

Where did all the 100 pounders and top 10 heaviest fish go this year?

For decades the 100 pound sturgeon club was a fairly exclusive group. In fact, throughout the 1950-2009 spearing seasons there was an average of only 0.83% of the annual harvest being composed of fish 100 pounds or larger. However, that exclusive club has been much easier to crack into over the last five seasons (2010-2014). Over the course of that period, 6.02% of the Lake Winnebago harvest has tipped the scales at 100 pounds or more. Last spear season (2014) contributed a record 106 fish to this list with 95 fish >100 pounds being harvested from Lake Winnebago and another 11 from the Upriver Lakes.

Over the last few seasons we have attributed the increased presence of these 100+ pound fish to numerous factors, but the two most influential factors were always believed to be the increased protection of the fish and the impact of gizzard shad on fish condition (plumpness). There is greater protection of sturgeon during their critical spawning period as a result of the sturgeon guard program and a stronger conservation ethic. The current spear fishing regulations also protect the fish from overharvest, while still offering a sustainable harvest annually. Protection of these fish has allowed the fish to reach older ages and in turn larger sizes. Within the last decade we have also experienced very large gizzard shad hatches (most notably 2009, 2010 and 2012; previous diet vignette). The Winnebago System is at the northern edge of the gizzard shad's distribution causing shad to experience large die-offs during our long, cold winter months. As shad die off, sturgeon take advantage of the additional, fatty, food source and we have documented increased relative condition (plumpness) because of the emergence of gizzard shad. The increased condition of fish in the system allows fish to reach 100 pounds at shorter lengths than historically possible, and thus a higher percentage of these "trophy" fish.

It's no secret to spearers and those versed in the sport of sturgeon spearing that the sturgeon being harvested this year are in leaner condition than what we have become accustomed to over the last 5 years. In fact, this was the focus behind one of my previous

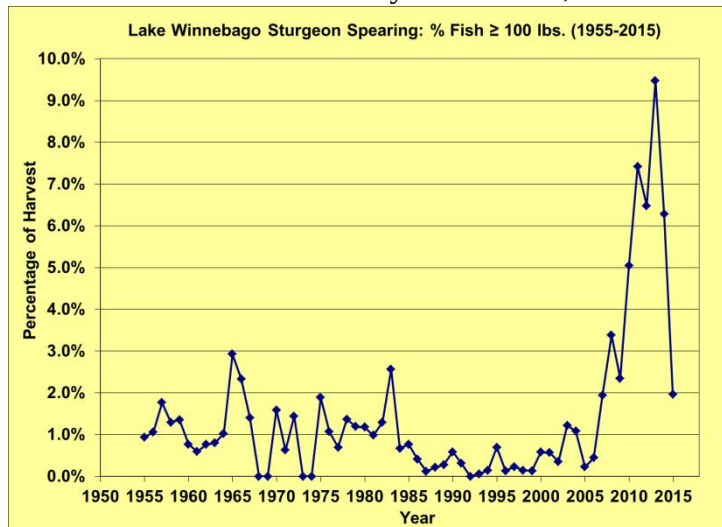


Figure 1. Displays the percentage of the Lake Winnebago harvest that was 100 pounds or larger (1955-2015; 2015 data include first 6 days of season).

vignettes about the lack of gizzard shad. Along with the decreased fish condition, we have also seen a reduction in the percentage of 100+ pound fish being harvested (Figures 1-2). We won't have the length/weight data entered into our database for 1-3 weeks after the spearing season closes, but I can assure you that there still are many long fish being speared. They just aren't carrying the weight that we have become accustomed to over the last 5 seasons or so. If you think about the longevity of a sturgeon, you

wouldn't expect to see large-scale changes in the length distribution of fish from one year to the next and I suspect that the length of fish being harvested this year will be quite similar to that observed in 2014. However, the fish aren't as heavy as they were last year, or the last 5 years for that manner, and that's why we are seeing fewer 100+ pound fish.

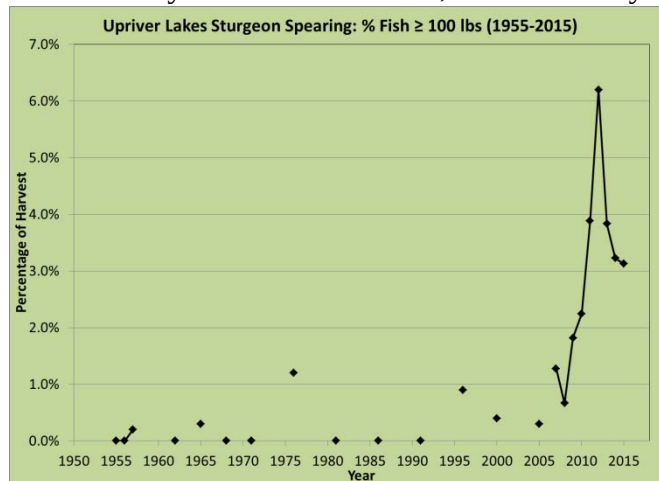


Figure 2. Displays the percentage of the Upriver Lakes harvest that was 100 pounds or larger (1955-2015).

average harvest numbers of the 2014 and 2015 seasons, we have not contributed any fish to this list (to this point anyways). The heaviest fish harvested in 2014 was 161.0 pounds (77.1”), while the largest fish this season has been 137.5 pounds (81.3”). There were, however, 10 fish harvested in 2014 that were longer than 77.1”. The longest fish was 79.2”, which is actually longer than 5 of the top heaviest fish on record. In comparison, the longest fish harvested thus far this season was 81.3”, which is longer than 9 of the top 11 fish on record.

I have already alluded to the reason for this, but it again falls back onto a lack of gizzard shad. It has been well documented that there was a weak gizzard shad hatch in 2014, but we also documented a down shad hatch in 2013 (Figure 4). The last boom shad hatch was in 2012. When taking a closer look at the seasons the top 11 fish were harvested in, 6 of the top 11 heaviest fish on record were harvested during a season following a very strong shad hatch (2010, 2011, 2013 spearing seasons; 2009, 2010, 2012 shad hatches) (Figures 3-4). Two of the remaining 5 fish were harvested in 2012 and sturgeon condition was likely still above average due to very large shad hatches in 2009 and 2010.

The lack of gizzard shad has led to a reduction in the weight of the largest fish being harvested as well as the number of 100+ pound fish being harvested. Coming into this year's spearing season, 9 of the top 11 heaviest fish on record (dating back to 1941) have been speared since 2008 and 10 of the top 11 had been speared since 2004 (Figure 3). The emergence of these heavy fish has really been quite impressive and I expect that we will continue to rewrite the record books during future spearing seasons.

However despite the above

<i>“Heavy Hitters Club”</i>			
STURGEON			
<i>Largest on Lake Winnebago System</i>			
1941 to Present			
(170 lbs & over)			
	Weight	Length	Year
1st	212.2	84.2	2010
2nd	188	79.5	2004
3rd	185	80.2	2011
4th	180	79	1953
5th	179.8	79.6	2012
6th	179.0	80.0	2013
7th	175.3	78.5	2012
8th	172.7	76.9	2011
9th	172	78	2008
10th	171.3	83.0	2010
11th	171.3	75.6	2011
2014			

Figure 3. Top 11 heaviest sturgeon harvested from the Winnebago System (1941-2015).

As we take a closer look at these data, it becomes very apparent just how important gizzard shad are to sturgeon condition and increase in “trophy” fish in the Winnebago System. Through the first 6 days of the spearing season, we are observing percentages of 100+ pound fish in the harvest that align us more with the 1950s-1990s than the late 2000s. I have been asked the question numerous times this year of why 2014 was a down shad hatch and how long after a shad hatch sturgeon condition will recover? To start with shad are late spring/summer spawners and have a very protracted spawning period. The boom year classes of shad correlate very well with early, warm springs and above average summer water temperatures. As stated earlier, we are at the northern edge of the gizzard shad’s distribution, so shad really thrive in warmer climates than what we have in Wisconsin. So it shouldn’t be a surprise that they do well when we have above average temperatures and longer summers. As for the response of sturgeon condition, we will have to wait and see. Sturgeon heavily feed on dead/dying gizzard shad during winter months and I suspect that we will start to see some heavier fish in short order after a strong shad hatch. Time will tell though.

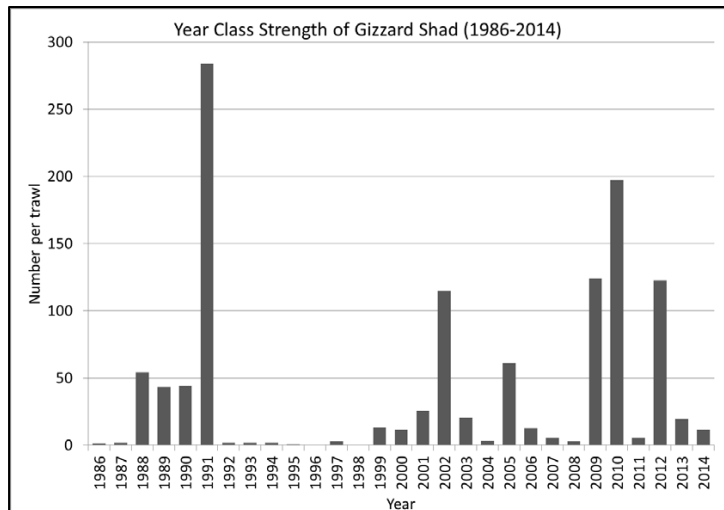


Figure 4. Year class strength of gizzard shad observed during fall (August-October) bottom trawl assessments conducted on Lake Winnebago (1986-2014).

I hope this report answered some of your questions about the leaner fish this year and the reduction in 100+ pound fish. I will be taking a closer look at how the length distribution of this year’s harvest compares to recent seasons after the data are all entered and will be sure to send out another report outlining the findings. Until then though, thanks for making the 2015 season a safe and enjoyable season up to this point!