

2023 Electrofishing Analysis

Aqua Services performed electrofishing surveys in the Fall of 2022 and the Spring of 2023. Based on these surveys, we believe that the condition of the current bass is excellent, with an average relative weight of 98%. The data also indicates that the numbers of bass are still below the levels needed to maintain a healthy fishery. The weight of the current bass demonstrates the potential for a high-quality lake with trophy-sized fish developing over the next couple of years. With that said, there are bass that are struggling to reach their potential. Aqua Services believes that Reunion should take a three-pronged approach this year to improve the fisheries. The approach focuses on habitat improvements, catfish removal, and selective bass harvesting. While the harvest was minimal last season, Aqua Services feels that it is time to move into a selective harvest mode that will be beneficial for the fishery and the anglers.

In the attached data set, the graphs from last year are on the left, and this year's are on the right. As you can see, the bass in the 18" to 22" size range have increased, while the numbers of fish in the 12" to 18" size range have diminished. This indicates that the Reunion fishery has more fish moving into the larger size classes from the lower size classes. While this is happening, you can also observe a corresponding downward trend in the bluegill numbers. As the bass are getting larger, and the numbers of bass are increasing, proportionately sized bluegill and overall bluegill numbers are diminishing. As this trend continues with more bass overall, relative weights will begin to drop.

Besides the bass and bluegill, other species are present in the fishery. The thread-fin shad population is thriving, contributing to excellent bass conditions. Also, with the overall number of catfish lowered, all species are performing better. Another positive sign is that the number of small bluegill has increased considerably from last year.

In terms of habitat, we believe that dense, targeted shoreline habitat this season is the most important step. This will allow small bluegill and bass the opportunity to survive longer. The bluegill will survive in higher numbers and provide a more quality food source for the bass. After this season, a more robust habitat program can be put in place with a full budget, free of catfish removal. These structures will be placed in water between 3' and 5' deep in common areas and areas with no traffic.

Since catfish were not initially stocked in the lake, controlling and maintaining this species has become mandatory. The number of catfish in the lake is significant and is contributing to the diminished number of bass and baitfish. We can already see significant improvements from the 50,000 pounds of catfish that have already been harvested. We recommend continuing catfish removal, when possible, through December 2023.

The survey results, combined with our analysis, indicate that bass of all sizes are thriving. However, within each size class, individual bass are facing challenges. The primary reason for this appears to be the superior performance of female fish over males. Female bass consistently grow larger than their male counterparts, and during spring surveys, their egg masses contribute to additional weight. In line with our approach in many other lakes, we advocate for a selective harvest strategy in such situations. It is crucial to selectively remove male bass and any underperforming individuals.

We understand that implementing this strategy may pose challenges for most anglers. Therefore, we must develop a well-defined plan for 2024 to facilitate this process effectively. Creating a harvesting program based on these specific criteria is of utmost importance. Aqua Services is well-equipped to carry out electrofishing this year if necessary or to present a comprehensive plan for 2024.

Aqua Services conducted comprehensive electrofishing surveys during the Fall of 2022 and the Spring of 2023, revealing a promising assessment of the current bass population. These surveys indicate an excellent condition among the bass, boasting an impressive average relative weight of 98%. However, it is evident that the bass numbers still fall below the thresholds required to sustain a healthy fishery. While the potential for the development of trophy-sized fish in the coming years is promising, some bass are struggling to reach their full potential. To address these challenges, Aqua Services recommends a three-pronged approach for Reunion, focusing on habitat enhancement, catfish removal, and selective bass harvesting. Notably, the provided data shows an increase in larger bass sizes, but a decline in the 12" to 18" range, alongside a concerning decrease in bluegill numbers. Additionally, the thriving thread-fin shad population is positively impacting bass conditions, and reducing the overall catfish population has led to improved performance across all species. To further support the fishery, it is crucial to invest in targeted shoreline habitat this season, especially to promote the survival of small bluegill and bass. This initiative will set the stage for a more extensive habitat program in the future. Furthermore, due to the unanticipated presence of catfish, their removal is imperative for the overall health of the ecosystem. Significant progress has already been made through catfish harvesting efforts. Finally, a careful and strategic approach to the selective removal of male bass and underperforming individuals is essential, with a focus on addressing the dominance of female fish. Implementing these recommendations will be critical in ensuring the long-term success and sustainability of the fishery.

Water Quality

Based on the results of water quality analysis, it is evident that the water quality at Reunion is very poor. While green water is generally associated with good water quality, the low clarity observed at Reunion indicates a significant problem. While fertile water can foster the growth of phytoplankton, an excess of phosphorous leads to the proliferation of blue-green algae (Cyanobacteria). Blue-green algae can produce toxins, posing risks to fish and human health.

The primary objective of having fertile water is to support increased production. Phytoplankton, by supporting improved zooplankton populations, contributes to the growth of young fish. In contrast, blue-green algae, particularly at the levels observed at Reunion, hinders production and growth, representing a detriment to the health of the fishery. As we have discussed, addressing phosphorous levels through mitigation measures is necessary to reverse this scenario.

Creel Recommendations

In terms of fish harvest, looking back at the spring collection, we feel it is best to only remove bass via electro fishing at this point. That may change after the fall survey and we understand what recruitment looks like this season. However, bluegill and catfish can be harvested. We are placing unlimited harvest on the catfish. As for the bluegill, the limit per person will be 10 fish over 7". If at all possible we would like to see female bluegill removed over male bluegill but not everyone will be able to do that. But, for those that want to try, the males will be much more colorful and showy with an orange patch on the area under the chin and some will have a large forehead. The females will have less color.

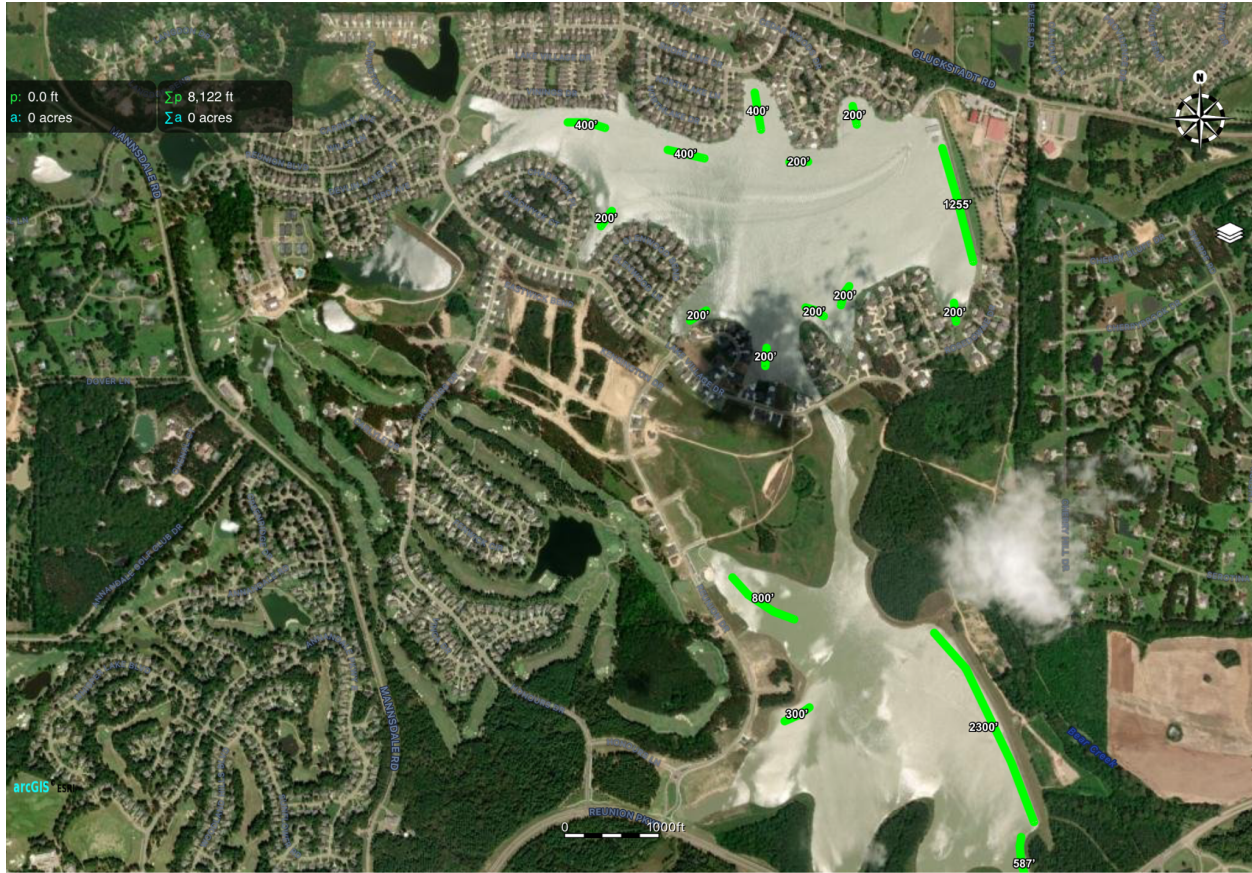
Reunion Lake Structure Plan for 2023

As we have discussed effecting 20% of the waterbody is the goal in terms of habitat. That structure needs to be comprised of dense and spatial habitat. While Reunion has quite a bit of spatial habitat, like docks, it is lacking dense habitat. Dense habitat is crucial in supporting young fish, specifically forage, and the ability for that forage base to survive to a size that is beneficial for the largemouth bass.

With that being considered we also need to make sure we aren't negatively affecting recreational use of the waterbody. The map you provided seems to take lake recreation into effect and provides the water depth that we feel is perfect for the Ugly Tree habitat we have discussed. The areas that are mapped, if manipulated correctly, will affect 41 acres of water. While that is only 10% of the overall waterbody it is definitely sufficient enough to truly effect the fish population. And, again, there is structure in the form of posts for docks and other structure y'all have placed in the past. We truly feel that adding Ugly Tree to the areas drawn this fall and next spring will create a noticeable difference in the forage and overall health of the fishery.

The number of trees needed to properly create what we have discussed is 744. This is 18 trees per acre which creates what we have titled a "forest". Each acre will have 18 trees that are divided into 3 separate 6 tree groupings. My recommendation is to place 324 this fall and the remainder in March of 2024. The cost for the trees, and the placement, will be \$89,200.00. The cost this fall will be \$38,800 and the cost in March will be \$50,400. Staggering the placement will allow for catfish removal and possibly some forage in the remaining budget and the same for 2024.

The plan for the fall is to place about 45% of the recommended Ugly Trees. They should be able to install all of the habitat that is designed for the shorter areas in the photo attached. The only areas that should be left in the spring are the dam areas and maybe one or two of the short 200' areas. This fall we will install 324 ugly trees effecting 18 acres. The remainder will be placed in the spring, on the new budget, and will affect 22 acres. Please see the attached photo.



Personal Fishing Structures for Boat Houses/Piers

AquaServices has made a basic plan for docks/boat houses that individuals can utilize to increase population and habitat under their docks. This is the best option in terms of creating dense habitat in an economical fashion. The picture attached represents how they will place Ugly Trees under docks, creating dense habitat, while utilizing the dock itself as spatial habitat. The cost for this design, installed, will be \$1,440.00. This will include 12 Ugly Trees installed and spaced appropriately.

