



Harvey Gap Reservoir

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FISH SURVEY AND MANAGEMENT INFORMATION

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General Information: Harvey Gap provides outstanding angling opportunities for a number of fish species including Yellow Perch, Black Crappie, Bluegill, Channel Catfish, Largemouth Bass, Tiger Muskie, Rainbow Trout, Northern Pike, and Smallmouth Bass.

Location: Harvey Gap State Park, approximately 5 miles north of Silt, Colorado.

Recreational Management: Colorado Parks and Wildlife.

Fishery Management: Combined warmwater and coldwater angling.

Purchase a Fishing License: <https://cpw.state.co.us/buyapply/Pages/Fishing.aspx>

Amenities

- One paved boat ramp is located on the east side of the reservoir
- Several restrooms are located in the three parking areas on the east side of the reservoir
- The Park's visitor center is located at nearby Rifle Gap Reservoir and has restrooms, gift shop, internet access and registration for boats, OHVs, and snowmobiles.

Fish Stocking

- CPW regularly stocks Black Crappie, Bluegill, Largemouth Bass, Channel Catfish, Rainbow Trout, and Tiger Muskie
- 2020 stocking:
 - 13,003 Bluegill (1.5")
 - 426 Tiger Muskie (14.6")
 - 3,754 Largemouth Bass (1.5")
 - 77 Largemouth Bass (11" to 20")
 - 2,012 Channel Catfish (2.7")
 - 22,002 Black Crappie (1.1")
 - 15,405 Rainbow Trout (9.4" to 17.0")

General Regulations

- A valid Parks Pass is required for each vehicle and a valid individual pass is required for all walk-ins
- No camping is permitted
- Boating is closed seasonally from November 1 through March 31; motors restricted to 20 horsepower or less

Fishing Regulations

- Minimum size for Largemouth Bass is 15 inches long, bag and possession limit of 5 fish
- Bag and possession limit for Channel Catfish is 2
- Use of spearfishing, slingbows, archery, gigs for take of Northern Pike is prohibited
- Unlimited bag and possession limit for Northern Pike, Smallmouth Bass, and Yellow Perch
- Bag and possession limit for Tiger Muskie is 1, minimum size of 36 inches
- Statewide regulations apply for all other species including a limit of 20 Black Crappie (<https://cpw.state.co.us/Documents/RulesRegs/Brochure/fishing.pdf>)

Reservoir Operation Notes

- Reservoir levels fluctuate throughout the year in response to irrigation demand
- Reservoir is operated by Silt Water Conservancy District
- Fishery persisted despite a severe draw down of water level in the reservoir during much of 2017 for dam inspection

Fishery Management Notes

- Harvey Gap is a destination fishery and is very popular with both warmwater and trout anglers
- Yellow Perch are most abundant fish captured during CPW's fishery surveys
- CPW is working to improve fishery through habitat improvement, fish stocking, and relocation of Yellow Perch
- No fish are lethally removed during fishery surveys
- Harvey Gap presents a unique opportunity to catch a diversity of fish species (and a chance at some very large fish!)

Harvey Gap Reservoir Map and Access Information



P = Parking  = Restroom  = Boat Ramp

Figure 1. Map of Harvey Gap Reservoir showing locations of parking areas, restrooms, and boat ramp.

Harvey Gap Reservoir Fishery Improvement Projects



Figure 2. Building and preparation of artificial tree structures which were installed in Harvey Gap Reservoir in 2018. A total of 25 structures were deployed.



Figure 3. Deployment of artificial tree structures in Harvey Gap Reservoir in 2018. A total of 25 structures were deployed.

In addition to the annual stocking of a variety of warmwater species and Rainbow Trout, CPW has taken several steps to improve the fishery at Harvey Gap Reservoir. In 2018, CPW partnered with local anglers and the Silt Water Conservancy District to install 25 artificial tree structures throughout the reservoir. The purpose of this project was to improve habitat in the reservoir and provide smaller-bodied fish species such as Black Crappie and Bluegill with cover from larger predatory species in the reservoir such as Largemouth Bass, Smallmouth Bass, Northern Pike, and Tiger Muskie. This project is expected to increase survival and growth potential of these smaller-bodied fish species. Angler reports indicate that fish in the reservoir have found these structures and that there is a high abundance of fish present in and near these clusters of artificial trees. CPW is exploring the potential for future habitat improvement projects which will further benefit the fishery.

Largemouth Bass are stocked annually from CPW's hatchery system at an average size of approximately 1" to 3". To further supplement the Largemouth Bass population following the drawdown of the lake in 2017, CPW partnered with local anglers and local landowners to move 756 Largemouth Bass (average length of 9.7", lengths ranging from 2.2" to 23.3") from private ponds in 2018 and 2019. These fish are expected to provide an immediate benefit to anglers as anglers have an opportunity to catch these larger fish. Furthermore, these Largemouth Bass are expected to provide a benefit to the Yellow Perch fishery by applying predation pressure on smaller size-classes which are currently overly abundant.

CPW relocated a total of 8,768 smaller Yellow Perch (average size of 5") from Harvey Gap to Rifle Gap in 2019 and 2020. The Yellow Perch fishery in Harvey Gap is currently dominated by these smaller size-classes. This is expected to improve the Yellow Perch fishery at Harvey Gap by reducing densities of these smaller Yellow Perch and increasing growth rates and average size. Furthermore, this project is expected to benefit the Rifle Gap fishery by increasing the abundance of Yellow Perch in the reservoir which benefits the Yellow Perch population and also provides additional forage for larger predators in the reservoir. Based on high densities of Yellow Perch in Harvey Gap Reservoir observed during the Fall 2020 electrofishing survey, additional Yellow Perch relocation efforts are planned for 2021.

Harvey Gap Reservoir Management Notes

Historical Trends and Species-Specific Analysis

Trends in catch per unit effort (number of fish captured per hour of electrofishing, representative of abundance) and population size structure were evaluated based on historical fall fishery surveys. Additionally, historical Proportional Stock Density (PSD) was evaluated. PSD is a well-recognized metric used to evaluate size structure of warmwater fish populations by determining the proportion of fish in a sample that are at least a “quality” size or greater (defined as greater than 36% of world record length for that species, this is typically minimum size that provides recreational value) relative to the number of fish that are at least a “stock” size (defined as fish that are at least 20% of world record length for that species, this is typically the approximate length at maturity). The higher the PSD value, the higher the proportion of fish that are at least a quality length compared to fish that are stock length. Species-specific length cutoffs for stock and quality designations and ideal PSD ranges for a balanced population are shown in each PSD figure.

Yellow Perch

There is a clear inverse relationship between electrofishing catch rates and PSD values, meaning that the higher the catch rate, the lower the proportion of fish that are a quality length (Figure 6). Yellow Perch PSD has been quite low since 2010 which has corresponded with increased catch rates. Yellow Perch are a very important component of the recreational fishery in Harvey Gap and are also an important forage fish for predatory fish. However, the high abundance of small Yellow Perch limits their growth potential (Figure 7). The fall 2020 survey showed the highest electrofishing catch rate of Yellow Perch ever observed. However, it is worth noting that the reservoir was extremely low which may have increased catch rates because the fish were confined to a reduced volume of water, making them more vulnerable to capture. Steps being taken to reduce abundance and to increase PSD are the stocking of predatory fish such as Tiger Muskie and Largemouth Bass, and the relocation of thousands of Yellow Perch from Harvey Gap to Rifle Gap. Furthermore, Brown Trout will be stocked beginning in 2021 to provide additional predation pressure.

Largemouth Bass

Historically, Largemouth Bass surveyed have mostly consisted of smaller individuals, resulting in low PSD values (no fish greater than or equal to least stock length were surveyed in 2012, 2014, or 2016) (Figure 8 and Figure 9). However, the Largemouth Bass surveyed in the fall 2020 survey had a PSD of 57 which is within the ideal range of 40-70. Angling reports also show that high densities of Largemouth Bass can be found near the artificial habitat structures, including some fish over five pounds. Largemouth bass electrofishing catch rates in the fall 2020 survey were relatively low relative to historical fall electrofishing data. If available, more Largemouth Bass should be stocked from CPW’s hatchery system to increase densities. CPW will also continue to evaluate potential sources of adult Largemouth Bass from other waters.

Black Crappie

Black Crappie PSD declined steadily between 2012 and 2015, while no stock size Black Crappie were captured in 2016 which did not allow for a PSD value to be generated (Figure 10 and 11). Catch rates were also relatively low in 2015 and 2016. However, both PSD and electrofishing catch rates of Black Crappie rebounded substantially in 2020 relative to 2015 and 2016. Black Crappie PSD was 43 which falls within the ideal range of 30-60. It is expected that the habitat improvement project has provided some benefit for Black Crappie survival and growth rates. Black Crappie stocking rates will be evaluated on an annual basis. If future surveys show catch rates exceeding those observed in the 2020 survey or if PSD values decline, stocking rates will be reduced. It is likely that Black Crappie are under-represented in the surveys due to the methods used; fyke nets will likely be used during the 2021 survey to further evaluate the Black Crappie population.

Harvey Gap Reservoir Management Notes

Bluegill

Bluegill electrofishing catch rates were quite low in the fall 2020 survey while the Bluegill PSD was 100. Bluegill catch rate decreased from 56 fish per hour to 4.9 fish per hour between 2016 and 2020. Based on these data, it is possible that the drawdown of the reservoir in 2017 significantly reduced Bluegill density. If these trends continue in 2021 survey data, stocking rates will be increased and catch rates and PSD will be evaluated regularly using fall standardized surveys. It is likely that Bluegill are under-represented in the surveys due to the methods used; fyke nets will likely be used during the 2021 survey to further evaluate the Bluegill population.

Tiger Muskie

Following fairly regular stocking of Tiger Muskie in the 1990s, the stocking of Tiger Muskie resumed beginning in 2013 following a hiatus in stocking between 2001 and 2012. Tiger Muskie are a highly sought after sportfish that provide a trophy fishing opportunity. Tiger Muskie are periodically captured during CPW's fishery surveys at low densities, including a 34" fish in 2016 (Figure 14 and 15). Anglers have also reported catching very large Tiger Muskie (25+ pounds) in the last 2-3 years. However, as is the case when fishing for Tiger Muskie, they can be elusive during electrofishing surveys so sufficient numbers typically aren't captured to make meaningful inferences on densities based on survey data. CPW plans to continue stocking of Tiger Muskie into the future.

Northern Pike

Northern Pike PSD and catch rates have been increasing since 2015 (Figures 16 and 17). The Northern Pike electrofishing catch rate in the fall 2020 survey was 14.8 fish/hour while the PSD value was 80. There were numerous Northern Pike (including several large fish over 36") observed during perch relocation efforts conducted in the spring of 2019 and 2020. Northern Pike cannot be stocked in Harvey Gap Reservoir and bag and possession are unlimited.

Smallmouth Bass

Catch rates of Smallmouth Bass were relatively low in the 2020 fall electrofishing survey, following increases in catch rates observed between 2012 and 2016. The PSD of Smallmouth Bass in the fall 2020 survey was 20 (Figures 18 and 19). Smallmouth Bass cannot be stocked in Harvey Gap Reservoir and bag and possession are unlimited.

Fall 2020 Survey Notes and Future Management Recommendations

Fall 2020 Survey

The purpose of the fall electrofishing survey in 2020 was to monitor the fishery's response to the habitat improvement project as well as recent largemouth bass and yellow perch relocations. Fishery survey data are used to inform management decisions, including fish stocking rates and frequency, evaluation of effectiveness of fishing regulations, and assessment of the quality of fish habitat in the reservoir.

The most numerous species captured during the Fall 2020 survey was Yellow Perch (93.6% of the fish caught), followed by Northern Pike (2.1%), Smallmouth Bass (1.2%), Largemouth Bass (1.1%), Black Crappie (0.9%), Bluegill (0.7%), Rainbow Trout (0.2%), and Tiger Muskie (0.1%) (Figure 20). The average length of Yellow Perch surveyed in 2020 was 6 inches, which was up from 5 inches during the standardized survey in 2019. Although highly variable, the average relative weight of Yellow Perch was 85.8 which means they have below average body condition (an average body condition is 93) (Figure 21). The average relative weight of Largemouth Bass surveyed was 110 while the average relative weight of Northern Pike was 98. This above average body condition observed in predatory Largemouth Bass and Northern Pike is likely due to an abundance of Yellow Perch in the reservoir which serve as forage fish for these predators. Northern Pike also showed increasing relative weight in longer fish which is likely a result of these larger fish reaching a size in which they can eat stocked rainbow trout.

Harvey Gap Reservoir Management Notes

The 2020 electrofishing survey was conducted on October 6 when the water temperature was 58.5 degrees. This water temperature and seasonal timing lines up well with when historical fall surveys were conducted, allowing for comparison to previous fall electrofishing surveys. The water level in Harvey Gap was exceptionally low during the 2020 survey which may have increased electrofishing catch rates due to fish being more vulnerable to capture based on the reduced reservoir volume. CPW will continue to conduct regular fall fishery surveys to evaluate the fishery in regards to how body condition, catch rates, and population size structures compares to historical surveys. Furthermore, extensive electrofishing efforts are planned for the spring of 2021 to continue to move Yellow Perch from Harvey Gap to other waters, including Rifle Gap. Future standardized surveys will allow us to continue to evaluate the fishery's response to the habitat improvement project, the Yellow Perch relocation project, and the effects of stocking adult Largemouth Bass from nearby private waters.

Future Management

CPW will continue to monitor the Harvey Gap Reservoir fishery through standardized surveys in the fall using a combination of boat electrofishing, gill netting, and potentially fyke nets. Although there are no immediate plans for regulation changes, CPW will continue to discuss any concerns regarding current regulations or management of the fishery with anglers and will have a public meeting when conditions allow. CPW will continue to move Yellow Perch from Harvey Gap to Rifle Gap and will continue to monitor the effects of this project on both waters through regular standardized sampling. CPW continues to look for opportunities to work with private landowners to move warmwater fish from private waters into Harvey Gap, especially Largemouth Bass and/or Black Crappie. Stocking of Bluegill, Black Crappie, Rainbow Trout, Channel Catfish, Largemouth Bass, and Tiger Muskie from CPW's hatchery system will continue. Stocking rates will be adjusted, as needed, based on data that is gathered during fishery surveys.



Figure 4. Author displaying adult largemouth bass from CPW's Las Animas fish hatchery prior to stocking in Harvey Gap.



Figure 5. Net full of yellow perch being relocated from Harvey Gap Reservoir to Rifle Gap Reservoir in 2020.

Harvey Gap Reservoir Historical Fishery Survey Information (Yellow Perch)

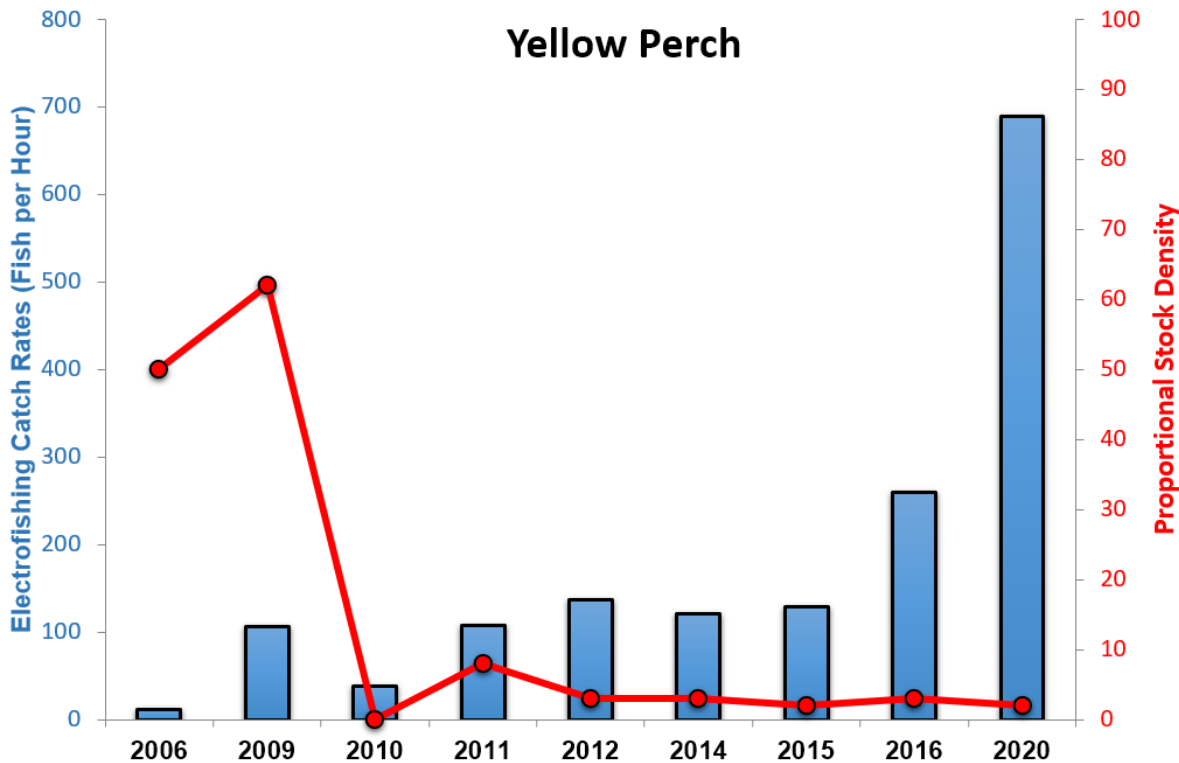


Figure 6. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Yellow Perch captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Yellow Perch at least “stock” length (5.1 inches) that are also at least a “quality” length (7.9 inches). Ideal PSD values for a balanced Yellow Perch population range from 30 to 60.

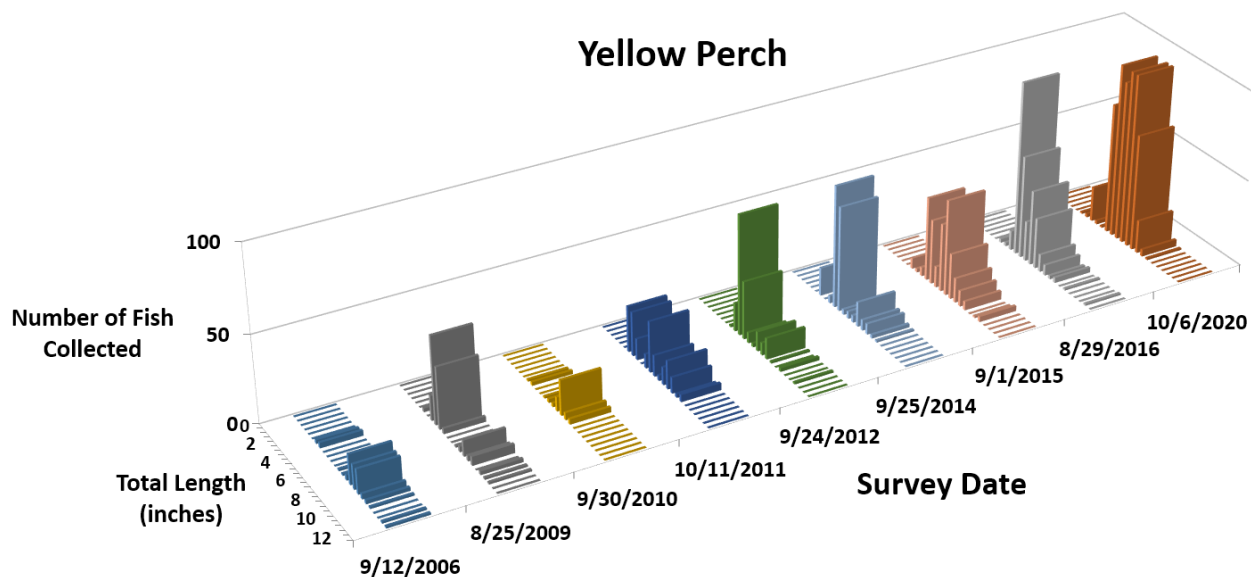


Figure 7. Size structure of the Yellow Perch population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir Historical Fishery Survey Information (Largemouth Bass)

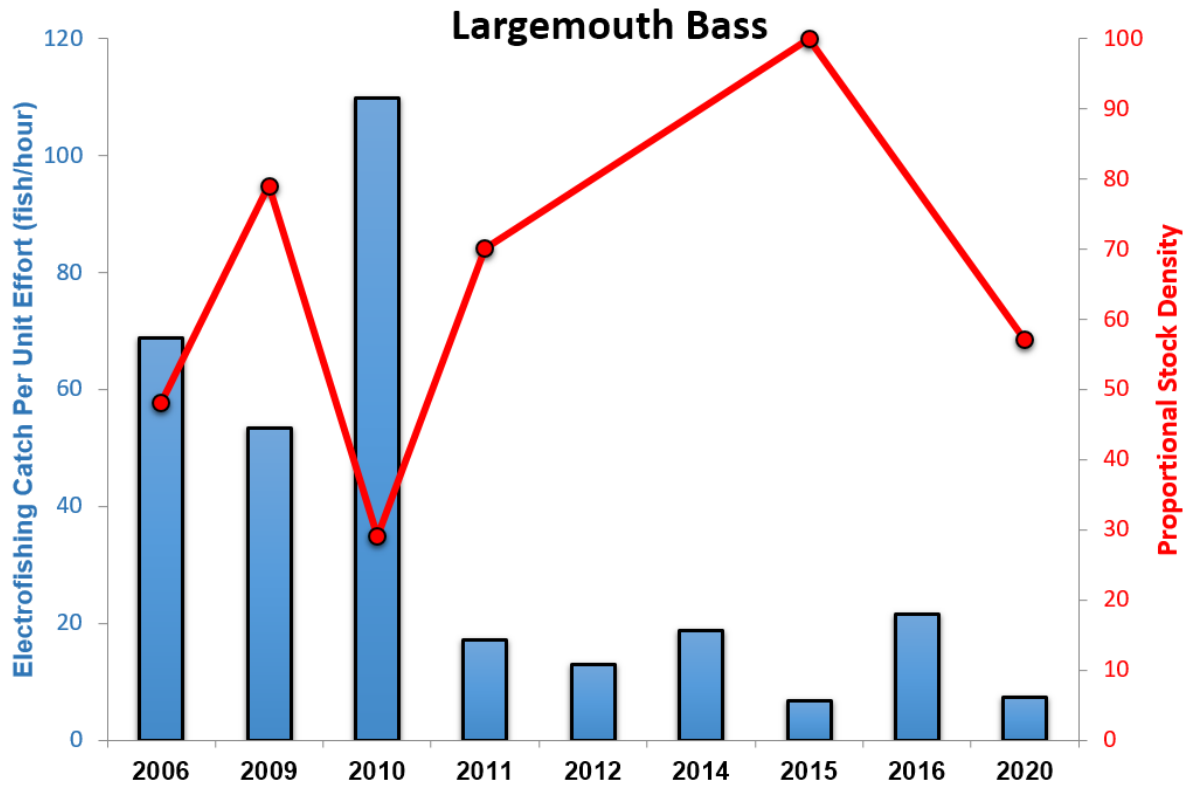


Figure 8. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Largemouth Bass captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Largemouth Bass at least “stock” length (7.9 inches) that are also at least a “quality” length (11.8 inches). Ideal PSD values for a balanced Largemouth Bass population range from 40 to 70.

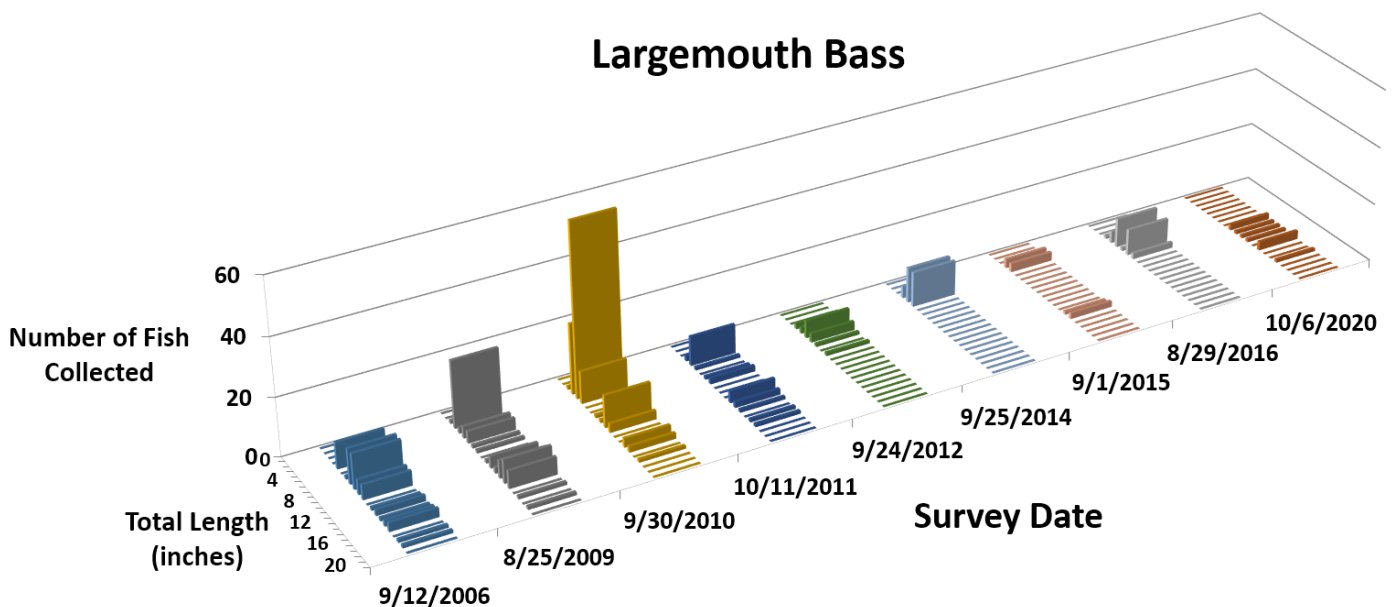


Figure 9. Size structure of the Largemouth Bass population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir Historical Fishery Survey Information (Black Crappie)

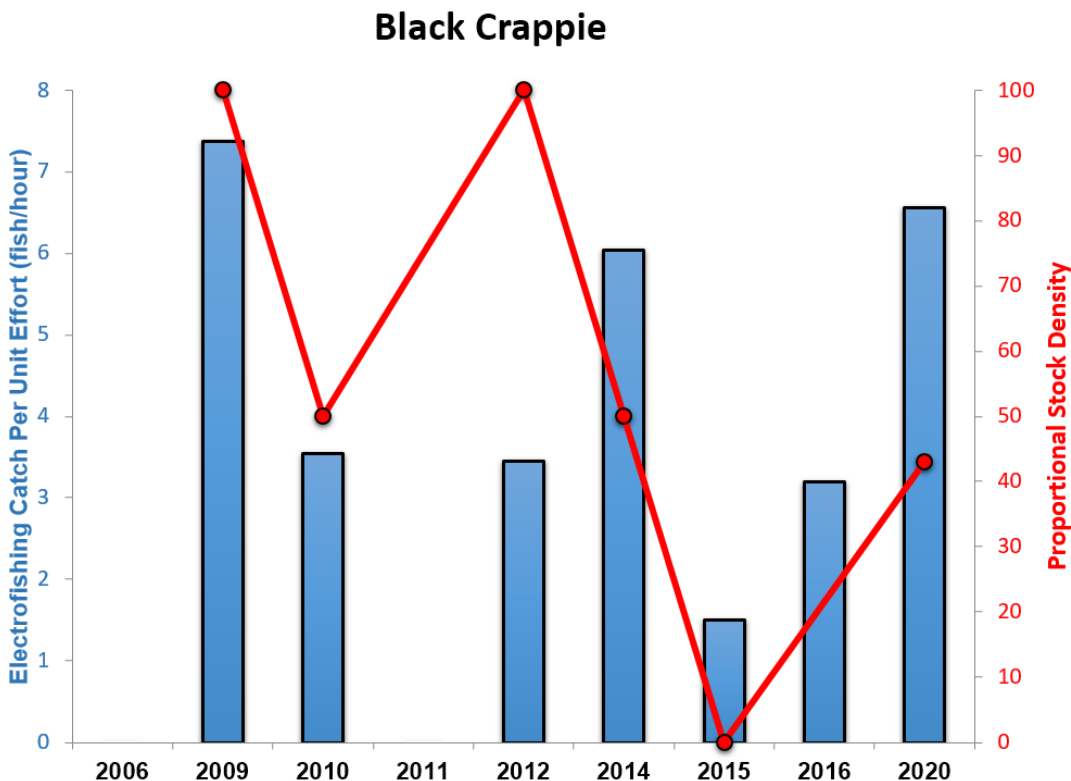


Figure 10. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Black Crappie captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Black Crappie at least “stock” length (5.1 inches) that are also at least a “quality” length (7.9 inches). Ideal PSD values for a balanced Black Crappie population range from 30 to 60.

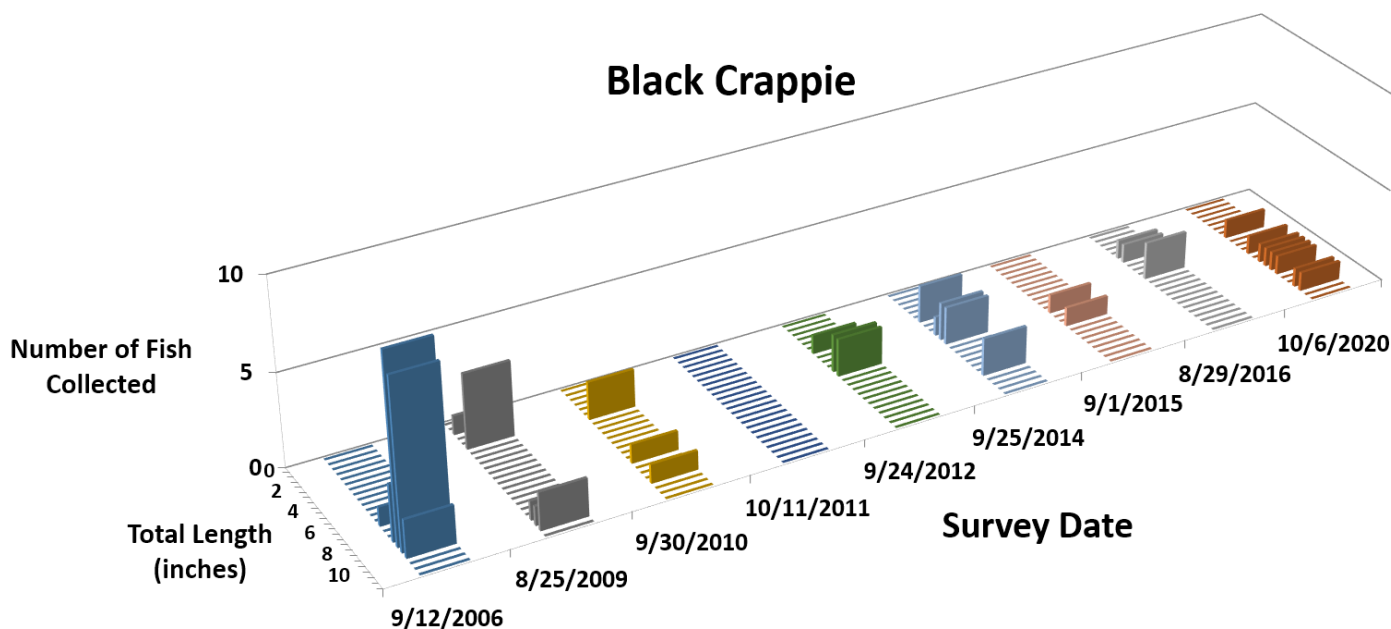


Figure 11. Size structure of the Black Crappie population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir Historical Fishery Survey Information (Bluegill)

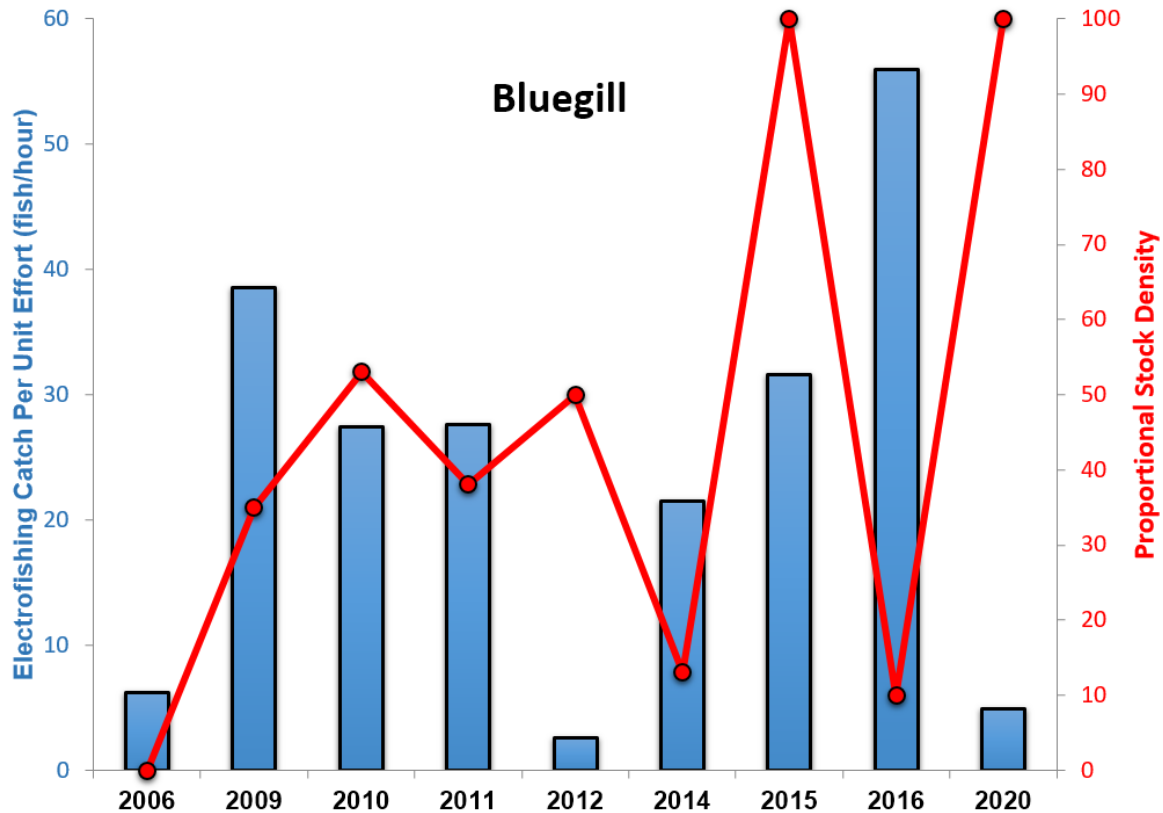


Figure 12. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Bluegill captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Bluegill at least “stock” length (3.1 inches) that are also at least a “quality” length (5.9 inches). Ideal PSD values for a balanced Bluegill population range from 20 to 60.

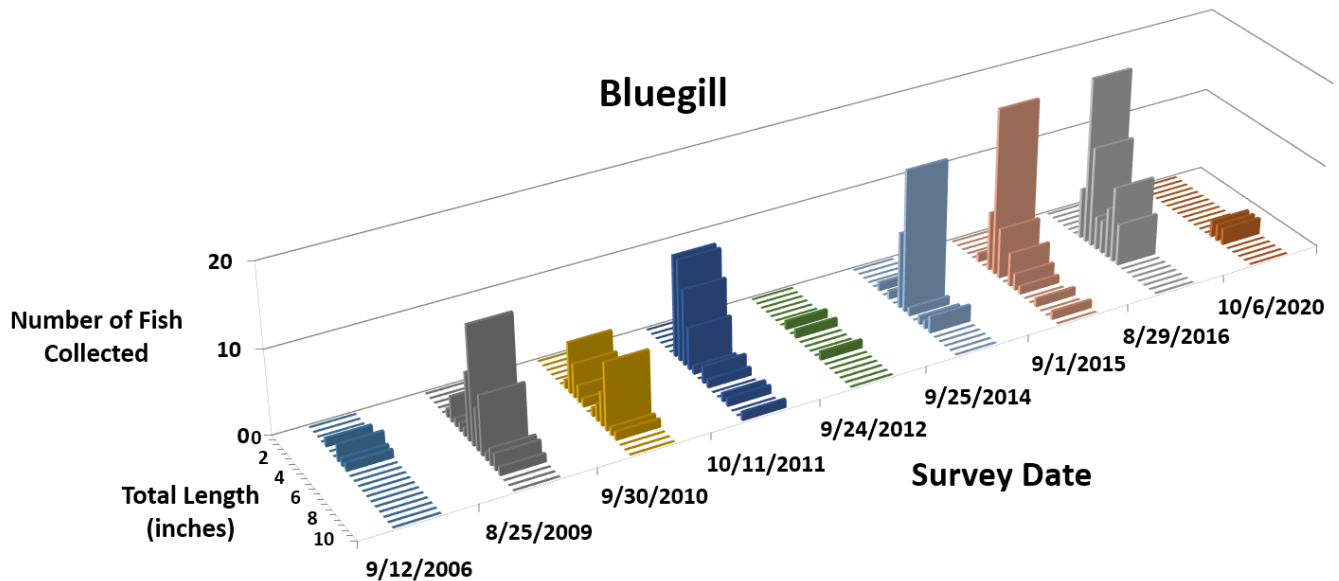


Figure 13. Size structure of the Bluegill population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir Historical Fishery Survey Information (Tiger Muskie)

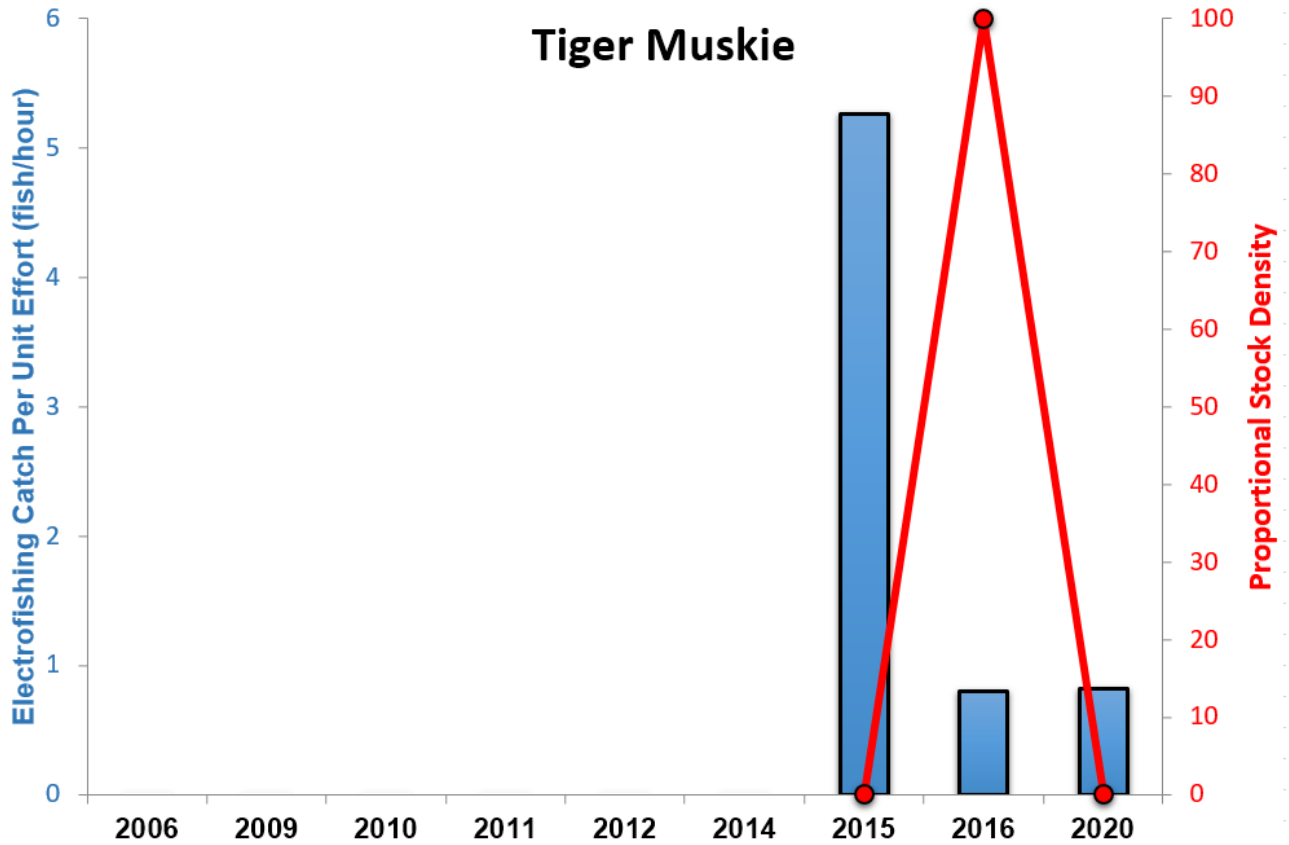


Figure 14. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Tiger Muskie captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Tiger Muskie at least “stock” length (13.8 inches) that are also at least a “quality” length (23.2 inches).

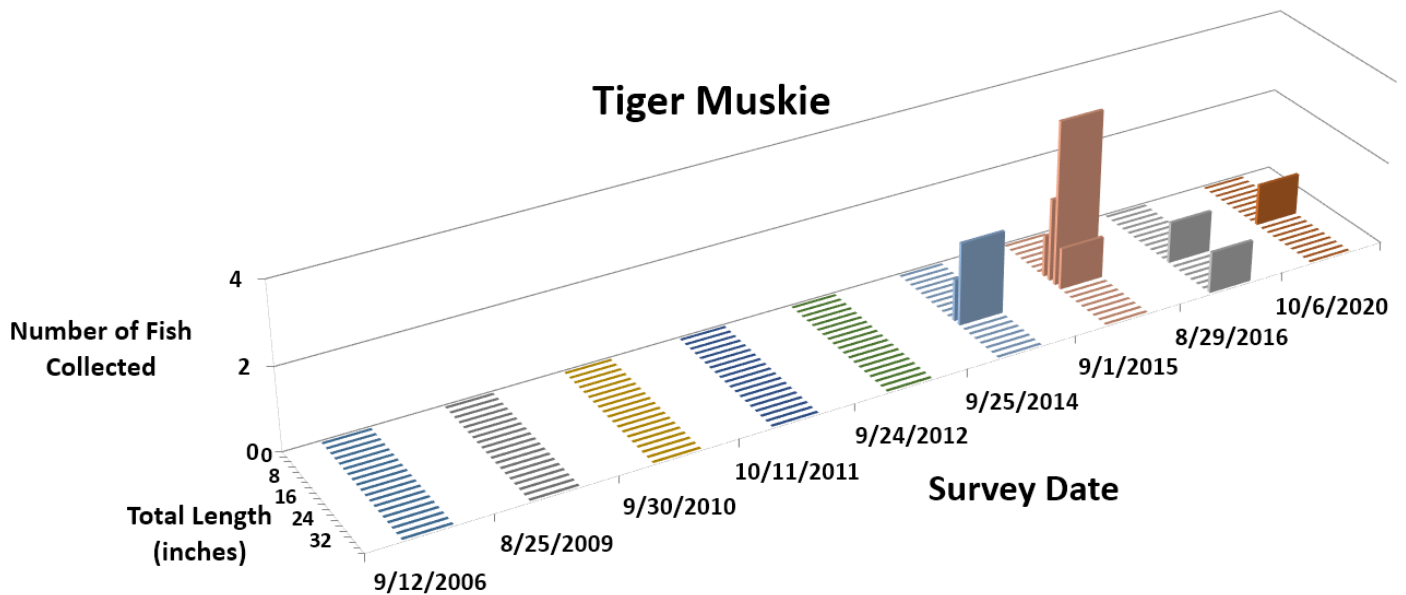


Figure 15. Size structure of the Tiger Muskie population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir Historical Fishery Survey Information (Northern Pike)

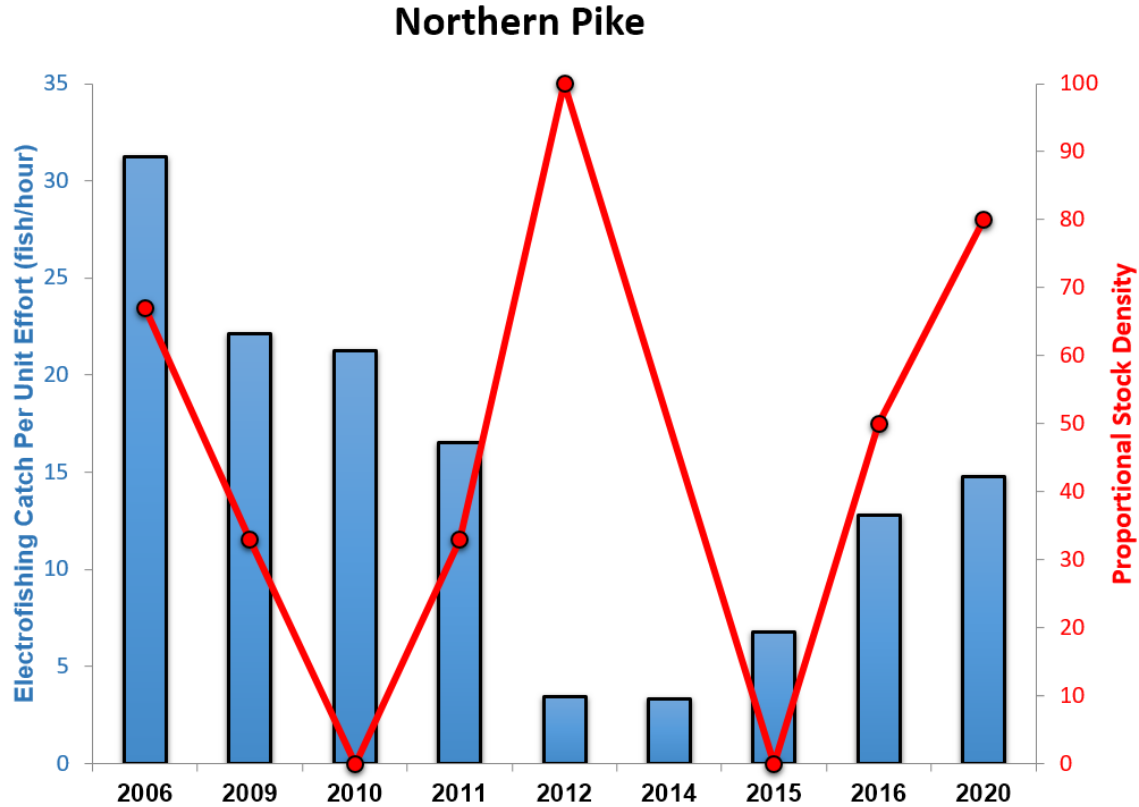


Figure 16. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Northern Pike captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Northern Pike at least “stock” length (13.8 inches) that are also at least a “quality” length (20.9 inches). Ideal PSD values for a balanced Northern Pike population range from 30 to 60.

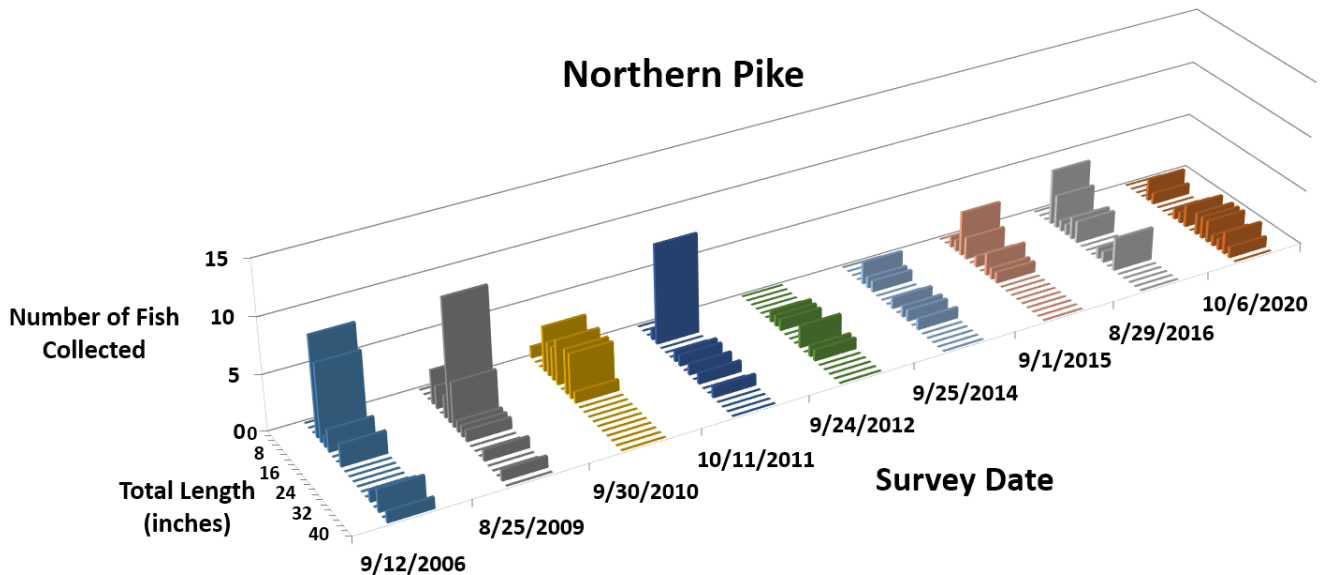


Figure 17. Size structure of the Northern Pike population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir Historical Fishery Survey Information (Smallmouth Bass)

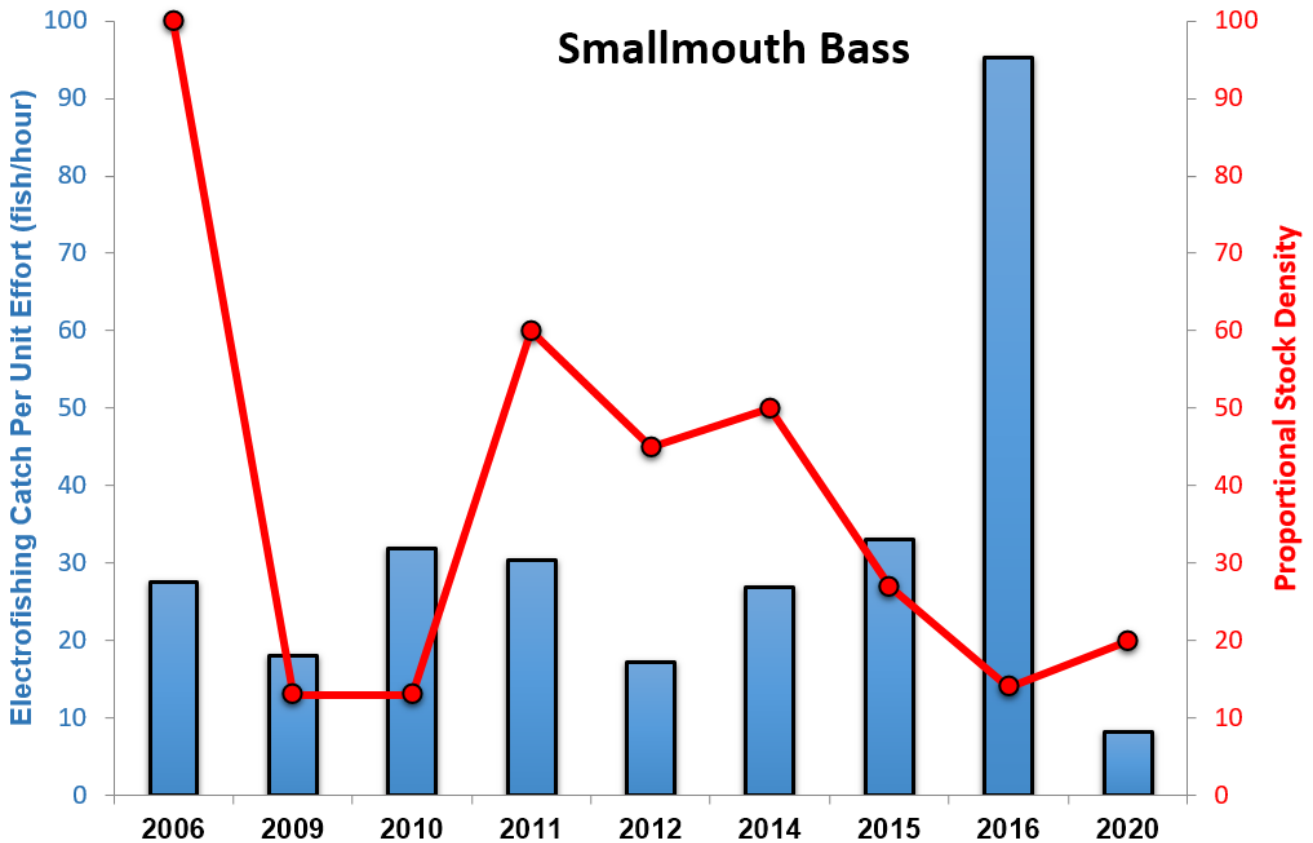


Figure 18. Catch rate per hour (primary y axis, blue data) and Proportional Stock Density (secondary y axis, red data) of Smallmouth Bass captured during fall electrofishing surveys on Harvey Gap Reservoir. Proportional Stock Density represents the proportion of Smallmouth Bass at least “stock” length (7.1 inches) that are also at least a “quality” length (11.0 inches). Ideal PSD values for a balanced Smallmouth Bass population range from 40 to 70.

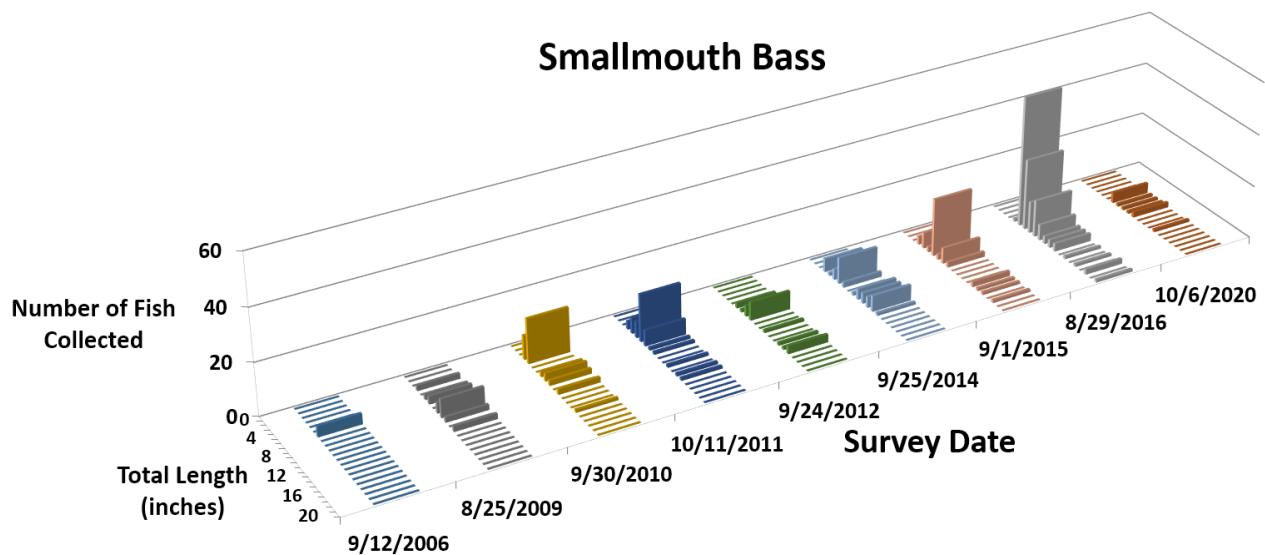


Figure 19. Size structure of the Smallmouth Bass population in Harvey Gap Reservoir during fishery surveys conducted by Colorado Parks and Wildlife between 2006 and 2020. Survey methods included electrofishing and/or gill netting. Note that the 2019 survey was excluded because it was conducted in the spring.

Harvey Gap Reservoir 2020 Fishery Survey Information

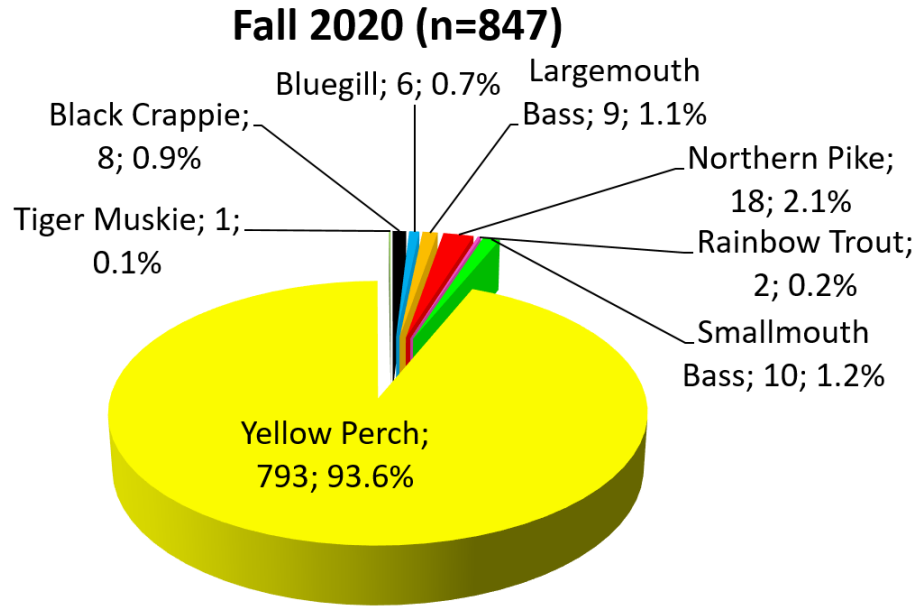


Figure 20. Species composition of Harvey Gap Reservoir during electrofishing fishery survey conducted on 10/6/2020. Figure includes species, number of individuals by species, and percentage of overall number of fish sampled made up each species.

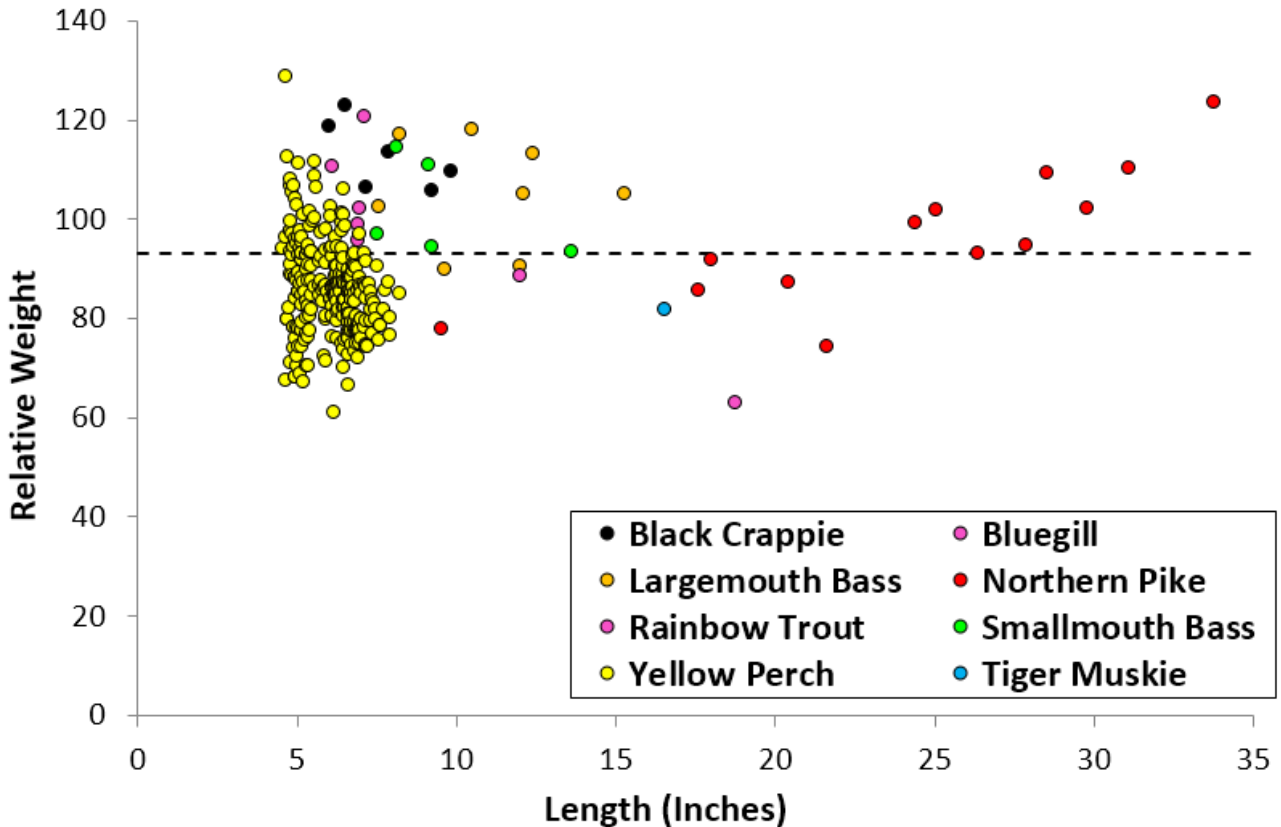


Figure 21. Relative weights of Yellow Perch, Black Crappie, Bluegill, Smallmouth Bass, Largemouth Bass, Northern Pike, Rainbow Trout, and Tiger Muskie captured during electrofishing fishery survey on Harvey Gap Reservoir conducted on 10/6/2020. The relative weight of 93, which represents an average body condition, is shown by the dashed line. Fish which did not meet the species-specific minimum length requirement for relative weight analysis were excluded.