



Year-End Report for the 2017 Management of:
Barefoot Lakes
Firestone, CO

Submitted to:
St. Vrain Lakes Metro District
Stan Myers, Pinnacle Consulting Group Inc.

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Erin Stewart, Aquatic Biologist, Territory Leader
SOLitude Lake Management
7000 N. Broadway Ste. 108
Denver, CO 80220
Phone: (888) 480-5253
Cell: (720)556-8896
estewart@solitudelake.com
www.solitudelakemanagement.com



Project Background

Barefoot Lakes is a housing development with three homebuilders located in Firestone, CO. The lakes are the focal point for the development centered around nature and designed for use by the community. The West Lake is approximately 30 acres in size while the larger East Lake is about 50 acres which are separated by a short section of land with an equalization pipe connecting each resource. The lakes are filled from precipitation, runoff and from the St. Vrain River system. The lakes are being developed for recreational purposes including fishing, and non- motorized boating activities.

These resources have a history of algae, aquatic vegetation growth and some cyanobacteria blooms. Water quality conditions vary significantly at different times of the year. The lakes are home to a healthy population of aquatic life including fish, birds, amphibians, and turtles.

Aquatic Resource Management

During the 2017 season, SOLitude Lake Management visited the lakes approximately every 2 weeks from Spring through Fall to manage the water quality and appearance. At every visit, a visual inspection of each resource was completed and conditions were noted.

At the beginning of the season, Alum (Aluminum Sulfate) was applied to bind nutrients in each lake. The goal was to reduce the excessive nutrients within the water body and limiting the potential for algae and weed growth. During the season, the lakes were treated for aquatic vegetation and algae with both contact herbicides and systemic herbicides. Treatments were focused to preserve aesthetics while maintaining aquatic vegetation in some areas for fisheries habitat. During the season, multiple algae treatments and cyanobacteria treatments were also completed. The majority of cyanobacteria was noted on the windward shorelines on the East Lake but our observations have been that the blooms have been decreasing since 2016.

In addition, a comprehensive biological survey was conducted in June of 2017 to establish a baseline of the fish populations present and make recommendations for improvement. During the survey rough fish, or Common Carp were removed to benefit the fishery and water quality. A detailed report including the results of the survey along with recommendation on how to properly manage the resource and fishery was provided.



Conclusion

It is recommended that nutrient binding applications are continued through the 2018 season and beyond. A long term systemic herbicide applied early in the growing season, with an additional low does application later in the season will provide the best vegetation control in the desired areas. The water should be continuously monitored for cyanobacteria blooms and treated as needed based on conditions.

Additionally, bottom diffused aeration system would be beneficial to improve water quality in both lakes. SOLitude Lake Management has provided information for an aeration system to be installed in the west cove of the eastern resource near the planned park. Bottom diffused aeration system is recommended to increase water turnover rate and provide oxygenated water for fisheries production.

Common Carp removal should continue on a regular basis ideally during spawning in late spring/early summer. Common Carp are commonly known to become overabundant and resuspend bottom sediments reducing water quality and clarity. The fisheries management plan provides recommendations on fisheries management for these resources.

During the 2018 season, SOLitude biologists and technicians plan to use nutrient binding products and continue algaecide treatments as the season progresses. A long term systemic herbicide will be used early in the season to control aquatic vegetation growth throughout the summer. In addition, SOLitude biologists will continue to monitor any changes or cyanobacteria blooms, to adjust the management as needed to maintain the water quality, fishery and best appearance possible.

