



# Gitanyow *Fisheries* Authority



September 1, 2020

## **2020 Kitwanga River Salmon Enumeration Facility Update #5**

The Gitanyow Fisheries Authority (GFA) is pleased to announce that the Kitwanga River Adult Salmon Enumeration Facility (KSEF) is operational for 2020. Like in other years GFA will be providing weekly updates on salmon escapement to the Kitwanga River (middle Skeena index) from July through to the end of October. This year marks the 18<sup>th</sup> consecutive year that GFA has implemented the program, which collects important in-season pacific salmon stock assessment and biological information. GFA would like to thank their 2020 funders and supporters, specifically the Gitanyow Chiefs (Gitanyow Huwilp Sustainability Fund), the Pacific Salmon Commission's Northern Endowment Fund and Fisheries and Oceans, Canada. GFA would also like to acknowledge and thank the Gitwangak Wilp Simadeeks for allowing GFA to continue to work within their traditional territory, as set out by our 2002 agreement. As in other years, weekly updates will be distributed and posted on our website: [www.gitanyowfisheries.com](http://www.gitanyowfisheries.com)

Also for 2020, GFA in partnership with researchers from Simon Fraser University (led by Dr. Vicki Marlatt) will be building on the KSEF infrastructure and scientific program to include the monitoring of Kitwanga River salmon stocks using environmental DNA (eDNA). More specifically, we will quantify the number of fish passing the KSEF fish fence based on the eDNA samples collected from the Kitwanga River in conjunction with establishing a discharge rating curve and compare this information with traditional salmon counting methods at the facility from June till November of 2020. The hope is that this project will demonstrate the potential of eDNA for quantifying salmonids in the Kitwanga River and that these methods can also be applied to the many rivers currently not assessed in BC. This project was funded through Genome BC's Sector Innovation Program.

GFA staff installed the in-river KSEF components from July 6-10, 2020 under higher than normal water level conditions. The fence was fish tight by the end of the day on July 10, our usual start date. For 2020, we will be using digital video camera recorder (DVR) technology with motion detection software to count salmon at the facility. The DVR camera system has been in place and operational since July 15, 2020 and has been passing salmon successfully like in other years.

The water levels at the KSEF are currently at **1.15m**, approximately 0.69m above the long-term average (see KSEF water stage graph below for more detail) for this time of year. Overall water levels have been high since the start of the program making the operations particularly challenging this year. 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. 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 damage to the site was observed but GFA crews spent considerable time cleaning the site. The fence was rendered fish tight once again on August 28 and has remained fish tight since this time.**

Water temperatures in the Kitwanga River are slightly lower than normal for this time of year and are currently fluctuating between 10-13°C.



*Photo on left shows large log that was removed from fence and photo on right shows logs that have been removed over the past week.*



*View towards right bank of water overtop of sampling area on left bank.*





*Photo on left is upstream view from right bank and photo on right is upstream view of KSEF after panels had been opened.*

Total salmon counts to the end of **August 31, 2020** are as follows:

**Sockeye = 115      \*Chinook = 111      \*Pink = 893      \*Chum = 8      \*Coho = 15**

\*Last count prior to the panels being opened on August 21.

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After high water flooding compromised the KSEF operations on August 16, GFA turned some of their energy towards making the Kitwanga smolt fence (KsF) below Gitanyow Lake (30km upstream) fish tight so it could be used as a secondary adult salmon counting facility. Many salmon spawn between the KSEF and KsF but all sockeye spawn above the KsF in Gitanyow Lake, so the installation and operation of the KsF as a back-up is very important to the Kitwanga sockeye rebuilding program. For 2020, the KsF will include the operation of a remote telemetry underwater DVR camera system similar to the system utilized at the KSEF. This new camera system was set up temporarily for this year and made possible due to a GFA / Skeena Fisheries Commission partnership and funding from the *BC Science Restoration and Innovation Fund*.

The KsF was operational and fish tight by August 21 within five days of the first breach at the KSEF. Subsequently, the first sockeye counted through the KsF was on August 26 and to date **110** 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. However, based on the 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 would have passed the KsF site prior to it's set-up. Therefore, the current estimated sockeye escapement for 2020 to date is 115.



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

This year's sockeye escapement compares to a previous **maximum** observed at the KSEF to the day of 15,204 in 2010, which resulted in an overall escapement of 20,804 and the **minimum** observed to the day of 34 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 **53.5%** 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.

The last count through the KSEF prior to panels being opened was **108 Chinook**. We had also counted 179 jack Chinook through the KSEF during that time. At that point ~ **75%** of the run should have passed the KSEF, and based on average run timing for Kitwanga Chinook (2003-2019), it is predicted that approximately **95.1%** of the run should have passed the KSEF by August 31. Note, 3 Chinook (and 8 jacks) have passed through the KSEF since August 28 (when the facility was made fish tight once again). **Total large Chinook count to date through the KSEF for 2020 is 111**. Opportunistically, GFA will conduct a helicopter flight of known Chinook spawning grounds on the Kitwanga River (weather and water conditions permitting), to further verify escapement estimates for the season.

The last count through the KSEF prior to panels being opened was 373 Pink. At that point ~ **23.9%** of the run should have passed the KSEF, and based on average run timing for even year Kitwanga pink (2004-2018), it is predicted that approximately **72.5%** of the run should have passed the KSEF by August 31. Note, 520 pink have passed through the KSEF since August 28 (when the facility was made fish tight once again). **Total even year pink count to date through the KSEF for 2020 is 893**.

The last count through the KSEF prior to panels being opened, was 4 Chum. At that point ~ **7.2%** of the run should have passed the KSEF, and based on average run timing for Kitwanga chum (2003-2019), it is predicted that approximately **32.6%** of the run should have passed the KSEF by August 31. Note, 4 chum have passed through the KSEF since

August 28 (when the facility was made fish tight once again). **Total chum count to date through the KSEF for 2020 is 8.**

The last count through the KSEF prior to panels being opened (August 21), was 2 Coho. At that point ~ **2%** of the run should have passed the KSEF, and based on average run timing for Kitwanga coho (2003-2019), it is predicted that approximately **9.2%** of the run should have passed the KSEF by August 31. Thirteen coho have passed through the KSEF since August 28 (when the facility was made fish tight once again). **Total coho count to date through the KSEF for 2020 is 15.**







