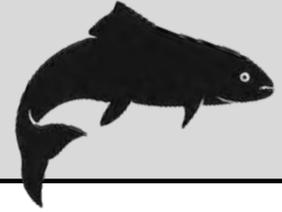


# BIG BAR LANDSLIDE UPDATE

APRIL 17, 2020

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## ONGOING ONSITE OPERATIONS



**PICTURED:** (L-R) A comparison of the East Toe before and after blasting that occurred on April 11, 2020. At higher flows, the river will be widened significantly.

On April 11, crews successfully completed the second blast of the East Toe. This removed 1,770 m<sup>3</sup> of material from the river, for a total of almost 3,000 m<sup>3</sup> removed when combined with the first East Toe blast that occurred in late February. A video is available here: [https://twitter.com/DFO\\_Pacific/status/1250151391206748163](https://twitter.com/DFO_Pacific/status/1250151391206748163).

The blast is the last of the extensive in-channel work undertaken this season to improve fish passage. As with the previous blast of the East Toe in February, acoustic monitoring downstream of the slide did not detect any fish in the area before the detonation and no fish mortality was detected.

In addition to the blasting, work continued on preparations for the installation of a pneumatic fish pump system. Preparatory work includes the construction of a concrete block fish ladder that will guide fish to the pump system, and the fabrication of hangers that will hold the fish passage tubes.

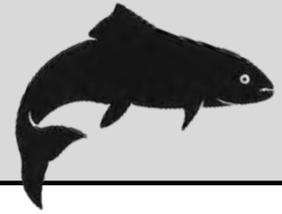
PAGES 2-3 : THE SCIENCE BEHIND A “NATURE-LIKE” FISHWAY

# BIG BAR LANDSLIDE UPDATE

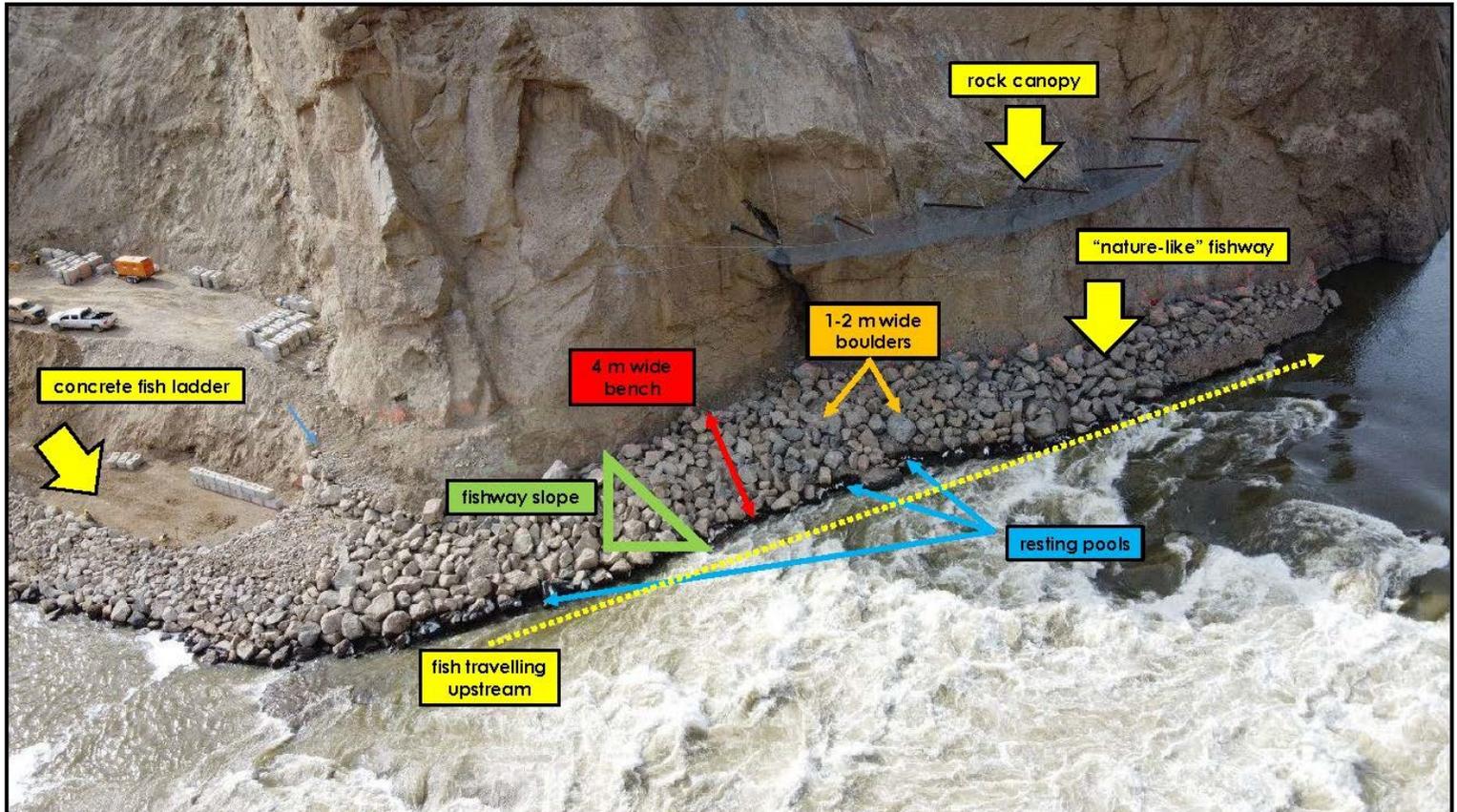
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## THE SCIENCE BEHIND A “NATURE-LIKE” FISHWAY



The completion of the “nature-like” fishway on the west side of the Big Bar landslide marked a significant milestone for the project.

The intent of a “nature-like” fishway is to mimic the natural river environment, in which fish swim past obstacles or through fast-flowing water. The fishway includes resting pools and creates passable rapids similar to what is found in many river systems. These naturally-occurring features allow fish to move through a range of flow levels and maintain the critical energy reserves needed for migration.

At Big Bar, although crews have successfully removed large amounts of slide debris from the

channel that was identified for removal, the current may remain too strong for the fish during high water. The “nature-like” fishway will serve as a barrier against this heavy flow, which is amplified by the slide debris that remains underwater.

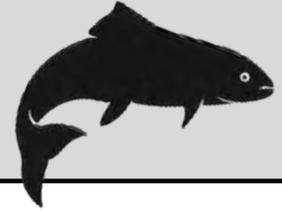
Rock material that was removed from the river as part of the winter work was eventually used to build the fishway. Using heavy machinery, crews strategically placed clusters of boulders, about two metres in diameter, along the west bank of the slide site. These large rocks will disperse the current and slow the river velocity to create suitable migration conditions along the river edge.

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## FISHWAY SCIENCE

CONTINUED FROM PAGE 2

During freshet, currents can exceed eight metres per second and the boulders need to be large enough to withstand this pressure. The use of big boulders and the sloped nature of the fishway allow it to function in a wide range of water levels.

The design also required specific elevations so early Sockeye and Chinook can benefit from the rock placement. The result will enable fish to pass during as much of the spring runoff as possible. The top of the “nature-like” fishway also consists of a four metre bench with strategically placed rocks, creating resting pools for fish during high water.

Working ahead of freshet on difficult terrain and in challenging weather conditions required a flexible approach by the teams installing the fishway. Different scenarios were modeled with benches of varying widths, channel grades and slopes to determine the best solution at the slide site.

Developing fish passage systems is a continually evolving science. The “nature-like” fishway is one of a series of mitigation measures being implemented to facilitate fish migration at Big Bar. The team will assess the instream conditions and monitor fish passage throughout the



**PICTURED:** Construction continues on the creation of a concrete block fish ladder to guide fish into the pneumatic fish pump system.

migration season to determine the fishway’s effectiveness. We look forward to showcasing the fishway in action in the coming months.