

Delaware Bass Tournament News



Flyfishing for rainbow trout at Cliff Lake in Beaverhead National Forest, West Yellowstone, Montana.



I hope this 2022 recap finds you happy and healthy. I will admit that I do not like photos of myself, but I couldn't resist including a few photos from flyfishing for rainbow trout in Montana. Talk about a bucket list item! My dear friend Craig Shirey (an excellent fisheries biologist, now retired) was our guide that day, and his flyfishing skills were amazing. With just a flick of his arm and a gentle whip of his rod, he sent perfect loops unrolling across the water. I was not very good at it, but I loved it! Now I *need* a fly rod (and some lessons), so I can catch trout or a nice big bass here at home. Although the ponds and rivers in Delaware are not the turquoise Caribbean blue of Cliff Lake, there are some nice hawgs to be caught. I hope I see some of you out on the water this year. Best of luck with your 2023 bass tournaments!

Sincerely, Educ

2023 Freshwater Angler Survey

The DNREC Division of Fish and Wildlife has been collecting freshwater angler catch and effort data approximately every five years since 1976. If you obtain a 2023 Delaware FIN or purchase a fishing license you may receive an email requesting participation in the survey.

To improve the probability of more precise data and increased retention of information, the survey will be administered in two -month 'waves' as well as a 12-month reference period at the end of December 2023. Participants will be chosen by a random draw for each 'wave'. The survey questions are comparable to the four-page paper questionnaire that was sent during previous surveys. Anglers will be queried on water bodies that were fished, the number and species of fish caught, catch or release status, and top three fishing issues they think are most important in Delaware.

Angler effort and catch statistics are extremely important to consider when managing fish populations for sustainable angling. The data is used to evaluate angling pressure, fish population trends, stocking needs, new species introductions, success of management actions, and access improvement priorities.

If you receive a request to complete the survey—please do!! We value the input from anglers like you.

Fish Habitat Enhancement 2023

Fish habitat can be many things. It is the water that is essential to aquatic life, the sediment where nests are built, deep 'holes' that provide refuge during weather extremes, aquatic vegetation that provides shade, and woody debris where fish hide or ambush prey. Fish in the Centrarchidae family (i.e. Largemouth bass, Bluegill, Black and White crappie, Pumpkinseed, Redear, and Redbreast sunfish) have an affinity for structural habitat. Anglers know this and will cast a line along a deadfall, within a root wad, or amongst lily pads when targeting these species.

Division biologists deploy evergreen tree bundles during the winter or early spring each year in discrete areas of several public fishing ponds to enhance fish habitat. These trees are structurally complex for several years before they degrade. Evergreen branches and needles provide attachment sites for microscopic plants and animals which in turn attract larger invertebrates and small fish seeking shelter or a place to forage. Larger fish will congregate around the structures to seek cover and to prey on smaller fish.

The owners of Federal Hill Christmas Tree Farm, located in Galena, MD, donated the trees that will be used in 2023. The following ponds will receive tree bundles: Lums Pond, Coursey Pond, Killens Pond, Moores Lake, Mudmill Pond, Hearns Pond, and Trap Pond. In deeper areas, the trees will be affixed to pallets for additional habitat complexity. The GPS coordinates of structures in each pond will be updated at: <u>dnrec.alpha.delaware.gov/fish-wildlife/fishing-ponds/</u>



Donated Fraser fir trees will become fish habitat in several public fishing ponds in early spring 2023.

2022 Pond/Lake Fish Community Surveys

The Division of Fish and Wildlife evaluated fish communities via electrofishing in six of the state's public fishing ponds in May 2022. Statistics on the Largemouth Bass populations are provided below. Abundance was estimated as Catch per Unit of Effort (CPUE). The proportion of bass $\geq 12^{\circ}$, $\geq 15^{\circ}$ and $\geq 18^{\circ}$ reflects the length structure of the population. The target ranges are for a moderately dense bass population. Relative Weight (Wr) is a measure of body condition or robustness. Bass with Wr values >90 are considered in good condition.

Pond/Lake	CPUE Bass/Hour	% of Bass ≥ 12" (target 40-70)	% of Bass ≥ 15" (target 10-40)	% of Bass ≥18" (target > 5)	Bass Average Wr (target ≥ 90)
Andrews Lake	128	42	5	2	102
Bass were abundant in 2022 with a 44% increase in CPUE from the 2017 survey. Overall the population is skewed towards 10"-11" bass. These bass should grow to quality size (>12") within the next year. Few bass collected during the survey were preferred size (≥15") or ≥18". The bass were in good condition with an average Wr of 102. The heaviest bass caught during the survey was 3.5 lbs. Planktonic algae blooms occur during the summer and can cause low dissolved oxygen conditions. Fish can be stressed during these conditions, so anglers should minimize handling and time in the livewell.					
Coursey Pond	71	65	30	5	89
The 2022 catch rate for bass increased by 54% from the 2017 survey. There were a variety of size groups indicative of a balanced population; and a good proportion of quality sized (\geq 12"), preferred size (\geq 15") and an occasional \geq 18" bass. Pan-fish abundance decreased between surveys, likely culled by the growing bass population. More than half of the bass collected during the 2022 survey were underweight; an indication they are not receiving enough forage. Stocking additional forage is planned for 2023. The heaviest bass caught during the survey was 4.5 lbs. Water clarity was good in May, but within a few months changed to an opaque bright green due to a planktonic algae bloom. Because these water quality conditions are typical during the summer for Coursey Pond, anglers should plan their catch strategies accordingly.					
Ingrams Pond	88	67	44	11	93
Bass increased in abundance by more than 100% compared to the previous survey conducted in 2017. Stocking of 6"-9" bass in October 2019 improved the size structure of the population. The population is now well balanced with a good proportion of legal size (\geq 12"), preferred size (\geq 15") and \geq 18" bass. Golden shiner were stocked in 2020 to support the growing bass population and to take predation pressure off of the panfish. The heaviest bass caught during the 2022 survey was 4 lbs. This bass was underweight, as were several others. Additional forage will be stocked in 2023.					
McGinnis Pond	116	77	44	2	97
Bass abundance increased by 43% from the 2017 survey. The population is skewed towards larger bass, with above target levels of quality sized (\geq 12") and preferred size (\geq 15") bass. An estimated 2.3% of the population is \geq 18". Relative weights for all size groups of bass were above 90; an indication that enough prey is available. The heaviest bass caught during the 2022 survey was 3.1 lbs, but multiple bass were close to 3 lbs. Twenty percent (20%) of bass caught during the survey had hook scars, deformed jaws, or other signs of being caught by hook and line. Fishing pressure is presumed to be fairly high at this pond. Thick mats of filamentous algae are common during the summer months.					
Portsville Pond	82	56	12	0	100
Bass increased in abundance by 51% compared to the 2017 survey. The proportion of quality sized (≥12") and preferred size (≥15") bass were within target levels, however, no bass ≥18" were collected. Bass growth has been slow in Portsville Pond and the size range observed (8"- 17") was quite narrow. Overall, the bass were robust indicating there is enough prey available. The heaviest bass collected during the survey was 3.1 lbs. Numerous stumps in the open water hold bass, and anglers can target these areas. A northern snakehead was removed from the pond during the 2022 survey. It was a 17", 1.8 lb gravid female. Additional surveys are planned to determine if snakeheads have established a population.					
Tussock Pond	50	50	0	0	94
The Bass population is not abundant and most of the bass collected in 2022 were <12" indicating that growth is slow even though the population is not dense and there is adequate forage available. Reproduction and recruitment (i.e. growth to a catchable size or 8") is inconsistent, and is likely due to frequent water level fluctuations. In some years, such as in summer 2022, the pond drops to less than 50% normal pool. Relative weights were highly variable among size groups and larger bass were underweight. The heaviest bass collected during the survey was 0.8 lbs. Periodic stockings have not improved the situation, thus a water quality cause will be researched. Another assessment of the population may be warranted for 2023.					

2022 Tidal Largemouth Bass Surveys



One of few bass caught during a survey of the St. Jones river, October 2022

BROADKILL RIVER

The largemouth bass population survey scheduled for the Broadkill River in fall 2022 was postponed to 2023. The survey is conducted in the freshwater portion of the river during late September to early November when the water temperature is $\geq 50^{\circ}$ F. Salinity in the upper part of the river where it is typically fresh (0.0 ppt - 0.1 ppt) was elevated to 0.2 ppt - 3.0 ppt in early October due to drought conditions. As salinity increases, so does the ability of the water to pass an electrical current (aka conductivity). These conditions cause the electrofishing unit to overload because its designed for freshwater use.

Conditions changed very little after two rainfall events in October, and then a cold snap occurred causing the water temperature to drop. At that point, any bass data collected would not be reliable or comparable to previous years.

ST. JONES RIVER

During fall 2022, water quality conditions in St. Jones River were similar to those described above for Broadkill River, however, a rainfall event pushed the salt wedge downstream and conditions within the 1/2 mile survey area (Route 13 bridge to Martin Luther King Jr. Blvd) became suitable for electrofishing. Both sides of the river were surveyed on October 7, but just four bass were caught. They ranged in size from 7"-16" and were robust with relative weights well above a target of 90, indicating adequate forage is available.

A survey conducted in 2017 also yielded very few bass. It is possible that most of the bass population occurs upstream of Martin Luther King Blvd, especially when water salinity is high during droughts. Also, low dissolved oxygen in the vicinity of the wastewater treatment plant off of East Water Street in Dover may play a role in bass distribution. The ability of the bass population to support a viable recreational fishery in this segment of the river is questionable. Future management efforts may need to shift upstream.

Discovery and Research of Flathead Catfish Pylodictis olivaris in Lums Pond

By: Michael Steiger, Environmental Scientist III, Invasive Species Biologist

Flathead catfish, native to the Mississippi and Ohio river drainages, are particularly damaging to fish populations because at 4" in length they switch to primarily eating other fish. They can grow up to 45" and live to 28 years. The world record Flathead catfish, at 61" and 123 lbs, was caught in Kansas. In Delaware, flathead catfish weighing up to 40 pounds were reported in the Brandywine River, and a 37", 26 lb fish was removed from Lums Pond in fall 2022.

From July - October 2022, electrofishing surveys were conducted by Division of Fish and Wildlife (FW) staff at Lums Pond, resulting in the removal of 31 flathead catfish. They ranged in size from 7" - 37". Sixteen of the 31 (or 51%) of the catfish collected were 19"-24." Flathead catfish generally become sexually mature at 4-5 years old or 18" in length. Most of the catfish captured in the survey were mature enough to reproduce and expand this predatory population in Lums Pond. A preliminary stomach contents analysis showed mostly yellow perch and white perch were eaten as well as a few bluegill and black crappie. Removal efforts will continue in 2023 to curb the flathead population and reduce their impact on the pond fish community, especially other catfish species that co-occur.



Video of the Lums Pond Flathead Catfish project : youtu.be/IM-8xhl84Gs

If you catch a flathead catfish in Lums pond please remove it and alert park staff or contact FW. A sign at the boat ramp kiosk has fish ID information, as well as contact

information for reporting a catch. This can be done by email, phone, or by scanning the QR code and going directly to our invasive fish reporting webpage. If you have any questions, contact Mike at Michael.Steiger@delaware.gov; 302-735-2966.





How Old is this Bass?

The ability to evaluate the age structure of a bass population is a valuable fishery management tool. It provides fisheries biologists with information about the rate of growth, condition, lifespan, and age at critical periods of life, such as when fish are mature and at what age they spawn for the first time.

The best way to determine the age of a bass is by using hard bony parts, i.e. otoliths ('ear stones'), scales, or dorsal fin spines. Similar to aging a tree, biologists count the rings on these hard parts to determine the age of a fish. As a fish grows rings are formed. When growth slows in the winter the rings are laid down closer together and form what is called an annuli or a year mark.

Spines are preferable for aging bass because otoliths require sacrificing the fish and scales are not as accurate for older fish. Spines were collected from bass caught during surveys of the Nanticoke River, Broadkill River, and Marshyhope in 2021. Below is a description of the process. The bass spine shown in step 4 was collected during the Broadkill River survey and is from a 20.9" and 5.3 lb bass. The bass is 8 years old based on analysis of the spine.

1) The first spine on the spiny dorsal fin is clipped at its base. The spine is placed in a small envelope and the bass is released.



2) The spine is set in a two-part epoxy, dried, and then cut in very thin cross sections with the diamond blade on the isomet saw shown below.

Spines set and drying in epoxy



3) The thin cross sections of spine that were cut with the saw are set in crystal bond on a microscope slide.



4) The spine cross sections on the slide are viewed under a microscope. Biologists assign an age based on examination of the growth rings. Not every ring is a year mark. False annuli are formed when growth slows due to stress, extreme weather, or when energy is diverted to spawning activities.



5) Example of a growth curve generated from spine data



2022 Warmwater Fish Stocking

The Division of Fish and Wildlife stocked fish from a local supplier to improve fish populations in several public fishing ponds. For stocking in tidal waters, bass fingerlings were obtained from a certified supplier in Arkansas.

NON-TIDAL WATER:

Golden shiner (4 to 6 inches total length) were stocked in the following ponds to support growing or abundant bass populations.

Abbotts Pond was stocked with 15 lbs of shiners Blairs Pond was stocked with 30 lbs of shiners Concord Pond was stocked with 40 lbs of shiners Lums Pond was stocked with 80 lbs of shiners Wagamons Pond was stocked with 40 lbs of shiners

Although panfish (i.e. Bluegill, Black crappie, Pumpkinseed, Redear sunfish) should be the primary forage for bass, shiner are supplemental forage and take some predation pressure off of the panfish population.

TIDAL WATER:

To supplement natural reproduction, Largemouth bass (4-inch average length) were stocked into the Nanticoke River system (n=8,000) at multiple locations in the fall of 2022. Another 2,000 were stocked at several locations in the freshwater segment of the Broadkill River (n=2,000).

Fish Rearing at SCCC

The Division of Fish and Wildlife, and the Sussex County Correctional Center (SCCC) have partnered on a project to rear fish at the Sgt Jason Burhop Memorial Aquaculture/Aquaponics Training Center. Bluegill and Largemouth bass fry were purchased from a supplier in Arkansas in May and July respectively. Staff with Delaware State University's Aquaculture Research Facility are guiding the fish husbandry efforts. The gamefish raised at the center will be stocked into public fishing ponds and lakes throughout the state in spring 2023.





Largemouth bass (left) are grown to lengths >6" in a system of tanks (above) that allows separation of faster growing ones to reduce cannibalism. The Bluegill are grown to >4" in a hydroponics system. The fish are measured and weighed periodically. Water temperature and feed are adjusted for optimum growth.



Visit the LMB webpage: <u>de.gov./Imbtourney</u>



facebook.com/DNRECFishWildlife



DNREC Division of Fish and Wildlife Shad Biologist Johnny Moore (left) and seasonal biologists Khaliq Still and Shane Heatley measure and stock several thousand Largemouth bass fingerlings into the Nanticoke River at the Marina in Blades, Del.

Contact Information:

Tournament Reports:

Submit at: de.gov/basstournrpt

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Fisheries Seasonal Shane Heatley shane.heatley@delaware.gov 302-735-2974

Tournament Permits Apply at: de.gov/fisheventrpt

Brandi Besecker brandi.besecker@delaware.gov 302-739-9913

Fish and Wildlife Natural Resources Police New Castle County 302-836-4682 Kent County 302-739-6139 Sussex County 302-855-1901

Report Violations 302-739-4580 800-523-3336

Operation Game Theft 800-292-3030

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