

BCWA PINNACLE



Clear Creek County
 Jefferson County
 City of Lakewood
 Town of Morrison
 Aspen Park Metropolitan District
 Conifer Sanitation Association
 Denver Water Department
 Denver Parks & Recreation
 Evergreen Metropolitan District
 Forrest Hills Metropolitan District
 Genesee Water & Sanitation District
 Jefferson County School District
 Kittredge Sanitation & Water District
 West Jefferson County Metro District
 Tiny Town

Volume 15

June 2018

Nutrient Loading—Phosphorus and Nitrogen

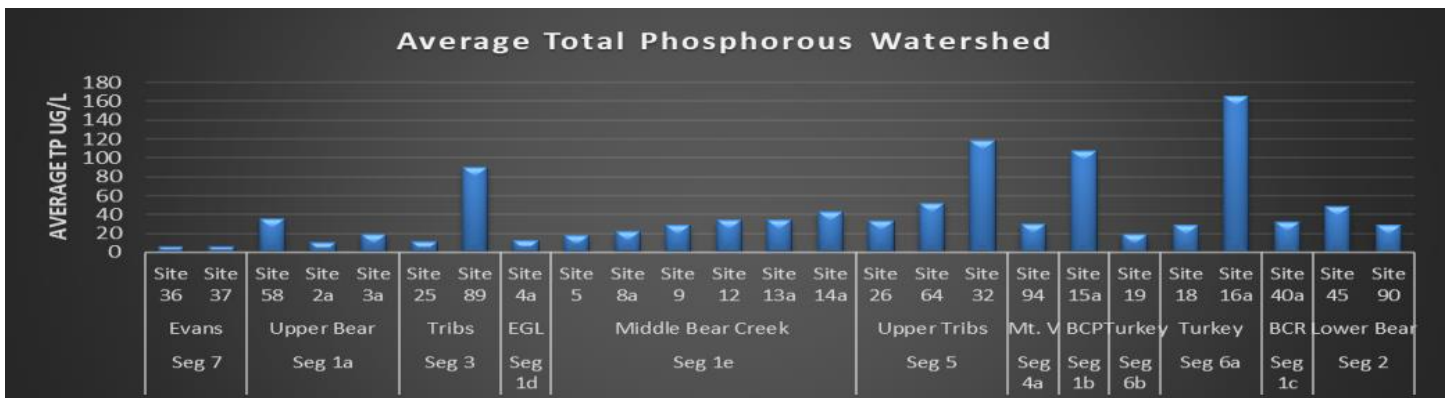
Total phosphorus load from the watershed comes from a combination of wastewater treatment plant point source loads, other sources (e.g., onsite disposal systems), nonpoint sources (e.g., onsite wastewater treatment systems, stabling operations, roads, public lands, illegal dumping). Total phosphorus load in 2017 from all sources reaching Bear Creek Reservoir was 6,034 pounds (79% from Bear Creek). There was about 48,411 pounds of total nitrogen loading into the reservoir with (55% from Bear Creek).

The Association monitors watershed nutrients by major stream segments beginning near Mt. Evans (segment 7) and extending downstream to Bear Creek Reservoir. 2017 was an average nutrient moni-

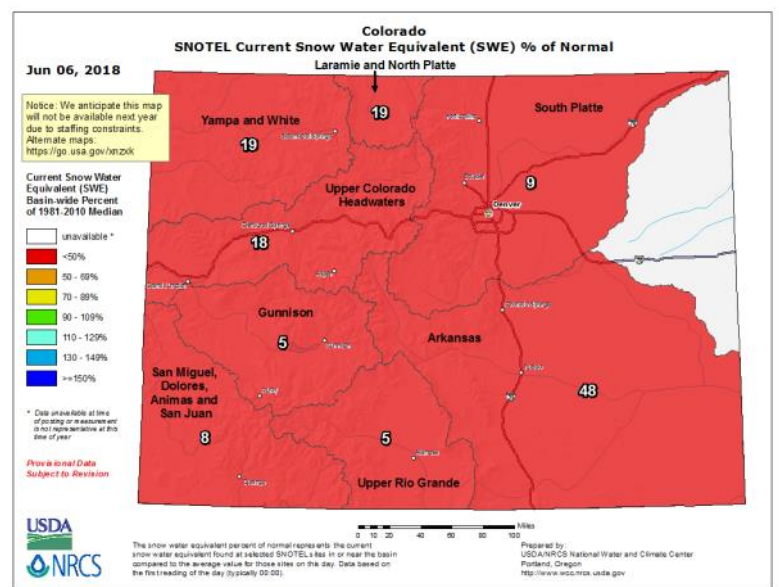
toring year with 77% of the total phosphorus and 55% of the total nitrogen load occurring in the April-May spring runoff period. Most nutrient load comes from the urbanized corridor of segment 1a (above Evergreen Lake to the Clear Creek County Line), and segment 1e, which extends from Evergreen Lake to the Harri-man Ditch Diversion in Morrison.

About 1,592 pounds of total phosphorus passed through Evergreen Lake, with an additional 250 pounds added from the Cub Creek drainage. Total phosphorus loading into Bear Creek between Evergreen to Morrison was over 20,960 pounds during the monitoring season. Mt. Vernon Creek contributed about 875 pounds of total phosphorus.

The BCWA 2017 annual report and the BCWA 2017 monitoring data report are available on the web site or copies maybe requested from the manager.



Forecasted water supply situation for summer season varies widely across Colorado. This winter season exhibited what is considered a typical La Niña weather pattern. The southern Rocky Mountains were warmer and drier than normal and the northern Rockies cooler and wetter. Colorado is right on the cusp of this transition area. Except for February, all of southern Colorado consistently received notably less precipitation and snowpack accumulation than the northern basins. Meager snowpack combined with warmer than usual temperatures has led many, if not most, of the SNOTEL sites in southern Colorado to melt out as much as three weeks (or more) earlier than normal. Those sites that have not yet melted are on track to melt early. The most plentiful snowpack was in the mountains of the Front Range, including the South Platte. At no point this season were there any streamflow forecasts for above average volumes anywhere in the state. Streamflows are projected to be below normal in the South Platte, including Bear Creek.

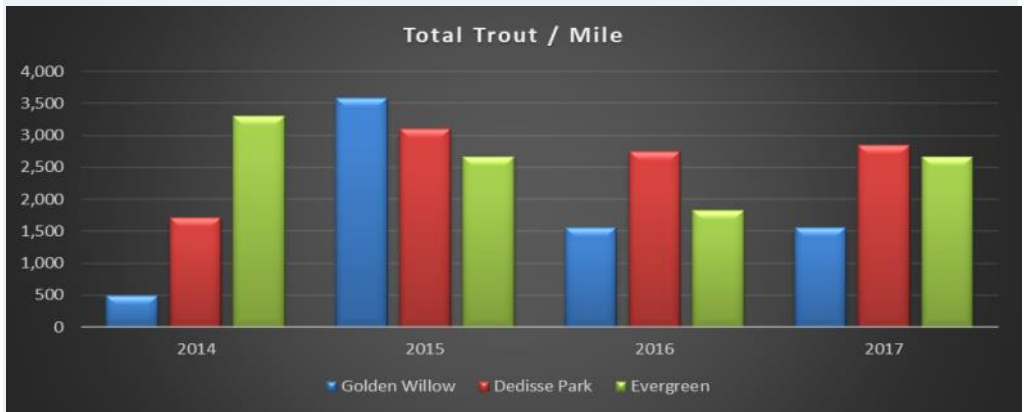


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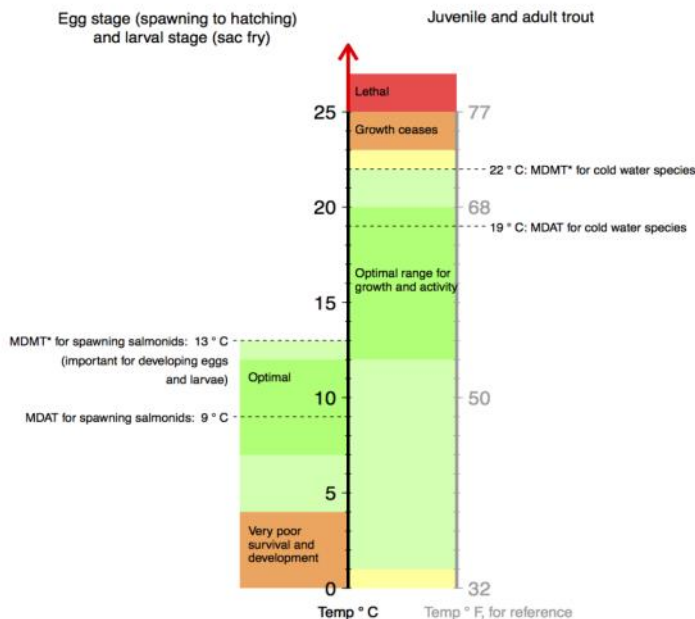
Fishery Status in Bear Creek

From September 11 to 14, 2017, personnel from the Colorado Parks and Wildlife conducted fishery surveys at 7 sites along the mainstem of Bear Creek. The fishery data is graphically summarized in the BCWA technical memorandum 2017.10. Bear Creek is a quality Front Range trout stream.



Average temperature requirements for Rainbow trout

Oncorhynchus mykiss
 Present along the entire Henry's Fork; spawn April to June

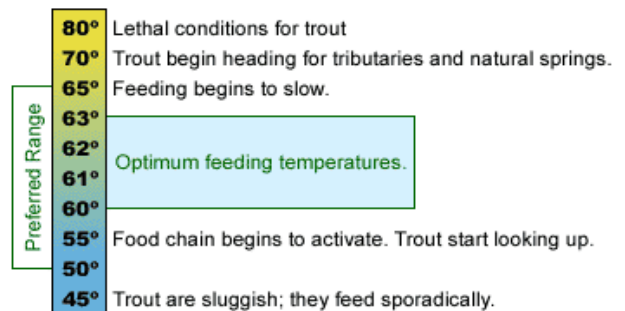


*IDEQ temperature standards:
 MDMT – maximum daily maximum temperature, MDAT – maximum daily average temperature

“Colorado COLD WATER BIOTA is defined as” means aquatic life, including trout, normally found in waters where the summer weekly average temperature does not frequently exceed 20 °C.

Bear Creek Watershed Cold Stream Tier I temperature criteria apply where cutthroat trout and brook trout are expected to occur (Typically streams within the Mt. Evans Wilderness area).

Bear Creek Watershed Cold Stream Tier II temperature criteria apply where cold-water aquatic species, excluding cutthroat trout or brook trout, are expected to occur. Typically Brown and Rainbow trout waters in the middle and lower portions of the watershed.



References: Raleigh, R.F., T. Hickman, R.C. Solomon, and P. C. Nelson. 1984. Habitat suitability information: Rainbow trout. U.S. Fish Wildl. Serv. FWS/OBS-82/10.60. 64 pp.
 Idaho D.E.Q. (2015, October). Stream Temperature Standards. Retrieved from <http://deq.idaho.gov/water-quality/surface-water/temperature.aspx>