Gitanyow Fisheries Authority

September 3, 2021

2021 Kitwanga River Salmon Enumeration Facility Update #6

The Gitanyow Fisheries Authority (GFA) is pleased to announce that the Kitwanga River Adult Salmon Enumeration Facility (KSEF) is operational for 2021. 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 19th 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 2021 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

View towards right bank at the KSEF on September 1, 2021

In 2021, 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). The program was first initiated in 2020, but was cut short by the high water flows that compromised the fence in August of the same year. For 2021, researchers 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 (pre-fish initially) until November of 2021. 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 12-15, 2021 under higher than normal water level conditions. The fence was fish tight by mid-day on July 15. For 2021, we once again have installed and have operational, a digital video camera recorder (DVR). The DVR camera box has been in place and operational since July 23, 2021 and has been passing Chinook successfully.

The water levels at the KSEF are currently at **0.67m**, approximately 0.02m below the long-term average (see KSEF water stage graph below for more detail). Water temperatures in the Kitwanga River are slightly higher for this time of year and are currently fluctuating between 9-14°C. Total salmon counts to the end of **September 2, 2021** are as follows:

Sockeye = 111 Chinook = 538 Pink = 145,273 Chum = 90 Coho = 193

To date we have counted **111 sockeye** through the KSEF. This year's sockeye escapement compares to a previous **maximum** observed to the day of 16,026 in 2010, which resulted in an overall escapement of 20,804 and the **minimum** observed to the day of 40 in 2019, which resulted in an overall escapement of 125. Based on average run timing for Kitwanga sockeye to the day (2003-2019) it is predicted that approximately **61.2%** 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 sockeye through the camera box at KSEF on August 9, 2021

To date we have counted **538 Chinook** through the KSEF. We have also counted 117 jack Chinook through the KSEF. This year's Chinook escapement compares to a **maximum** observed to the day of 3,216 in 2007, which resulted in an overall escapement of 3,225 and the **minimum** observed to the day of 545 in 2018, which resulted in an overall escapement of 618 for the year. Based on average run timing for Kitwanga Chinook to the day (2003-2019) it is predicted that approximately **98.0%** of the run should have passed the KSEF. For more information on cumulative Kitwanga Chinook salmon abundance by date, refer to the Chinook graph below.

View of Chinook through the camera box at KSEF on July 26, 2021

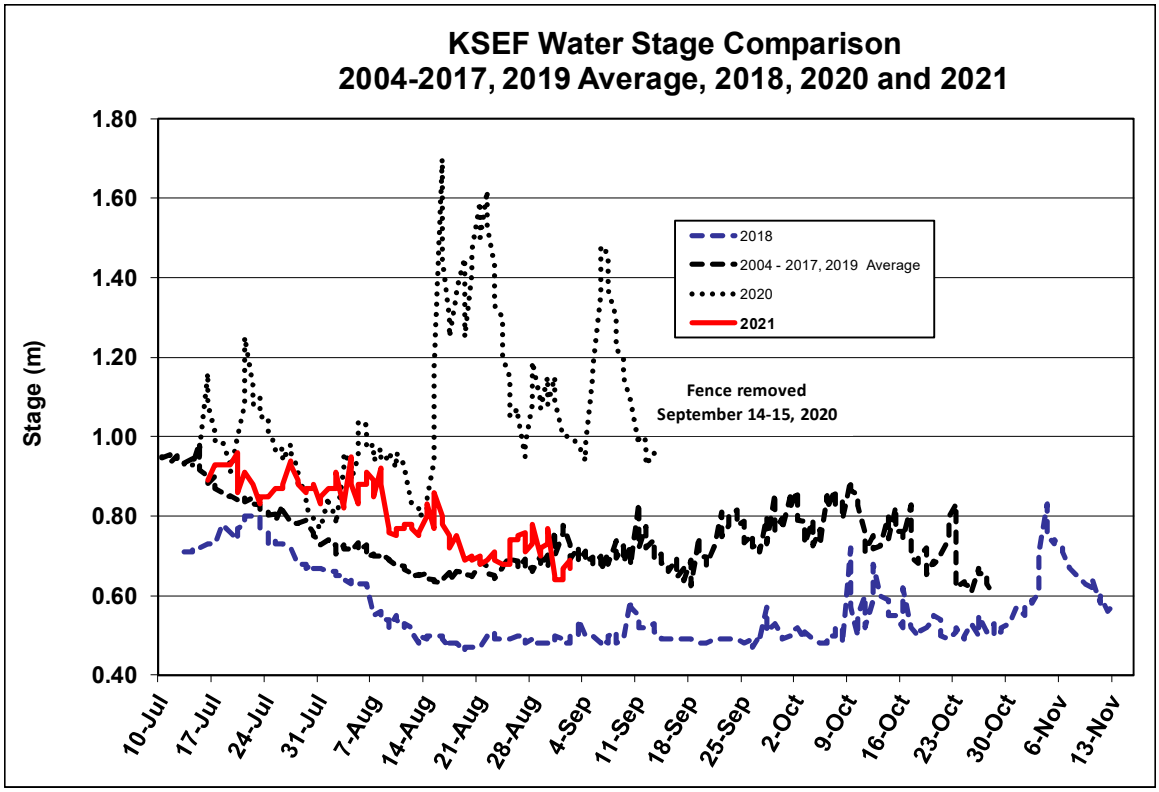
To date we have counted **145,273 pink** salmon through the KSEF. This year's odd year pink escapement compares to a **maximum** observed to the day of 366,629 in 2009, which resulted in an overall escapement of 559,865 and the **minimum** observed to the day of 42,714 in 2019, which resulted in an overall escapement of 52,644. Based on average run timing for pink salmon to the day (2003-2019) it is predicted that **74.9%** of the run should have passed the KSEF. For more information on cumulative Kitwanga odd year pink salmon abundance by date, refer to the pink salmon graph below.

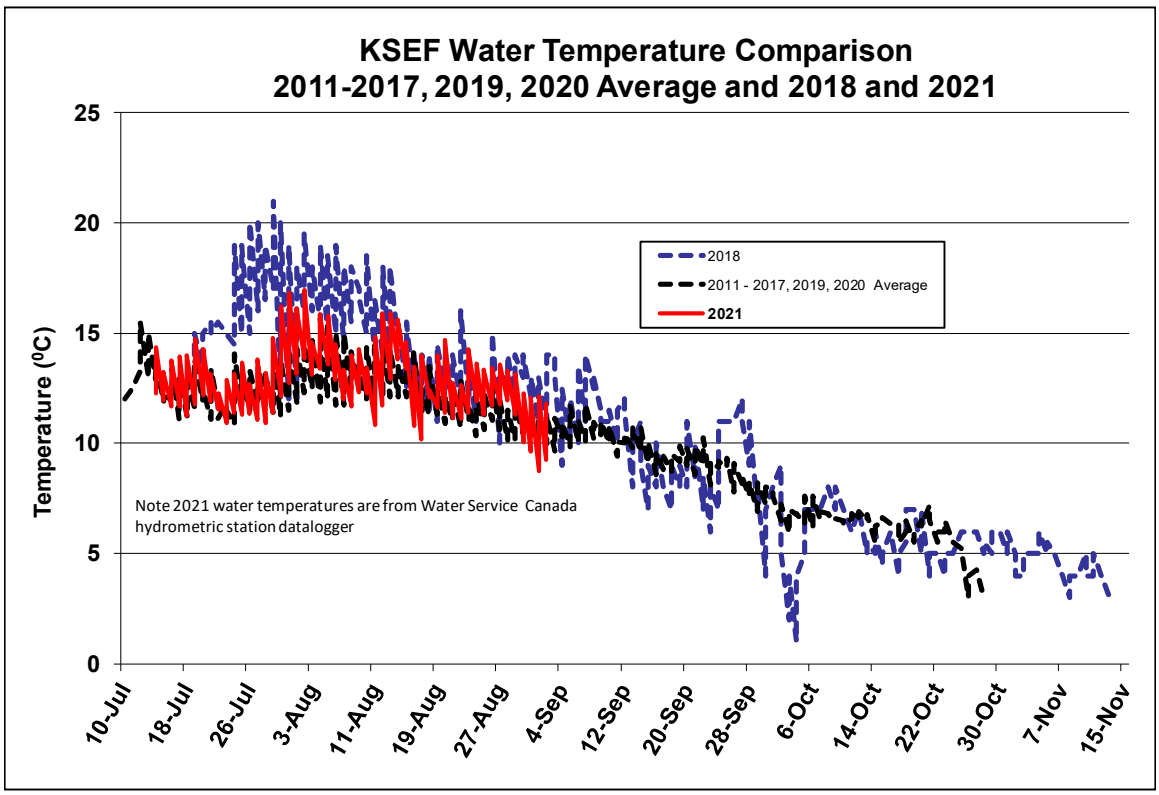
To date we have counted **90 chum salmon** through the KSEF. This year's chum escapement compares to a **maximum** observed to the day of 1,158 in 2005, which resulted in an overall escapement of 1,862 and a **minimum** observed to the day of 13 in 2008, which resulted in an overall escapement of 150. Based on average run timing for chum salmon to the day (2003-2019) it is predicted that approximately **38.4%** of the run should now have passed the KSEF. For more information on cumulative Kitwanga chum salmon abundance by date, refer to the chum salmon graph below.

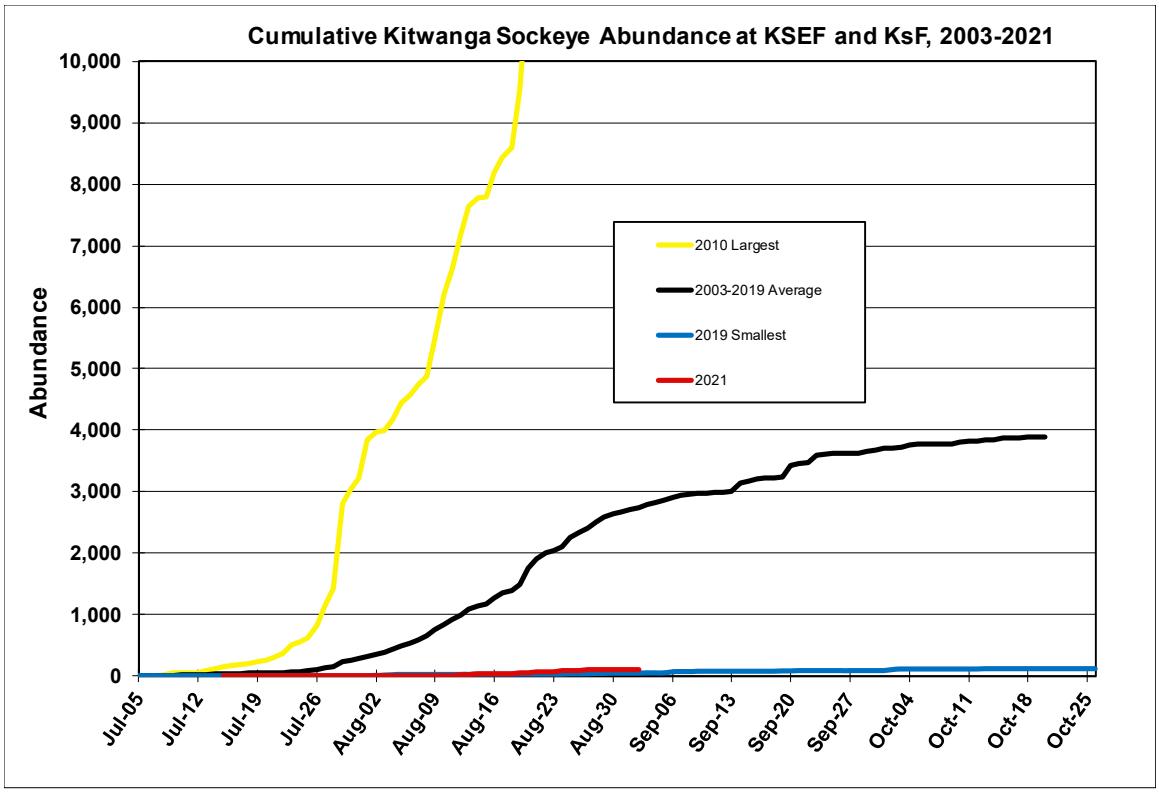
View of chum through the camera box at KSEF on August 9, 2021

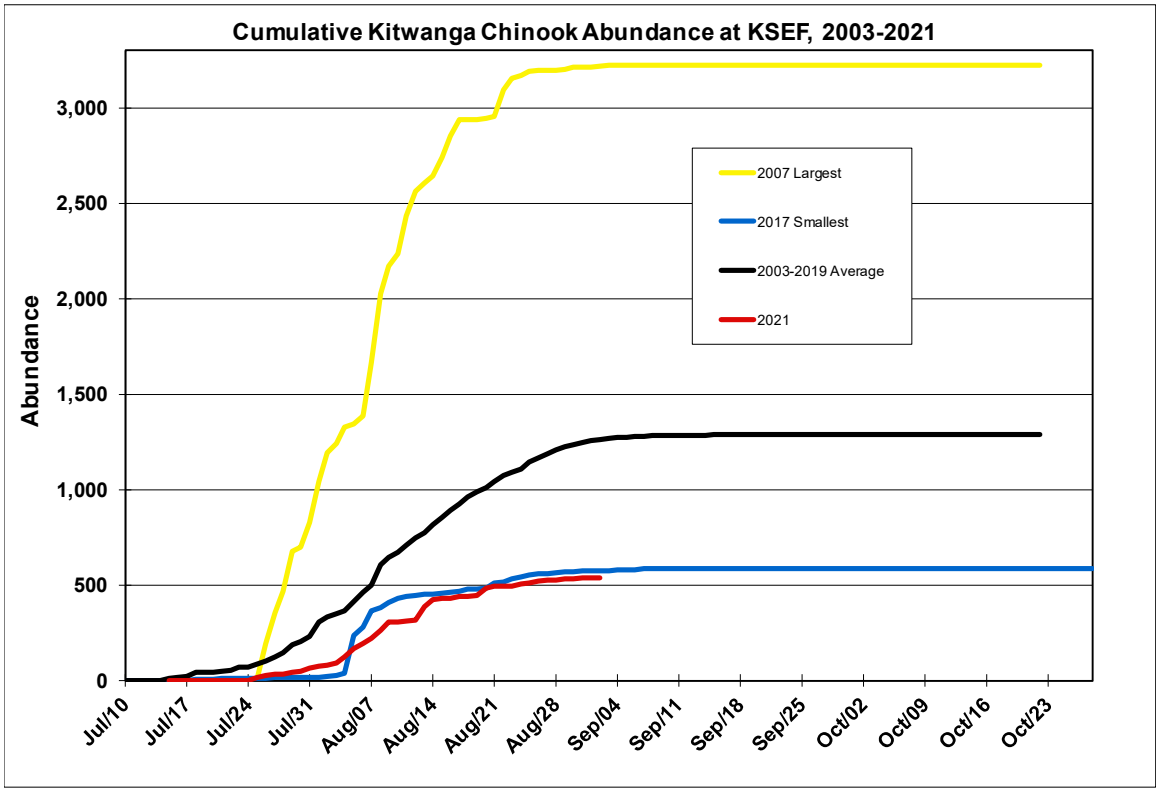
To date we have counted **193 coho salmon** through the KSEF. This year's coho escapement compares to a **maximum** observed to the day of 1,815 in 2009, which resulted in an overall escapement of 12,080 and the **minimum** observed to the day of 5 in 2018, which resulted in an overall escapement of 551 for the year. Based on average run timing for coho salmon to the day (2003-2019) it is predicted that approximately **10.9%** of the run should now

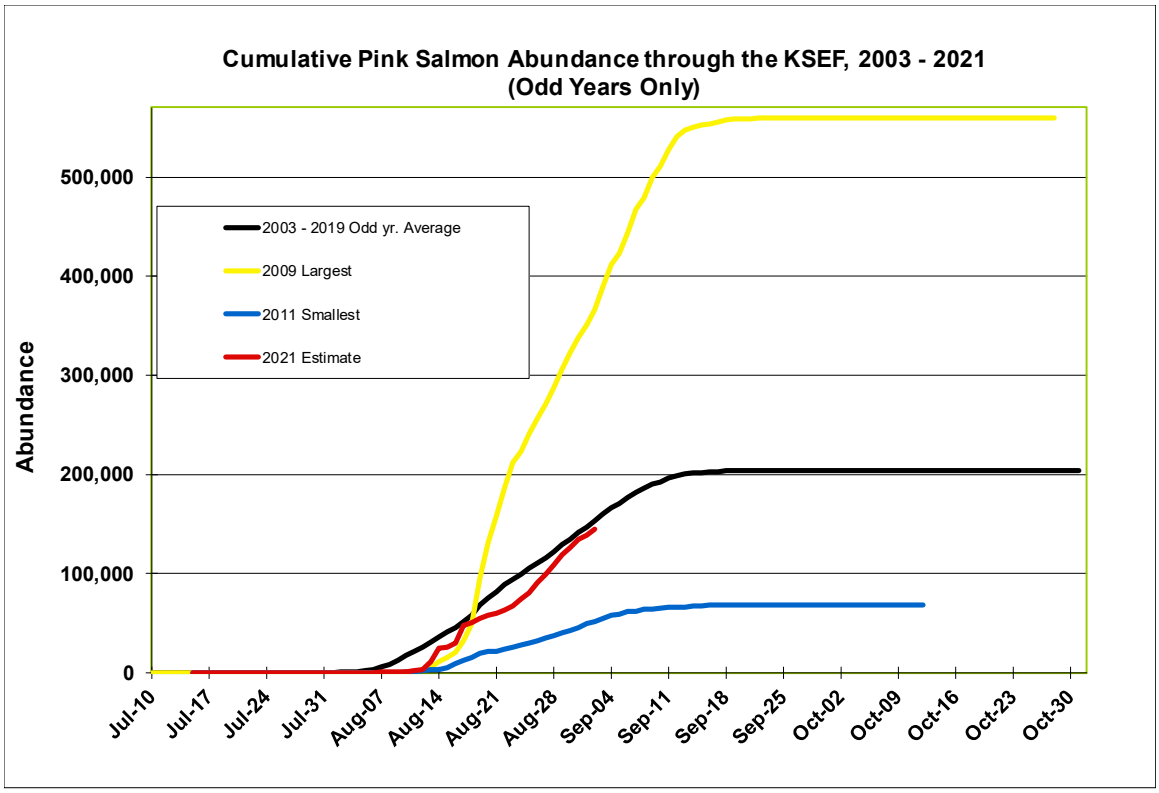
have passed the KSEF. For more information on cumulative Kitwanga coho salmon abundance by date, refer to the coho salmon graph below.

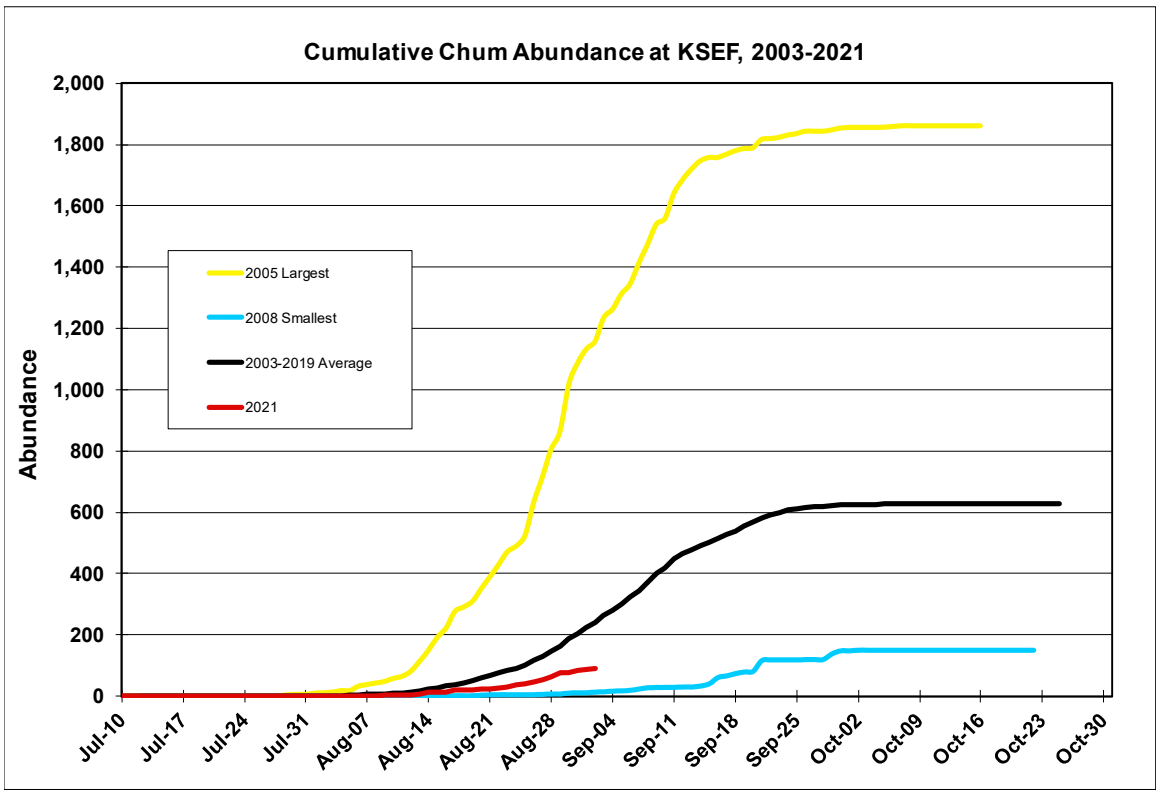


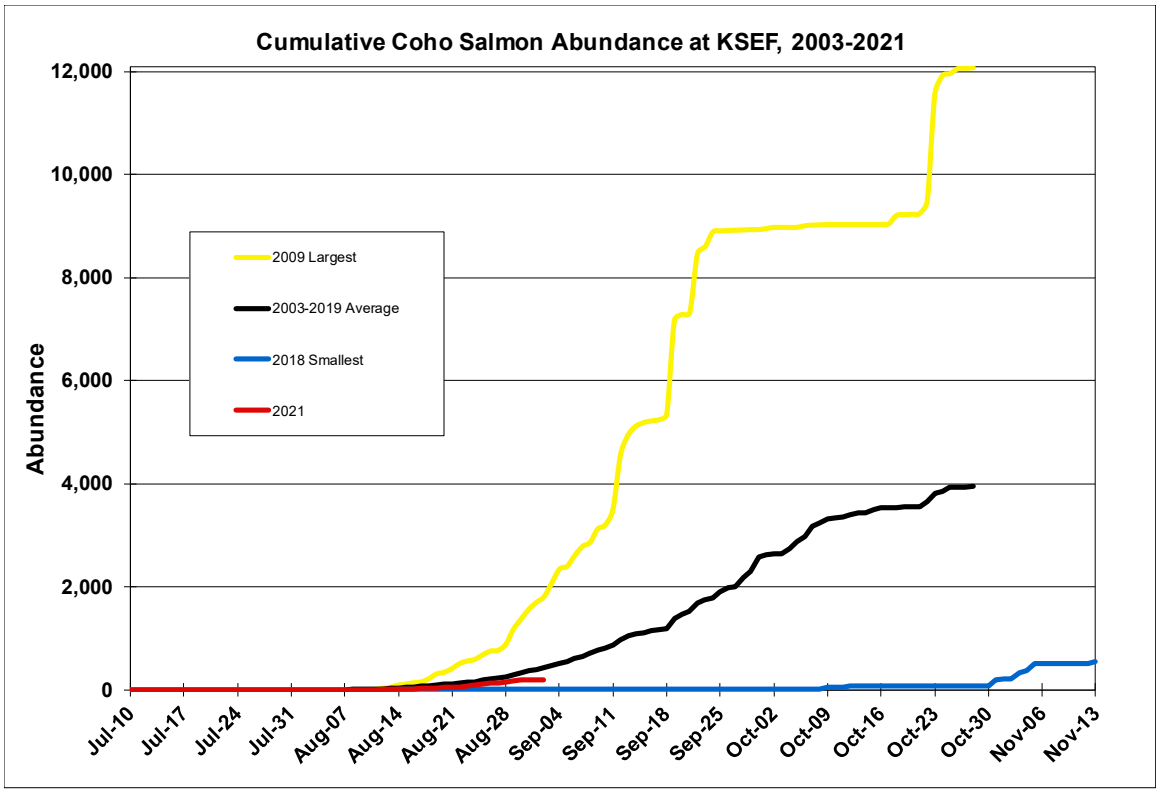



Cumulative Kitwanga Sockeye Abundance at KSEF and KsF, 2003-2021
Abundance
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2010 Largest
2003-2019 Average
2019 Smallest
2021
Jul-05
Jul-12
Jul-19
Jul-26
Aug-02
Aug-09
Aug-16
Aug-23
Aug-30
Sep-06
Sep-13
Sep-20
Sep-27
Oct-04
Oct-11
Oct-18
Oct-25


Cumulative Kitwanga Chinook Abundance at KSEF, 2003-2021
Abundance
3,000
2,500
2,000
1,500
1,000
500
0
2007 Largest
2017 Smallest
2003-2019 Average
2021
Jul/10
Jul/17
Jul/24
Jul/31
Aug/07
Aug/14
Aug/21
Aug/28
Sep/04
Sep/11
Sep/18
Sep/25
Oct/02
Oct/09
Oct/16
Oct/23


Cumulative Pink Salmon Abundance through the KSEF, 2003 - 2021
(Odd Years Only)
Abundance
500,000
400,000
300,000
200,000
100,000
0
2003 - 2019 Odd yr. Average
2009 Largest
2011 Smallest
2021 Estimate
Jul-10
Jul-17
Jul-24
Jul-31
Aug-07
Aug-14
Aug-21
Aug-28
Sep-04
Sep-11
Sep-18
Sep-25
Oct-02
Oct-09
Oct-16
Oct-23
Oct-30


Cumulative Chum Abundance at KSEF, 2003-2021
Abundance
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2005 Largest
2008 Smallest
2003-2019 Average
2021
Jul-10
Jul-17
Jul-24
Jul-31
Aug-07
Aug-14
Aug-21
Aug-28
Sep-04
Sep-11
Sep-18
Sep-25
Oct-02
Oct-09
Oct-16
Oct-23
Oct-30


Cumulative Coho Salmon Abundance at KSEF, 2003-2021
Abundance
12,000
10,000
8,000
6,000
4,000
2,000
0
2009 Largest
2003-2019 Average
2018 Smallest
2021
Jul-10
Jul-17
Jul-24
Jul-31
Aug-07
Aug-14
Aug-21
Aug-28
Sep-04
Sep-11
Sep-18
Sep-25
Oct-02
Oct-09
Oct-16
Oct-23
Oct-30
Nov-06
Nov-13