



Emergency Salmon Task Force Situation Report - August 20, 2024

Salmon Emergency Task Force:

A major landslide occurred on the Tsilhqox (Chilcotin River) the night of July 30. Increased sediment, debris, and flows to the Chilcotin and Fraser Rivers continue to dramatically impact this year's returning sockeye and Chinook populations and their ability to successfully pass through the landslide area to their spawning grounds.

In response to the slide, TNG rapidly formed a tripartite Salmon Emergency Task Force to assess the impacts on Tsilhqot'in-bound salmon populations. The task force has a technical focus and includes experts from the TNG Fisheries Department, Fisheries and Oceans Canada (DFO), the Province of BC, the Upper Fraser Fisheries Conservation Alliance (UFFCA), and several external technical experts. Members were selected based on their high level of expertise and experience as members of the Big Bar landslide response process, which began in 2019.

All parties have expressed their strong commitment to working collaboratively on a coordinated slide response. Members are committing to short- and longer-term roles to address both the immediate and long-term impacts of the slide on salmon populations.

- The task force continues to enhance communications, coordination and collaboration. This includes a broader engagement approach with other First Nations communities.
- The task force is conducting a thorough investigation of the slide and its impacts on salmon and habitat, and is working to answer key questions, advance technical priorities, and explore potential mitigation/intervention options where needed/feasible.

What information are we collecting, and why?

The task force is working to address the main questions:

- Will salmon stocks be able to pass through the slide area successfully to return to their spawning grounds this year, as river conditions change?
- Is human intervention needed to support passage for stocks that may be critically impacted, and if so, what interventions would be the most appropriate?

Conditions at the slide continue to **change quickly** from day to day. We are collecting critical information on salmon migration timing and conditions to assess landslide impacts on salmon and inform decision making for potential mitigation/intervention options. Options being considered include **emergency conservation enhancement** (hatchery) activities to support severely impacted salmon populations, and possible **trap and transport** operations (physically moving salmon past the slide) pending improved stability and safety at key access points.





It's important to note that mitigation/intervention actions aim to **minimize the damage, but can't fully solve the problem**. Decisions will need to be made quickly, as we're up against tight timelines. To be prepared to take swift action, we are learning about multiple interacting factors through rapidly deployed monitoring systems including:

- salmon migration timing and when they're expected to reach the slide;
- time/level of exposure to turbid (muddy/silty) water conditions;
- hydraulic conditions (obstacles, flows, other hazards) in the river;
- river temperatures during migration, etc.

All these factors impact how quickly salmon (particularly sockeye) will deplete their energy reserves.

Ideally, we hope fish will be able to migrate past the slide on their own — a key lesson from Big Bar is to avoid intervention unless absolutely necessary. Salmon are incredibly **strong and resilient**, even in extreme conditions. Our objective is to collect as much information as possible, fully assess and analyze all available information, and be ready to take action if and when considered critically needed.

Update on current monitoring activities:

Visual aerial (helicopter) assessment of the slide indicates **hydraulic conditions are slowly improving**; the river is evening out, fast moving water is slowing down, and turbidity (silt/sediment) is improving but still much higher than normal. However, hydraulic conditions are only one piece of this complex puzzle; other available data indicate fish are still delayed, and **we likely do not yet have unimpeded passage at the slide**.

An array of **SONARs** are currently monitoring salmon location throughout Tsilhqot'in Territory:

- TNG Fisheries worked with technical partner EcoFish to install a **new fish passage SONAR** just above the slide site (at Hanceville) on Aug 8 to detect when fish start to pass through the slide.
 - The SONAR team is on site daily and is actively reviewing SONAR files and reporting results in near-real time.
 - Since the slide occurred, only **31 Chinook and 16 sockeye** have been detected to have passed through the slide area by the fish passage SONAR. This indicates delay/obstruction, as thousands of Chilko sockeye would be expected to be moving through at this time.
- TNG Fisheries currently has SONAR monitoring in place in the **Little Chilcotin and Chilko systems** (TNG/DFO partnerships) and the **Taseko system** (TNG-led). These programs existed prior to the slide and are now providing critical information on the state of salmon in Tsilhqot'in Territory.
- The task force is working with DFO to have a **SONAR** re-installed on the **Fraser River at Churn Creek** to monitor salmon migration between Big Bar and the Chilcotin River (current data gap) to help determine if migration in the Fraser River itself has been slowed due to effects of the slide.





Other monitoring activities initiated by the task force to date include:

- Cameras, wifi, and all-in-one weather station installed for 24-hour eyes on the site;
- Real-time hydrometrics (water levels and flows);
- Installed **turbidity monitoring sensors** at 5 key locations from above the slide lake to the downstream Fraser River at Big Bar
 - sites were selected to evaluate the turbidity impact on salmon throughout their migration – from key points on the Fraser to the Chilcotin River upstream of the slide;
 - note: fish do not move if turbidity levels are above a certain threshold; turbidity monitoring upstream and downstream of the slide will help determine when fish movement may be expected.
- Completed drone photogrammetry data collection for the first *orthomosaic* of current site conditions (i.e., a highly accurate, geometrically corrected aerial image free from distortions/perspective errors)
 - LiDAR drone flights are scheduled for this week.
- Emergency works planning to assess safety and feasibility for access and potential earth works at the slide site;
- Ongoing terrain stability monitoring at Farwell Canyon
 - to assess the feasibility of mitigation measures (not currently possible due to site instability and safety concerns);
 - rain, increased flows from snow melt, etc. could trigger further instability.

Salmon migration, status, and impacts:

Not enough information is available yet to confirm whether there is fish passage at the slide site, but available information indicates it's unlikely. 31 Chinook and 16 sockeye have been detected by the fish passage SONAR, but it's still uncertain how many of these fish may have passed the site before the slide occurred. Monitoring is ongoing.

Taseko sockeye:

- **Highest conservation concern;** due to their migration timing (late July through early Aug) during the slide period, severe impacts are likely.
- This is a key **critically endangered stock at high risk of extinction**. Emergency enhancement was planned prior to the slide.
- A few sockeye were detected by the Taseko SONAR in late July, so some had reached their spawning system before the slide.

Chilko sockeye:

- **Critical conservation concern**, as most are still downstream of the slide.
- The peak of the return is expected at the slide area **Aug 25-26** based on current information from ocean and lower Fraser test fisheries.
- Already a record low predicted ocean return in 2024 – only around 120,000 fish.





Chilko Chinook:

- May experience **less severe impacts** based on their timing (late July) – a significant portion passed before the slide. Information is still being collected for a more thorough assessment.

Chilcotin Chinook:

- **Good news:** Upper Chilcotin Chinook reached their spawning grounds prior to the slide.
- This is a key **critically endangered stock at high risk of extinction**; emergency enhancement was planned prior to the slide.
- Brood stock collection was completed by TNG Fisheries in July, and brood stock was transferred to QRRC conservation hatchery.
- Initial analysis indicates most of the **Little Chilcotin Chinook** population made it to their spawning system prior to the slide; there are approx. 1000 Chinook in the system now.

Elkin Creek Chinook (Taseko system):

- The population is typically in the range of 100-400 fish with later timing like Chilko Chinook
- They could still be **severely impacted** by the slide due to the extremely small population size; information is still being collected for a more thorough assessment.
- Emergency enhancement is being considered but has not been confirmed.

Others:

- **Interior Fraser coho** and **critically endangered Chilcotin steelhead** are expected to reach Tsilhqot'in Territory in a few weeks (September).

Task Force Communications:

- The task force is sharing situation reports weekly at a minimum, and will update more frequently as needed to share key developments and milestones.
- All situation reports and landslide updates are posted on the TNG website at www.tsilhqotin.ca/our-territory/fisheries/communications and on the TNG Facebook page at www.facebook.com/Tsilhqotin.
- For questions please email tngsalmontaskforce@tsilhqotin.ca.





Tsilhqox (Chilcotin River) Landslide Map

