

Berkeley Lake

Background, Long Term Issues & Trends

- Arsenic levels have been consistently elevated relative to other Denver Lakes, but decreased since the 2011/12 renovation (Figure 1).
- A fish consumption advisory for elevated mercury content in fish tissue (bass) was posted in 2004 and will be in effect until further assessment deems it no longer necessary.

Developing Issues

A major **renovation** was performed in 2011/12 and included: addition of a berm along the north shore; water quality settling ponds at storm water inlets; shoreline improvements; fish loafing - spawning habitat; and sediment removal.

Mid-summer **dissolved oxygen** levels were marginal over the past decade. The renovation has had mixed impacts on factors that influence dissolved oxygen (improvements for removal of organic sediment, challenges due to increased plant and algae productivity).

The renovation appears to have **improved water quality** as exhibited by a significant decrease in several metals (arsenic and others), improved oxygen levels (Figure 2) and increased water clarity.

Fish, Wildlife, & Habitat

Fish: While Berkeley Lake sustains an excellent warm water fish community; there is a mercury-based fish consumption advisory for bass. This is likely attributable to multiple factors (such as historic industrial practices and automobile emissions from I-70).

Wildlife: Cormorants are common visitors in small numbers as are a mix of waterfowl, especially those that prefer the perimeter cattail/bulrush stands (i.e., coots and grebes).

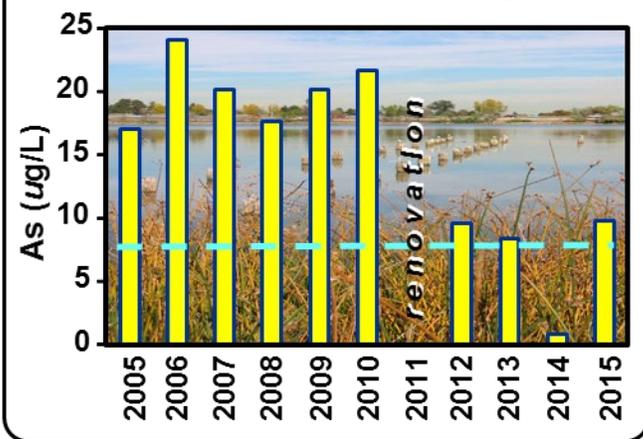
Habitat: Prior to the renovation, phytoplankton dominated the algae/plant community. As the lake re-filled over summer-2012, rooted vegetation and filamentous algae became well established. This improved water clarity and enhanced habitat for fish and other aquatic life.

Recommendations

- Maintain a moderate plant community to sustain habitat for aquatic life, diminish suspended materials, and compete with phytoplankton for nutrients.
- Perform fish tissue analyses to determine whether the fish advisory for bass is still warranted.
- Enhance wind-breaks along the north perimeter (i.e., berm, trees) to decrease re-suspension of fine sediment by wind. This will improve water clarity and decrease nutrient availability for algae growth.
- Expansion of naturalized landscaping along the south and west shoreline to benefit water quality and wildlife habitat.



Fig 1. Total arsenic in Berkeley Lake (mid-summer; blue-dashed line indicates the water quality standard).



Location: Berkeley Park @ 46th Ave & Sheridan Blvd
Surface Area: 36 acres
Max Depth: ~ 10 ft
Primary Source Water: Clear Creek via Rocky Mountain Ditch
Intended Lake Uses: Park irrigation, wildlife, aesthetics, fishing
Current Regulatory Issues^{1/}: Arsenic, mercury in fish tissue, dissolved oxygen

^{1/} Conditions exceeding state water quality standards.
 Updated March 2016; questions to: alan.polonsky@denvergov.org

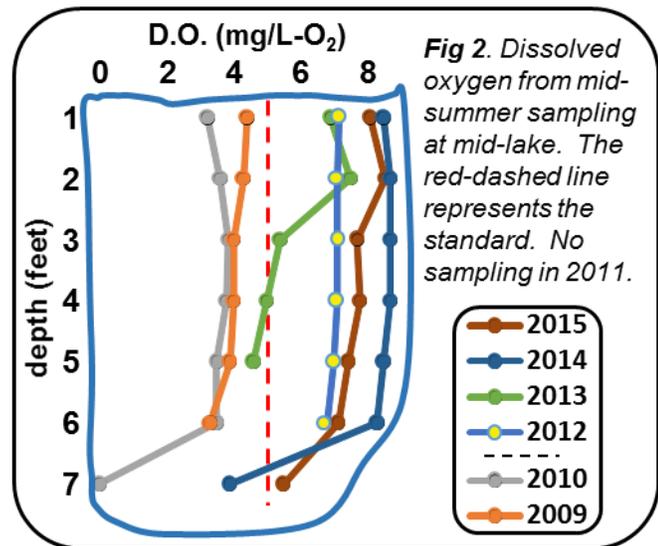


Fig 2. Dissolved oxygen from mid-summer sampling at mid-lake. The red-dashed line represents the standard. No sampling in 2011.