



John W. Flannagan Reservoir Fisheries Management Report 2013

Flannagan Reservoir is a 1,143-acre impoundment located in Dickenson County. The reservoir was built to provide flood control, fish and wildlife habitat and recreational opportunities. The U.S. Army Corps of Engineers completed construction of the dam and project in 1964.

Fifty miles of beautiful shoreline consisting of mature hardwood forest interspersed with spectacular rock bluffs surround this deep, clear reservoir. At full pool elevation of 1,396 feet above sea level, the lake has a maximum depth of 166 feet and an average depth of 58 feet. The lake level fluctuates about 16 feet in a normal water year. The lake is drawn down to winter pool during October and November, and is typically returned to summer pool in April.

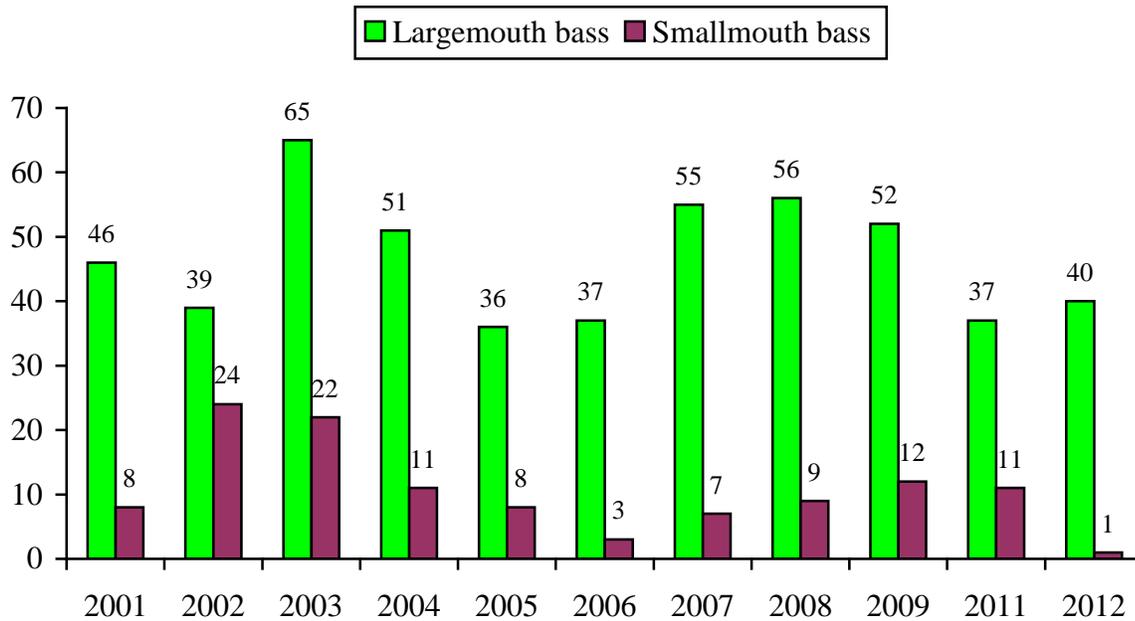
Flannagan Reservoir is home to a variety of sport fish species including: largemouth and smallmouth bass, walleye, hybrid striped bass, channel catfish, flathead catfish, crappie, bluegill, rock bass, common carp and musky. Alewives and gizzard shad provide forage for the sportfish populations. Most of these populations are self-sustaining and do not require maintenance stockings. The Department of Game and Inland Fisheries does stock walleye fingerlings (114,300) and hybrid striped bass fingerlings (17,145) each year.

The overall fisheries management goal for Flannagan Reservoir is to provide quality angling opportunities for a diversity of fish species. In order to provide quality fishing opportunities, fish populations need to offer both abundance and good size structure. Abundance is measured in terms of how many fish are collected per hour of electrofishing or per net night of sampling. Size structure is measured by looking at the proportion of adult fish in the sample that are larger than a given size. For example, we consider the proportion of adult largemouth bass larger than 15 inches, or the proportion of adult black crappie that are over 10 inches. Catch rates and size structure data provide a standardized means of comparing this year's fish sample to last year's catch, as well as to the samples collected at other lakes. Catch rates do not represent the number of fish you might catch while fishing, because you may be more or less effective than the sampling gear. Size structure measures give information about the sizes of fish available in the population. Again, this may not match what you see while fishing, since you might be using gear or techniques that target a particular size range, while sampling tends to collect small and average-sized fish. It is likely that you will catch larger fish than we have collected.

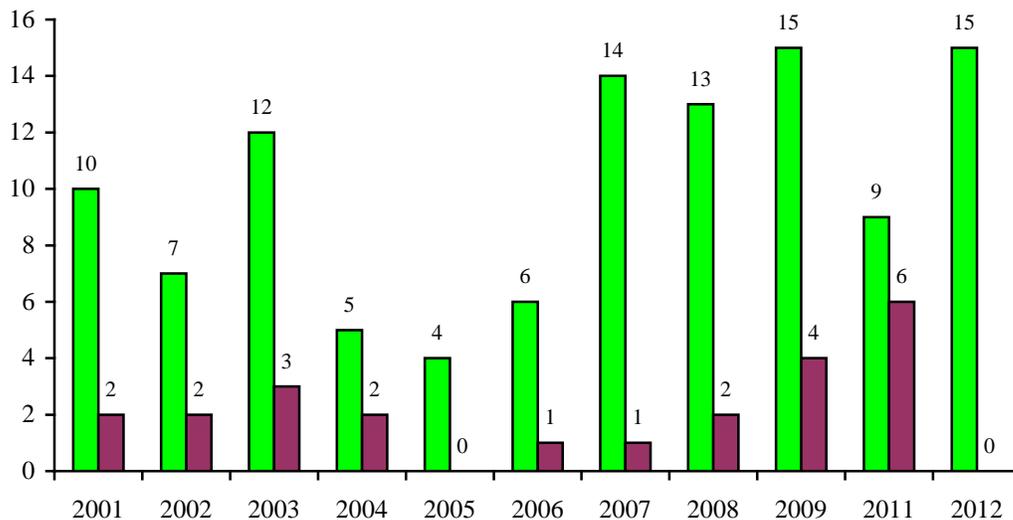
Bass (Spring Electrofishing)

Largemouth bass are the most abundant black bass in Flannagan Reservoir. Smallmouth bass are fairly common in the main lake and the Pound River arm, but are collected less frequently in the Cranesnest arm. The 2012 spring electrofishing sample represents the most recent data for the bass populations. A total of 99 largemouth bass and 1 smallmouth bass were collected in that sample. The 2012 sample had the lowest

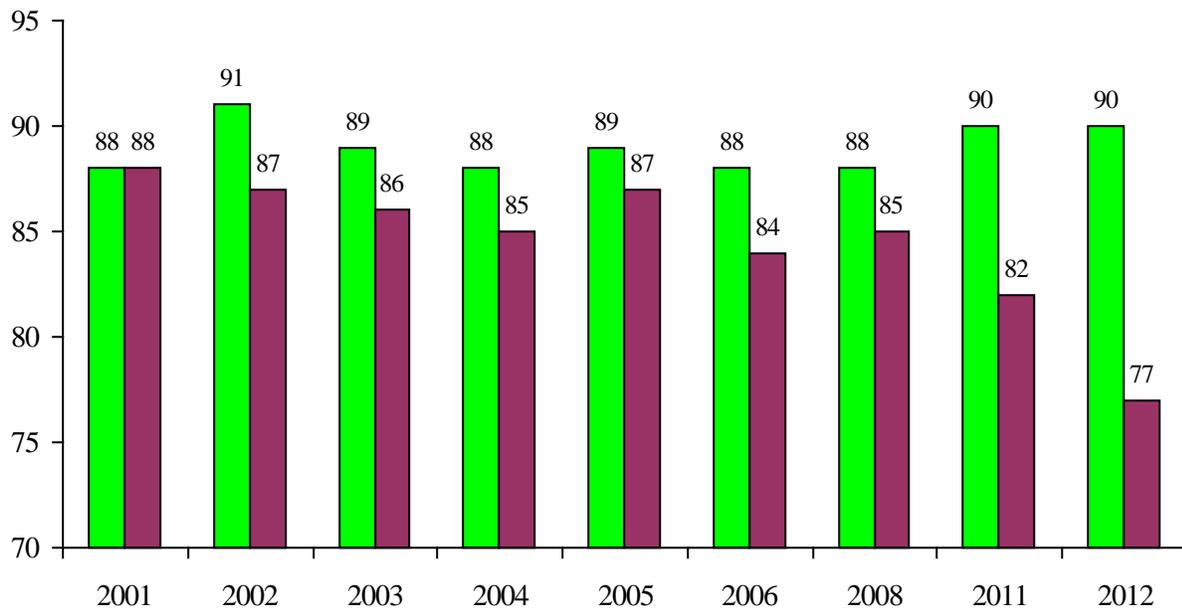
number of smallmouth bass collected on record. Sampling catch rates for bass (fish collected per hour of sampling) vary from year to year. Some variation can be expected and should be considered normal fluctuation. Catch rates for largemouth bass in the 2012 sample were down but slightly better than 2011. The following graph shows catch rates for bass from 2001-2012.



The number of preferred size (15 inches or greater) largemouth bass collected per hour of sampling in 2012 was 15 per hour. The catch rate for smallmouth bass greater than 14 inches was zero. Overall the largemouth bass fishery appears to be in good shape but smallmouth bass were missed in the 2012 samples as they were in 2005. The following graph shows the results in catch per hour of preferred size large and smallmouth bass from 2001-2012.

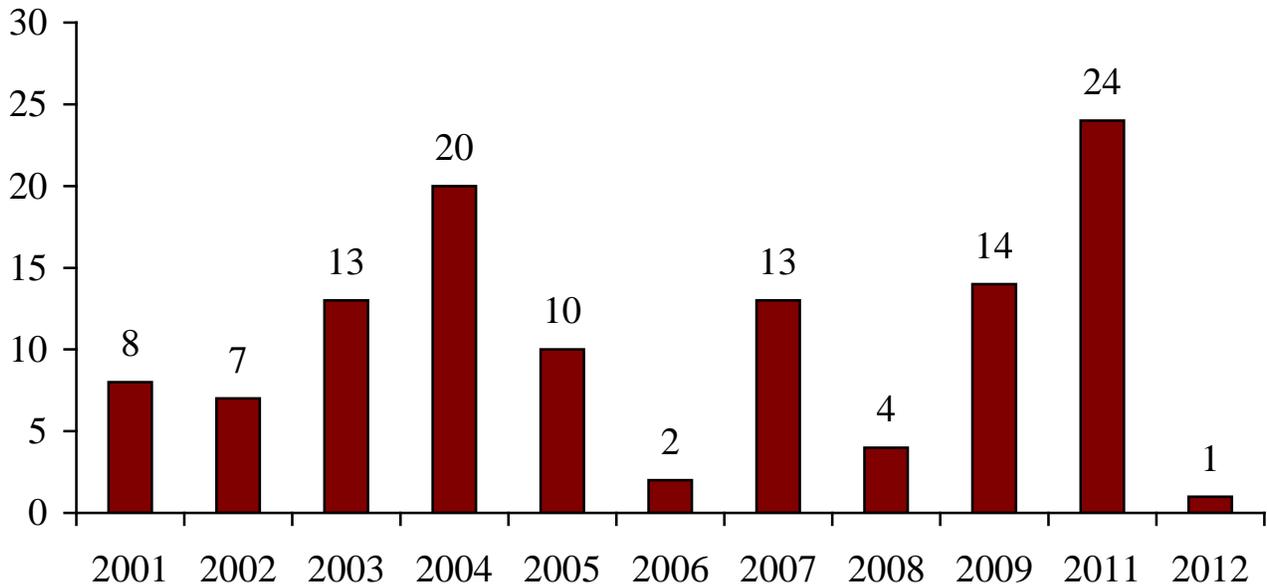


Body condition of bass is measured by relative weight (W_r). Relative weight is an index of the fatness or plumpness of a fish. When a fish is in a good condition or good health, the relative weight is measured close to 100. When relative weights are well below 100 the fish may have trouble feeding, causing the body condition to be less. The average relative weight or condition of adult largemouth bass measured 90 in 2012, which is average for Flannagan. Smallmouth bass relative weight measured 77 in 2012, possibly indicating that these fish are less healthy and body condition is down. The chart below shows average largemouth and smallmouth bass relative weight from 2001-2012. Biologists will continue to monitor bass condition.



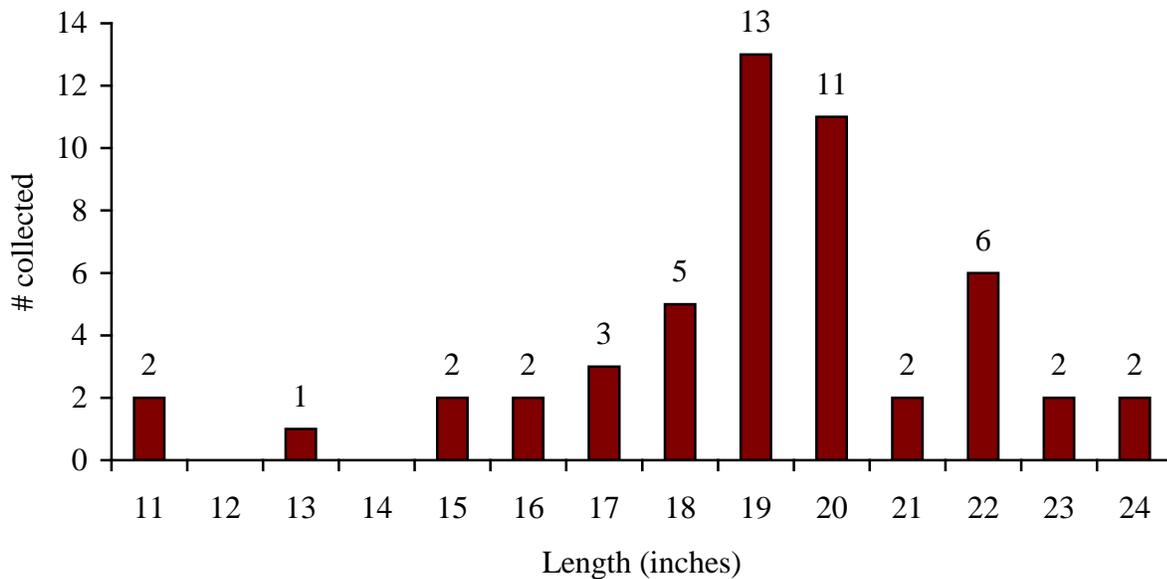
Walleye (Spring Electrofishing)

The walleye fishery has received a lot of attention since Flannagan Reservoir was designated a “priority” walleye water in 2000. Walleye catch rates increased steadily from 2000 to 2004. A fish kill caused by low dissolved oxygen was documented in September 2004. Only a few dead fish were observed on the lake’s surface, but apparently many of the dead fish remained at depth. Sampling catch rates declined sharply in 2005 and 2006. Poor survival of walleye fingerlings stocked in 2003, 2004 and 2005 also contributed to the low catch rates. Fortunately, good survival of the 2006 year class is the foundation for rebuilding the fishery. The 2012 electrofishing catch rate of 1 walleyes per hour was very poor compared to recent years. The 2012 catch rate does not accurately reflect the walleye population because catch in fall gillnet sample was good. The chart below shows electrofishing catch rates (number per hour) for walleye in Flannagan from 2001-2012.

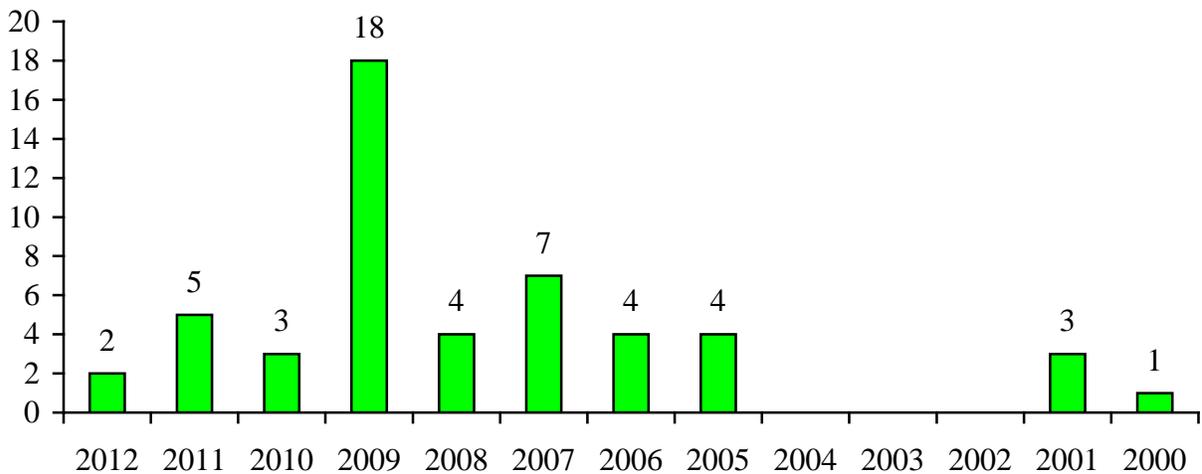


Walleye (Fall Gillnetting)

The fall 2012 gillnet sample for walleye was fair compared to recent years. Both the abundance and the size of walleyes collected have improved in recent years. Catch rates increased from seven walleyes per net in 2009 to nine per net in 2010 to 9.2 in 2011 and declined to six per net in 2012. The length frequency of walleyes collected in gillnets in 2012 included good numbers of fish over 18 inches, as seen in the graph below. Seventy-five percent of walleyes collected in 2012 were 18 inches or longer, compared to fifty percent in 2011. The increased abundance of walleyes and the better size distribution will mean more “keeper” walleyes landed by anglers in 2013.

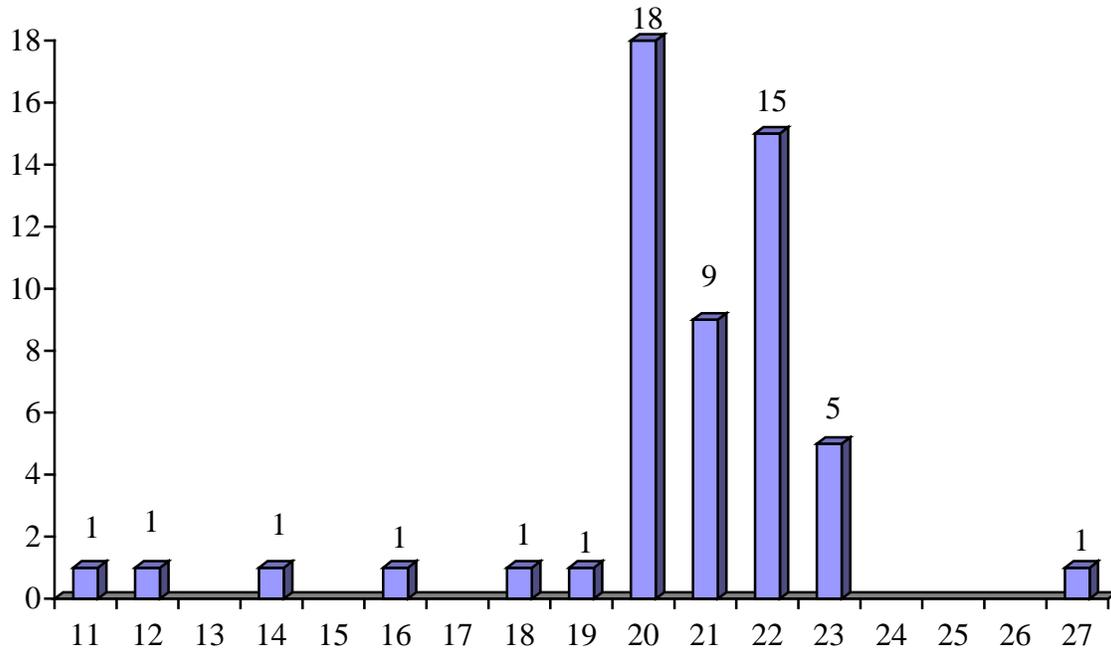


Why are there more walleyes and bigger walleyes in the population? The most likely answer is good survival and growth of walleyes stocked in recent years. Age data for walleyes collected in gillnets in 2012 provides the most recent assessment of stocking survival and year class strength. From the 2012 data there were 10 year classes of walleye collected. The 2009 year class looks strong, as does the 2007. Most of the fish in these year classes are 18 inches or longer. Two young-of-year walleyes from the 2012 stocking were collected. The 2012 gillnetting data continues to document the poor survival of walleye fingerlings stocked in 2002, 2003 and 2004. No fish from these year classes were collected in 2012 gillnets. Some decline in the catch of older age classes is expected due to natural mortality, harvest by anglers and the fact that large fish are not as likely to be caught in the gillnets. However, the relative absence of fish from these year classes confirms the poor survival of those stockings. The following chart shows the number of walleye collected in 2012 from each stocking year class 2000-2012.



Hybrid striped bass

Hybrid striped bass were first stocked into Flannagan Reservoir in 1999. The hybrid fishery has become quite popular in the relatively short period of time since the first introduction. Hybrids are stocked each year in July or August as fingerlings (two to four inches in length). Hybrid striped bass growth rates are good in Flannagan. They measure eight to ten inches or more after one year in the reservoir, and reach 14 to 16 inches by the end of their second growing season (1.5 years old). Most two year old hybrids are about 18 inches in length. Hybrids generally reach 20 to 22 inches in total length during their third year. At age four, hybrids are about 24 to 25 inches long. Growth slows at this length. Fish from the 2003 stocking are now about 28 inches long. The following chart shows the size distribution of hybrids collected in 2012 for Flannagan Reservoir.



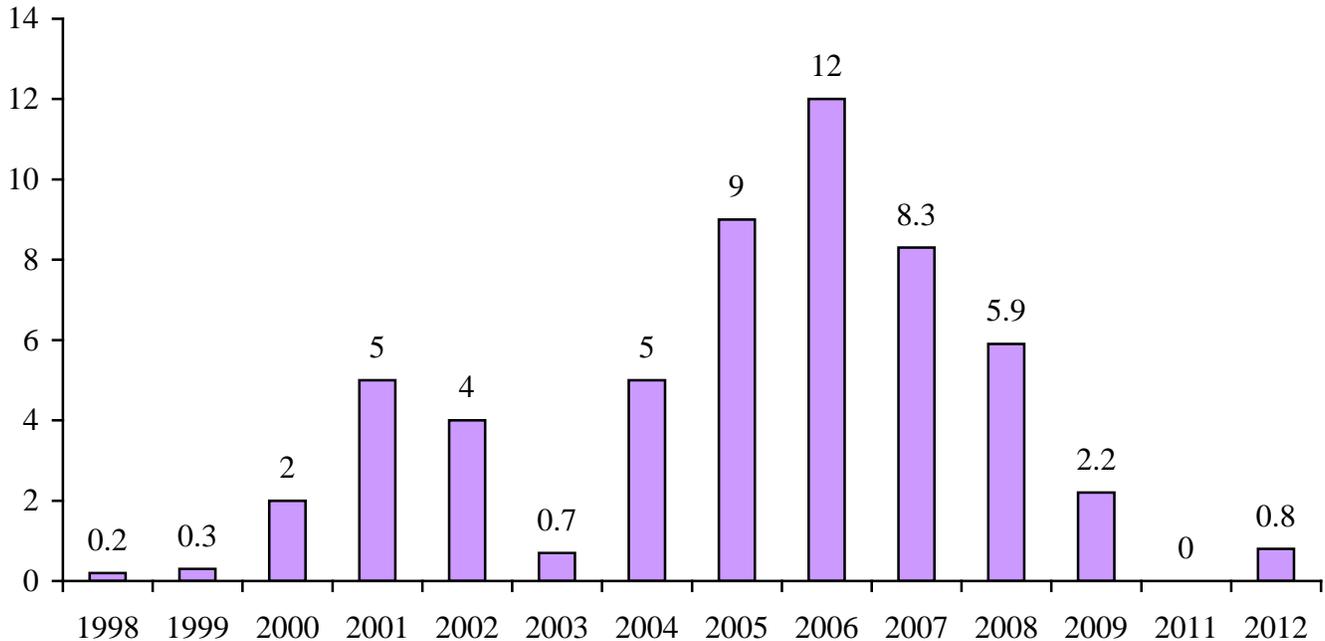
Age data collected for hybrid striped bass in the 2012 gillnet sample indicated excellent survival of fingerlings stocked in 2009. The average length of these fish was about 21 inches, so this year class should provide exciting fishing opportunities within the next couple of years.

Crappie

Since 1998, one fisheries management goal has been to re-establish the black crappie population in Flannagan Reservoir. Biologists have used a variety of strategies to accomplish this task. The annual stocking of about 1,000 adult black crappie (6 to 8 inches) from 1998 to 2002 was the first step toward recovery. Habitat enhancement has also played a vital role in the effort. Hardwood brush piles and hinge-trees were placed in the Pound and Cranesnest River arms of the reservoir and in sheltered coves in the main lake. These structures provide excellent spawning habitat and escape cover for crappie as well as other species of fish. A 10-inch minimum length limit was also established to allow crappie an opportunity to spawn for a couple of seasons before being legal for harvest.

There were promising signs that the efforts would be successful. Catch rates for black crappie increased from one fish every three hours of sampling in 1998 to a high of 12 fish per hour of sampling in 2006. The catch rate declined somewhat in 2007 and 2008, but was still above average. The catch rate was very low (2.2 fish per hour) in 2009. In 2011 and 2012, crappie were not collected in the spring electrofishing samples and only twelve were collected in gill net samples. It is difficult to determine at this point if this is a normal fluctuation or a trend with long term implications. Crappie abundance fluctuates in cycles of “boom and bust” in most systems. The “boom” years generally follow good spawning years and the “bust” years follow bad spawns. Crappie populations are also down at Pound Lake so the decline in abundance may be caused by

poor recruitment of recent year classes. Biologists are monitoring the crappie population to determine if routine stocking may be necessary to increase abundance and improve catch rates. Adult crappie were stocked in 2012 and fingerling stocking are planned in 2013. The following graph shows the number of black crappie collected per hour of electrofishing at Flannagan Reservoir 1998-2011.



Other species

Flannagan also offers some very good fishing for bluegills. Population sampling yields average numbers and sizes of bluegills. However, anglers frequently report catching very nice bluegills. Some very nice catches of bluegills were recorded in the 2003 angler survey. There are a few hybrid sunfish, sometimes called 'Georgia Giants', in Flannagan. These fish grow to enormous sizes. Sunfish over two pounds have been landed in recent years. George Mullins of Haysi landed a yellow perch on March 8, 2010 that established a new Virginia state record. The record yellow perch weighed 3 pounds even. No yellow perch have been collected by biologists during population sampling, but the rumor is that some yellow perch were caught in another lake and moved to Flannagan by anglers. So, there may be a few more huge yellow perch out there for the angler in the right place at the right time. Please remember that moving fish from lake to another is not a good practice. Stocking fish can have undesirable effects on the existing fish populations through predation, competition or diseases introduction. Stocking fish into a public lake or any stream without a written authorization from the Department of Game and Inland Fisheries is also **ILLEGAL**.

Channel and flathead catfish populations provide good fishing opportunities as well. Again, samples yield mostly “average size” catfish, whereas anglers often catch trophy cats. Some huge carp also roam Flannagan’s clear waters, just waiting to test an angler’s skills and equipment.

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