



Gitanyow *Fisheries* Authority



September 30, 2020

2020 Kitwanga River Salmon Enumeration Facility Update #6

The Kitwanga River Adult Salmon Enumeration Facility (KSEF) was dismantled for the year on September 14, 2020. The final salmon counts through to the end of September 13th, 2020 as follows:

Sockeye = 413* Chinook = 119 Pink = 1,939 Chum = 35 Coho = 210

*Sockeye counts include escapement through the Upper Kitwanga River counting fence (KsF) and are cumulative for the whole year to September 28, 2020.



*Upstream view from left bank showing fence removed. Note high water (water level was up to **1.65m** even with the fence removed on Monday, September 28).*

Overall water levels at the KSEF were much higher than the long term averages recorded between 2004 to 2019 (excluding 2018 low flow year) from the start of the program

through to the removal of the fence in mid September. This made the operations particularly challenging this year (see KSEF water stage graph below for more detail), so challenging that **between August 16 – 17 and again between August 21-28 after heavy rainfall and flooding on the Kitwanga River some or all the panels had to be left opened to relieve pressure on the fence and potentially prevent permanent damage to the facility. It is not known how many fish passed through the KSEF uncounted during this time and unfortunately the timing corresponded to when much of the Chinook, pink and chum would have escaped through the site. Large logs and other debris were carried down the river and were lodged on the facility log boom and the fence itself during this period. Fortunately, no serious damage to the site was observed but GFA crews spent considerable time dislodging debris and cleaning the site, including many 24 hour shifts to maintain the facility.** The fence was rendered fish tight once again on August 28 and remained fish tight until it was removed on September 14-15, 2020. The KSEF was left in from August 28 to September 14 in order to add to the overall counts for Chinook, pink, chum and coho and get to allow for more biological sampling for each species. GFA with support from DFO also had planned to conduct aerial surveys above the facility after the high water August event in hopes of estimating the number of fish passed uncounted, but the waters remained high and dirty right through to when the facility was dismantled and high waters still continue now.

After high water flooding compromised the KSEF operations on August 16 (first breach), GFA set-up the Kitwanga smolt fence (KsF) below Gitanyow Lake (30km upstream) and made it fish tight so it could be used as a secondary adult salmon counting facility, mainly to count sockeye and coho. Many salmon spawn between the KSEF and KsF but all the sockeye and about half of the coho spawn above the KsF site. The installation and operation of the KsF as a back-up is very important to the Kitwanga sockeye rebuilding program.

The KsF was operational and fish tight by August 21 within five days of the first breach at the KSEF. For 2020, the KsF included the operation of a remote telemetry underwater DVR camera system similar to the system utilized at the KSEF. This new camera system for the site was set up temporarily for this year and was made possible due to a GFA / Skeena Fisheries Commission partnership and funding from the *BC Science Restoration and Innovation Fund*. The system has performed remarkably and to date has counted fish through the facility uninterrupted using mostly solar power since it was set-up in mid August. GFA will also conduct stream walk counts of all known Kitwanga coho spawning areas through the fall as water conditions permit to estimate the total coho return for 2020.

Water temperatures in the Kitwanga River were lower than normal for most of the period that the KSEF was operational and fluctuated between 10-13°C prior to the fence being removed (see KSEF water temperature graph below for more detail).

The first sockeye counted through the KsF was on August 26 and to date 408 sockeye have been counted through the facility. Given the timing, the high water levels in the Kitwanga River for the period and the travel time required for sockeye to navigate between the KSEF and the KsF, GFA does not believe any sockeye would have passed the KsF uncounted between the time the KSEF went down for the first time and when the KsF was rendered fish tight. However, based on two years of telemetry tracking conducted on Kitwanga sockeye in 2017 and 2018 it is estimated that 5 of the 9 sockeye counted through the KSEF

prior to August 16 likely would have passed the KsF site prior to its set-up. Therefore, the current estimated sockeye escapement to the Kitwanga River to date is **413**.

This year's sockeye escapement compares to a previous **maximum** observed at the KSEF to the day of 20,289 in 2010, which resulted in an overall escapement of 20,804 and the **minimum** observed to the day of 89 in 2019, which resulted in overall escapement of 125. Based on average run timing for Kitwanga sockeye to the day (2003-2019) it is predicted that approximately **82.9%** of the run should have passed the KSEF. For more information on cumulative Kitwanga sockeye salmon abundance by day, refer to the sockeye salmon graph below.



View of two sockeye through the camera box at KsF on August 26, 2020.

Salmon counts for Chinook, pink, chum and coho through the KSEF on September 13, 2020 are presented in the table below. Please keep in mind that these numbers are the minimum estimates for 2020 as we do not know how many passed through the fence uncounted during the high water events between August 16 – 17 and between August 21-28. In addition, for pink, chum and coho, when the fence was pulled on September 14, an estimated 2%, 23.9% and 73.6% of the respective runs were still to come (based on average % run timing from 2003-2019).

Salmon Species	2020 Returns to Sept. 13	Avg. % Run through KSEF to Sept. 13 (2003-2019)
Chinook*	119	100 %
Pink	1,939	98.0 %
Chum	35	76.1 %
Coho	210	26.4%

*Excluding jack chinook (n=202) counted this year.

For more information on cumulative Kitwanga Chinook, pink, chum and coho salmon abundance by day, refer to the graphs below.







