

Recreational Rock Dam Research in Fish Creek Provincial Park

Many of us have spent a beautiful summer's day exploring a creek or small river, sometimes placing large rocks in line with each other to create a dam or walkway from one side to the other. Often this is something we do with our children, as a way to engage them in nature and cool off on a hot day. These "recreational rock dams" are numerous in Fish Creek Provincial Park; some are quite small, while others are formidable structures that look like they have been in place for many years. Friends of Fish Creek staff and volunteers have questioned for years whether or not these dams negatively impact the watershed, but there has been little research or direction available to us on this issue.

In 2019 we were presented with an opportunity to dive into this topic by being involved with an exciting and timely research project led by Royal Roads University student Jenny Atamanik. Friends' volunteers were trained to help Jenny in the field and assess if the dams were impacting water quality or stream characteristics. Data was collected on turbidity (the amount of sediment held in solution), dissolved oxygen, pH, temperature and conductivity, all of which are indicators of water quality. Wetted width (the linear distance in cross section across a stream that is in contact with water) and maximum depth measurements were also taken to help determine the physical impact—if any—on the streambank.



Volunteer Traelyn Rachar measures water quality as part of the Friends of Fish Creek's recreational rock dam research project.

Photo by Ward Sanderson

The research revealed that 91 rock dams exist along the 14-kilometre stretch of Fish Creek that was studied. Clusters of these structures were often found near easily accessible areas close to parking lots and paved pathways. Increased stream width and decreased stream depth was found downstream of the dams; however, pH, dissolved oxygen, conductivity and temperature did not vary significantly.

While this may seem to be somewhat inconclusive, this study did highlight areas where further research could be conducted:

- Testing for longer periods of time may give a better idea of the impact of these structures during non-peak flow times;
- Studying benthic invertebrates and fish species—neither of which was included in this study—could help determine if rock dams influence significant change in the biotic community structure as a whole;

- Additional research would allow us to learn more about the cumulative impacts of such a large number of rock dams along the creek, as well as the potential impacts on fish communities if these structures are to be left in place or removed.

Possibly the most meaningful finding of this project for the Friends was the realization that other North American parks have chosen to take a precautionary approach with respect to this issue. In spite of there being little conclusive research on the subject, the Washington Department of Fish and Wildlife and Parks Canada in Waterton Lakes National Park ask park visitors not to build these structures and to report rock dam locations for possible removal by their staff.

While we have always supported a “leave no trace” approach to park use, we now have important data that will support our rationale and messaging when we advise park users not to build rock dams. We also hope to play a supportive role in furthering this research if the opportunity presents itself, particularly to help us understand if the removal of these structures is recommended.

This project was funded through the Watershed Stewardship Grant, a program of Land Stewardship Centre financed by Alberta Environment and Parks. We are also grateful for the support and direction of Trout Unlimited Canada biologist Eliot Lindsay, who volunteered considerable time on this project.

[Click here](#) to read more details on this project in our *Voice of the Friends* newsletter.

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