Alaska

Reducing Waterfowl's Use of Cuddy Pond Results in Significantly Lower Bacteria Levels

Waterbody Improved   Anchorage's Cuddy Pond is comprised of three ponds created from daylighted sections of Fish Creek, which was listed as impaired for fecal coliform (FC) bacteria in 1990. The Cuddy Family Midtown Park (Cuddy Park) is a 15-acre green space in the commercial section of Anchorage, Alaska, which contains Cuddy Pond. In late summer 2015 the largest of the three pond's water samples were showing high levels of FC. Waterfowl populations were exploding, mainly because increasing numbers of visitors to Cuddy Park were feeding human food to the birds. By educating park visitors on the hazards of feeding waterfowl and using fences and vegetation to separate people from the birds, partners have helped reduce waterfowl-related pollution in Cuddy Pond. Water samples collected in 2017 and 2018 showed that FC bacteria levels have declined significantly.

Problem

Fish Creek, one of the largest watersheds in the Anchorage area, has a bacteria pollution problem. Alaska's Department of Environmental Conservation (DEC) first placed Fish Creek on the Clean Water Act (CWA) section 303(d) list of impaired waters for FC bacteria in 1990. The U.S. Environmental Protection Agency approved a total maximum daily load in 2004. The ponds in Cuddy Park were created from daylighted sections (i.e., removed from underground pipes) of Fish Creek, and until recently, were the most polluted section of the creek. Fish Creek flows in a westerly direction from headwaters in the Chugach Mountains, east of Anchorage, to tidewater areas in Cook Inlet. Fish Creek's mainstem is approximately 4 miles long, draining a 2,992-acre watershed. The ponds at Cuddy Park are located in the section of Fish Creek that was historically routed through an underground culvert, designated as the Fish Creek Bypass (Figure 1). In the 1990s, a flood control measure was constructed in the central part of Anchorage to remediate flooding problems caused in part by restricting Fish Creek to the Fish Creek Bypass. As part of this effort, three ponds were created in Cuddy Park to prevent flooding in local neighborhoods. The flood control ponds became a popular feature for park visitors. Cuddy Park's main pond experienced high FC levels due to the presence of waterfowl that were attracted by the park's green grass, water features, and human food provided by park visitors.

Figure 1. Cuddy Pond is in Cuddy Family Midtown Park in central Anchorage, Alaska.

Story Highlights

DEC knew that a successful solution to the FC bacteria problem would require assistance from partners. Using DEC Alaska Clean Water Actions (ACWA) grant funding, DEC partnered with the Anchorage Waterways Council (AWC) to conduct an outreach program to educate Anchorage residents about the problems with feeding waterfowl. The outreach effort included designing educational and eye-catching signs about the hazards of feeding waterfowl (Figure 2). The outreach campaign soon yielded positive results, including a decrease in the number of bird feeding incidences.
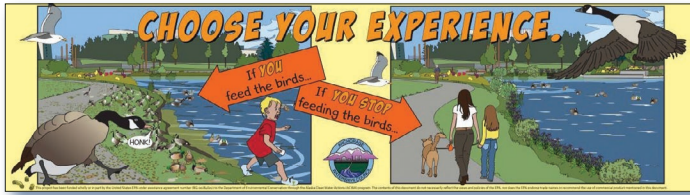
Figure 2. This Anchorage city bus sign was part of a public outreach campaign.

Even so, a more direct way to discourage waterfowl from lingering at Cuddy Park was needed. DEC then partnered with the Municipality of Anchorage to install fencing and plant vegetation to separate humans and birds. In the summer of 2016, the municipality installed 39 fencing units (6-foot-long lengths of plastic webbing connected to upright supports) and planted 113 trees, 250 shrubs, 113 irises, and 13,200 square feet of sod along the shoreline of the main pond. The educational signs and vegetation barrier had a remarkable effect. Ducks and geese still stopped at Cuddy Park, but, deprived of easy access to human handouts, stayed only a short time. This reduced the problem. By May 2017, the levels of FC bacteria declined by 260 percent.

Using DEC ACWA grant funding, AWC conducted a survey among visitors to Cuddy Park to measure outreach message effectiveness. Results from the surveys showed the largest source (over 50 percent) of information about the problems with people feeding waterfowl came from signs in the park, followed by 20 percent each from newspaper articles and bus signs (Figure 2). This information will help inform any future outreach efforts. Cuddy Park visitors can now have a more enjoyable experience without having to scrape their shoes before getting in the car!

Results

Because of the educational campaign and installation of barriers, fewer waterfowl are polluting the pond. Between 2015 and 2017, Cuddy Park's main pond showed significant decrease in FC bacteria, from over 5,000 FC per 100 milliliters (100 mL) in 2015 to 122 FC/100 mL in 2018. Alaska's water quality standard for all uses is for bacteria levels to not exceed 20 FC/100 mL and for not more than 10 percent of samples to exceeding 40 FC/100 mL. Although Cuddy Pond has not yet attained bacteria standards for all designated uses, the pond has undergone a bacteria pollution makeover (Figure 3).

Photo: C. Northon

Before (2014)

After (2016)

Figure 3. Cuddy Pond, before and after restoration.

Partners and Funding

The improvement of Cuddy Park main pond is a result of the partnership among numerous agencies and organizations that donated services, labor hours and funding. Partners include DEC, AWC (using an EPA CWA section 319 grant of $8,500 with an ACWA grant nonfederal match of $6,816), Municipality of Anchorage Parks and Recreation Department (using an EPA section 319 grant of $30,000 with an ACWA grant nonfederal match of $36,365), Alaska Environmental Laboratory Services (provided $3,000 worth of donated FC analysis services) and Youth Employment in Parks, a program within the Park Foundation, a local nonprofit organization dedicated to neighborhood park improvement.

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