

# Duck Lake

## Background, Long Term Issues, and Trends

- The City Park and Washington Park Lakes have been sustained with [recycled 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 and salt concentrations.
- The extra nutrient levels contribute to productive algae & plant communities, which are often prolific in Duck Lake.
- Duck Lake receives City Ditch water via Ferril Lake. Storm water from the Denver Zoo and City Park reach Duck Lake after flowing through stormwater quality management structures (i.e. wetland forebays and infiltration).
- The Duck Lake Island is the fourth largest [cormorant rookery](#) in Colorado.
- [Avian botulism](#) has been a chronic problem at the lake for decades, resulting in several waterfowl deaths annually.
- The high nutrient and algal content of incoming water coupled with loading of cormorant waste creates ideal conditions for plant/algae growth and marginal oxygen levels. This may also contribute to conditions that trigger avian botulism.



## Developing Issues

**Shoreline renovations** implemented by the Department of Parks & Recreation along the southeast perimeter converted hardscape steps to subsurface wetlands. This will help improve water quality and is a good step towards discouraging Canada geese from over utilizing the area.

**Wastewater treatment plant improvements** have resulted in significantly lower nitrogen concentrations in the lake's source water. This will benefit the condition of Duck and the other lakes that rely on recycled water.

Because the primary water source for Duck Lake enters via Ferril Lake, conditions in **Ferril dictate water quality** in Duck (see figure below).

**Management efforts** can impact water quality, such as algae-control in Duck Lake (figure below - note drop in pH in 2008 attributable to algae control efforts).

## Fish, Wildlife, and Habitat

**Fish:** Duck Lake is not managed as a recreational fishing lake. Fish typically enter via the outlet from Ferril Lake.

**Wildlife:** As mentioned above, the wildlife highlight at Duck Lake is the large cormorant rookery. Unfortunately, this results in a heavy organic load on Duck Lake which contributes to challenging water quality conditions.

**Habitat:** In-lake habitat includes intermittently dense rooted vegetation stands. The island provides space for the cormorant rookery. The 'newly' created wetlands along the south and north-east shoreline provide additional wildlife opportunities beyond waterfowl use. These wetlands can also provide water quality benefits through stormwater mitigation.

## Recommendations

- Aeration will help improve dissolved oxygen, pH, and ammonia issues. This could also help lessen severity of annual avian botulism outbreaks.
- Improve tracking of avian botulism impacted birds.
- Assess effectiveness of recent renovations (storm runoff-infiltration and wetlands) on water quality.
- Understand that improvements to Ferril Lake equate to improvements in Duck Lake.

**Location:** City Park @ 2300 Steele St  
**Surface Area:** 4.9 acres (water)  
**Max Depth:** ~8 ft  
**Primary Source Water:** Recycled water via Ferril Lake  
**Intended Lake Uses:** Wildlife habitat, aesthetics, storm-water mitigation  
**Current Regulatory Issues<sup>1/</sup>:** pH, dissolved oxygen, ammonia

1/ Conditions exceeding state water quality standards.

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