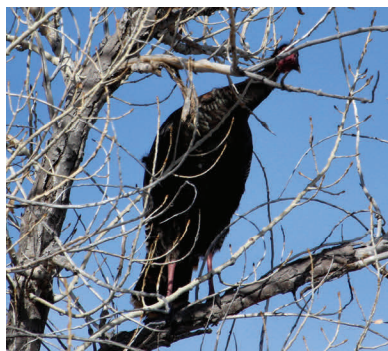




Wild Turkey are often seen in the watershed. Be sure to look up.

The Bear Creek Watershed Association protects and restores water and environmental quality within the Bear Creek Watershed from the effects of land use.

Clear Creek County
Jefferson County
City of Lakewood
Town of Morrison
Aspen Park Metropolitan District
Brook Forest Inn
Conifer Sanitation Association
Conifer Metropolitan District
Denver Water Department
Evergreen Metropolitan District
Forrest Hills Metropolitan District
Genesee Sanitation & Water District
Geneva Glen
Jefferson County School District
Kittredge Water & Sanitation District
The Fort Restaurant
West Jefferson County Metropolitan District
Evergreen Trout Unlimited
U.S. Army Corps of Engineers

Clear Creek County Transfer and Recycling Station (BCWA Fact Sheet 44)

The Clear Creek County Transfer and Recycling Station held three – 1 day collection events in 2014 for receiving potentially hazardous material from residents of Clear Creek County, including residents from the Bear Creek Watershed. The BCWA provided a small fiscal contribution to support the 2014 transfer and recycling center station operation.

238 citizens used the transfer Facility for Hazardous Waste Disposal. There was no incidents (spills, injury or other possible issues). 74 citizens were from the Evergreen Fire Protection District. 84 more citizens used the program in 2014 as compared to 2013; this increase could attributed to the free program as compared to charging in 2013. The program helps protect watershed quality.

BCWA PINNACLE

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Bear Creek Watershed Association, Colorado

E. coli Studies in Bear Creek Watershed

Escherichia coli (commonly abbreviated E. coli) is a Gram-negative, facultatively anaerobic, rod-shaped bacterium of the genus Escherichia that is commonly found in the lower intestine of warm-blooded organisms (e.g., humans and other animals). Most E. coli strains are harmless, but some types can cause serious food poisoning. E. coli in surface water or groundwater is an indicator of potential pathogen pollution.

Available studies indicate that E. coli, which is a subset of fecal coliform, is a better predictor of potential human health impacts from waterborne pathogens. The Colorado Water Quality Control Commission established E. coli criteria and resulting standards for individual water segments



based on recreational use categories. The E. coli criterion adopted for recreation class 1a is 126 per 100 milliliters. This level is based on EPA criteria recommendations, which is an anticipated risk level of 8 swimmer illnesses per 1,000 swimmers. Compliance with E. coli standards is based on a 2-month geometric mean of representative stream samples.

All stream segments in Bear Creek Watershed are recreation class E with an E. coli standard of 126 cts/100 ml (BCWA Fact Sheet 39). One stream segment in the watershed is

listed on the Colorado 303(d) list for E. coli. The stream segment on lower Bear Creek is also listed for E. coli. The BCWA monitors for E. coli on Kerr/Swede Gulch (see picture below) at 4-



locations (2010-2014) and at BCWA Site 45 (below Bear Creek Reservoir 2000-2014). No exceedances of the standard have been measured at BCWA Site 45 or at any of the Kerr/Swede sample sites (BCWA Sites 52-55). The highest 2-month geometric mean at Sites 52-55 over a 4-year period was 26 cts/100ml. The 2-month geometric mean at Site 45 over a 7-year period was 2 cts/100ml. There is no measured E. coli problem in the Bear Creek Watershed.



Great Horned Owl

www.bearcreekwatershed.org

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The Colorado Department of Parks and Wildlife completed fishery surveys at 8 sites in September 2014. This survey will determine how the 2013 flood impacted the fishery. Some big fish were found in the surveys.



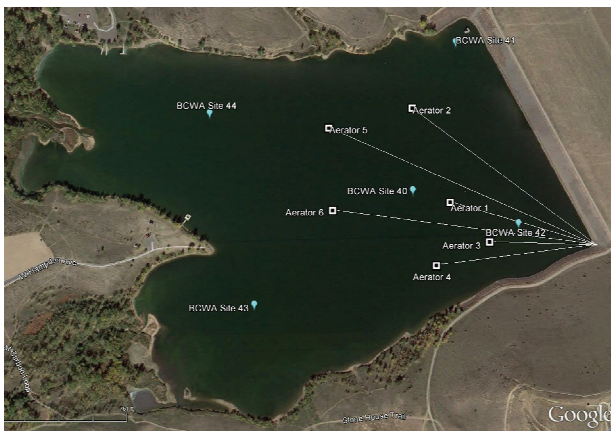
Phosphorus Wasteload Allocations for Wastewater Treatment Plants in the Watershed

The Bear Creek Reservoir Control Regulation at 5 C.C.R. 1002-74 establishes an annual total wasteload allocation for all wastewater treatment facilities in the Bear Creek Watershed. Each individual discharger in the Bear Creek Watershed is limited to an assigned annual wasteload of total phosphorus which can not be exceeded, except as provided for through trading provisions.

The Water Quality Control Commission notes in the control regulation that *allocations of phosphorus or modifications to phosphorus wasteload allocations require a rulemaking hearing by the Commission*. The intent of the total phosphorus wasteload allocation is to protect water quality in the watershed by reducing the phosphorus contributions from point sources. The Commission determined that point source phosphorus controls would improve water quality and bring Bear Creek Reservoir to a trophic status of mesotrophic to eutrophic, with chlorophyll a concentrations during the growing season substantially reduced from conditions found during the Phase I Clean Lakes Diagnostic/Feasibility Study done in 1988 and 1989.

The Evergreen Naturalist Audubon Society (<http://www.evergreenaudubon.org>) has developed a breeding bird atlas for the Bear Creek Watershed (<http://bcwbba.org>) with the project survey extending from 2008-2012. The website provides data entry capability, data forms for use in the field, description and maps of survey sites, and real-time reporting of survey progress. The project surveyed representative habitats in a broadly se-

lected group of sites in the Watershed. The Atlas provides information on bird distribution, abundance, breeding status, and habitat use on public lands within the Watershed. Audubon volunteers targeted about 30,500 acres of relatively natural lands for breeding bird surveys. Over 50 sites were surveyed by experienced birders extending from Summit Lake down to the confluence of Bear Creek with the South Platte River.



Replace Aeration System in Bear Creek Reservoir

The September 2013 flood event used Bear Creek Reservoir as a major flood control structure, which caused displacement and reduced efficiency of the in-reservoir aeration system as installed by the City of Lakewood and monitored by the BCWA (*BCWA Fact Sheet 6 Aeration BCR*). A video survey was completed on the BCR aeration system on April 30, 2014 (*BCWA TM2014.01 BCR Video Survey Aerators*). The survey demonstrated air supply line damage (kinks and holes), aeration pan displacement, overturned aeration pans, reduced function, and some losses, which reduced the overall system efficiency by 40-70%. BCWA has established that an in-reservoir aeration system is a necessary long-term *smart manage-*

ment practice to protect and enhance the reservoir fishery (*BCWA Policy 8 BCR Aeration*).

Since FEMA requires *like-kind* replacement, Lakewood determined it would be more cost effective to upgrade and replace the aeration system using Lakewood funding. The BCWA assisted with new aeration configuration, system requirements and replacement options. BCWA and Lakewood staff removed most of the old aeration system and recycled these materials. The company *Underwater Repairs Specialist* installed 6 Quad Dura-plate Diffusers (DDP9X4 Keeton Industries) and weighted line in November 2014 with assistance of Lakewood staff that corresponds to the pattern shown below. The diffusers are fine bubble (air supplied by a 7.5 hp compressor) and will increase the dissolved oxygen transfer into the reservoir water column. Lakewood and BCWA will conduct an evaluation on the effectiveness and efficiency of the new aeration system in the spring/summer growing season of 2015.

