



Moose in Morrison

BCWA PINNACLE



Volume 8

October 2015

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

Baetis tricaudatus Blue-winged Olive Mayfly is one of the commonly found macroinvertebrates in Bear Creek.



Benthic Macroinvertebrates in Bear Creek

Macroinvertebrates or bugs are found in the stream bottom sediments. They are an important source of food for fish. Macroinvertebrates are excellent indicators of stream quality because of their poor mobility and short life spans. Bugs are sensitive to pollution or other habitat impairments. The types of bug assemblages change as Bear Creek transitions from the wilderness zone to the plains.

Colorado Water Quality Control Division uses a multi-metric index score (MMI) to predict the health of the macroinvertebrate populations. In the Bear Creek Watershed a MMI score over 50 means the stream is in full attainment. A score between 42-50 means the stream is above the im-

pairment threshold but needs continued annual monitoring to determine long-term trends. Any score below 42 means the stream is impaired.

Since 2004, the BCWA has conducted macroinvertebrate sampling and data collection at up to 14 sites along the mainstem of Bear Creek (*BCWA Fact Sheet 32 Stream Macroinvertebrates*). Long-term sites include Colorado Parks and Wildlife fish survey sites along Bear Creek: Bear Creek Lake Park, Morrison (west end), Idledale, Lair o' the Bear Park, O' Fallon Park, Bear Creek Cabins, Main Street Evergreen (across from the Little Bear), above Evergreen Lake upstream within Dedisse Park, Singing River Ranch, Bear Tracks near Mount Evans Wilderness, above Singing River Ranch, and

Golden Willow Bridge.

There was no macroinvertebrate sampling done in 2013 due to the September flood event (Fact Sheet 16 September 2013 Flood, Fact Sheet 14 Flood Recovery Tips, Fact Sheet 17 Health, Hydrology & Sediments, and Fact Sheet 18 Flood Score Card).

The mainstem of Bear Creek was extensively altered by the flood event, with deep stream bed scouring. Macroinvertebrate habitat and bug populations were clearly affected by the flood event.

In 2014, the BCWA selected ten sample sites to continue the macroinvertebrate sampling program. Based on the calculated MMI scores, there are no impaired macroinvertebrate sites. The BCWA noted that sites with the most severe flood damage and scouring had the lower scores.



Location	Total Taxa
Bear Creek Lake Park	20
above Morrison Park	22
at Lair of the Bear Park	20
at O'Fallon Park	20
Baker Bridge (Idledale)	27
below Evergreen (BC Cabins)	26
at Little Bear Evergreen	25
at Key of the Green GC	25
Mount Evans Wilderness	29
Golden Willow	26

BCWA Station ID	Location	MMI	Full Attainment	Above Impairment Threshold
15a	Bear Creek Lake Park	48.8		
14a	above Morrison Park	49.5		
12	at Lair of the Bear Park	44.8		
9	at O'Fallon Park	59.3		
13a	at Baker Bridge (Idledale)	66.4		
8	below Evergreen (BC Cabins)	49.6		
5	at Little Bear Evergreen	56.2		
3a	at Key of the Green GC	43.9		
58	Mount Evans Wilderness	67.0		
2a	Golden Willow	60.8		



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BCWA Fact Sheet 51 Reducing Risk of E. coli Contamination of Waterways. BCWA Fact Sheet 39 E. coli identifies standards for waters in the Bear Creek Watershed and lists those stream segments on the Colorado 303(d) list of impaired waters. The BCWA has adopted an alternative management program that doesn't require the adoption of a formal regulatory total maximum daily load for E. coli in listed segments or other waterbodies in the watershed. Waters with suspected bacterial contamination will be assessed and corrected using specific management strategies and approaches.

Redtail Hawk eating a night crawler

A Water Year for the record books.

The average inflow into Bear Creek Reservoir from both Turkey Creek & Bear Creek (1987-2012) was 27,024 acre-feet per year.

Since the flood of September 2013, the average inflow into the reservoir has been 63,675 acre-feet per year.

This year to date, there has been over 116,000 acre-feet flowing through the reservoir.

It appears that only 2-years in the 115-year record on Bear Creek had higher flows - 1901 & 1944 (flood years).

The mean annual flow in the South Platte River at Waterton (1926-2014) is 119,435 acre-feet.

The Association provides information about the water quality and environmental concern associated with the use of coal-tar sealants in the *BCWA PGO20 - Alternatives to Coal Tar-based Pavement Sealcoats: Guidance for Agencies, Property Owners, Associations and Managers in Bear Creek Watershed*. The BCWA Fact Sheet 50 identifies some safer alternatives.

Do not select products if their safety data sheets, container labels, or technical bulletins show the Chemical Abstracts Service (CAS) numbers 65996-93-2, 65996-89-6, or 8007-45-2, or the words "coal tar," "refined coal tar," "refined tar," "refined coal tar pitch," "coal tar pitch volatiles," "RT-12," "tar" or similar terms. You may see coal tar/asphalt blends offered with as low as 10% coal tar content, but even at that level, PAH content is around 100 times higher than asphalt-based sealcoat. These blends should be avoided.

When sealing a driveway, roadway or parking lot, please take the following precautions to help protect our local streams and lakes:

- Before using a pavement sealant, make sure that it does not contain coal tar, coal tar pitch, or RT-12.
- Choose a product that is asphalt - or latex-based. Many major chains such as Home Depot, Lowe's, and Ace Hardware, no longer sell coal tar sealants and only sell alternative products.
- For those hiring a contractor to do the job, specify that you want them to use a product without coal tar, and ask to see the label before they use it.

New Bear Creek Reservoir Chlorophyll & Total Phosphors Standards, and Temporary Modification. The Colorado Water Quality Control Commission adopted new standards in 2015:

Bear Creek Reservoir nutrient standards

- a. Chlorophyll a = 12.2 ug/L
- b. Total phosphorus = 22.2 ug/L

Assessed as a summer average concentration at BCWA site 40 (deepest part of reservoir) based on at least three samples representative of the mixed layer in the summer growing season. The standards allow only one exceedance in five years on average for either standard. The WQCC also adopted temporary modifications for both standards:

- a. Basis: uncertainty about the underlying standards
- b. Set expiration for 2020

The recent Clear Creek Water Festival was a huge success. We distributed over 110 wrist bands to attendees who answered questions about water resources or quality. While eleven kids could answer all of these questions asked in sequence, only two adults had the right answers. Amazing that a common answer to question #1 was the Colorado River. Did you know the Gulf of Mexico is connected to the Indian Ocean? I didn't either, because I lost that argument.

1. Clear Creek or Bear Creek flows into what river?
2. The South Platte flows into what river?
3. The Missouri flows into what major U.S. River ?
4. The Mississippi flows into what body of water?
5. The Gulf of Mexico is connected to what Ocean?
6. Does water from the Atlantic ever get back to Colorado?
7. How?
8. Does Colorado water ever reach any other ocean?