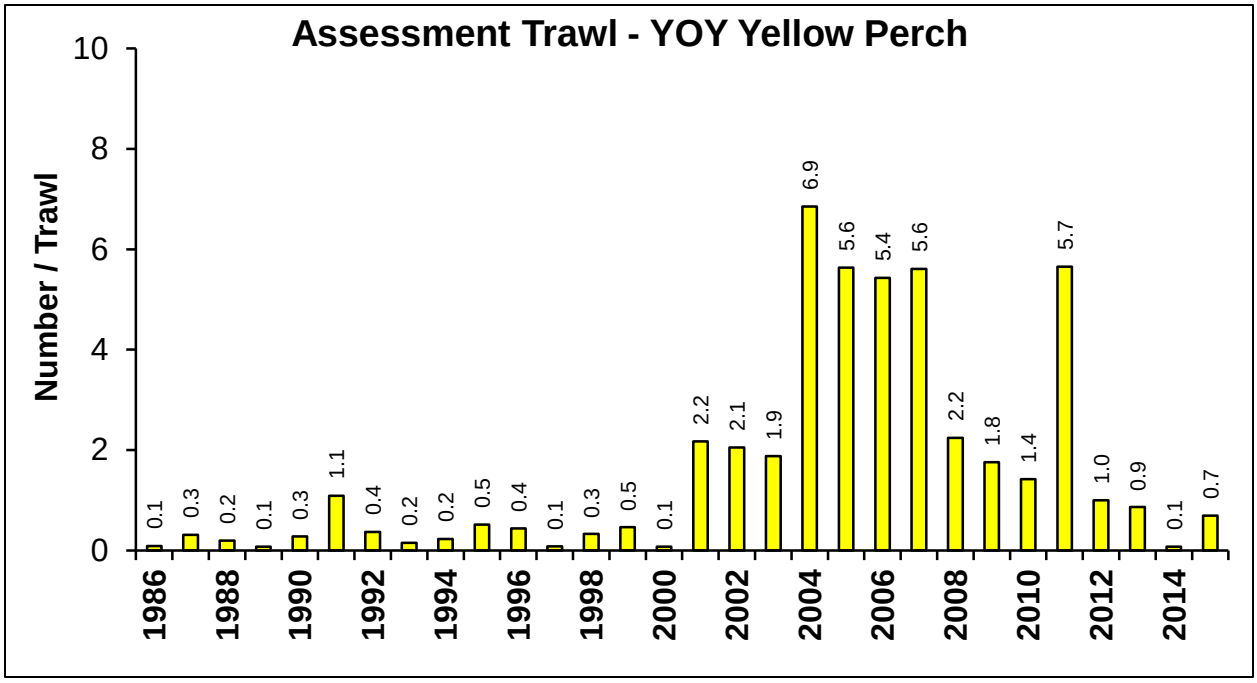

Figure 4. Average number of YOY yellow perch/trawl in Lake Winnebago from 1986-2015.

Black Crappie

The black crappie YOY catch averaged 1.4/trawl in 2015, which is slightly lower than the historical average of 2.2/trawl (Figure 5). Therefore, the weak 2015 black crappie year class will likely not be a large contributor to the adult crappie population. The strong black crappie year classes from 2009 and 2010 (the two highest on record) continue to dominate the adult population and provide good fishing opportunities, particularly during the spring when fish are concentrated near suitable spawning habitat. However, these dominant year classes will begin to fade out of the adult population in the next few years, so this spring might be as good of time as ever to target some slab crappies. For now, only time will tell when the next strong black crappie year classes will appear.

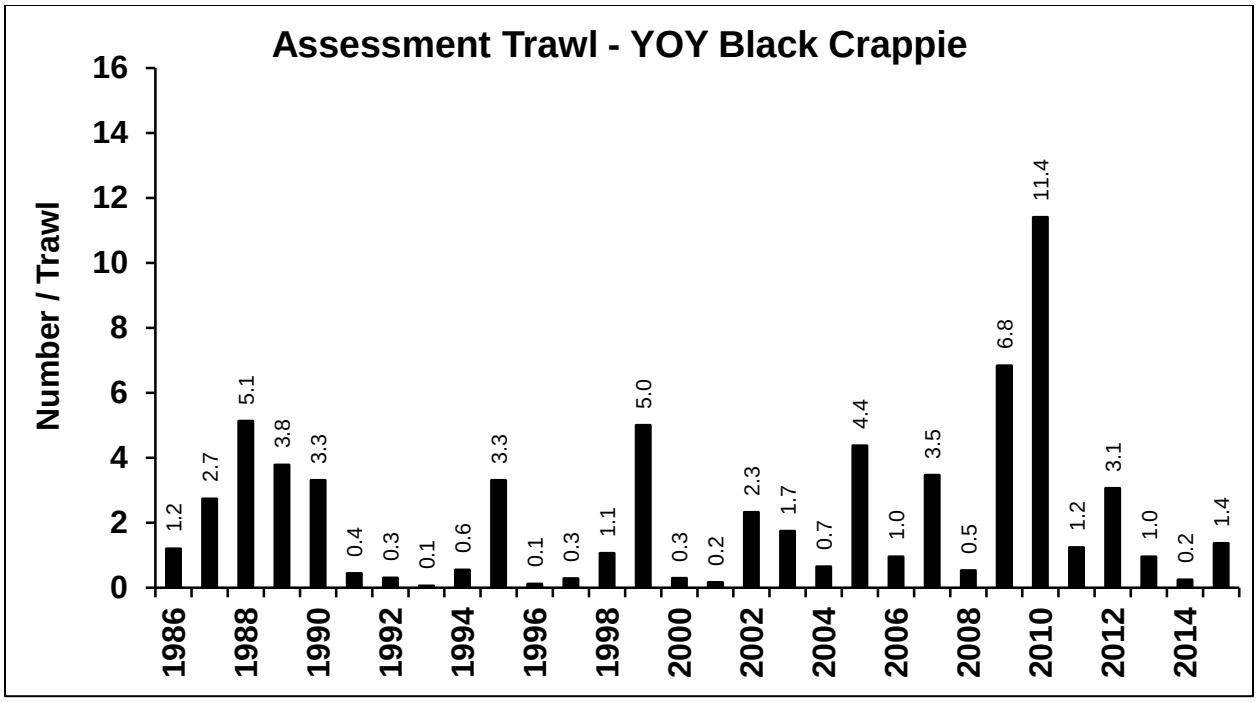

Figure 5. Average number of YOY black crappie/trawl in Lake Winnebago from 1986-2015.

White Bass

White bass have historically been a dominant species sampled in bottom trawl surveys averaging 33.3/trawl since 1986 (Figure 6). However, the average number of YOY white bass sampled in 2013 and 2014 was below average and 2015 also registered as a below average year at 4.3/trawl. The strong 2011 year class (2nd largest on record; averaged 102.4/trawl) and above average 2012 year class continue to drive the fishery and provide good angling opportunities. However, similar to the black crappie population, these strong year classes will begin to fade from the population so 2016 could be the year to search for some white bass through the ice or during the open water season.

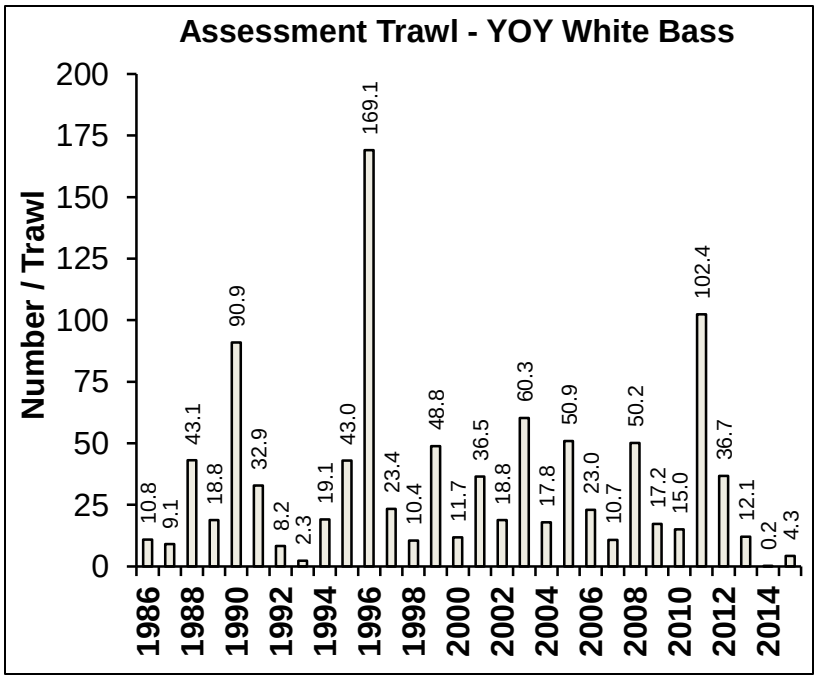

Figure 6. Average number of YOY white bass/trawl in Lake Winnebago from 1986-2015.

Forage Fish Species

Similar to 2013 and 2014, trout perch were the dominant forage fish species captured during the 2015 bottom trawl survey, averaging 106.2/trawl. Despite still being the dominant forage fish, YOY trout perch catches have experienced sharp declines from 2010-2012 (Figure 7). Although the 2015 catch was still below the historical average (207.9/trawl), trawl surveys from 2012-2015 yielded a more consistent YOY trout perch catch. In fact, the slight increase in YOY trout perch numbers in 2015 was the first increase noted since 2009. Trout perch provide stability in the forage base and are sought for by many gamefish and panfish species, thus an increasing trend in numbers is welcomed.

Gizzard shad are another important forage fish found in the Winnebago System, but are signified by boom and bust recruitment cycles. For example, strong year classes of gizzard shad were observed during 2010 (197.2/trawl) and 2012 (122.6/trawl). Conversely, weak year classes of gizzard shad were noted in 2013-2015, with an average of 11.7/trawl sampled in 2015 (Figure 7). Fishing success, particularly for walleye is often tied to gizzard shad hatch strength, as strong year classes of shad can saturate the forage base. Although the 2015 trawl numbers indicate low gizzard shad abundance, it should be noted that local anglers did report seeing decent shad numbers along shoreline locations in the summer. The bottom trawl can't be used to sample shallow water locations or areas with structure due to the high risk of snagging and thus our sampling efforts focus on deeper water mud flat locations. Therefore, it is possible that the 2015 shad numbers could be higher than indicated by trawl catches. However, the same 46 locations were sampled as previous years where boom year classes of shad were observed during trawling and thus it appears unlikely that 2015 yielded a strong shad year class.

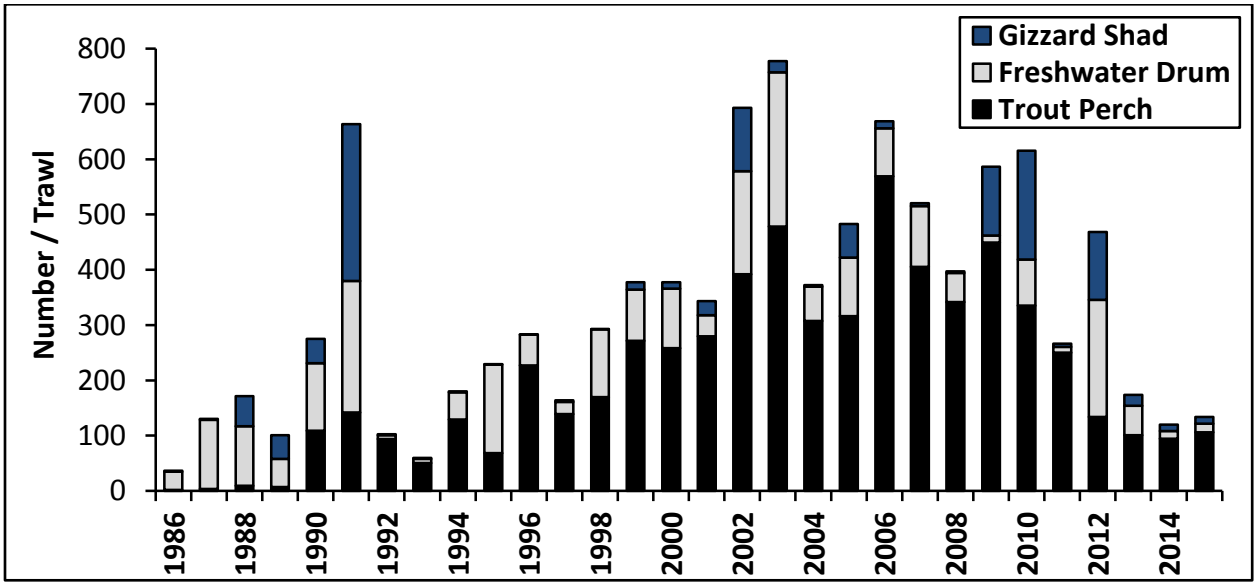

Figure 7. Average number of YOY trout perch (black bars), freshwater drum (gray bars), and gizzard shad (blue bars)/trawl in Lake Winnebago from 1986-2015.

Although often overlooked as a forage fish species, freshwater drum are also an important forage fish in the system. The 2015 trawling survey indicated a weak freshwater drum year class with an average catch of 15.7/trawl (Figure 7). Similar to gizzard shad, 2013-2015 catch numbers were not comparable to the strong 2012 year class (212.2/trawl) that ranked as the third highest freshwater drum year class on record. Largely as a result of the 2012 year class, DNR fisheries staff handled 94,707 adult drum during the 2015 trawling survey, which ranks as the second highest catch of adult freshwater drum on record (691.3/trawl; Figure 8). The image to the right shows the trawling crew processing an August haul that captured 2,258 adult freshwater drum. This 2012 year class will be in the system for many years to come and anglers can expect to come across good numbers of adult drum in the coming years. If you haven't tried them yet, 2016 could be the year to indulge in a freshwater drum fry. If they are harvested during cooler water periods and iced immediately, I would bet you would be pleasantly surprised that they actually make pretty good table fare.

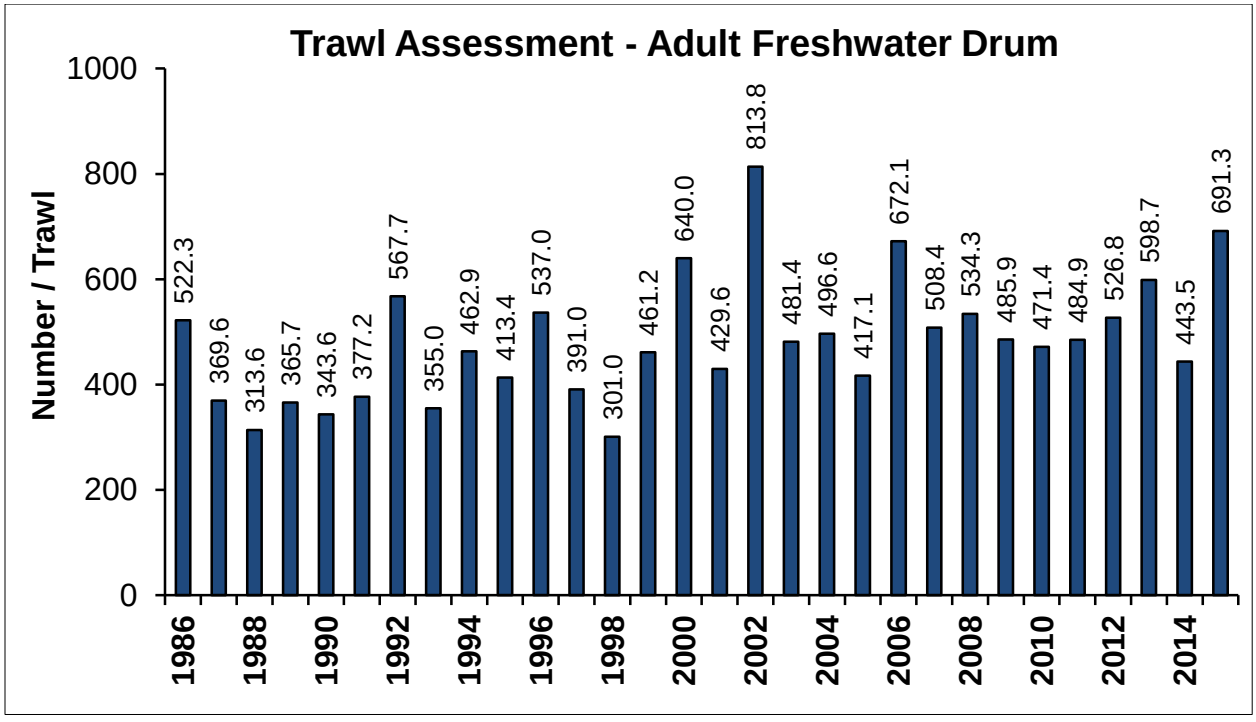

Figure 8. Average number of adult freshwater drum/trawl in Lake Winnebago from 1986-2015.

If you have any questions or comments regarding the Winnebago trawling survey please contact me at the phone number or email listed below. Anyone interested in volunteering for the 2016 trawling survey should also contact me and we will try to get you on the schedule. The trawling survey could not be conducted without the help of our great volunteers and we are always looking for new volunteers to bring aboard the Calumet. Good luck fishing, be safe on the water, and remember to take a kid or someone new out fishing in 2016!

Lake Winnebago East Shore September Sunrise

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Table 1. List of trawling records for young of year fish species sampled in Lake Winnebago during 2015.

Year	Freshwater Drum	White Bass	Walleye	Sauger	Yellow Perch	Black Crappie	Trout Perch	Emerald Shiner	Gizzard Shad
1986	32.9	10.8	0.1	0.0	0.1	1.2	1.8	0.0	1.6
1987	125.3	9.1	0.0	0.0	0.3	2.7	3.3	0.0	1.8
1988	107.6	43.1	0.1	0.1	0.2	5.1	9.6	0.2	54.3
1989	50.7	18.8	0.1	0.0	0.1	3.8	7.0	0.0	43.2
1990	122.3	90.9	2.9	0.4	0.3	3.3	108.8	0.2	44.3
1991	237.9	32.9	7.3	0.0	1.1	0.4	141.7	0.2	284.0
1992	7.1	8.2	0.8	0.0	0.4	0.3	93.8	0.0	1.8
1993	7.6	2.3	2.5	0.0	0.2	0.1	50.1	0.0	1.9
1994	49.4	19.1	0.1	0.0	0.2	0.6	129.1	0.0	1.7
1995	160.6	43.0	0.2	0.1	0.5	3.3	68.2	0.0	0.6
1996	55.5	169.1	23.7	0.0	0.4	0.1	226.9	0.2	0.3
1997	22.1	23.4	2.2	0.0	0.1	0.3	139.0	0.2	2.8
1998	122.6	10.4	2.5	0.0	0.3	1.1	169.7	0.2	0.1
1999	92.7	48.8	0.2	0.0	0.5	5.0	271.7	1.1	12.9
2000	107.7	11.7	0.3	0.0	0.1	0.3	258.2	0.8	11.4
2001	38.5	36.5	11.8	0.0	2.2	0.2	279.4	0.2	25.7
2002	186.4	18.8	1.9	0.1	2.1	2.3	391.8	0.3	114.8
2003	279.2	60.3	6.5	0.3	1.9	1.7	478.2	0.0	20.3
2004	61.7	17.8	8.8	0.4	6.9	0.7	307.6	0.1	3.2
2005	106.2	50.9	11.1	0.1	5.6	4.4	315.9	0.6	61.0
2006	87.0	23.0	2.4	0.1	5.4	1.0	569.0	0.3	12.5
2007	109.8	10.7	0.5	0.9	5.6	3.5	405.4	16.9	5.6
2008	52.8	50.2	17.5	0.4	2.2	0.5	341.8	1.1	2.9
2009	13.1	17.2	1.4	0.3	1.8	6.8	449.2	1.6	124.1
2010	83.2	15.0	0.9	0.2	1.4	11.4	335.2	1.3	197.2
2011	10.9	102.4	10.4	0.0	5.7	1.2	249.9	1.7	5.7
2012	212.2	36.7	0.2	0.0	1.0	3.1	133.6	5.5	122.6
2013	53.5	12.1	11.9	0.0	0.9	1.0	100.8	3.4	19.5
2014	14.2	0.2	0.4	0.0	0.1	0.2	94.2	0.2	11.4
2015	15.7	4.3	1.4	0.1	0.7	1.4	106.2	0.1	11.7
Average	87.5	33.3	4.3	0.1	1.6	2.2	207.9	1.2	40.0