

Grasmere Lake

Background, Long Term Issues & Trends

- The Washington Park and City Park Lakes have been sustained with [re-use water](#) since 2004. This conserves limited water resources, allowing Denver to maintain our lakes sustainably. The cost of this source is that it comes with high nutrient loads, which contributes to productive algae and plant communities.
- The explosive algae and plant growth coupled with extremely effective (algae) control efforts have occasionally resulted in wide swings in dissolved oxygen (high with algae, low after chemical treatment), which can impact aquatic life.



Developing Issues

Shoreline Renovations - The Department of Parks & Recreation implemented improvements along the south perimeter that included planting and enhancing [riparian](#) and wetland areas in 2014. This will improve wildlife habitat and water quality, and is a good step towards discouraging Canada geese from over utilizing the area.

Re-use Water Nutrient Levels - Wastewater treatment plant upgrades resulted in significantly lower nitrogen concentrations in the lake's source water (see figure below). This will benefit the condition of Grasmere and other lakes that rely on re-use water.

Assimilation - Monitoring data suggests that since 2010, much of the nitrogen is assimilated in lake components other than water (i.e., vegetation and sediment; see figure below).

Water Quality - Primary water quality issues have been related with variable dissolved oxygen as mentioned above. While copper levels had been high as recently as 2009, these levels have dropped the past few years.

Zooplankton - Low densities of zooplankton were noted in 2014. This can contribute to phytoplankton blooms (zooplankton feed on phytoplankton) which subsequently drives pH up to levels that can impact aquatic life (>9.0).

Avian Botulism has likely contributed to several waterfowl deaths over the past several years, but there were very few, if any cases noted in 2014.

Fish, Wildlife, & Habitat

Fish: The fish community was supplemented with summer (2014) stockings of channel catfish, bluegill, and bass. Due to the extreme swings in dissolved oxygen and pH, water quality of Grasmere is marginally acceptable for warm water fish, but it does not provide acceptable trout habitat.

Wildlife: There is typically a mix of waterfowl found at the lake in addition to cormorants, egrets, herons, pelicans, and kingfishers.

Habitat: The in-lake habitat is limited to occasionally healthy rooted vegetation stands. The island provides some avian refuge, but is dominated by trees and does not include a good mix of vegetation types. A positive development, egrets were observed [loafing](#) on a recently felled tree branch (summer 2014) off the island. The branch was strategically cut for this purpose. The 2014 south east shoreline renovation will enhance riparian and shoreline habitat along the south end of the lake.

Recommendations

- Park management and algae control contractors need to be aware of the limited buffering capability of the Grasmere system when conducting (algae) control efforts. The objective should be a balanced lake community which allows for some algae and vegetation in the lake (i.e. 10 to 20% cover). This will help dampen extreme swings in dissolved oxygen following treatments.
- Manage fish community so as to enhance [zooplankton](#) numbers (balance [planktivores](#)-bluegill with [piscivores](#)-bass).
- Build on 2014 efforts to further increase naturalized landscape around the perimeter.
- Renovate the island landscape to further enhance wildlife habitat in and around the lake.

Location: 701 S Franklin St
Surface Area: 16.5 acres
Max Depth: ~ 10 ft
Primary Source Water: Re-use water via City Ditch

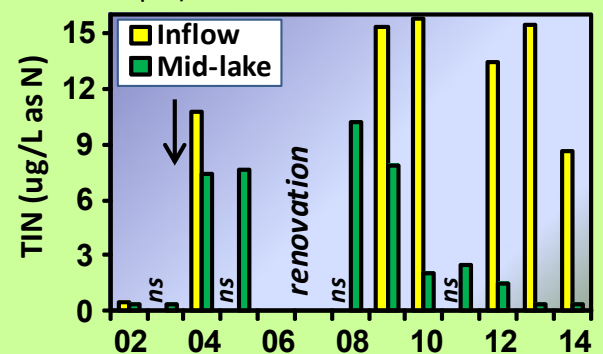
Intended Lake Uses:
Aesthetics, wildlife habitat

Current Regulatory Issues^{1/}:
copper

1/ Conditions exceeding state water quality standards.

Updated **October 2014**; questions to: alan.polonsky@denvergov.org

Total inorganic nitrogen* in Grasmere Lake inflow (City Ditch) and at mid-lake (2002 – 2014). Arrow indicates switch to re-use water in ditch (*ns* = no inflow sample).



*Total inorganic nitrogen includes ammonia, nitrite, and nitrate fractions of nitrogen.