From the Chair of the Board of Directors

Since the catastrophic flood in September 2013, the Big Thompson Watershed has undergone major construction and restoration projects to return the river to its natural form and increase its resiliency to future flood events. Now, almost six years later, with most of the repairs and projects complete, the watershed can enter a state of healing. It will take time for the riparian habitat to fully regenerate, bringing with it the wildlife and scenic beauty that was there prior to the flood, but the watershed and river are already experiencing regrowth and showing improvements due to the projects that have been completed.

The Big Thompson Watershed is more than just the river itself. The watershed encompasses over 900 square miles, 173 lakes, and multiple tributaries. This vast system provides drinking water to about 800,000 people in 32 cities, towns, and rural areas in northern Colorado. In addition to delivering drinking water, it is a vital source of agricultural water, yielding about 88 billion gallons of water for farm use annually. The forests and rivers within the watershed also provide critical habitat for Colorado’s native wildlife and allow for a multitude of recreational activities for visitors and local residents.

I am proud to be involved with the Big Thompson Watershed Forum. Throughout the entire restoration process, the Forum has continued to ensure the highest-quality water by monitoring and assessing the health of this vital resource. By analyzing historical and current data, the Forum has provided guidance and insight to many different agencies and organizations during the restoration process, which will lead to lasting improvements within the watershed. I am excited to see the continued recovery of the watershed not only visually, but also in the data gathered through Forum’s Monitoring Program. I have full confidence that the watershed and the health of our community’s water supply are in good hands with the Big Thompson Watershed Forum.

If you haven’t taken the time yet to learn more about what we do, please visit our web site at btwatershed.org. You can also follow us on Facebook to get regular updates about events and water quality and to simply enjoy beautiful photos of the river: @BigThompsonWatershedForum.

-Tim Bohling, Chair, Big Thompson Watershed Forum
Board of Directors
Monitoring Update

The Big Thompson Watershed Forum works with the U.S. Geological Survey (USGS) to collect and analyze water quality samples from the Big Thompson River throughout the year. These monitoring activities expand our knowledge and provide the opportunity to evaluate the water quality in the Big Thompson Watershed as a whole.

Overall, water quality in the Big Thompson River during 2018 can be considered good. Highway 34 construction continued to cause elevated turbidity, but these events were substantially lower than in prior years. Water quality in the upper regions (west of Loveland) was similar to that of the previous five years, with respect to nutrients and metals; however, there were a few instances of elevated copper. Despite these elevated levels, the median copper value was similar to or less than the five-year median. Continuing downstream, the water quality in the lower portion of the river (east of Loveland) was fair, with slightly elevated levels of E. coli and nutrients.

Selenium levels also continue to be relatively high in the lower portion of the Big Thompson River. However, this is somewhat normal given that selenium occurs at elevated levels in part due to the bedrock geology of the Big Thompson River Watershed. The lower portion of the watershed below the canyon mouth includes a selenium-rich bedrock called Pierre Shale. Selenium levels can be further elevated by surface disturbance caused by activities such as land development and events such as floods. The Forum recently undertook a study of selenium in the lower Big Thompson River and found that while it is likely that elevated selenium is negatively impacting aquatic life in the lower section of the river, features such as the Mariano Exchange Ditch (which acts as a wetland as water flows through Boedecker Reservoir) and the City of Loveland wastewater discharge plant act to dilute the overall amount of selenium in the river.

Generally, water quality sampling is not conducted during December and January due to ice conditions. However, given the Highway 34 construction activities, the Forum partnered with the Colorado Department of Transportation, Federal Highway Administration, Kiewit Corporation, and the USGS to collect water quality information during this past winter. A water quality sonde, which is a device that can monitor multiple parameters simultaneously, was installed near Jasper Lake Road in November of 2018 and continued monitoring until the end of March 2019. This sonde collected data including pH, temperature, turbidity, and specific conductance. The data did not indicate any unusual or unexpected water quality issues. However, turbidity continued to be elevated throughout the winter as a result of construction activities.

Historically, the average turbidity during the winter is in the range of 1-4 NTU. During the winter monitoring, there were several occasions when turbidity was measured above 100 NTU. Throughout the winter, turbidity ranged between 1.2 and 362, with an average of 10.0 NTU. Despite these high results, turbidity levels during the winter of 2018 were still lower than during the winter of 2017, when construction activity was more intense and turbidity levels were often above 400 NTU. These elevated values were almost certainly caused by construction activity, based on the return to normal turbidity levels during time periods of little or no construction. The Big Thompson Watershed Forum would like to thank Dave Lorenz for allowing us to place the sonde on his property.

Elevated turbidity can have negative impacts on municipal water treatment plants and aquatic communities. High turbidity levels often indicate higher levels of total organic carbon (TOC). Although not a direct human health hazard, turbid water requires additional treatment in drinking water processing and can lead to the formation of disinfection byproducts. Fish and aquatic macroinvertebrates are negatively impacted by increased turbidity and suspended sediments; however, as the turbidity returns to normal levels, we expect those communities to recover.

Water Quality Monitoring and Assessment

Josh Fulson with the USGS takes samples from one of the Forum’s monitoring sites in Big Thompson Canyon.
Pine Beetle Epidemic and Dissolved Copper in the Big Thompson River

Between 2002 and 2012, bark beetle outbreaks in the Rocky Mountains caused severe tree mortality. During the same time period, dissolved copper in the Big Thompson River increased to levels high enough to have negative impacts on aquatic life. Working with colleagues from the U.S. Forest Service, the Forum's monitoring program manager Andy Fayram published a paper in the journal *Environmental Monitoring and Assessment* titled "The relationship between tree mortality from a pine beetle epidemic and increased dissolved copper levels in the upper Big Thompson River, Colorado." Andy also presented the study findings at the 11th National Water Quality Monitoring Conference in Denver on March 26, 2019. If you're interested in reading more about the findings, the paper is now available online: https://link.springer.com/article/10.1007/s10661-019-7326-2.

Tree mortality caused by insects like the mountain pine beetle can affect water quality when copper stored in the trees is released into the river.

Facebook: @BigThompsonWatershedForum

Are you interested in staying up to date on what the Forum is doing? Follow us on Facebook! In addition to sharing pictures of the Big Thompson River and watershed, we post about things like history, fun facts, water quality, and events. Curious about who our Board members are? We recently started a series in which we feature them and tell about their background. Ever wonder what our former scholarship winners are up to now? We’ve caught up with several of them to find out where they are in their water careers. Like free stuff? We also do giveaways!

Don’t miss out—follow us at @BigThompsonWatershedForum.
A New Look for Viestenz-Smith Mountain Park

Since 1925, northern Colorado residents and visitors alike have enjoyed outdoor recreation on the banks of the Big Thompson River in Viestenz-Smith Mountain Park. However, the 2013 flood destroyed all the park’s infrastructure, including the vehicular/pedestrian bridge, parking lot, sidewalks, playground, and picnic areas. As part of the flood restoration efforts in Big Thompson Canyon, the City of Loveland redesigned the new park to be more resilient to future flooding and more ecologically sensitive to the river’s natural course.

The redesign features two new pedestrian bridges, picnic sites on the north bank of the river, walking trails, and fishing access points. Future projects scheduled for completion in 2020 include improvements to historic buildings, new interpretive signs, and memorial plaques remembering those affected by the floods.

Viestenz-Smith Park celebrated its grand re-opening on September 28, 2018. Reconstruction of the park was funded through a FEMA Flood Recovery Public Assistance Grant and a Community Development Block Grant through the Housing of Urban Development’s Disaster Recovery Program.

Have you been to the new and improved Viestenz-Smith Park yet? Summer is a great time to go see what the City of Loveland has done to improve it!
2018 Environmental Scholarship Winner

Last October, the Forum’s Scholarship Committee selected Carly McGowan as its 2018 Environmental Scholarship recipient. Carly grew up water skiing, swimming, and paddling in the waters in and around Madison, Wisconsin. In May, she graduated from Colorado State University with a BS degree in environmental engineering, with a focus on ecological engineering. For her senior design project, Carly participated in a team that designed a comprehensive water supply and disinfection system for a rural community in the mountains of El Salvador. After graduation, she departed for Copenhagen to participate in a study abroad program. She ultimately plans to attend graduate school and explore opportunities in the fields of sustainability, resource management, and engineering.

Since 2009, the Forum has awarded an annual scholarship in the amount of $1,500 to a student attending Colorado State University or the University of Northern Colorado and enrolled in an academic program related to water. The call for 2019 scholarship applicants will be announced in August.

Children’s Water Festivals

This spring, the Forum participated in the children’s water festivals in Greeley, Loveland, and Fort Collins. Monitoring program manager Andy Fayram entertained fourth and fifth graders with his presentation on macroinvertebrates and water quality, after which the students got to “splash” around in trays of water looking for bugs.

The Forum’s 2018 Environmental Scholarship recipient, Carly McGowan, and Board member Ed Young were on hand to assist and help keep the potential bug-flinging under control. Despite their efforts, the Forum’s live mascot, Charlie the crayfish, ended up on the loose twice—cleverly camouflageing himself in the patterned carpet.

These annual festivals provide indoor and outdoor activities to engage elementary school students in topics related to water quality, conservation, biology, and safety. The Forum has participated in the festivals since 2009.
2019 Board of Directors

Tim Bohling, City of Loveland (Chair)
Richard Thorp, City of Fort Collins (Vice-Chair)
Ed Young, At-Large (Secretary)
David Jessup, At-Large
Randy Mitchell, City of Greeley
Charles Olmsted, At-Large
Keith Stagg, Northern Water

Al Paquet, senior project manager at Jacobs Engineering Group, resigned from the Board after nine years of service to the Forum. In addition to his other duties as a Board member, Al served as a member of the Science and Monitoring Committee and was an invaluable resource on water quality issues. We wish Al the best and thank him for his many years of service and dedication to the Forum.

Financial Contributors

The Forum’s Board of Directors and staff wish to thank the following financial contributors for their continued support. We look forward to partnerships and collaboration.

Major Funders

City of Fort Collins
City of Greeley
City of Loveland
Northern Water (NCWCD)

Minor and In-Kind Contributors

City of Fort Morgan
Larimer County
Thompson School District R2J
Town of Estes Park
Town of Milliken
Tri-Districts/Soldier Canyon Filter Plant
U.S. Geological Survey

We are currently recruiting new Board members!

Do you know someone who would be a good candidate? If so, please contact Tim Bohling at (970) 685-2903 or Laurie Schmidt at (970) 613-6163.
Forum Mission

The mission of the Big Thompson Watershed Forum is to support the protection and improvement of water quality in the Big Thompson River Watershed through collaborative monitoring, assessment, and education/outreach projects.

Help Support Our Water Quality Monitoring Efforts

With your tax-deductible financial support, we can continue to collect a wide array of water-quality monitoring data, produce periodic assessment reports, and be involved in more community outreach and education efforts.

Please visit our web site to make a donation via PayPal, or send a check along with your email address to:

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