

NISÇA'A FISHERIES & WILDLIFE T 250 633 2617 / F 250 633 2971 TF 1 866 633 2145 PO Box 228 / 5101 Gitzyon St New Aiyansh BC / Canada voj 1A0

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2023 NASS RIVER SALMON STOCK ASSESSMENT UPDATE – FRIDAY, 14 JULY

The following is the second weekly public update for 2023 of Nass River salmon and summer-run steelhead stock assessments from the Nisga'a Lisims Government Fisheries and Wildlife Department.

All data presented in this update are preliminary and subject to change with further assessment information that becomes available and should be interpreted cautiously. For in-season assessment purposes only.

NASS RIVER ASSESSMENT OPERATIONS UPDATE

OPERATIONAL ASSESSMENT INFORMATION FOR 2023

- 1. <u>Fishwheel Assessment data</u>: **1 June to 13 July**. Data summary below.
- 2. Meziadin Fishway data: operations started on 1 July. Count data from 1 July to 14 July.
 - Current water level is 0.07 m lower than average (1.25 vs. 1.32 m) and water temperature is 2.6°C warmer than average (18.0°C vs. 15.4°C) based on operations from 1994 to 2022.
 - Counts: 82,180 med/large Sockeye (1,448 tags), 724 small Sockeye, 2 Chinook, and 0 Bull Trout. Counts to date are above average for Sockeye (15,000) and below average for Chinook (10) based on counts from 1994 to 2022.
 - Projections to fishway based on Sockeye counts to date and linear regression of in-season to final counts from 1994 to 2022 (r²=0.16): 245,000 med/large Sockeye (95% CI: 133,000, 358,000). In comparison, the projected Meziadin Sockeye return from fishwheel abundance is 274,000 (range: 181,000–343,000) based on mean genetics (76%; range: 50-95%) from 2000 to 2022.
- 3. <u>Kwinageese video-counting weir data</u>: operations started on 9 July. Counts from 9-14 July are: 1 med/large Chinook (0 tag) and 1 Bull Trout. Current water level is 0.09 m lower than average (0.23 vs. 0.32 m) and water temperature is 2.4°C warmer than average (18.0°C vs. 15.6°C) based on operations from 2002 to 2022.

GITWINKSIHLKW (GW) FISHWHEELS - NASS RIVER TEST FISHERY – STARTED IN 1994 [30th year]:

The 2023 Nass River test fishery fishwheels (FW1 and FW2) began operation on June 1 for tagging and historical catch index assessments for salmon and summer-run steelhead. All fish caught in the GW fishwheels to date were released alive after tagging and/or counting. The water levels in June and July 2023 currently rank the 8th and 11th lowest years, respectively, compared to 1994 to 2022 operations (Table 1).

A chart of the water levels at the test fishery is included in the update that compares current levels to historical levels. The current water level is 0.6 m lower than the average water level (1.8 m vs. 2.4 m) based on 1994–2022 operations. Current water temperature at GW fishwheels is 1.1°C warmer than the average water temperature (11.8°C vs. 9.1°C) based on 1994–2022 operations. The water temperatures in June and July 2023 currently rank the 4th and 2nd highest years, respectively, compared to 1994 to 2022 operations (Table 2).

Table 1. Monthly mean water levels (m) at the Gitwinksihlkw fishwheels, 1994–2023.

																															Mean
Mean WL	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	(94-22)
June	3.1	2.7	3.8	3.5	3.2	3.8	3.4	3.5	4.0	3.0	3.2	2.9	3.6	4.8	2.8	4.1	2.6	3.5	3.8	3.1	2.6	2.6	2.1	2.9	1.8	2.0	3.1	4.5	5.0	2.7	3.3
July	2.9	2.6	3.2	2.6	1.9	3.0	3.2	3.0	2.6	2.4	2.3	2.2	2.6	4.0	2.6	2.8	1.8	2.1	3.5	1.7	2.0	1.7	1.6	1.7	1.4	1.5	2.7	2.9	3.9	2.2	2.5
Aug	2.5	2.0	2.1	2.1	1.6	2.3	2.4	1.9	2.0	1.2	1.7	1.7	1.4	1.8	2.3	1.6	1.4	1.8	1.7	1.2	1.1	1.5	1.1	1.6	1.0	1.8	3.1	1.9	2.4		1.8
Sep	1.5	1.8	1.2	1.3	1.2	1.4	2.3	1.1	1.7	1.3	0.9	1.3	1.3	1.3	1.0	1.2	0.9	3.9	0.9	0.7	0.7	0.8	1.1	1.1	0.3	1.0	1.4	1.8	2.5		1.4
Season	2.7	2.3	2.6	2.5	1.9	2.6	2.8	2.5	2.7	2.2	2.2	2.1	2.3	3.1	2.5	2.6	1.7	2.7	2.7	1.9	1.8	1.8	1.6	2.0	1.3	1.7	2.7	2.9	3.7	2.4	2.3
Rank (Low)	22	13	19	18	8	20	27	16	25	11	12	10	14	29	17	21	3	23	26	7	5	6	2	9	1	4	24	28	30	15	

Table 2. Monthly mean water temperatures (°C) at the Gitwinksihlkw fishwheels, 1994–2023.

																															Mean
Mean Temp	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	(94-22)
June	9.0	12.4	8.1	8.5	8.4	8.4	9.4	3.9	6.4	8.6	11.3	9.1	8.8	8.1	7.0	7.4	8.4	7.5	6.7	8.4	8.1	8.9	9.5	8.6	10.1	9.3	7.0	8.4	7.7	9.5	8.4
July	10.4	11.3	9.5	10.4	6.8	9.7	10.5	5.8	9.1	10.2	12.1	9.5	10.1	8.6	8.0	9.0	10.2	8.7	8.1	10.1	9.6	10.5	10.8	10.3	11.0	10.3	8.7	11.1	9.8	11.8	9.7
Aug	10.5	10.1	9.7	10.3	6.8	11.2	10.9	7.6	9.5	10.8	10.5	10.0	10.1	9.6	9.3	10.2	9.7	9.0	8.9	10.1	10.2	9.9	9.4	10.1	9.7	9.4	8.7	10.5	11.1		9.8
Sep	9.5	8.8	8.6	9.5	6.8	10.2	9.4	5.6	8.7	8.8	8.9	8.8	9.0	8.9	8.2	9.5	8.0	8.1	8.3	10.1	8.6	8.3	8.6	9.6	8.2	9.2	8.5	8.7	9.8		8.7
Season	10.0	10.1	9.0	9.7	7.1	10.2	10.3	5.8	8.9	10.0	11.0	9.4	9.8	8.9	8.2	8.9	9.2	8.4	8.0	9.6	9.3	9.7	9.8	9.7	10.1	9.7	8.2	9.9	9.6	10.2	9.3
Rank (Highest)	7	5	21	13	29	4	2	30	24	8	1	18	10	22	27	23	20	25	28	16	19	14	11	12	6	15	26	9	17	3	

GREASE HARBOUR (GH) FISHWHEELS:

Three fishwheels began operation on June 10 (FW5 and FW6) and June 13 (FW3) at Grease Harbour (upstream of Ts'im Anwiihlist), located approximately 16 km upstream of GW fishwheels. The GH fishwheels are used for in-season mark-recapture tag recoveries of salmon, abundance estimates passing upstream, additional tagging (adult Chinook and Chum salmon, and Pacific Lamprey), and for selective harvesting when permitted by Nisga'a Lisims Government. Currently no harvests have occurred or are planned to date.

The total Nass fishwheel catches are currently above average for all adult salmon, except for Chinook and Chum salmon. Total fishwheel catches of salmon, steelhead, and Pacific Lamprey to date are shown below including tagging results and jacks caught. All Sockeye caught at all fishwheels to date have been released, as have the other salmon, steelhead and other fish caught.

FISHWHEEL CATCH SUMMARIES	SOCK	CHIN	соно	STEEL	PINK-ODD	CHUM	LAMP
FISHWHEEL TOTAL CATCH OF ADULTS	28,344	2,113	1	17	689	0	418
HISTORICAL AVG CUM CATCH (00-22) TO DATE	14,200	3,200	1	10	90	2	180
HISTORICAL AVG CUM TOTAL CATCH (00-22)	45,000	4,200	13,000	900	25,000	130	740
AVERAGE DAILY CATCH (5 D) OF ADULTS - GW	377	8	0	0	91	0	0
AVERAGE DAILY CATCH (5 D) OF ADULTS - GH	983	33	0	0	31	0	26
FISHWHEEL TOTAL TAGGED (OR ADIPOSE FIN MARKED)	5,089	1,885	0	2	81	0	246
FISHWHEEL TOTAL JACKS	2,258	2,419	0	NA	NA	NA	NA
HISTORICAL MEAN JACKS (00-22) TO DATE	658	447	1	NA	NA	NA	NA

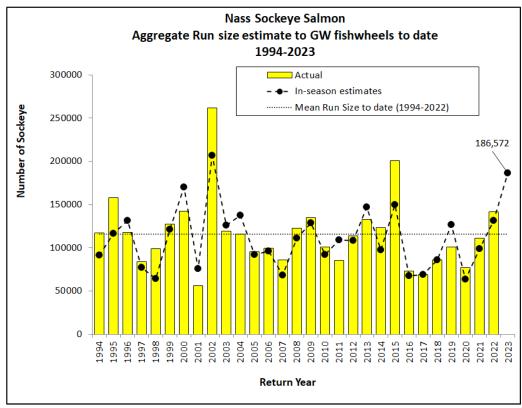
Other adult species and juvenile salmon catches at the fishwheels to date include: 47 Dolly Varden (26 tagged), 62 Rainbow Trout, 40 Peamouth Chub, 38 Cutthroat Trout, 22 Mountain Whitefish, 6 Pikeminnow, 3 Redside Shiners, 4 Sculpin, and 113 salmon smolts (30 Coho, 74 Chinook, 9 Sockeye), 3 seals, and 1 frog.

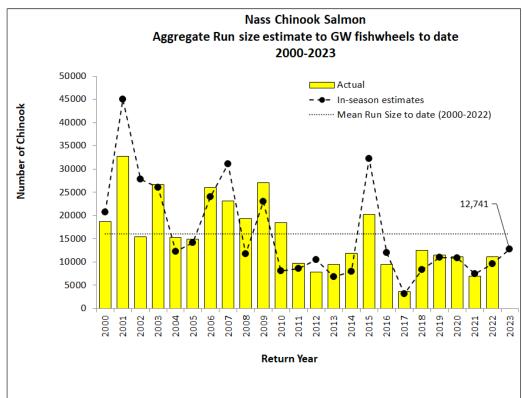
RUN SIZE AND ESCAPEMENT ESTIMATES FOR NASS SALMON & SUMMER-RUN STEELHEAD

In-season estimates of run size and projected forecasts to Gitwinksihlkw fishwheels for adult Nass salmon and summer-run steelhead are shown below. For Nass Sockeye, estimates are based on mark-recapture methods as of June 24 when sufficient cumulative tag recoveries (> 25) occurred at GH fishwheels on June 29. The current run sizes for 2023 are above average for Nass Sockeye and Coho and below average for Upper Nass Chinook and steelhead when compared to means to date from 1994 to 2022. Summer-run steelhead estimates begin on July 1. The Nass run-size target for summer-run steelhead is based on a minimum return goal as steelhead will continue to enter the Nass River after the fishwheels shutdown in mid-September.

IN-SEASON RUN SIZE SUMMARIES	SOCK	CHIN	соно	STEEL	13-Jul	-23
IN-SEASON RUN SIZE ESTIMATE TO DATE	186,572	12,741	23			
HISTORICAL MEAN RUN SIZE TO GW FOR DATE (94-22)	116,000	16,000	12	70		
RUN SIZE TARGET 2023 (MIN. FOR STEELHEAD)	250,000	15,000	65,000	4,200		

In-season to actual estimates to **July 13** have tracked reasonably well for estimating returns for that date for Nass Sockeye (mean accuracy 86%) from 1994 to 2022 and Chinook (mean accuracy 75%) from 2000 to 2022.





In-season preliminary forecast projections for Nass salmon and summer-run steelhead above Gitwinksihlkw are shown below. Estimates to Gitwinksihlkw are based on two methods, mean run timing and linear-regression of the in-season to final estimates to date. The run size projection estimate for Nass Sockeye is ranging between 231,000 and 491,000 to reach the run size goal ($^{\sim}250,000$ for 2023) based on the in-season to final regression method with a point estimate of 361,000 ($^{\sim}20.54$) based on mean-run timing (40%; range: 24–58%) of the run passing Gitwinksihlkw to date. The current run size projection for Nass Chinook is ranging between 13,000 and 17,000 based on the in-season to final regression method with a point estimate of 15,100 ($^{\sim}20.97$) based on mean-run timing (87%; range: 53–96%) of the run passed Gitwinksihlkw to date.

IN-SEASON FORECASTS TO GW - METHODS:	SOCK	CHIN	соно	STEEL	13-Jul-23
1. RUN TIMING METHOD (94-22) - Mean Run timing	471,000	15,000	Too Early	Too Early	
Lower (-2 S.D.)	313,000	12,000	Too Early	Too Early	
Upper (+2 S.D.)	943,000	19,000	Too Early	Too Early	In-season/Final
2. IN-SEASON TO FINAL (regression):	361,000	15,100	Too Early	Too Early	r^2 (CH) = 0.97
95% CI - lower	231,000	13,000	Too Early	Too Early	r^2 (SO) = 0.54
95% CI - upper	491,000	17,000	Too Early	Too Early	r ² (CO)=
GW RUN SIZE TARGET (DEPENDING ON HARVESTS ABOVE GW)	250,000	15,000	65,000	4,200	r ² (ST)=
Mean Run Timing % Return Estimate to GW fishwheels (94-22)	40%	87%	0%	1%	
Late run	24%	53%	0%	0%	
Early run	58%	96%	0%	3%	

<u>Net Escapement Estimates</u> for adult Nass salmon to date are shown below and relative to the Upper Nass net aggregate escapement goals. Approximately 182,283 Sockeye, 11,939 Chinook, and 19 Coho salmon are estimated to have passed to the Upper Nass River to date.

IN-SEASON NET ESCAPEMENT ESTIMATES	SOCK	CHIN	соно	STEEL	13-Jul	-23
HARVEST ESTIMATES ABOVE GW TO DATE	4,289	802	4	2		
NET ESCAPEMENT (ABOVE GW):	182,283	11,939	19	-		
NET ESCAPEMENT TARGET (UPPER RIVER ONLY)	200,000	13,000	60,000	4,000		

HARVEST ESTIMATES FOR ADULT NASS SALMON & STEELHEAD

ALASKAN FISHERIES IN SE ALASKA (information courtesy from ADFG's website):

The 2023 Alaskan Southeast fisheries started on 18 June for gillnet fisheries in District 101 (Tree Point) and District 106 (Sumner and Upper Clarence) and 2 July for Districts 101, 102, and 104 seine fisheries. The table below shows the current estimates of catches of salmon in Alaskan net fisheries in Districts 101–106 (and mean catch comparisons from 2000 to 2022) to 14 July 2023 based on data from ADFG. Alaskan catches to date are below average for all salmon except Pink and Chum.

IN-SEASON SE	ALASKAN CUN	I. SALMON	GILLNET/	SEINE CA	TCH EST	IMATES (ADI	G WEBSITE	- 2023	W	EEK END:	15-Jul-23
		SOCK	AVG (00-	CHIN	AVG	PINK	AVG ODD	CHUM	AVG (00-	СОНО	AVG (00-
DISTRICTS	AREA	CATCH	22)	CATCH	(00-22)	CATCH	(01-21)	CATCH	22)	CATCH	22)
DIST 101 GN	TREE PT	14,700	31,000	830	1,200	28,700	56,700	151,000	79,000	1,600	3,100
DIST 106 GN	UPP. CLAR	17,100	31,000	400	1,000	25,900	48,000	72,100	47,000	2,250	20,000
DIST 101 SN	LOW CLAR	10,600	2,700	0	100	584,000	184,000	334,000	29,000	5,000	1,500
DIST 102 SN	MID CLAR	3,200	6,000	0	400	23,500	84,700	345,000	176,000	3,400	8,500
DIST 103 SN	CORDOVA	0	0	0	0	0	0	0	0	0	0
DIST 104 SN	NOYES/DALL	2,100	10,000	0	200	9,900	57,000	38,000	16,000	3,000	6,000
CUMULATIVE	CUMULATIVE TOTAL		81,000	1,000	3,000	672,000	430,000	940,000	347,000	15,000	39,000

The average harvest of Nass salmon in Alaskan net fisheries from 2000 to 2022 was 107,000 Sockeye (range: 22,000–304,000), 62,000 Pink (range: 4,000–192,000), 136,000 Coho (range: 59,000–433,000), and 9,000 Chum (<500–40,000) based on estimates from NFWD. Of the total in-season Sockeye catch reported in the SE Alaskan fisheries in 2023 to date (48,000), approximately 33% (16,000) is estimated as Nass origin based on mean stock composition estimates from 1982 to 2022 and is currently below average (33,000) to date.

CANADIAN COMMERCIAL NET FISHERIES IN AREA 3 (information courtesy from DFO Prince Rupert):

DFO did not open Area 3 commercial net salmon fisheries in 2023 until July 10. Fishery planning for 2023 is based on DFO's Integrated Fisheries Management Plan (IFMP) where a precautionary approach on reaching escapement targets for Nass salmon are primary objectives for 2023 while supporting DFO's Pacific Salmon Strategy Initiative (PSSI; https://www.canada.ca/en/fisheries-oceans/news/2021/06/minister-jordan-announces-long-term-commercial-closures-and-licence-tetirement-program-in-effort-to-save-pacific-salmon.html).

For 2023, pre-season total run forecasts (50% probability estimates) for Nass salmon are predicted to be below average returns for Nass Sockeye (455,000 vs. 768,000), Nass Pink (348,000 vs. 364,000), Nass Chinook (28,500 vs. 32,000), and Nass Coho (233,000 vs. 314,000), and above average return for Nass Chum (88,000 vs. 73,000) based on mean Total Run returns from 1992 to 2022 (NFWD 2023; DFO IFMP 2023). In summary for 2023 forecasts, the total run of Nass Sockeye is predicted to be the 8th poorest return over a 32 period (1992–2022), low to average returns for Nass Pink (11th worst), Chinook (14th worst), and Coho (15th worst), and very good return for Nass Area Chum (8th best return). The overall return of Nass salmon in 2023 (1.2 million vs. 1.8 million average) is predicted to be the 7th worst salmon return in 32 years. After accounting for mean Alaska harvest rates (21% Sockeye, 8% Pink, 6% Chinook, 44% Coho, and 16% Chum) of Nass salmon, pre-season Total Return to Canada (TRTC) forecasts (50% probability estimates) for 2023 are predicted to be below average returns for Nass Sockeye (366,000 vs. 600,000), Nass Chinook (27,000 vs. 30,000), and Nass Coho (132,000 vs. 181,000), and above average TRTC returns for Nass Chum (74,000 vs. 55,000) and odd-year Nass Pink (319,000 vs. 324,000), based on mean Total Run returns from 1992 to 2022 (NFWD 2023; DFO IFMP 2023).

As of July 13, a good portion of the Nass Chinook return have passed marine areas (Area 3 mean = 81%; range: 10–95%) and entered the Nass River to alleviate concerns of harvest impacts by marine commercial fisheries and the current in-season TRTC return forecast for Nass Sockeye (423,000; 95% CI: 313,000–533,000) is currently tracking higher than the pre-season forecast (366,000; 75%/25% prob: 257,000-522,000). DFO have conducted two commercial seine fisheries in outside Area 3 on July 10 and July 11 targeting Nass Area Pink Salmon with Sockeye and Chum Salmon retention with an estimated 25,000 Pink, 21,300 Chum, and 2,300 Sockeye harvested, and 36 Chinook and 213 Coho released. Future commercial salmon openings in Area 3 (outside areas) are July 14 (gillnet) and July 17 (seine) with Sockeye, Pink and Chum retention permitted in the gillnet opening, and Sockeye and Pink retention permitted in seine opening. To continue rebuilding Kwinageese Sockeye Salmon recovering from a slide in 2011, an one-week commercial closure (gillnet) and non-retention of Sockeye Salmon (seine) will occur in Area 3 from July 17–23.

NISGA'A FOOD, SOCIAL, CEREMONIAL (FSC) AND ECONOMIC FISHERIES:

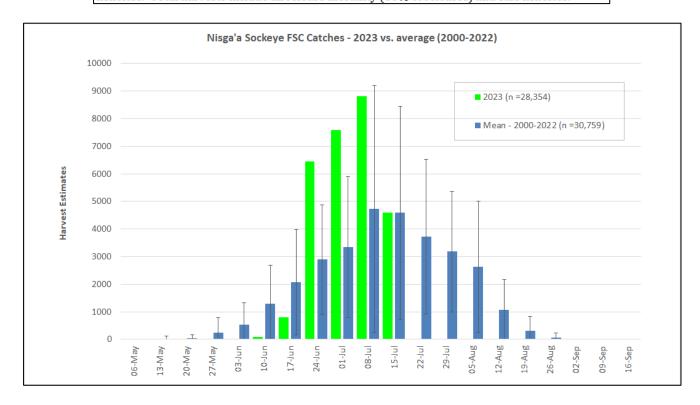
Nisga'a domestic and sale fisheries are monitored by the Nisga'a Fisheries and Wildlife Department and salmon catch monitoring began on May 1, 2023. Preliminary projected cumulative harvests in Nisga'a fisheries to week ending **July 15** are shown in the table below for Food, Social, and Ceremonial (FSC) catches. The current harvests of Nass salmon and steelhead estimated in 2023 for Nisga'a fisheries are above average for the FSC fishery (~32,000 vs. 27,000) and below average for total catches (32,900 vs. 68,000) when including past sale fisheries and comparing harvests from 2000 to 2022.

High water impacted the ability to fish in the Nass River for most of May and early June 2023. Nisga'a fishing effort (net hours) to July 8 is currently below average (2232 vs. 6695 hours) from 337 interviews.

Preliminary estimates are from May 1 to July 15 and include projected net catch estimates from July 9-15 that will be reported on July 19 as well as preliminary additions for catch by angling gear, release mortality (60% of releases), and any estimated unmonitored periods.

NISGA'A NATION CU SALMON AND STEEL		•	SC) AND TOTA	L CATCH SUMMA	RY FOR NASS
Reported Week Endi	ng Period	HARVESTS	TIC (FSC) TO WK END - 023	TOTAL HARVE INCLUDING I RELEASE MORTA FISHERII	ESTIMATED ALITIES & SALE
NASS SPECIES	Wk end	Harvest	Mean	Harvest	Mean*
CHINOOK	15-Jul-23	3,496	4,800	3,499	5,200
SOCKEYE	15-Jul-23	28,354	20,300	28,354	57,500
PINK	15-Jul-23	822	1,486	823	4,840
СОНО	15-Jul-23	143	109	143	163
CHUM	15-Jul-23	53	223	56	223
STEELHEAD	15-Jul-23	34	85	38	85
TOTAL		32,900	27,000	32,900	68,000

^{*} Total mean harvests from 2000-2022 for week end periods also include historical sale fisheries. Total harvests include all release mortality (60% of releases) and sale fisheries.



TOTAL RETURN TO CANADA (TRTC) AND NISGA'A ENTITLEMENT ESTIMATES FOR NASS SALMON

Pre-season TRTC and Nisga'a entitlement forecasts:

Pre-season forecasts for Nass salmon Total Runs, Total Return to Canada (TRTC), and Nisga'a Treaty entitlement allocation ranges for 2023 were calculated using pre-season forecast models based on Nass salmon returns and age information for past years (NFWD 2022). The pre-season forecasts are used for general planning purposes until in-season data are available from Nass River salmon assessment programs starting mid-June. Pre-season forecast models used were a combination of sibling regressions (Nass Sockeye and Chinook only) and brood year mean returns (2 year even-year cycle (Pink), 3–4 year (Coho), and 4 year (Chum)) that project 25%, 50%, and 75% probability point estimates.

Pre-season Total Return to Canada (TRTC) forecasts (50% probability estimates) for 2023 are predicted to be below average returns for Nass Sockeye (366,000 vs. 616,000), Nass Chinook (27,000 vs. 30,000), and Nass Coho (132,000 vs. 176,000), and above average TRTC returns for Nass Chum (74,000 vs. 54,000) and odd-year Nass Pink (319,000 vs. 324,000), based on mean Total Run returns from 1992 to 2022 (NFWD 2023; DFO IFMP 2023).

PRE-SEASON TRTC & ENTITLEMENT FORECASTS	SOCK	CHIN	соно	PINK-ODD	CHUM
HISTORICAL MEAN TRTC (1994-2022)	616,000	30,000	176,000	324,000	54,000
PRE-SEASON TRTC FORECAST (50% PROBABILITY)	366,000	27,000	132,000	319,000	74,000
75% probability	257,000	22,000	119,000	174,000	44,000
25% probability	522,000	32,000	146,000	586,000	123,000
TOTAL PRE-SEASON NISGA'A CATCH POTENTIAL	55,000	5,700	11,000	16,000	5,900
75% probability	27,000	4,600	9,500	1,000	4,000
25% probability	90,000	6,700	12,000	57,000	10,000

When reviewing Nass salmon TRTC returns over a 32-year period since 1992, the pre-season forecast projections are predicting 2023 to be poor for Sockeye (8th worst), fair to average returns for Chinook (13th worst), Pink (11th worst) and Coho (13th worst), and good for Chum (9th best). The overall return forecast for Nass salmon in 2023 (918,000 vs. 1,416,000 average) is predicted to be the 8th worst return in 32 years.

	NASS	SALMON TOTAL I	RETURN TO CAN	IADA ESTIMATES	, 1992-2022 & P	REDICTED 2023		Sockeye					2 YEARS	
Year	Sockeye	Pink	Chinook	Coho	Chum	Total Salmon	Steelhead	Sockeye	Pink	Chinook	Coho	Chum	Total Salmon	Steelhead
1992	1,572,000	328,009	35,400	0 160,210	53,817	2,149,436	5,000	31	12	22	17	20	30	5
1993	1,586,000	874,099	45,400	62,481	238,610	2,806,590	9,100	32	25	30	2	32	32	13
1994	590,000	183,958	42,800	351,220	0 105,452	0 1,273,431	6,200	22	6	27	30	29	15	8
1995	855,000	829,319	21,700	68,032	83,001	1,857,053	2,700	28	24	10	3	26	25	1
1996	694,000	465,482	41,600	126,240	0,410	1,367,731	0 10,300	26	18	26	11	17	18	15
1997	574,000	416,004	36,300	33,182	30,787	0 1,090,273	8,500	21	16	23	1	14	12	11
1998	446,000	142,601	45,700	72,387	182,007	888,696	0 10,400	15	3	31	4	31	7	17
1999	645,000	1,258,752	29,000	0 107,028	68,042	2,107,821	0 10,300	24	31	17	7	23	28	15
2000	539,000	92,035	32,800	133,589	26,153	0 1,023,577	13,800	20	10	19	15	13	11	23
2001	380,000	994,702	48,000	243,156	35,897	1,701,755	11,500	9	29	32	26	16	24	20
2002	1,279,000	364,867	28,400	314,180	17,744	2,004,191	15,500	30	14	16	28	7	27	26
2003	1,024,000	1,018,901	43,600	171,932	75,960	2,334,393	14,800	29	30	28	19	25	31	25
2004	681,000	696,270	33,100	131,881	57,729	1,599,980	4,300	25	21	21	12	21	22	3
2005	522,000	1,348,144	28,100	211,287	33,198	2,142,729	7,200	19	32	15	23	15	29	10
2006	637,000	135,913	43,600	125,945	60,478	0 1,002,936	4,400	23	2	28	10	22	10	4
2007	351,000	896,058	39,600	174,940	12,911	1,474,509	5,900	6	26	25	20	4	19	7
2008	333,000	51,341	30,200	132,418	3,751	550,710	11,800	4	1	18	14	1	1	21
2009	@ 425,000	809,704	39,200	354,879	21,781	1,650,564	23,100	13	23	24	31	9	23	31
2010	92,000	184,697	27,400	179,914	9,143	793,154	19,700	10	7	14	21	3	5	29
2011	6 458,000	173,951	18,400	122,816	7,030	780,196	9 19,300	16	4	6	9	2	4	27
2012	@ 419,000	270,319	15,800	153,338	16,485	874,942	12,800	12	9	3	16	6	6	22
2013	@ 437,000	975,543	0 16,400	443,322	15,272	1,887,537	0 7,000	14	28	4	32	5	26	9
2014	487,000	399,270	22,700	291,953	21,529	1,222,452	9,500	17	15	11	27	8	13	28
2015	753,000	421,726	33,000	91,646	6 53,754	1,353,125	13,900	27	17	20	6	19	17	24
2016	362,000	348,942	0 17,700	225,765	23,879	978,286	21,800	7	13	5	24	11	9	30
2017	341,000	925,835	11,100	240,037	23,312	1,541,285	9,100	5	27	2	25	10	21	13
2018	94,000	255,834	0 10,641	89,620	47,064	697,160	26,800	2	8	1	5	18	2	32
2019	326,000	174,641	0 20,300	(i) 162,734	24,558	708,233	0 10,400	3	5	8	18	12	3	17
2020	265,000	743,787	21,100	0 107,332	0 102,247	1,239,467	3,900	1	22	9	8	28	14	2
2021	9 413,000	566,787	19,400	188,836	119,777	0 1,307,800	5,500	11	20	7	22	30	16	6
2022	520,000	502,000	23,000	345,000	99,000	1,489,000	11,000	18	19	12	29	27	20	19
2023	366,000	319,000	27,000	132,000	74,000	918,000	9,000	8	11	13	13	24	8	12
EANS:									COLOR COD	NG:				
2-22	600,000	324,000	30,000	181,000	55,000	1,416,000	11,000		BEST RETURN:	32		Good	21-32	
Color co	ding from mean	averages from 19	92-2022: Green	- above average	Tan - below ave	erage but higher tha	n 1 SD; and Red -		WORST	1		Average	11-20	
	rage and lower t	The state of the s				man and the second						Poor	1-10	

<u>Pre-season forecast charts of Nass salmon and summer-run steelhead total run sizes for 2023 and</u> return summaries from 1992 to 2022:

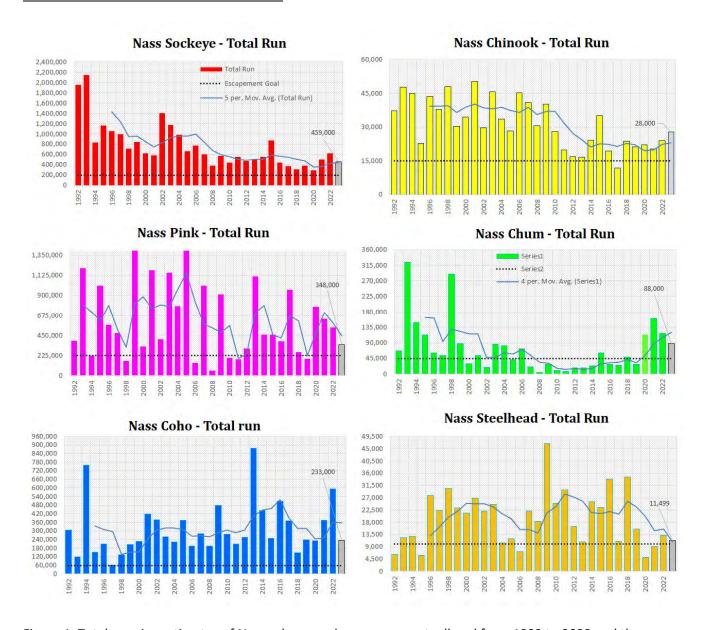


Figure 1. Total run size estimates of Nass salmon and summer-run steelhead from 1992 to 2022 and the preseason forecast for 2023 with 4–5-year trend line comparisons (NFWD 2023).

In-season Total Return to Canada (TRTC) and Nisga'a entitlement estimates for Nass salmon 2023:

In-season TRTC estimates for Nass Sockeye and Chinook estimated by NFWD to July 13:

- 1) Nass Sockeye is ranging between 313,000 and 533,000 with a point estimate of 423,000 (vs. 616,000 based on returns from 1992 to 2022), and
- 2) Nass Chinook is ranging between 19,000 and 25,000 with a point estimate of 22,000 (vs. 30,000 based on returns from 1992 to 2022).

The in-season TRTC estimates for Nass Sockeye and Chinook salmon are based on run size projections from inseason to final regression methods and run timing ranges to Area 3 to date for Nass Sockeye (43%; range: 27–59%) and Chinook (81%; range: 10–95%, including lower/coastal stocks based on habitat capacity proportions).

Currently, in-season TRTC and Nisga'a entitlement estimates for Nass Sockeye and Chinook are higher and lower, respectively, than pre-season forecasts. Insufficient in-season data are available for Nass Area Pink, Chum, and Coho salmon species so pre-season forecasts are considered for preliminary Nisga'a entitlement estimates.

Pre-season Nass salmon TRTC forecasts for 2023 are:

Nass Coho: 132,000 (range: 119,000–146,000),
Nass Pink: 319,000 (range: 174,000–586,000), and
Nass Chum: 74,000 (range: 44,000–123,000).

IN-SEASON TRTC & ENTITLEMENT ESTIMATES - PRELIMINARY	SOCK	CHIN	соно	PINK-ODD	CHUM
PROJ. TRTC BASED ON INSEASON TO FINAL REGRESSION TO AREA 3D	423,000	22,000	Pre-season	Pre-season	Pre-season
Lower (95% CI)	313,000	19,000	Pre-season	Pre-season	Pre-season
Upper (95% ci.)	533,000	25,000	Pre-season	Pre-season	Pre-season
ESTIMATED %TRTC TO DATE: MEAN. RUN TIMING (AREA 3D)	43%	81%	0%	0%	2%
Late run	27%	10%	0%	0%	0%
Early run	59%	95%	0%	0%	9%
IN-SEASON NISGA'A ENTITLEMENT TARGET	68,000	4,600	Pre-season	Pre-season	Pre-season
Lower (95% CI)	43,000	4,000	Pre-season	Pre-season	Pre-season
Upper (95% ci.)	92,000	5,300	Pre-season	Pre-season	Pre-season

Nisga'a salmon harvest entitlement ranges for 2023 to date are based on TRTC estimates:

- Nass Sockeye is between 43,000 and 92,000 with point estimate 68,000. Current harvest estimate is 28,354 (with no release mortalities);
- Nass Chinook is between 4,000 and 5,300 with point estimate 4,600. Current harvest is 3,496 (plus 3 release mortalities);
- Nass Coho is between 9,500 and 12,000 with point estimate 11,000. Current harvest is 143 (with 0 release mortality);
- Nass Pink is between 1,000 and 57,000 with point estimate 16,000. Current harvest is 822 (plus 1 release mortality);
- Nass Chum is between 4,000 and 10,000 with point estimate 5,900. Current harvest is 53 (plus 2 release mortalities); and
- Nass steelhead, upper limit is 1,000 summer-run and no limit for winter/spring run, with current harvest of 34 (plus 4 release mortalities).

The total harvest summary of Nass salmon and steelhead to date in all Nisga'a fisheries for 2023 is as follows:

NISGA'A TOTAL HARVEST SUMMARY	SOCK	CHIN	соно	PINK-ODD	CHUM	STEEL
MARINE SALE FISHERY TOTAL	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
IN-RIVER SALE FISHERY TOTAL	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
INDIVIDUAL SALE (IS) FISHERY TOTAL	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
NLG COMMUNAL SELECTIVE TREATY FISHERY - GH FISHWHEELS	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
NLG COMMUNAL SELECTIVE TREATY FISHERY - SEINE	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
DOMESTIC (FSC) GILLNET FISHERY - WK END: JUL 15 (PROJECTED)	28,354	3,499	143	824	56	38
SUB TOTAL (NLG TREATY FISHERIES)	28,354	3,499	143	824	56	38
NLG SOCK DEMONSTRATION FISHERY HARVEST - DFO INVENTORY	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
GRAND TOTAL	28,354	3,499	143	824	56	38

The next Nass River general stock assessment update from the Nisga'a Fisheries and Wildlife Department is planned for: **Friday, 21 July 2023.**

Nass stock assessment updates are available at the following links (no passwords are required):

Daily run size information is posted on Mondays, Wednesdays, and Fridays to the following NFWD public Dropbox site:

• NFWD Dropbox: https://www.dropbox.com/scl/fo/ahrrza0aplzcnamatapar/h?dl=0&rlkey=n51s6qgu0yze0vrphue8dk4ap

Weekly email updates will be posted after each update to NFWD Dropbox, DFO and NLG's websites:

- DFO: http://www.pac.dfo-mpo.gc.ca/fm-gp/northcoast-cotenord/nass-eng.html
- NLG: http://www.nisgaanation.ca/stock-assessments

Photo Documentation of Nass fishwheels and fish caught between July 7 and July 14:

Photos courtesy of NFWD's senior crew leader, Ben Guno Jr, and other NFWD staff.



Photo 1. Nass fishwheel FW 1 moved to low water fishing site (< 1.8 m) at Gitwinksihlkw on 13 July 2023.



Photo 2. FW1 placed in low water fishing site at Gitwinksihlkw, 13 July 2023.



Photo 3. FW1 placed in low water fishing site at Gitwinksihlkw, 13 July 2023.



Photo 4. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 5 July 2023.



Photo 5. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 9 July 2023.



Photo 6. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 10 July 2023.



Photo 7. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 10 July 2023.



Photo 8. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 11 July 2023.



Photo 9. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 11 July 2023.



Photo 10. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 12 July 2023.



Photo 11. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 12 July 2023.



Photo 12. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 12 July 2023.



Photo 13. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 12 July 2023.



Photo 14. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 12 July 2023.



Photo 15. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 12 July 2023.



Photo 16. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 12 July 2023.



Photo 17. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 18. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 19. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 20. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 21. Chinook Salmon recapture at the Gitwinksihlkw fishwheels, 14 July 2023. Fish was anchor tagged on 3 June in marine Area 1 from Langara Sport tagging program Fish was operculum and PIT tagged and released from fishwheels.



Photo 22. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 9 July 2023.



Photo 23. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 10 July 2023.



Photo 24. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 12 July 2023.



Photo 25 Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 26. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 27. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 28. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 29. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 13 July 2023.



Photo 30. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 14 July 2023.



Photo 31. Pink Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 11 July (top) and July 14 (bottom), 2023.



Photo 32. Pink Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 12 July 2023.



Photo 33. Pink Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 12 July 2023.



Photo 34. Coho Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 14 July 2023.



Photo 35. Coho Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 14 July 2023.



Photo 36. Steelhead caught and fin marked at Gitwinksihlkw fishwheels, 14 July 2023.



Photo 37. Dolly Varden caught and anchor tagged at Gitwinksihlkw fishwheels, July 12, 2023.



Photo 38. Dolly Varden caught and anchor tagged at Gitwinksihlkw fishwheels, July 13, 2023.



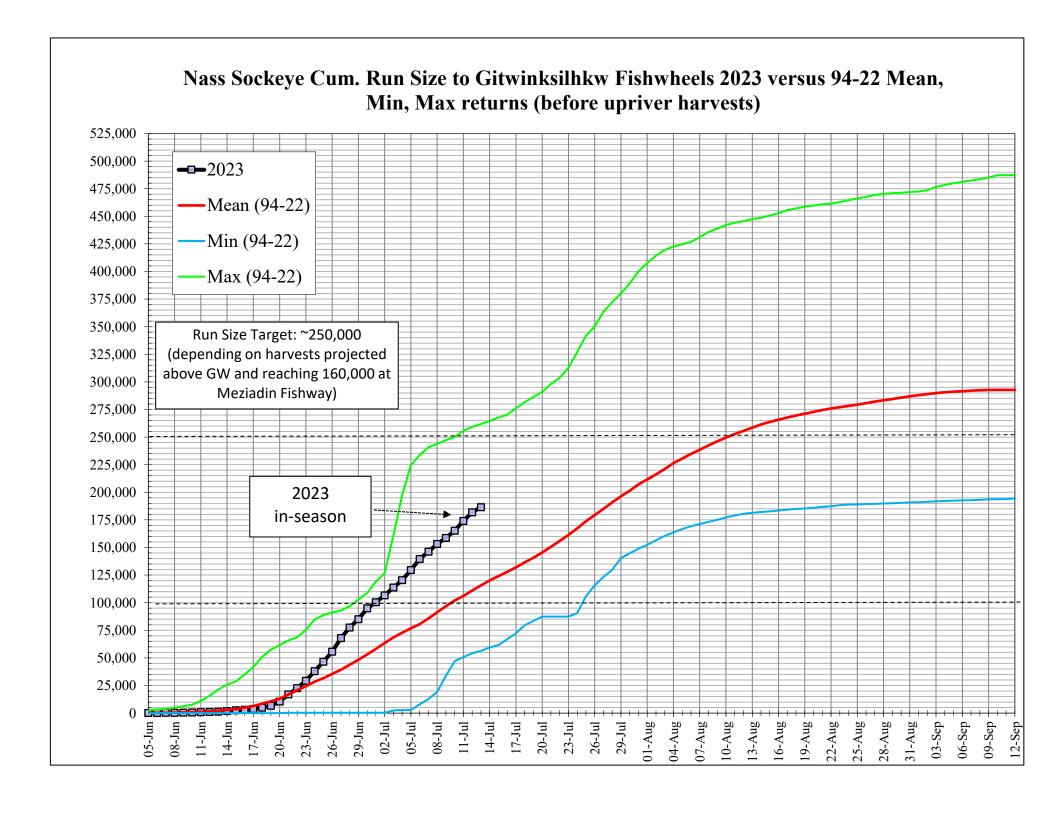
Photo 39. Sucker caught at Grease Harbour fishwheels, 10 July 2023.



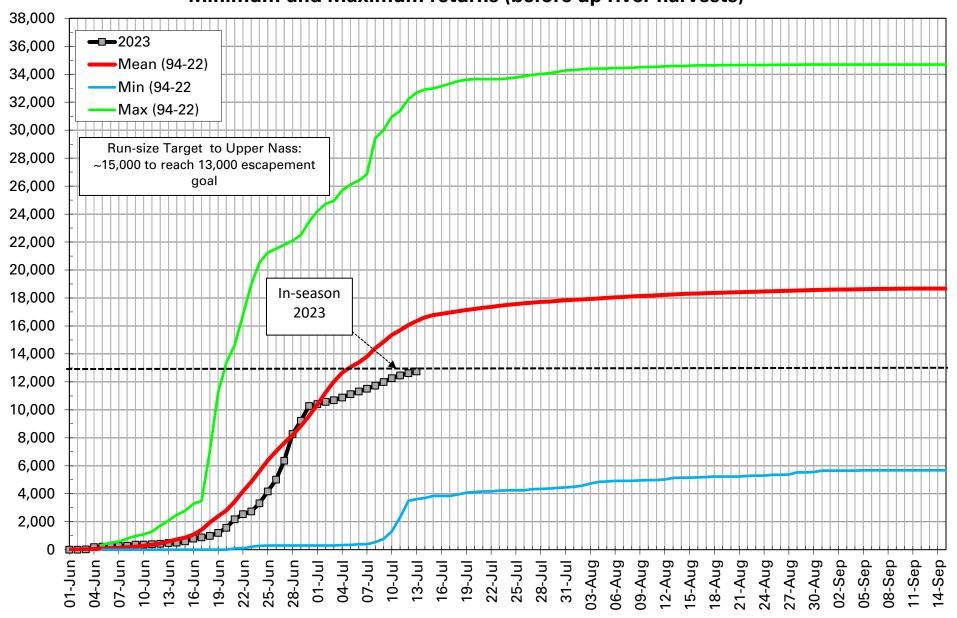
NISGA'A FISHERIES 6 WILDLIFE T 250 633 2617 / F 250 633 2971 TF 1 866 633 2145 PD Box 228 / 5101 Gitzyon St New Alyansh BC / Canada Voj 1AO NISGAANATION.CA

2023 NASS STOCK ASSESSMENT UPDATE

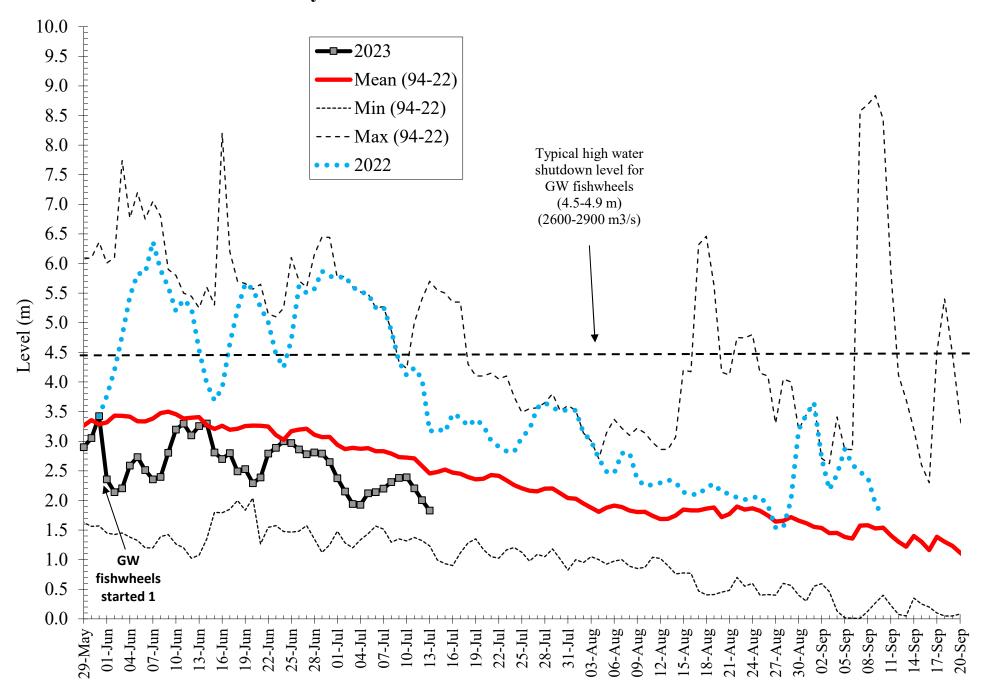
FISHWHEEL OPERATIONAL DATA TO:						13	3-Jul-23
WATER LEVEL FOR DATE AT GITWINKSIHLKW (m)							1.8
HISTORICAL LEVEL FOR DATE - MEAN 94-22 (m)							2.4
WATER TEMPERATURE FOR DATE AT GITWINKSIHLKW (m)							11.0
HISTORICAL WATER TEMP FOR DATE - MEAN 94-22 (m)			·				9.9
FISHWHEEL CATCH SUMMARIES	SOCK	CHIN	СОНО	STEEL	PINK-ODD	CHUM	LAMP
FISHWHEEL CATCH SOMMAKIES FISHWHEEL TOTAL CATCH OF ADULTS	28,344	2,113	1	17	689	0	418
HISTORICAL AVG CUM CATCH (00-22) TO DATE	14,200	3,200	1	10	90	2	180
HISTORICAL AVG COM CATCH (00-22) TO DATE HISTORICAL AVG CUM TOTAL CATCH (00-22)	45,000	4,200	13,000	900	25,000	130	740
AVERAGE DAILY CATCH (5 D) OF ADULTS - GW	377	8	0	0	91	0	740
AVERAGE DAILY CATCH (5 D) OF ADULTS - GH	983	33	0	0	31	0	26
FISHWHEEL TOTAL TAGGED (OR ADIPOSE FIN MARKED)	5,089	1,885	0	2	81	0	246
FISHWHEEL TOTAL JACKS	2,258	2,419	0	NA	NA	NA	NA
HISTORICAL MEAN JACKS (00-22) TO DATE	658	447	1	NA NA	NA NA	NA NA	NA NA
THIS TO THE TENEFACES (OF EZ) TO BITTE	030	7-77	-	7071	7471	7471	7471
IN-SEASON RUN SIZE SUMMARIES	SOCK	CHIN	соно	STEEL		13-Jul	-23
IN-SEASON RUN SIZE ESTIMATE TO DATE	186,572	12,741	23	-			
HISTORICAL MEAN RUN SIZE TO GW FOR DATE (94-22)	116,000	16,000	12	70			
RUN SIZE TARGET 2023 (MIN. FOR STEELHEAD)	250,000	15,000	65,000	4,200			
IN CEACON FORESTOTO ON METIODS						,	
IN-SEASON FORECASTS TO GW - METHODS:	SOCK	CHIN	СОНО	STEEL		13-Jul	-23
1. RUN TIMING METHOD (94-22) - Mean Run timing	471,000	15,000	Too Early	Too Early			
Lower (-2 S.D.)	313,000	12,000	Too Early	Too Early			<i>i</i>
Upper (+2 S.D.)	943,000	19,000	Too Early	Too Early		In-season	
2. IN-SEASON TO FINAL (regression):	361,000	15,100	Too Early	Too Early		r² (CH) =	0.97
95% CI - lower	231,000	13,000	Too Early	Too Early		r² (SO) =	0.54
95% CI - upper	491,000	17,000	Too Early	Too Early		r* (CO)=	
GW RUN SIZE TARGET (DEPENDING ON HARVESTS ABOVE GW)	250,000	15,000	65,000	4,200		r* (ST)=	
Mean Run Timing % Return Estimate to GW fishwheels (94-22)	40%	87%	0%	0%			
Late run	24% 58%	53% 96%	0% 0%	0% 3%			
Early run	56%	90%	0%	370			
IN-SEASON NET ESCAPEMENT ESTIMATES	SOCK	CHIN	соно	STEEL		13-Jul	-23
HARVEST ESTIMATES ABOVE GW TO DATE	4,289	802	4	2			
NET ESCAPEMENT (ABOVE GW):	182,283	11,939	19	-			
NET ESCAPEMENT TARGET (UPPER RIVER ONLY)	200,000	13,000	60,000	4,000			
NISGA'A TOTAL HARVEST SUMMARY	SOCK	CHIN	СОНО	PINK-ODD	CHUM	STEE	L
MARINE SALE FISHERY TOTAL	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSI	D
IN-RIVER SALE FISHERY TOTAL	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSI	
INDIVIDUAL SALE (IS) FISHERY TOTAL	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSI	ED
NLG COMMUNAL SELECTIVE TREATY FISHERY - GH FISHWHEELS	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSI	ED
NLG COMMUNAL SELECTIVE TREATY FISHERY - SEINE	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSI	ED
DOMESTIC (FSC) GILLNET FISHERY - WK END: JUL 15 (PROJECTED)	28,354	3,499	143	824	56	38	
SUB TOTAL (NLG TREATY FISHERIES)	28,354	3,499	143	824	56	38	
NLG SOCK DEMONSTRATION FISHERY HARVEST - DFO INVENTORY	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSI	ED
GRAND TOTAL	28,354	3,499	143	824	56	38	
				DIAW SES	SULL S		
PRE-SEASON TRTC & ENTITLEMENT FORECASTS	SOCK	CHIN	COHO	PINK-ODD	CHUM		
HISTORICAL MEAN TRTC (1994-2022)	616,000	30,000	,	324,000			
PRE-SEASON TRTC FORECAST (50% PROBABILITY)	366,000	27,000	132,000	319,000	74,000		
75% probability 25% probability	257,000	22,000	119,000	174,000	44,000		
	522,000	32,000	146,000	586,000	123,000		
TOTAL PRE-SEASON NISGA'A CATCH POTENTIAL	55,000 27,000	5,700	11,000	16,000	5,900		
75% probability 25% probability	27,000 90,000	4,600 6,700	9,500 12,000	1,000 57,000	4,000 10,000		
23% probability	30,000	0,700	12,000	37,000	10,000		
IN-SEASON TRTC & ENTITLEMENT ESTIMATES - PRELIMINARY	SOCK	CHIE	COLIC	PINK-ODD	CHUM	1	
	SOCK	CHIN	COHO				
PROJ. TRTC BASED ON INSEASON TO FINAL REGRESSION TO AREA 3D	423,000	22,000		Pre-season			
Lower (95% CI)	313,000	19,000	Pre-season	Pre-season	Pre-season		
Upper (95% ci.)	533,000	25,000	Pre-season	Pre-season	Pre-season		
ESTIMATED %TRTC TO DATE: MEAN. RUN TIMING (AREA 3D)	43%	81%	0%	0%	2%		
Late run	27%	10%	0%	0%	0%		
Early run	59%	95%	0%	0%	9%		
IN-SEASON NISGA'A ENTITLEMENT TARGET	68,000	4,600	Pre-season	Pre-season	Pre-season		
Lower (95% CI)	43,000	4,000	Pre-season	Pre-season	Pre-season		
Upper (95% ci.)	92,000	5,300	Pre-season	Pre-season	Pre-season		

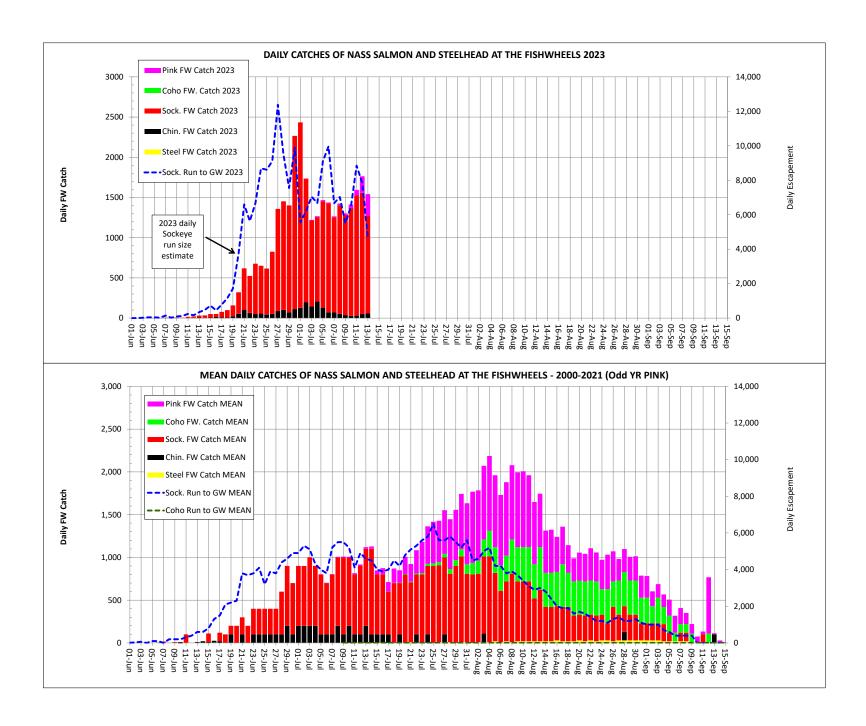


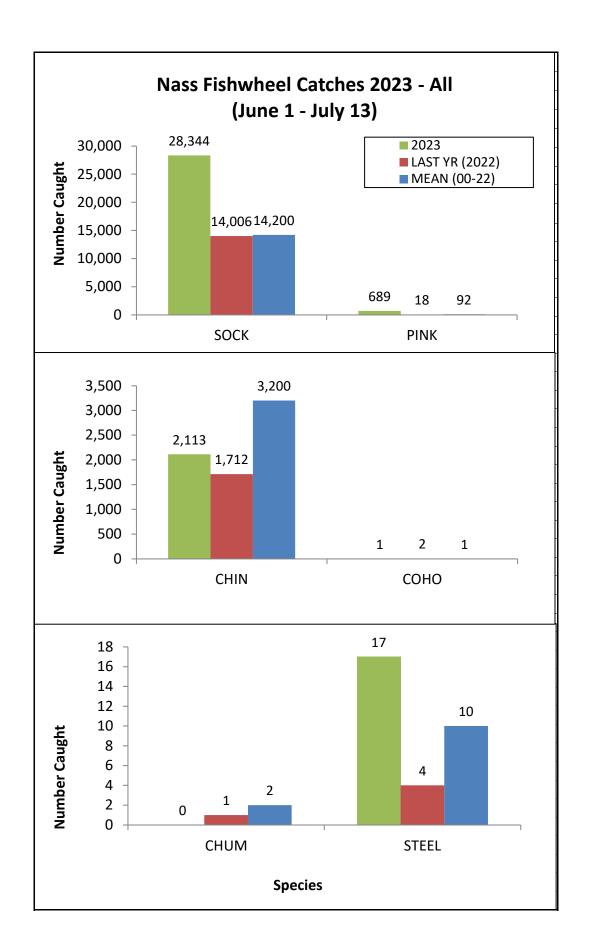
Cumulative Nass Adult Chinook Run Size to Gitwinksihlkw 2023 vs 94-22 Mean, Minimum and Maximum returns (before up river harvests)

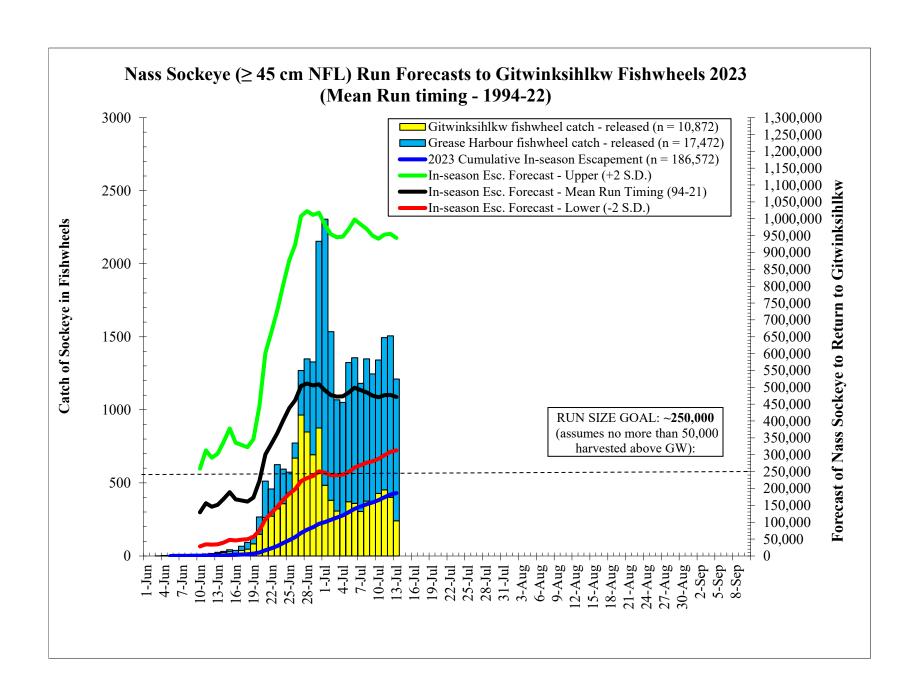


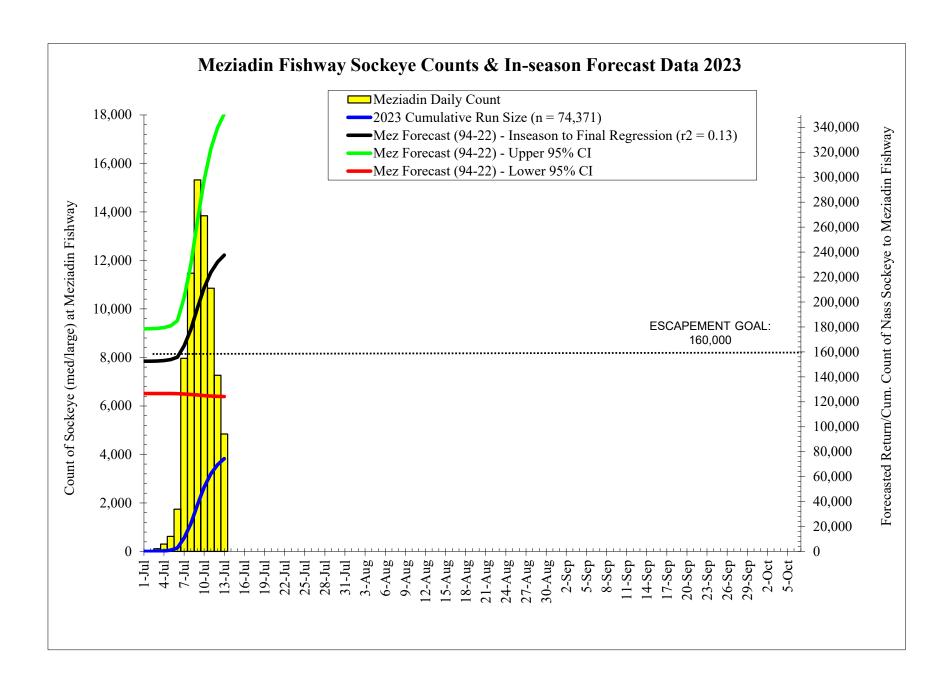
Daily Water Level at Gitwinksihlkw Fishwheels 2023



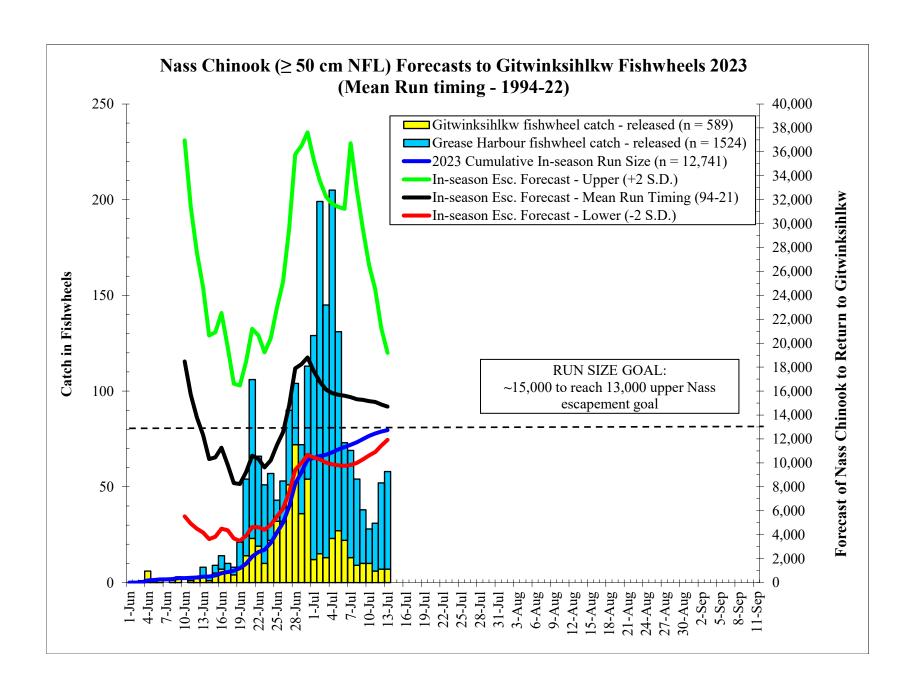


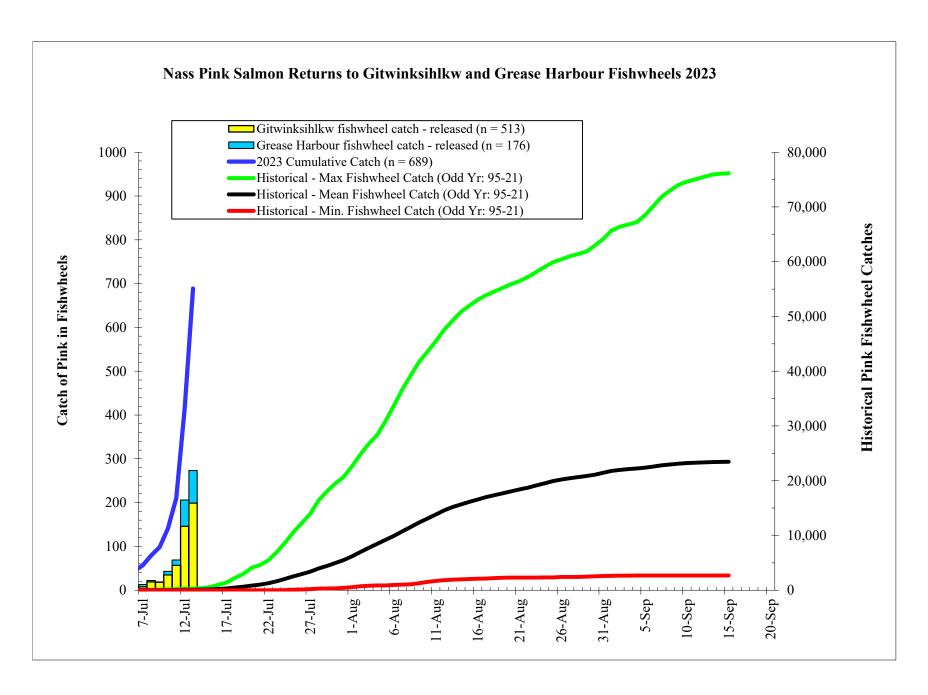






Nisga'a Fisheries 2023-07-14





Date	Cumulative Daily Run Sizes of Adult Nass River Sockeye Salmon (≥ 45 cm NFL) to Gitwinksihlkw Fishwheels, 2000-2023.													IN-SEA	IN-SEASON (FW-MR)												
Date	aso	n cum. v	alues v	with ye	llow sha	ding are	prelimina	ry and w	ill change	as tnese	tish pass	tne upp	er fishw	neels to	finalize	mark-red	capture c	ata ove	r a 5-d p	erioa.						Mean	2023
O-year O	2000	200	,	2002	2002	2004	2005	2006	2007	2000	2000	2010	2011	2012	2012	2014	2015	2016	2017	2019	2010	2020	2021	2022	2023 Cum	(94-22)	Daily
District Column		_	1 2																						0	10	0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							-			-										-					0	40	0
06-lan 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-			-																	_					100	25
System O	_					_								-												100	50
O-y-wn O O O O O O O O O	_																								_	200	50
Gear Gear Gear George	_				-																					300	25
Column O	0	0		0	0	0		0	0															0	301	300	150
10.1 1.5	0	864		0	0	0	229	52	0	533	175	441	275		788			604		135	286	47	0	0	326	500	25
13-14m	0	1,32	6	0	0	0	229	234	0	741	175	645	524	6,136	1,070	5,060	1,983	732	245	135	483	63	0	0	426	700	100
12-11 13-11 13-14 0	0	1,50	5	0	0	0	229	468	0	1,127	175	645	699	7,027	1,523	7,644	2,141	987	245	232	662	125	37	0	550	900	124
134-un 111 1,776 0 0 1,783 1,196 469 0 2,314 375 1,294 1,020 7,413 4,187 2,149 5,102 2,263 2,45 361 1,142 2,33 37 0 1,316 2,27 1,249 1,141 1	0	1,52	1	0	0	174	364	469	0	1,542	175	849	1,024	7,398	2,071	10,921	2,487	1,210	245	264	822	155	37	0	799	1,200	248
14-11 1.75 1.76 0	111	1,81	4	0	0	1,059	836	469	0	1,928	175	1,134	1,322	7,413	3,136	15,583	3,811	1,784	245	296	1,180	186	37	0	964	1,600	166
15-11 13-032 0 5,704 3,328 2,250 469 154 2,758 175 1,733 3,484 10,465 7,174 26,964 9,911 2,933 505 7,75 2,224 250 37 45 2,519 3,97 1,734 1,735 3,348 1,735 3,481 1,735 3,481 1,735 1,733 3,481 1,735	111	2,57	7	0	0	1,783	1,196	469	0	2,314	175	1,294	1,620	7,413	4,137	21,491	5,102	2,263	245	361	1,412	233	37	0	1,316	2,200	352
15-11 15-33 33.877 0 10.343 4.973 3.776 469 488 3.466 17.73 2.092 5.071 2.099 5.071 2.099 3.481 3.481 3.188 703 3.475 3.341 566 73 155 2.971 4.985 3.881 3.881 3.881 733 3.481 5.081 3.881 733 3.481 5.081 3.881 3.881 3.881 3.881 3.881 733 3.481 5.081 3.881 3	111	2,75	6	0	1,511	2,375	1,723	469	0	2,551	175	1,414	2,366	8,430	5,436	25,737	7,208	2,773	282	393	1,680	250	37	0	1,792	2,800	476
17-14m 2,517 4,822 0 15,268 8,689 6,161 469 561 4,587 4,447 2,691 6,590 12,082 9,108 13,540 2,0661 3,411 826 2,160 4,904 283 219 266 3,757 5,851 338 256 3,958 3,9	111	3,03	2	0	5,204	3,328	2,250	469	154	2,758	175	1,733	3,484	10,465	7,174	28,694	9,911	2,933	505	715	2,234	250		45	2,519	3,600	727
18-11 18-12 18-1	553	3,87	7	0	10,343	4,973	3,776	469	488	3,466	1,773	2,092	5,671	12,009	8,441	34,958	14,815	3,188	703	1,425	3,341	266	73	155	2,971	4,900	451
1941 1,799 6,887 0 27,393 23,513 11,760 667 561 8,888 13,233 6,822 10,577 13,478 12,777 5,7344 34,886 4,271 2,018 8,855 34,08 41,5 392 266 6,628 10,200 13,22 41,513 13,22 1,741 13,246 15,757 13,478 13,248	2,51	7 4,83	2	0	15,268	8,689	6,161	469	561	4,587	4,447	2,691	6,690	12,082	9,108	41,540	20,661	3,411	826	2,160	4,804	283	219	266	3,757	6,400	786
2-1-11 17-18 7-18	4,342	2 6,21	6	0	20,996	17,734	9,656	469	561	6,210	8,336	4,327	9,126	12,446	10,816	50,857	26,413	3,762	1,378	3,279	5,785	333	256	266	4,910	8,500	1,154
22-1101 17-506 70.075 29.917 49.070 24.070 15.683 5.018 1.077 19.005 23.523 12.059 13.886 14.072 15.945 65.728 46.705 6.528 2.883 4.526 15.880 41.5 330 266 16.934 42.058 22-110 24.076 77.0	7,799	9 6,68	7	0	27,393	23,851	11,760	667	561	9,868	13,233	6,282	10,577	13,478	12,777	57,344	34,868	4,271	2,018	3,855	8,408	415	292	266	6,628	10,700	1,717
22-Jun 24,676 7,075 53,842 52,179 24,670 25,553 35,616 32,179 24,670 25,553 35,516 32,795 23,735 24,852 40,851 32,916 32	1,78	7,03	3	0	39,866	24,670	13,426	2,818	659	13,792		9,109	12,107	13,711	13,684	61,573	40,714	5,161	2,431	4,302	11,352	415	330	266	10,339	13,000	3,711
23-11 23-662 7.075 75.318 55.636 24.670 20.505 13.795 2.573 24.882 49.981 23.91 19.996 17.866 24.605 70.093 65.771 11.582 4.693 5.975 25.773 24.882 29.881 27.915	7,50	7,07	5 29	9,917	49,020	24,670	15,863	5,018	1,077	19,605	23,523	12,059	13,836	14,572	15,845	65,738	46,705	6,528	2,883	4,526	15,830	415	330	266	16,934	16,800	6,595
24-101 42-231 7,741 84,932 33,106 24,670 33,611 18,170 7,209 30,400 53,871 38,552 24,229 17,866 43,615 75,537 26,071 1,5529 1,5	4,47	76 7,07	5 53	3,842	52,179	24,670	21,386	8,356	1,616	23,216	31,305	16,811	16,598	17,368	18,620	68,743	56,095	8,816	3,422	4,814	19,845	415			22,563	20,500	5,628
	2,66	7,07	5 75	5,318	55,636	24,670	26,505	13,795	2,573	24,852	40,581	23,210	19,996	17,866	24,605	70,093	65,771	11,582	4,463	4,974	22,952	415	330		29,225	24,300	6,663
27-1um 79,888 22,088 91,072 80,990 29,568 83,720 24,384 22,065 48,804 79,358 45,962 35,037 17,866 40,950 78,019 84,988 18,816 7,089 14,566 30,954 99,9 300 2,731 78,086 24,086	_		1 84	4,932	63,106	24,670	31,011	18,170	7,209	30,400			24,229	17,866	32,181	73,868		13,807	5,303	5,750	26,176	496			37,917	28,400	8,691
Part	5,22			8,616	-	_	33,641								_	75,537		16,858			_					31,600	8,612
28-Jun 79,898 25,084 91,072 84,811 81,5665 24,568 26,661 29,196 50,633 86,952 51,354 39,940 18,832 77,165 91,753 67,875 52,151 11,494 47,758 36,932 33,938 33,047 33,047 32,171 32,174		_	_																							35,500	9,109
Page			_							_					_	_		_			_					39,300	12,378
30-Jun 79,888 30,487 30,121 89,504 48,006 54,382 37,066 43,172 58,643 94,237 58,436 48,384 42,726 96,013 97,207 108,877 34,394 13,232 51,512 39,234 6,132 330 2,731 10,948 35,896 38,886 16,886 59,745 38,986 16,584 58,817 38,986 38,986 38,88			_													_				_	_	-				43,700	9,487
01-Jul 85,966 33,888 108,610 92,742 51,160 58,517 41,833 45,336 67,993 97,871 61,322 52,772 55,482 100,305 98,557 119,099 36,586 44,340 56,874 43,247 9,093 330 2,731 100,684 58,102 10,994 10,994 33,5981 126,584 93,809 56,227 61,515 46,050 48,452 76,305 102,054 62,848 55,625 10,505	-		_																							48,300	7,550
O2-Jul 103,938 35,981 126,584 93,809 56,227 61,515 46,050 48,452 76,305 102,054 62,848 55,662 75,066 104,651 101,507 126,156 38,038 16,189 59,108 48,638 12,963 330 2,731 106,695 63,405 103,101 112,961 37,197 160,994 96,534 62,259 63,453 52,191 53,305 76,305 105,208 63,774 58,654 88,722 108,843 103,801 132,554 40,013 18,975 60,793 55,451 13,16 2,425 2,731 113,736 68,545 64,777 60,738 95,731 112,351 03,331 112,351 04,922 139,093 42,466 22,723 62,905 98,881 13,716 24,825 2,731 112,736 68,545 64,777 60,738 95,731 112,751 04,914 233,759 103,953 74,438 69,166 67,550 66,871 62,785 76,305 110,495 66,514 62,650 98,807 112,684 106,109 145,982 44,770 27,040 64,469 63,162 14,542 5,600 2,731 129,521 76,806 117,760 40,914 233,759 103,953 74,438 69,271 71,193 64,873 76,305 112,850 68,813 65,152 103,551 113,873 108,589 153,038 48,449 31,961 66,640 67,530 19,708 81,147 79,631 120,417 72,400 72			_							_				-	_	_		_			_					53,200	9,887
03-Jul 112,961 37,197 160,994 96,534 62,259 63,453 52,191 53,305 76,305 105,208 63,774 58,654 88,722 108,543 103,801 132,554 40,013 18,975 60,793 55,451 13,516 2,425 2,731 113,736 68,136 117,760 117,7																_				_	_	-				58,100	5,545
04-Jul 115,310 38,313 196,911 99,054 65,054 64,892 59,800 59,239 76,305 107,865 64,777 60,738 95,873 111,235 104,522 139,393 42,466 22,723 62,905 59,881 13,701 4,293 2,731 120,417 72,60 117,760 39,513 224,762 101,438 69,166 67,550 66,871 62,785 76,305 110,495 66,514 62,650 98,807 112,684 106,109 145,982 44,770 27,040 64,469 63,162 145,542 5,600 2,731 129,521 76,60 117,760 40,914 233,579 139,593 74,438 69,271 71,193 64,873 76,305 112,850 68,813 65,151 13,873 108,589 153,038 48,449 31,961 66,480 67,530 19,098 8,514 7,963 139,489 69,40 117,985 42,161 240,891 106,318 79,176 72,042 74,310 71,818 86,686 115,714 73,241 69,761 105,938 116,880 110,309 159,675 52,159 34,307 69,079 72,318 33,405 12,661 31,729 146,156 88,80 10,00 10,00 11,0			_													_		_								63,400	6,211
05-Jul 117,760 39,513 224,762 101,438 69,166 67,550 66,871 62,785 76,305 110,495 66,514 62,650 98,807 112,684 106,109 145,982 44,770 27,040 64,469 63,162 14,542 5,600 2,731 129,521 76,800 117,760 40,914 233,579 103,953 74,438 69,271 71,193 64,873 76,305 112,850 68,813 65,152 103,551 113,873 108,589 153,038 48,449 31,961 66,680 67,530 19,708 8,514 7,963 139,489 80,000 106,318 79,176 72,042 74,310 71,881 86,686 115,771 73,241 69,761 72,042 74,310 71,861 72,042 74,310 71,861 74,513 74,514 74,5	_		_																							68,500	7,042
06-Jul 117,760 40,914 233,579 103,953 74,438 69,271 71,193 64,873 76,305 112,850 68,813 65,152 103,551 113,873 108,589 153,038 48,449 31,961 66,480 67,530 19,708 8,514 7,963 139,489 80,607 117,958 42,161 240,891 106,318 79,176 72,042 74,310 71,881 86,686 115,714 73,241 69,761 105,938 116,880 110,309 19,675 52,159 34,307 69,079 72,318 33,405 12,661 31,729 146,156 85,800 102,001 126,179 46,974 247,158 111,492 94,159 77,789 81,699 81,381 105,678 125,939 83,125 73,734 109,302 122,422 114,737 171,704 57,634 41,552 75,304 85,327 52,318 33,730 86,929 158,699 59,641 132,618 132,6				,							_			-												72,800	6,681
O7-Jul 117,958 42,161 240,891 106,318 79,176 72,042 74,310 71,881 86,686 115,714 73,241 69,761 105,938 116,880 110,309 159,675 52,159 34,307 69,079 72,318 33,405 12,661 31,729 146,156 85,89 120,101 126,179 46,974 247,158 111,492 49,159 77,789 81,699 81,381 105,676 89,917 174,862 80,018 72,385 107,844 119,621 112,591 165,412 54,672 36,132 72,018 77,506 43,423 19,049 61,029 153,182 91,304 106,318 49,577 520,162 113,304 100,632 81,564 84,898 85,702 112,694 125,697 87,733 40,918 104,018 125,898 115,573 104,618 85,967 89,194 85,783 81,929 112,694 125,878 113,104 125,878 123,104 125,878 123,104 125,878 123,104 125,878 123,104 125,878 123,104 125,878 123,104 125,104			_				_											_								76,800	9,104
08-Jul 120,535 45,210 243,807 109,093 88,294 75,611 78,513 76,646 96,917 117,862 80,018 72,385 107,844 119,621 112,591 165,412 54,672 36,132 72,018 77,506 43,423 19,049 61,029 153,182 91,300 126,179 46,974 247,158 111,492 94,159 77,789 81,699 81,381 105,678 122,393 83,125 73,734 109,302 122,422 114,737 171,704 57,634 41,552 75,304 85,327 52,318 33,730 86,929 158,695 96,800 10,041 120,041	_		_							_								_								80,600	9,968
09-Jul 126,179 46,974 247,158 111,492 94,159 77,789 81,699 81,381 105,678 122,393 83,125 73,734 109,302 122,422 114,737 171,704 57,634 41,552 75,304 85,327 52,318 33,730 86,929 158,695 10-Jul 132,168 49,577 250,162 113,304 100,632 81,564 84,898 85,702 112,694 125,670 87,773 74,808 110,104 125,989 116,806 178,531 62,294 47,060 78,335 88,859 61,064 55,434 105,609 165,179 102, 11-Jul 135,632 50,732 255,678 115,573 104,618 85,967 89,194 86,278 117,038 129,196 93,589 76,521 110,617 128,878 118,206 184,230 66,419 54,638 81,019 91,253 66,791 67,216 119,130 174,026 106, 113-Jul 140,067 54,206 259,269 117,890 108,888 90,486 94,456 86,278 119,205 131,682 98,109 79,745 111,88 131,649 120,0631 73,850 66,447 85,627 122,672 111,616 100,230 103,675 86,278 122,817 134,647 101,199 85,035 113,917 132,769 123,616 200,631 73,850 66,447 85,627 124,614 100,521 134,844 134,91 134,844 134,91 134,844 145,873 154,944 145,873 154,944 145,873 154,944 145,944 1			_							_								_					_			85,800	6,668
10-Jul 132,168 49,577 250,162 113,304 100,632 81,564 84,898 85,702 112,694 125,670 87,773 74,808 110,104 125,989 116,806 178,531 62,294 47,060 78,335 88,859 61,064 55,434 105,609 165,179 102, 11-Jul 135,632 50,732 255,678 115,573 104,618 85,967 89,194 86,278 117,038 129,196 93,589 76,521 110,617 128,878 118,206 184,230 66,419 54,638 81,019 91,253 66,791 67,216 119,130 174,026 106, 112-Jul 140,067 54,206 259,269 117,890 108,888 90,486 94,456 86,278 119,205 131,682 98,109 79,745 111,188 131,649 120,808 194,202 70,260 61,027 83,680 95,603 71,375 90,935 129,972 181,874 111, 142,248 56,301 261,891 119,333 115,590 95,442 99,692 86,278 122,817 134,647 101,199 85,035 113,917 132,769 123,616 200,631 73,850 66,447 85,624 100,551 77,190 110,992 141,864 186,572 115, 114,114 149,032 66,920 124,472 128,259 106,695 105,908 86,278 131,854 139,073 106,100 104,110 120,872 137,456 141,276 134,647 114,494 144,043 144,043 144,043 144,043 144,043 144,044 144,043 144,044 144							_																		-	-	7,026 5,512
11-Jul 135,632 50,732 255,678 115,573 104,618 85,967 89,194 86,278 117,038 129,196 93,589 76,521 110,617 128,878 118,206 184,230 66,419 54,638 81,019 91,253 66,791 67,216 119,130 174,026 105, 12-Jul 140,067 54,206 259,269 117,890 108,888 90,486 94,456 86,278 119,205 131,682 98,109 79,745 111,188 131,649 120,808 194,202 70,260 61,027 83,680 95,603 71,375 90,935 129,972 181,874 111, 111, 112,101 142,248 56,301 261,891 119,333 115,590 95,442 99,692 86,278 122,817 134,647 101,199 85,035 113,917 132,769 123,616 200,631 73,850 66,447 85,624 100,551 77,190 110,992 141,864 186,572 115,-101 145,873 59,389 264,572 122,672 121,616 100,230 103,675 86,278 126,974 137,077 103,602 95,295 117,312 134,614 127,659 207,687 76,967 70,941 87,753 104,421 81,791 131,584 150,740 120,115,-101 149,032 66,920 270,225 127,797 130,229 104,339 109,428 86,278 134,854 139,073 106,100 104,110 120,872 137,632 134,634 127,659 136,082 138,983 107,735 80,803 107,735 86,204 143,643 150,449 143,444 147,659 136,082 138,985 144,276 149,143 149,048 149,048 134,444 147,659 136,082 134,844 147,659 136,082 134,844 147,659 136,082 134,844 147,659 136,082 134,844 147,659 136,082 134,844			_													_							_	 		96,800 102,000	6,484
12-Jul 140,067 54,206 259,269 117,890 108,888 90,486 94,456 86,278 119,205 119,605 119,605 119,005			_			-									_	_							_			102,000	8,847
13-Jul 142,248 56,301 261,891 119,333 115,590 95,442 99,692 86,278 122,817 134,647 101,199 80,035 113,917 132,769 123,616 200,631 73,850 66,447 85,624 100,551 77,190 110,992 141,864 186,572 115,101 145,873 59,389 264,572 122,672 121,616 100,230 103,675 86,278 126,974 137,077 103,602 95,295 117,312 134,614 127,659 207,687 76,967 70,941 87,753 104,211 81,791 131,584 150,740 120,115,101 147,184 61,634 267,697 124,472 128,259 102,695 105,908 86,278 131,854 139,073 106,100 104,110 120,872 137,242 132,123 120,945 82,257 75,436 89,803 107,735 86,204 143,643 159,365 124,115,101 149,032 66,920 270,225 127,797 130,629 104,339 104,389 104,389 86,278 131,854 139,073 106,100 104,110 120,872 137,242 132,123 120,945 82,257 75,436 89,803 107,735 86,204 143,643 159,365 124,115,101 144,1659 144,										-	_															111,000	7,848
14-Jul			_				_									_										115,600	
15-Jul 147,184 61,634 267,697 124,472 128,259 102,695 105,908 86,278 131,854 139,073 106,100 104,110 120,872 137,242 132,123 212,945 82,257 75,436 89,803 107,735 86,204 143,643 159,365 124,110 149,032 149,048 149,032 149,048 149,032 149,048 149,032 149,048 149,032 149,048 149,032 149,048 1																										120,100	
16-Jul 149,032 66,920 270,225 127,797 130,229 104,339 104,438 86,278 137,633 141,826 106,863 12,758 124,421 141,659 136,082 218,285 88,208 80,836 91,976 111,470 89,453 152,488 166,170 128, 128, 128, 128, 128, 128, 128, 128,																										124,100	
17-Jul 150,546 72,72 276,077 30,616 33,526 108,093 112,389 86,78 142,705 144,324 107,740 117,770 126,835 147,866 141,276 221,173 92,180 85,383 94,792 115,570 89,966 158,987 174,377 136,141 151,917 151,9			_																							128,000	
18-Jul 151,917 79,555 281,561 134,275 137,506 115,877 115,909 90,356 145,257 146,419 110,337 124,416 131,634 155,582 146,751 226,540 97,518 89,456 99,139 118,788 92,241 168,535 180,140 136,141 1																										132,000	
19-Jul 153,443 83,510 286,433 136,231 141,050 123,640 118,705 93,290 147,135 147,982 113,473 133,203 137,302 162,850 150,907 229,559 102,793 94,098 103,148 120,972 95,552 175,542 186,153 140,050																										136,500	
20-Jul 154,540 87,412 291,060 142,802 146,018 133,291 122,554 96,029 150,432 150,540 118,716 142,562 146,152 170,566 157,059 232,455 109,879 99,309 106,576 122,466 98,643 182,627 194,467 150,555 87,412 298,146 146,769 149,068 138,063 127,308 98,444 154,763 154,254 124,889 150,394 152,975 179,125 161,865 234,426 120,429 104,472 111,198 126,872 101,718 189,907 203,245 150,			_																							140,700	
21-Jul 155,565 87,412 298,146 146,769 149,068 138,063 127,308 98,444 154,763 154,254 124,889 150,394 152,975 179,125 161,865 234,426 120,429 104,472 111,198 126,872 101,718 189,907 203,245 150,000 15			_																							145,500	
																										150,600	
																										155,900	
																										161,500	

Prepared by Nisga'a Fisheries

Cumulative D	Daily Rur	n Sizes o	f Adult	Nass Riv	er Chino	ook Saln	non (≥ 5	0 cm NF	L) to Git	winksihl	lkw Fish	wheels,	2000-20	023.										IN-SEASON		
																									Mean	2023
Date	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	(94-22)	Daily
01-Jun-23	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	48	0	0	0	0	0	0	
02-Jun-23	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	144	40	17	0	0	0	10	<u> </u>
03-Jun-23	0	0	0	0	0	0	0	0	0	0	0	0	24	17	97	0	46	0	240	100	51	0	0	26	20	26
04-Jun-23 05-Jun-23	0	0	0	0	0	0	0	0	0	0	122 244	0	24 47	50 67	97 161	0 59	68 91	25 50	288 288	181 361	69 103	0	0	185 212	40 80	159 26
06-Jun-23	0	0	0	0	0	14	0	0	23	0	488	0	71	67	290	88	114	151	288	442	137	0	0	265	100	53
07-Jun-23	0	23	0	0	0	72	0	0	69	0	548	21	71	84	483	133	228	201	336	582	137	0	0	265	130	0
08-Jun-23	0	168	0	0	0	72	47	0	115	0	731	106	95	134	772	177	319	226	336	783	172	0	0	291	170	26
09-Jun-23	0	306	0	0	0	72	141	0	138	0	914	212	102	167	901	177	410	251	336	984	172	0	0	371	220	79
10-Jun-23	0	345	0	0	0	72	157	0	208	0	975	212	126	301	1,030	177	547	251	336	1,084	189	18	0	371	280	0
11-Jun-23	0	352	0	0	16	101	157	0	600	0	1,219	212	134	318	1,287	251	707	251	384	1,144	189	37	0	390	360	19
12-Jun-23	32	559	0	0	49	174	157	0	669	0	1,280	276	142	318	1,706	487	912	251	529	1,184	206	73	0	428	450	38
13-Jun-23	32	1,248	0	0	98	405	157	0	669	0	1,524	467	142	351	2,092	811	1,322	301	577	1,204	292	110	0	485	580	57
14-Jun-23	32	1,409	0	31	147	506	157	0	715	0	1,645	616	142	485	2,478	1,976	1,527	352	769	1,224	292	110	0	505	730	19
15-Jun-23	32 162	1,471	0	279	245	550	157	0 25	738	0 159	1,828	722	300 457	619 686	2,768	2,403	1,573	553	865	1,245	412 446	110 165	24 94	600 786	860	96
16-Jun-23 17-Jun-23	851	1,731 2,252	0	1,164 2,513	636 1,908	665 1,143	157 157	37	853 1,222	319	2,499 2,742	892 977	457	686	2,929 3,315	2,624 3,170	1,687 1,801	653 754	1,153 1,393	1,365 1,606	446	183	130	881	1,070 1,420	185 96
18-Jun-23	1,411	2,903	0	5,042	3,946	2,068	157	37	1,315	546	3,352	1,253	489	719	3,701	3,361	2,006	904	1,730	1,766	498	275	130	987	1,940	106
19-Jun-23	2,014	3,209	0	6,035	4,386	2,633	173	37	1,730	865	4,083	1,401	505	803	3,991	3,730	2,165	1,181	1,874	1,807	635	275	130	1,199	2,390	212
20-Jun-23	2,930	3,278	0	7,059	4,418	2,864	361	37	2,168	1,275	5,058	1,593	520	837	4,280	4,172	2,553	1,281	1,874	2,168	652	275	130	1,570	2,800	371
21-Jun-23	4,190	3,278	866	11,838	4,418	3,153	896	86	2,629	2,345	6,643	1,869	528	937	4,474	5,086	2,826	1,306	1,874	3,473	652	275	130	2,178	3,430	609
22-Jun-23	5,482	3,278	2,553	16,771	4,418	3,732	1,760	86	2,883	4,484	8,471	2,187	544	1,054	4,860	6,767	3,100	1,331	1,874	4,717	652	275	130	2,542	4,180	364
23-Jun-23	7,453	3,278	4,421	18,974	4,418	4,600	3,284	210	2,883	6,738	9,933	2,718	552	1,104	4,924	7,976	3,373	1,482	1,922	5,761	652	275	212	2,734	4,850	191
24-Jun-23	9,457	3,286	5,816	20,510	4,418	6,133	5,357	1,479	3,114	11,109		3,164	552	1,221	5,600	9,259	3,738	1,784	1,970	6,403	669	275	378	3,316	5,610	583
25-Jun-23	11,665	3,692	6,144	21,240	4,418	7,840	9,662	1,886	_		12,615	3,461	552	1,238	5,697	10,615	4,331	1,859	2,162	6,945	704	293	708	4,164	6,380	848
26-Jun-23	12,752	6,380	6,354	21,519	4,418	9,286	12,553	2,613	4,475		13,834	3,843	552	1,389	5,761	11,676		2,035	3,123	7,327	772	293	791	5,012	7,040	848
27-Jun-23	12,979	9,827	6,354	21,798	4,484	9,966	13,024	3,919	5,766	16,686		4,311	552	1,506	_	12,148		2,085	5,670	8,029	944	293	791	6,362	7,630	1,351
28-Jun-23		10,546	6,354	22,093	4,516	10,472	13,134	5,201	6,873	20,100	15,845	4,757	568	3,079	6,855	12,826	5,676	2,135	7,496	8,390	1,098	293	791	8,269	8,190	1,907
29-Jun-23 30-Jun-23	12,979 12,979		8,168 9,864	22,512 22,776	4,908 5,658	11,022 11,268	13,590 16,292	5,571 6,076	7,289 7,496	22,172	16,434	5,181 5,861	828 1,135	5,287 6,592	7,531 8,143	14,168 14,890	6,542 7,020	2,236	8,553 9,322	8,611 8,712	1,991 2,265	293 293	791 791	9,223 10,277	8,840 9,560	954 1,054
01-Jul-23	13,140			22,770	6,130	11,514	19,340	6,187	8,027		16,759	6,901	1,506	7,061		15,849	7,020	2,437	10,187	8,977	2,660	293	791	10,412	10,380	135
02-Jul-23		19,538	11,933	22,915	7,370	11,731	21,414	6,434	8,811	24,721	16,820	7,475	2,578	7,479	9,108	16,999	7,750	2,487	10,427	9,089	3,003	293	791	10,569	11,250	157
03-Jul-23	14,734			23,117	9,163	12,049	22,419		8,811	24,949		8,324	4,233	7,646		17,765	7,864	2,562	10,859	9,138	3,072	293	791	10,684	12,010	115
04-Jul-23		25,688	13,291	23,427	10,761	12,382	23,001	11,968	8,811		17,124	8,515	5,574	8,115	9,526	18,620	7,909	2,638	11,052	9,198	3,072	330	791	10,880	12,650	196
05-Jul-23	15,413	26,110	13,829	23,877	12,408	12,657	23,535	13,287	8,811	25,837	17,124	8,685	6,062	8,684	9,687	19,078	8,046	2,738	11,292	9,313	3,072	348	791	11,122	13,060	241
06-Jul-23	15,413	_	14,385		13,337	12,671	23,786	13,521	8,811		17,246	8,812	6,819	8,935	10,234		8,183	2,814	11,436	9,693	3,141	385	1,581	11,322	13,390	200
07-Jul-23	15,424		,	25,211	13,386	12,729	24,053	15,924	8,857		17,307	9,046	7,434	9,219		19,579		3,065	11,580	10,375	4,239	385	3,161	11,510	13,810	188
08-Jul-23	15,553	_	15,051	25,956	13,467	13,033	24,116		9,872		17,734	9,195	7,671	9,286	10,653		8,753	3,241	11,868	10,907	6,058	532	5,118	11,726	14,410	216
09-Jul-23	15,919		,	26,189	13,630	13,510	24,242	21,878	12,224	26,543	17,917	9,301	7,789	9,387	10,975		8,981	3,266	11,964	11,049	7,929	770	6,794	11,991	14,860	266
10-Jul-23 11-Jul-23	16,414 16.835	30,958	15,224	26,406 26.530	13,859 14,169	14,103 14,551	24,367 24,587	23,110	15,799 18,152	26,747 26,952	18,039 18,160	9,471 9,556	7,797 7,797	9,420 9,504	11,168 11,297	19,770		3,391 3,391	12,109 12,253	11,172 11,239	9,679 10,469	1,302 2,311	8,918 10,169	12,261 12,462	15,360 15,690	270 201
11-Jul-23 12-Jul-23	18,170	- ,	-, -	26,530	14,169	14,754	25,137	23,172	19,190	26,952	18,160	9,556	7,797	9,504	,	20,051	9,322	3,492	12,253	11,239	10,469	4,769	10,771	12,462	16,070	156
13-Jul-23	18,762			26,732	15,342	14,734	26,064	23,172	19,351	27,066	18,404	9,768	7,805	9,537	11,876		9,414	3,617	12,541	11,456	11,172	6,933	11,161	12,741	16,350	123
14-Jul-23		32,911	15,406	,	15,783	15,043	26,661	23,172	19,513	27,294	18,465	9,895	7,915	9,587	12,005	20,493	9,482	3,693	12,589	11,560	11,636	8,841	11,763	,,1	16,610	
15-Jul-23	19,592				15,946			23,172		27,521	18,587	10,023	7,994	9,604	12,069		9,505	3,843	12,685		11,859	10,180	12,270		16,780	
16-Jul-23			15,452	27,058	16,027			23,172						9,604	12,101	20,655		3,843	13,022	11,726	11,927	10,730			16,870	
17-Jul-23																									16,960	
																					11,962				17,050	
								23,369													12,047				17,140	
								23,542												11,979			13,474		17,210	
								23,862												12,052					17,300	—
								24,257													12,322				17,360	
23-Jul-23	20,249	33,654	15,6/1	28,268	16,304	15,622	27,525	24,700	20,412	28,432	19,014	10,660	9,2/1	9,838	12,584	20,935	9,687	4,220	13,935	12,114	12,459	11,996	13,/99		17,440	i

Table 1. In-season and post-season estimates of aggregate escapement for Nass adult sockeye salmon to Gitwinksihlkw test fishery fishwheels to date, 1994-2023.

Year	Date	In-season	Actual	Raw Error	Raw Error%	Abs Error	Abs Error%	Abs Acc%
1 cai	Date	III-Seasoii	Actual	LITOI	LITOI 70	ADS LITOI	LITOI /0	ACC 70
1994	13-Jul	91,240	117,017	-25,777	-22.0%	25,777	22%	78%
1995	13-Jul	116,537	158,002	-41,465	-26.2%	41,465	26%	74%
1996	13-Jul	131,160	117,600	13,560	11.5%	13,560	12%	88%
1997	13-Jul	77,332	83,919	-6,587	-7.8%	6,587	8%	92%
1998	13-Jul	64,393	99,060	-34,667	-35.0%	34,667	35%	65%
1999	13-Jul	121,499	127,566	-6,067	-4.8%	6,067	5%	95%
2000	13-Jul	169,917	142,248	27,669	19.5%	27,669	19%	81%
2001	13-Jul	76,086	56,301	19,785	35.1%	19,785	35%	65%
2002	13-Jul	206,864	261,891	-55,027	-21.0%	55,027	21%	79%
2003	13-Jul	126,043	119,333	6,710	5.6%	6,710	6%	94%
2004	13-Jul	137,390	115,590	21,800	18.9%	21,800	19%	81%
2005	13-Jul	92,058	95,442	-3,383	-3.5%	3,383	4%	96%
2006	13-Jul	95,830	99,692	-3,862	-3.9%	3,862	4%	96%
2007	13-Jul	68,623	86,278	-17,655	-20.5%	17,655	20%	80%
2008	13-Jul	111,325	122,817	-11,492	-9.4%	11,492	9%	91%
2009	13-Jul	128,539	134,647	-6,108	-4.5%	6,108	5%	95%
2010	13-Jul	91,841	101,199	-9,358	-9.2%	9,358	9%	91%
2011	13-Jul	109,195	85,035	24,161	28.4%	24,161	28%	72%
2012	13-Jul	108,300	113,917	-5,617	-4.9%	5,617	5%	95%
2013	13-Jul	147,036	132,769	14,267	10.7%	14,267	11%	89%
2014	13-Jul	97,386	123,616	-26,230	-21.2%	26,230	21%	79%
2015	13-Jul	149,585	200,631	-51,046	-25.4%	51,046	25%	75%
2016	13-Jul	67,898	72,877	-4,979	-6.8%	4,979	7%	93%
2017	13-Jul	68,649	68,995	-346	-0.5%	346	1%	99%
2018	13-Jul	85,672	85,643	29	0.0%	29	0%	100%
2019	13-Jul	126,939	100,551	26,387	26.2%	26,387	26%	74%
2020	13-Jul	63,556	77,190	-13,634	-17.7%	13,634	18%	82%
2021	13-Jul	98,658	110,992	-12,334	-11.1%	12,334	11%	89%
2022	13-Jul	131,570	141,750	-10,180	-7.2%	10,180	7%	93%
2023	13-Jul	186,572						
MAPE ¹		109,000	115,000	-6,000	-3%		14%	
Min (MAPE))	63,556	56,301	29	-35%		0%	65%
Max (MAPE		207,000	262,000	55,000	35%		35%	100%
MAA ²	,	, -	,	,				86%

¹ MAPE = Mean Absolute Percent Error

² MAA = Mean Absolute Accuracy

Table 2. In-season and post-season estimates of aggregate escapement for Nass adult Chinook salmon to Gitwinksihlkw test fishery fishwheels to date, 1994-2023.

Year	Date	In-season	Actual	Raw Error	Raw Error%	Abs Error	Abs Error%	Abs Acc%
1994	13-Jul	27,123	23,132	3,991	17.3%	3,991	17%	83%
1995	13-Jul	13,508	9,849	3,659	37.1%	3,659	37%	63%
1996	13-Jul	21,147	22,268	-1,121	-5.0%	1,121	5%	95%
1997	13-Jul	39,882	19,748	20,133	101.9%	20,133	100%	0%
1998	13-Jul	38,271	24,227	14,044	58.0%	14,044	58%	42%
1999	13-Jul	12,406	11,636	770	6.6%	770	7%	93%
2000	13-Jul	20,712	18,762	1,949	10.4%	1,949	10%	90%
2001	13-Jul	45,064	32,681	12,383	37.9%	12,383	38%	62%
2002	13-Jul	27,776	15,370	12,406	80.7%	12,406	81%	19%
2003	13-Jul	26,043	26,732	-689	-2.6%	689	3%	97%
2004	13-Jul	12,282	15,342	-3,060	-19.9%	3,060	20%	80%
2005	13-Jul	14,145	14,884	-739	-5.0%	739	5%	95%
2006	13-Jul	23,996	26,064	-2,069	-7.9%	2,069	8%	92%
2007	13-Jul	31,044	23,172	7,872	34.0%	7,872	34%	66%
2008	13-Jul	11,765	19,351	-7,587	-39.2%	7,587	39%	61%
2009	13-Jul	22,953	27,066	-4,113	-15.2%	4,113	15%	85%
2010	13-Jul	8,041	18,404	-10,364	-56.3%	10,364	56%	44%
2011	13-Jul	8,556	9,768	-1,212	-12.4%	1,212	12%	88%
2012	13-Jul	10,476	7,805	2,671	34.2%	2,671	34%	66%
2013	13-Jul	6,814	9,537	-2,723	-28.6%	2,723	29%	71%
2014	13-Jul	7,907	11,876	-3,969	-33.4%	3,969	33%	67%
2015	13-Jul	32,275	20,286	11,989	59.1%	11,989	59%	41%
2016	13-Jul	12,030	9,414	2,616	27.8%	2,616	28%	72%
2017	13-Jul	3,106	3,617	-512	-14.1%	512	14%	86%
2018	13-Jul	8,398	12,541	-4,143	-33.0%	4,143	33%	67%
2019	13-Jul	11,004	11,456	-451	-3.9%	451	4%	96%
2020	13-Jul	10,827	11,172	-345	-3.1%	345	3%	97%
2021	13-Jul	7,427	6,933	494	7.1%	494	7%	93%
2022	13-Jul	9,597	11,161	-1,564	-14.0%	1,564	14%	86%
2023	13-Jul	12,741						
MAPE ¹		18,000	17,000	2,000	7%		27.7%	
Min (MAPE)	3,106	3,617	345	-56%		2.6%	0%
Max (MAPE	,	45,000	33,000	20,000	102%		100.0%	97%
MAA (1994	,	72,000	55,000	20,000	102/0		100.070	72%
MAA (2000	,							
•	,						_	75%
MAA (2007	-2022) ⁻							74%

¹ MAPE = Mean Absolute Percent Error

² MAA = Mean Absolute Accuracy

2023 Nass Fishwheel Catches

	fw2	FW-No							
	GW		GW Total	GH				GH Total	Grand Total
Data	FW1	FW2		FW3	FW4	FW5	FW6		
Chin-adult catch	126	463	589	363	0	724	437	1,524	2,113
Chin-tagged	114	402	516	329	0	651	389	1,369	1,885
Chin-Pit tags	114	400	514	314	0	648	386	1,348	1,862
Chin-recaps	13	22	35	58	0	129	116	303	338
Chin-Jacks	200	380	580	428	0	699	712	1,839	2,419
Sockeye-adult catch	3,797	7,075	10,872	4,482	0	8,740	4,250	17,472	28,344
Sockeye-tagged	1,758	3,331	5,089	0	0	0	0	0	5,089
Sockeye-recaps	169	142	311	85	0	189	84	358	669
Sum of sk jack	362	888	1,250	178	0	507	323	1,008	2,258
Coho-adult catch	1	0	1	0	0	0	0	0	
Coho-tagged	0	0	0	0	0	0	0	0	0
Coho-recaps	0	0	0	0	0	0	0	0	0
Coho-jack	0	0	0	0	0	0	0	0	0
Steel-adult catch	3	10	13	2	0	1	1	4	17
Steel-Adipose marked	0	0	0	1	0	1	0	2	2
Steel-unmarked	3	10	13	1	0	0	1	2	15
Steel-recap-total	0	0	0	0	0	0	0	0	0
Pacific Lamprey-catch	1	22	23	9	0	204	182	395	418
Lamprey-tagged	1	17	18	3	0	106	119	228	246
Lamprey-released	0	5	5	6	0	98	63	167	172
Lamprey-recaps	0	0	0	0	0	3	6	9	9
River Lamprey	0	0	0	0	0	0	0	0	0
Pink-adult catch	323	190	513	61	0	98	17	176	689
Sum of pink_tagged	36	45	81	0	0	0	0	0	81
Sum of pink_recap	8	2	10	1	0	1	0	2	12
Chum-adult-catch	0	0	0	0	0	0	0	0	0
Chum-tagged	0	0	0	0	0	0	0	0	0
Chum-punched	0	0	0	0	0	0	0	0	0
Chum-recaps	0	0	0	0	0	0	0	0	0
Dolly Varden	7	38	45	0	0	0	2	2	47
Dolly-tagged	2	24	26	0	0	0	0	0	26
Rainbow Trout	40	5	45	8	0	1	8	17	62
Peamouth Chub	6	6	12	9	0	14	5	28	40
Cutthroat Trout	19	17	36	1	0	1	0	2	38
Mountain Whitefish	0	0	0	4	0	10	8	22	22
Pikeminnow	0	1	1	1	0	3	1	5	6
Sculpin	2	0	2	0	0	1	1	2	4
Redside Shiners	1	0	1	2	0	0	0	2	3
Suckers	0	0	0	0	0	1	0	1	1
Seals	0	3	3	0	0	0	0	0	3