NJDEP Division of Fish and Wildlife
Bureau of Freshwater Fisheries

Warmwater Fisheries Assessments 2014

New Jersey has over 400 impoundments open to the general public for fishing and thousands more in private ownership scattered throughout the state. These lentic environments offer excellent fishing opportunities for a variety of species such as bass, sunfish, crappie, and pickerel. These species naturally reproduce in these waterways and often do not require active stocking to sustain their populations. The Bureau of Freshwater Fisheries conducts abbreviated fisheries surveys on lakes and ponds throughout the state to assess the status of the fisheries. Largemouth Bass are the most popular and widely distributed of the state's game species. Electrofishing surveys are conducted at various times throughout the state to assess the status of bass populations in waters located throughout the state.
(Hunter & Angler Fund)

Allentown Lake (Monmouth) – A boat electrofishing survey was completed at Allentown Lake on August 19th. A total of 30 minutes of sampling was completed along the perimeter of the lake. There were 16 Largemouth Bass collected ranging in size from 115 – 480 mm. This would be considered a good catch rate for this region of the state based on time of year and daytime sampling. Allentown Lake has been heavily impacted by sedimentation, which limits the fish population.

Daretown Lake (Salem) – A boat electrofishing survey was completed at Daretown Lake on August 15th. A total of 30 minutes of electrofishing was completed around the perimeter of the lake. A total of 35 Largemouth Bass ranging in size from 85 – 346 mm were collected. The fish population has been severely impacted by overharvest in recent years. As a result, young-of-the-year Largemouth Bass were stocked in 2012. The 2012 year class appears to be well represented based on length distribution and average growth. An additional stocking of young of the year is recommended in 2015.

Delaware River (Burlington) – A boat electrofishing survey was completed at the Delaware River in Bordentown on August 25th. The survey was completed at high tide and very few fish were encountered. Total electrofishing time was 1.5 hours. A follow-up survey at low tide was completed on August 29th. A total of 18 Largemouth Bass were collected ranging in size from 135 – 460 mm. There appears to be a very good year class of the young-of-the-year (y-o-y) Largemouth Bass, which presumably is a result of the abundant submerged aquatic vegetation present in the Delaware River in the last couple years. Native wild celery as well as hydrilla and elodea have vastly expanded throughout the river. Tidal water Largemouth Bass populations have been shown to be positively correlated with SUV abundance. In addition, five y-o-y Walleye collected which were stocked by Hackettstown earlier this year. Walleye are occasionally caught by anglers in the tidal portion of the river, however no stocking has been done in the past. Surplus Walleye were stocked in 2014 to

establish a Walleye fishery in the tidal section of the Delaware. Two small Flathead Catfish were also observed. Total electrofishing time was one hour.

DOD Lake (Salem) – A daytime electrofishing survey was completed at the DOD Lake WMA on June 27th to assess the Largemouth Bass population. The total run time was 1.5 hours. Thirty-one Largemouth Bass were collected, which correlates to a CPUE of 20 bass/hour, the largest weighing 1.86 kg (4.1 lbs) and 485 mm. The CPUE was 31 bass/hour when electrofishing was conducted at night in 2002. The population was well distributed and in good condition. Three bowfin were also collected which were previously not encountered during sampling.

Elmer Lake (Salem) – An electrofishing survey was completed on July 22nd at Elmer Lake to evaluate the Largemouth Bass population which may have been impacted by a recent dam reconstruction. Additional young-of-the-year Largemouth Bass were stocked in the lake in 2012. A total of 18 bass greater than the 200 mm stock size were collected during one hour of electrofishing. A total of 17 bass below the stock size were collected. This would be considered a moderate catch rate for daytime electrofishing during the summer. Age I and II Largemouth were well represented and indicate the fish population should continue to improve following the dam reconstruction.

Game Creek (Salem) – A boat electrofishing survey was completed on August 5th in the Game Creek portion of Salem Canal to evaluate the Largemouth Bass population and monitor for the presence of Northern Snakeheads. Recent reports were received indicating that Northern Snakeheads have made their way into the Game Creek and Salem Canal areas, through a floodgate within the Dupont facility. A total of 15 Bowfins were collected however no Snakeheads were observed. There were 27 Largemouth Bass collected during 1.5 hours of electrofishing. The bass population appears to have been affected by either fishing pressure or the presence of the Bowfin in recent years. This would be considered a moderate catch rate for this location, considering sampling was conducted during the daytime and in the summer.

Gropps Lake (Mercer) – A boat electrofishing survey was completed on July 28th to update records and evaluate the fish population. No recent data was available for Gropps Lake. A total of 13 Largemouth Bass were collected during one hour of electrofishing. Additional night electrofishing would be necessary to fully evaluate the fish population. However, based on angler reports and the few anglers observed fishing at the location, the low catch rate is probably a good indicator of the poor Largemouth Bass population. Stocking of additional Largemouth Bass is recommended for two years and then reevaluating the lake by electrofishing. Species also present included Black Crappie, Bluegill, Brown Bullhead, Chain Pickerel, White Catfish, Warmouth, White Sucker, Gizzard Shad and Yellow Perch.

Hammonton Lake (Atlantic) – A boat electrofishing survey was completed on July 29th at Hammonton Lake to evaluate the Largemouth Bass population. A fisheries inventory and management plan was completed in 2007. Largemouth Bass have been stocked in the lake two times since then to improve the population. A total of 28 Largemouth Bass were collected during one hour of electrofishing. The size distribution was consistent with 2007

sampling and ranged from 161 – 438 mm. The population consists mostly of smaller fish demonstrated by a PSD of 50 and RSD_{15} of 0. PSD and RSDp are indices of balanced fish populations. A PSD of 50 indicates that 50 percent of bass collected are above the 12" size limit. No fish collected greater than 15". No additional stocking is required at this point, however additional electrofishing should be completed in 2016. Residents have repeatedly complained about excessive aquatic vegetation growth and performed winter lowering. Bladderwort did not appear to be problematic this season however the lake was significantly covered with what appeared to be naiad.

Heritage Park Pond (Atlantic) – An electrofishing survey was completed at Heritage Park Pond located in Absecon. This was the first time this waterbody has had an electrofishing survey. The town requested a survey due to poor fishing success in recent years despite ongoing stockings of Largemouth Bass in 2011, 2012 and 2013. The pond once had a thriving Largemouth Bass population however in recent years fishing has been rather poor. Overfishing and possibly impacts by a robust spring cormorant population may have significantly impacted the fish population. A total of 13 Largemouth Bass were collected, six of which were greater than 200 mm, during one hour of electrofishing. A total of 11 Channel Catfish were collected. The Largemouth Bass population would be considered poor based on sampling results. A significant algae bloom has been present for over five years now and may also have affected the fish population. The pH of 10.15 was much higher than normal due to the problematic planktonic algae bloom.

Lake Audrey (Cumberland) – An electrofishing survey was completed on August 7th at Lake Audrey to evaluate the bass population. A total of six Largemouth Bass (309 – 410 mm) were collected during one hour of electrofishing. There were no Smallmouth Bass collected or observed. The pH was extremely low at 4.61. Due to the low pH young-of-the-year Largemouth Bass were stocked in 2014. The stocking of Smallmouth Bass was discontinued due to the drop in pH. Largemouth Bass were not abundant but were in good condition. An additional liming is necessary to sustain the fishery and should be considered in the near future. An excellent Largemouth Bass population could be established if the pH were higher.

Lake Lenape (Atlantic) – A boat electrofishing survey was completed on July 30th at Lake Lenape to evaluate the Largemouth Bass population. A total of 14 Largemouth Bass were collected during one hour of electrofishing. All individuals were greater than the 200 mm stock size. The PSD of 93 and RSD_{15} of 79 are above the recommended 40-70 PSD values and the 10-25 RSD_{15} values for a balanced population. The population is considered unbalanced and dominated by larger individuals. Four individuals were in excess of four pounds. The two largest were 544 mm and 2.790 kg (6.15 lbs) and 535 mm and 2.470 kg (5.44 lbs). The lake was stocked with surplus Largemouth Bass last year however no Age I individuals were observed. A number of young-of-the-year were observed and indicate a strong year class. Waters with low pH often have highly variable spawning success. Night electrofishing should be completed in two years to further monitor the Largemouth Bass population. Recruitment appears to be a problem due to lack of shoreline or submerged vegetation.

Lake Lenape
Largemouth Bass

Mary Elmer Lake (Cumberland) - An electrofishing survey was completed at Mary Elmer Lake located in Bridgeton to assess the Largemouth Bass population and evaluate whether any trout stocked during the spring were still present. A total of one hour of daytime electrofishing was completed and resulted in 27 Largemouth Bass and three Brown Trout. The Largemouth Bass appears to be balanced and well distributed however has been impacted by fishing pressure and harvest. The CPUE was 59 bass/hour during night electrofishing in 2004 when an inventory was completed. In addition, one Channel Catfish and two White Catfish were collected.

Palatine Lake (Salem) - A boat electrofishing survey was completed on October 15th at Palatine Lake, Salem County to evaluate the warmwater fish population. A total of 43 Largemouth Bass greater than the 200 mm stock size were collected during one hour of electrofishing. The PSD was 98 and RSD_{15} was 58. Both are indicators of a population that is out of balance despite producing excellent fishing opportunities. Reproduction appears to be very good based on the number of young-of-the-year bass observed. Palatine Lake is an impoundment of the Muddy Run tributary of the Maurice River situated upstream of Parvin State Park and Rainbow Lake WMA; and downstream of Elmer Lake WMA. The lake was previously not sampled. A survey was completed to establish a comparison of lakes with varying degrees of fishing pressure.

Pemberton Lake (Burlington) – An electrofishing survey was started on June 30th at Pemberton Lake however was only partially completed due to equipment failure. A total of 17 Largemouth Bass were collected. A significant algae bloom was occurring and recent fishing reports from the lake were rather poor. A follow-up survey was completed on July 18th. A total of 17 additional Largemouth Bass were collected in one hour of electrofishing. A significant algae bloom was still present. The bass population is unbalance consisting of mostly small fish. The stocking of young-of-the-year Largemouth Bass was recommended and completed by Hackettstown Hatchery in 2014. Stocking young-of-the-year Largemouth Bass should be done again in 2015. Another electrofishing survey will be completed in 2017 to evaluate the stocking.

Prospertown Lake (Ocean) – The dam at Prospertown Lake WMA was repaired in 2012 and the lake was restocked in 2012 with warmwater fish. Prospertown Lake also received additional trout during the 2014 Spring Trout Season. A daytime electrofishing survey was completed on June 19th. The total run time was 1.75 hours. A total of 24 Largemouth Bass were collected, many of which were adult fish that had not been collected during the fish salvage. The fish population appeared to being doing well despite being completely drained only a few years ago. A total of 10 species were collected, including two Brown Trout.

Rising Sun Lake (Monmouth) – An electrofishing survey was completed at Rising Sun Lake on June 26th. A total of one hour of daytime electrofishing was completed. A total of 109 Largemouth Bass were collected, of which 55 were below the 200 mm stock size. The lake has a rather low diversity of fish species with Largemouth Bass the dominant species. The PSD of 38 and none over 15 inches indicates the population is not balanced. Young-of-the-year Largemouth Bass were stocked in 2011 and appear to be well represented. Fishing

results received from WMA Tournament Permits indicate poor fishing in recent years. Fewer anglers are also fishing at the location. In 2008 there were 15 WMA Fishing Tournament Permits issued and only 7 in 2014. Additional Bluegill and possibly Yellow Perch should be introduced to increase the forage base.

Saffin Pond (Morris) - This county-owned 13-acre pond, located in the Highlands, was drained for dam repairs and refilled in 2012. The pond's features (rocky dam surface, scattered rocks in pond bed, minimal aquatic vegetation, and 1110 ft. elevation) made it a good candidate location for establishing Smallmouth Bass. Smallmouth Bass (primarily fingerlings, but some older) have been stocked in the pond annually over the past three years. Shoreline seining conducted the past two years revealed little in terms of successful SMB reproduction. To better assess the status of the SMB fishery the entire perimeter of the pond was electrofished during the daytime. It was apparent from this survey that Largemouth Bass (LMB) not only survived the drawdown, but were reproducing successfully, and dominating the bass fishery. A total of 92 bass were collected and of these, 79% (73 individuals) were LMB and only 21% (19 individuals) were SMB. The size range for bass was: SMB 100- 336 mm (3.9 – 13.2 in) and LMB 77 – 424 mm (3 – 16.7 in). Other species encountered were Yellow Perch, Pumpkinseed, Brown Bullhead, and Bluegill. Interestingly, four of the LMB captured exhibited scoliosis, a deformed spine (see photo). This condition sometimes occurs as the result of an injury; however, its presence in four individuals suggests it is likely the result of a congenital birth defect.

Stafford Forge Impoundment #1 (Ocean) – An electrofishing and seining survey were completed at Stafford Forge Impoundment #1 WMA on July 24th to evaluate the fish population. A total of 30 minutes of electrofishing and two seining locations were sampled. A total of 10 Largemouth Bass greater than 200 mm were collected during daytime electrofishing and ranged from 252 -430 mm. The fish population is limited by the low pH of 5.04. Six young-of-the-year (y-o-y) Largemouth Bass were collected from the two seining locations as well as seven Banded Sunfish and one y-o-y Chain Pickerel.

Stewart Lake (Gloucester) - An electrofishing survey was completed at Stewart Lake located in Woodbury on June 24th to assess the Northern Snakehead and Largemouth Bass populations. A total of two adult Snakeheads and 40 Largemouth Bass greater than the 200 mm stock size, ranging from 235 mm-478 mm, were collected during 1.5 hours of daytime electrofishing. A PSD of 62 and RSD_{15} of 22 indicate the population is balanced. The numbers are consistent with previous electrofishing surveys and suggest that the Snakehead population has not had an impact on the Largemouth Bass population.

Stone Tavern Lake (Monmouth) - An electrofishing survey was completed at Stone Tavern Lake on July 21st to evaluate the Largemouth Bass population. A total of 69 Largemouth Bass greater than the 200 mm stock size and 13 below stock size were collected during one hour of boat electrofishing. The population appears be balanced based on a PSD of 60 and RSD_{15} of 5 and in good condition.

Turnmill Lake (Ocean) – An electrofishing survey was completed at Turnmill Lake, located in the Colliers Mills Wildlife Management Area. One hour of electrofishing was completed to evaluate the fish population status as a result of fish placed in Turnmill Lake from a fish salvage at Prospertown Lake. Despite the large number of fish that were placed in the lake only six Largemouth Bass greater than the 200 mm stock size, and eight less than the stock size were collected. Very few Bluegill and Chain Pickerel were present. A recommendation was made to the hatchery to stock additional fish prior to the Outdoor Expo in September. The fish population is most likely limited by the low pH and depth of the pond (less than four feet average depth).

Stone Tavern Lake
Largemouth Bass