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2023 NASS RIVER SALMON STOCK ASSESSMENT UPDATE – FRIDAY, 21 JULY

The following is the third 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.

1. NASS RIVER ENVIRONMENTAL UPDATE – FISHWHEELS, MEZIADIN AND KWINGEES

Fishwheel Environmental data: **1 June to 20 July.**

- The current water level is 0.7 m lower than the average water level (1.6 m vs. 2.3 m) based on 1994–2022 operations. The water levels in June and July 2023 currently rank the 8th and 9th lowest years, respectively, compared to 1994 to 2022 operations (Table 1).
- Current water temperature at GW fishwheels is 1.8°C warmer than the average water temperature (11.8°C vs. 10.0°C) based on 1994–2022 operations. The water temperatures in June and July 2023 currently rank the 5th and 3rd highest years, respectively, compared to 1994 to 2022 operations (Table 2).

Meziadin Fishway data: operations started on 1 July. Count data from **1 July to 21 July.**

- Current water level is 0.08 m lower than average (1.21 vs. 1.29 m) and water temperature is 3.4°C warmer than average (18.5°C vs. 15.1°C) based on operations from 1994 to 2022.
- Counts: 149,415 med/large Sockeye (2,452 tags), 4,029 small Sockeye, 5 Chinook (0 tagged), and 0 Bull Trout. Counts to date are above average for Sockeye (35,000) and below average for Chinook (50) 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 ($r^2=0.32$): 275,000 med/large Sockeye (95% CI: 164,000, 386,000). In comparison, the projected Meziadin Sockeye return based on fishwheel abundance is 284,000 (range: 187,000–356,000) based on mean genetics (76%; range: 50-95%) from 2000 to 2022.

Kwingeese video-counting weir data: operations started on 9 July. Counts data from 9-20 July.

- Current water level is 0.05 m lower than average (0.28 vs. 0.33 m) and water temperature is 3.6°C warmer than average (19.0°C vs. 15.4°C) based on operations from 2002 to 2022.
- Counts: 5 med/large Sockeye (0 tag), 8 med/large Chinook (0 tag) and 1 Bull Trout.

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

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	Mean (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	2.0	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 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	Mean (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	11.3	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	

2. NASS RIVER FISHWHEEL CATCH UPDATE

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.

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 in Table 3 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.

Table 3. Nass fishwheel salmon, steelhead, and Pacific Lamprey catches, 2023.

FISHWHEEL CATCH SUMMARIES	SOCK	CHIN	COHO	STEEL	PINK-ODD	CHUM	LAMP
FISHWHEEL TOTAL CATCH OF ADULTS	34,301	2,240	21	29	6,121	2	458
HISTORICAL AVG CUM CATCH (00-22) TO DATE	19,200	3,700	21	10	860	3	250
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	180	2	2	0	415	0	1
AVERAGE DAILY CATCH (5 D) OF ADULTS - GH	667	8	1	1	538	0	4
FISHWHEEL TOTAL TAGGED (OR ADIPOSE FIN MARKED)	5,730	1,985	11	14	185	2	269
FISHWHEEL TOTAL JACKS	2,912	2,911	1	NA	NA	NA	NA
HISTORICAL MEAN JACKS (00-22) TO DATE	1,252	586	3	NA	NA	NA	NA

Other adult species and juvenile salmon catches at the fishwheels to date include: 55 Dolly Varden (29 tagged), 62 Rainbow Trout, 45 Peamouth Chub, 40 Cutthroat Trout, 35 Mountain Whitefish, 10 Pikeminnow, 3 Redside Shiners, 5 Sculpin, 115 salmon smolts (31 Coho, 75 Chinook, 9 Sockeye), 3 seals, and 2 frog.

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

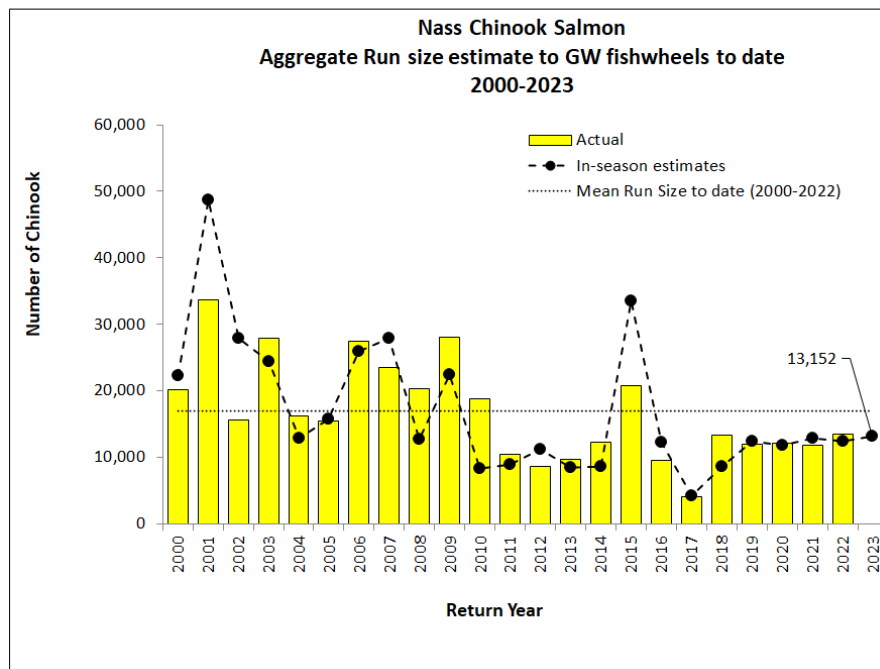
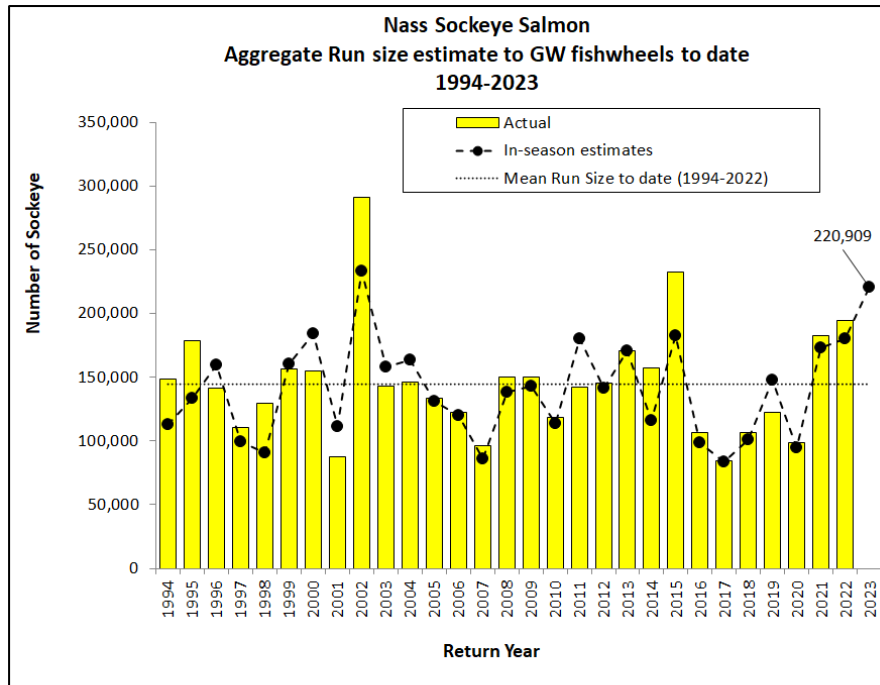
In-season estimates of run size and projected forecasts to Gitwinksihlkw fishwheels for adult Nass salmon and summer-run steelhead are shown in Table 4. For Nass Sockeye, estimates are based on mark-recapture methods as of June 24 when sufficient cumulative tag recoveries (> 25) occurred at GH fishwheels 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 summer-run 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.

Table 4. In-season run size estimates to Gitwinksihlkw fishwheels for Nass Sockeye, Chinook, Coho salmon and summer-run steelhead, 2023.

IN-SEASON RUN SIZE SUMMARIES	SOCK	CHIN	COHO	STEEL		20-Jul-23
IN-SEASON RUN SIZE ESTIMATE TO DATE	220,909	13,152	306	110		
HISTORICAL MEAN RUN SIZE TO GW FOR DATE (94-22)	146,000	16,800	275	190		
RUN SIZE TARGET 2023 (MIN. FOR STEELHEAD)	250,000	15,000	65,000	4,200		

In-season to actual estimates to **July 20** have tracked reasonably well for estimating returns for that date for Nass Sockeye (mean accuracy 88%) from 1994 to 2022 and Chinook (mean accuracy 76%) from 2000 to 2022.



In-season preliminary forecast projections for Nass salmon and summer-run steelhead above Gitwinksihlkw
 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 234,000 and 514,000 to reach the run size goal (~250,000 for 2023) based on the in-season to final regression method with a point estimate of 374,000 ($r^2=0.62$) based on mean-run timing (50%; range: 36–69%) of the run passing Gitwinksihlkw to date (Table 5). The current run size projection for Nass Chinook is ranging between 13,000 and 16,000 based on the in-season to final regression method with a point estimate of 14,600 ($r^2=0.99$) based on mean-run timing (92%; range: 73–97%) of the run passed Gitwinksihlkw to date (Table 5).

Table 5. In-season run size projections to Gitwinksihlkw fishwheels for Nass Sockeye, Chinook, Coho salmon and summer-run steelhead, 2023.

IN-SEASON FORECASTS TO GW - METHODS:	SOCK	CHIN	COHO	STEEL		20-Jul-23
1. RUN TIMING METHOD (94-22) - Mean Run timing	443,000	14,000	Too Early	Too Early		
Lower (-2 S.D.)	324,000	13,000	Too Early	Too Early		
Upper (+2 S.D.)	701,000	17,000	Too Early	Too Early		In-season/Final
2. IN-SEASON TO FINAL (regression):	374,000	14,600	Too Early	Too Early		r^2 (CH) = 0.99
95% CI - lower	234,000	13,000	Too Early	Too Early		r^2 (SO) = 0.62
95% CI - upper	514,000	16,000	Too Early	Too Early		r^2 (CO)=
<i>GW RUN SIZE TARGET (DEPENDING ON HARVESTS ABOVE GW)</i>	<i>250,000</i>	<i>15,000</i>	<i>65,000</i>	<i>4,200</i>		r^2 (ST)=
Mean Run Timing % Return Estimate to GW fishwheels (94-22)	50%	92%	0%	1%		
Late run	36%	73%	0%	0%		
Early run	69%	97%	1%	4%		

Net Escapement Estimates for adult Nass salmon to date are shown in Table 6 and relative to the Upper Nass net aggregate escapement goals. Approximately 211,000 Sockeye, 12,000 Chinook, 300 Coho salmon, and 100 summer-run steelhead are estimated to have passed to the Upper Nass River to date.

Table 6. In-season net escapement estimates above Grease Harbour for Nass Sockeye, Chinook, Coho salmon and summer-run steelhead, 2023.

IN-SEASON NET ESCAPEMENT ESTIMATES	SOCK	CHIN	COHO	STEEL		20-Jul-23
HARVEST ESTIMATES ABOVE GW TO DATE	9,893	1,078	16	8		
NET ESCAPEMENT (ABOVE GW):	211,016	12,075	290	102		
<i>NET ESCAPEMENT TARGET (UPPER RIVER ONLY)</i>	<i>200,000</i>	<i>13,000</i>	<i>60,000</i>	<i>4,000</i>		

4. HARVEST ESTIMATES FOR ADULT NASS SALMON & STEELHEAD

a) 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 for seine fisheries, 2 July for Districts 101, 102, and 104, and 16 July for District 103. The current estimates of catches of salmon in Alaskan commercial net fisheries in Districts 101–106 (and mean catch comparisons from 2000 to 2022) to 21 July 2023 are shown in Table 7 and are below average for all salmon except Pink and Chum.

Table 7. Southeast Alaska commercial gillnet and seine salmon catch estimates in Districts 101–104, 2023.

IN-SEASON SE ALASKAN CUM. SALMON GILLNET/SEINE CATCH ESTIMATES (ADFG WEBSITE) - 2023									WEEK END: 22-Jul-23		
DISTRICTS	AREA	SOCK CATCH	AVG (00-22)	CHIN CATCH	AVG (00-22)	PINK CATCH	AVG ODD (01-21)	CHUM CATCH	AVG (00-22)	COHO CATCH	AVG (00-22)
DIST 101 GN	TREE PT	16,700	36,000	870	1,300	63,700	95,600	196,000	114,000	2,000	4,600
DIST 106 GN	UPP. CLAR	19,600	43,000	400	1,100	40,900	91,000	85,100	73,000	3,550	27,000
DIST 101 SN	LOW CLAR	18,600	7,000	0	200	1,304,000	592,000	489,000	62,000	8,000	3,900
DIST 102 SN	MID CLAR	9,000	9,000	0	500	206,500	150,500	632,000	234,000	6,700	12,300
DIST 103 SN	CORDOVA	150	200	0	0	1,700	1,800	11,000	11,000	500	500
DIST 104 SN	NOYES/DALL	13,800	26,000	0	500	264,900	191,000	106,000	36,000	15,000	13,000
CUMULATIVE TOTAL		78,000	121,000	1,000	4,000	1,882,000	1,122,000	1,519,000	530,000	36,000	61,000

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 (78,000), approximately 27% (42,000) is estimated as Nass origin based on mean stock composition estimates from 1982 to 2022 and is currently below average (33,000) to date.

b) 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>).

DFO has conducted five commercial fisheries in outside Area 3, four seine and one gillnet fishery (Table 8). Total catches to date (including releases) are: 7,690 Sockeye, 88,100 Pink, 51,659 Chum, 899 Coho (all released), 213 Chinook (all released), and 0 steelhead. To continue rebuilding Kwinageese Sockeye Salmon recovering from a migration blockage (slide) in 2011, a one-week commercial closure (gillnet) and non-retention of Sockeye Salmon (seine) was implemented in Area 3 from July 17–23. Of the total Sockeye harvested to date in outside Area 3 (5,593), approximately 8% (< 500) are estimated as Nass origin based on mean northern boundary sockeye run reconstructions from 1982 to 2022. At the time of this update, DFO have not announced another commercial opening in Area 3.

Table 8. Southeast Alaska commercial gillnet and seine salmon catch estimates in Districts 101–104, 2023.

GEAR	DATE	Boats fished	SO-harv	SO-Rel	CO-HARV	CO-Rel	PK-HARV	PK-Rel	Chum-harv	Chum-Rel	CH-harv	CH-Rel	STEEL-Rel
GN	2023-07-14	7	393	0	0	31	1,370	0	1,615	0	0	5	0
GN Total		7	393	0	0	31	1,370	0	1,615	0	0	5	0
SN	2023-07-10	7	2,200	0	0	200	12,000	0	8,800	0	0	30	0
	2023-07-11	7	3,000	0	0	250	24,000	0	22,765	0	0	118	0
	2023-07-17	14	0	409	0	161	16,530	0	9,159	0	0	24	0
	2023-07-18	12	0	1,688	0	257	34,200	0	9,320	0	0	36	0
SN Total		40	5,200	2,097	0	868	86,730	0	50,044	0	0	208	0
TOTAL		47	5,593	2,097	0	899	88,100	0	51,659	0	0	213	0

c) 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 22** are shown in Table 9 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 (~42,000 vs. 32,000) and below average for total catches (42,100 vs. 80,000) when including past sale fisheries and comparing harvests from 2000 to 2022 (Table 9).

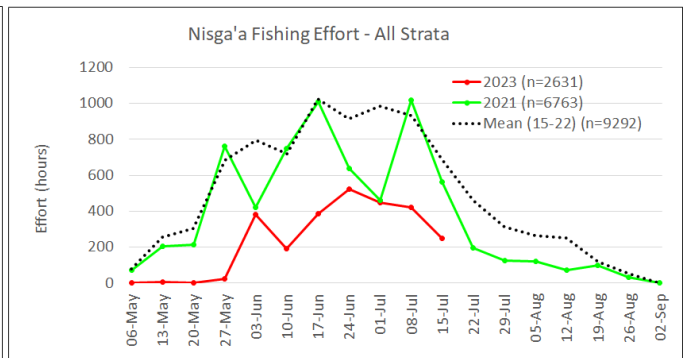
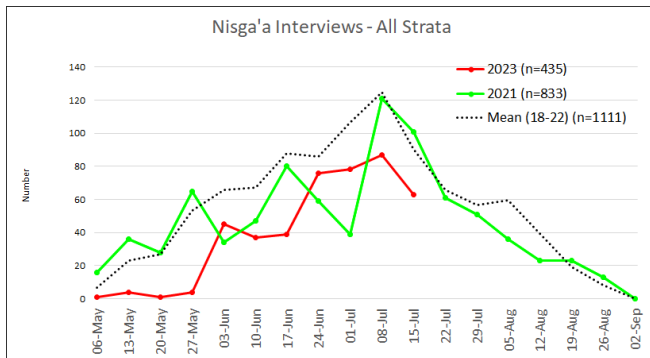
High water impacted the ability to fish in the Nass River for most of May and early June 2023. Nisga’a fishing effort (net hours) to July 15 is currently below average (2631 vs. 7380 hours) based on 435 interviews.

Preliminary estimates are from May 1 to July 22 and include projected net catch estimates from July 16-22 that will be reported on July 26 as well as preliminary additions for catch by angling gear, release mortality (60% of releases), and any estimated unmonitored periods.

Table 9. Salmon and steelhead harvests in Nisga'a fisheries, 2023.

NISGA'A NATION CUMULATIVE DOMESTIC (FSC) AND TOTAL CATCH SUMMARY FOR NASS SALMON AND STEELHEAD, 2023.					
Reported Week Ending Period		DOMESTIC (FSC) HARVESTS TO WK END - 2023		TOTAL HARVESTS TO DATE INCLUDING ESTIMATED RELEASE MORTALITIES & SALE FISHERIES 2023	
NASS SPECIES	Wk end	Harvest	Mean	Harvest	Mean*
CHINOOK	22-Jul-23	2,743	4,900	2,746	5,400
SOCKEYE	22-Jul-23	35,784	24,200	35,785	64,800
PINK	22-Jul-23	3,135	1,942	3,247	9,030
COHO	22-Jul-23	230	232	230	435
CHUM	22-Jul-23	32	242	35	242
STEELHEAD	22-Jul-23	40	108	44	108
TOTAL		42,000	31,600	42,100	80,000

* 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.



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

a) 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).

Table 10. Pre-season Total Return to Canada (TRTC) and Nisga'a Entitlement forecasts for Nass salmon, 2023.

PRE-SEASON TRTC & ENTITLEMENT FORECASTS	SOCK	CHIN	COHO	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 predicts 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.

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

The in-season TRTC estimates (Table 11) for Nass Sockeye and Chinook salmon are based on run size projections from in-season to final regression methods and run timing ranges to Area 3 to date for Nass Sockeye (54%; range: 38–72%) and Chinook (90%; range: 68–96%, 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.

In-season TRTC estimates for Nass Sockeye and Chinook estimated by NFWD to July 21:

- 1) Nass Sockeye is ranging between 300,000 and 510,000 with a point estimate of 405,000 (vs. 616,000 based on returns from 1992 to 2022), and
- 2) Nass Chinook is ranging between 19,000 and 22,000 with a point estimate of 21,000 (vs. 30,000 based on returns from 1992 to 2022).

Pre-season Nass salmon TRTC forecasts for 2023 are still being used for the following Nass salmon species:

- 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).

Table 11. In-season Total Return to Canada (TRTC) and Nisga’a Entitlement forecasts for Nass salmon, 2023.

IN-SEASON TRTC & ENTITLEMENT ESTIMATES - PRELIMINARY	SOCK	CHIN	COHO	PINK-ODD	CHUM
PROJ. TRTC BASED ON INSEASON TO FINAL REGRESSION TO AREA 3D	405,000	21,000	Pre-season	Pre-season	Pre-season
Lower (95% CI)	300,000	19,000	Pre-season	Pre-season	Pre-season
Upper (95% ci.)	510,000	22,000	Pre-season	Pre-season	Pre-season
ESTIMATED %TRTC TO DATE: MEAN. RUN TIMING (AREA 3D)	54%	90%	0%	1%	4%
Late run	38%	68%	0%	0%	0%
Early run	72%	96%	0%	4%	19%
IN-SEASON NISGA’A ENTITLEMENT TARGET	64,000	4,400	Pre-season	Pre-season	Pre-season
Lower (95% CI)	40,000	4,000	Pre-season	Pre-season	Pre-season
Upper (95% ci.)	87,000	4,600	Pre-season	Pre-season	Pre-season

Nisga’a salmon harvest entitlement ranges for 2023 to date are based on TRTC (Table 11) and catch (Table 12) estimates:

- Nass Sockeye is between 40,000 and 87,000 with point estimate 64,000. Current harvest estimate is 35,784 (plus 1 release mortality);
- Nass Chinook is between 4,000 and 4,600 with point estimate 4,400. Current harvest is 2,743 (plus 3 release mortalities);
- Nass Coho is between 9,500 and 12,000 with point estimate 11,000. Current harvest is 230 (with 0 release mortality);
- Nass Pink is between 1,000 and 57,000 with point estimate 16,000. Current harvest is 3,135 (plus 112 release mortalities);
- Nass Chum is between 4,000 and 10,000 with point estimate 5,900. Current harvest is 32 (plus 3 release mortalities); and
- Nass steelhead, upper limit is 1,000 summer-run and no limit for winter/spring run, with current harvest of 40 (plus 4 release mortalities).

Table 12. Nisga'a salmon and summer-steelhead total harvests by fishery, 2023.

NISGA'A TOTAL HARVEST SUMMARY	SOCK	CHIN	COHO	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 22 (PROJECTED)	35,785	2,746	230	3,246	35	44
SUB TOTAL (NLG TREATY FISHERIES)	35,785	2,746	230	3,246	35	44
NLG SOCK DEMONSTRATION FISHERY HARVEST - DFO INVENTORY	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
GRAND TOTAL	35,785	2,746	230	3,246	35	44

When reviewing Nass salmon in-season TRTC returns over a 32-year period since 1992 (Table 13), Sockeye is currently tracking as poor (10th worst), Chinook is fair to average (11th worst), and other species are based on pre-season predictions: fair to average for Pink (11th worst) and Coho (13th worst), and above average for Chum (9th best).

Table 13. Ranking of Nass salmon Total Return to Canada estimates from lowest (1) to highest (32) including 2023 in-season estimates, 1992–2023.

NASS SALMON TOTAL RETURN TO CANADA ESTIMATES, 1992-2022 & PREDICTED 2023							NASS TRTC RANKING BY YEAR FOR SALMON: POOREST RETURN FROM 1 TO 32 YEARS					
Year	Sockeye	Pink	Chinook	Coho	Chum	Total Salmon	Sockeye	Pink	Chinook	Coho	Chum	Total Salmon
1992	1,572,000	328,009	35,400	160,210	53,817	2,149,436	31	12	22	17	20	30
1993	1,586,000	874,099	45,400	62,481	238,610	2,806,590	32	25	30	2	32	32
1994	590,000	183,958	42,800	351,220	105,452	1,273,431	22	6	27	30	29	15
1995	855,000	829,319	21,700	68,032	83,001	1,857,053	28	24	11	3	26	25
1996	694,000	465,482	41,600	126,240	40,410	1,367,731	26	18	26	11	17	18
1997	574,000	416,004	36,300	33,182	30,787	1,090,273	21	16	23	1	14	12
1998	446,000	142,601	45,700	72,387	182,007	888,696	15	3	31	4	31	7
1999	645,000	1,258,752	29,000	107,028	68,042	2,107,821	24	31	17	7	23	28
2000	539,000	292,035	32,800	133,589	26,153	1,023,577	20	10	19	15	13	11
2001	380,000	994,702	48,000	243,156	35,897	1,701,755	8	29	32	26	16	24
2002	1,279,000	364,867	28,400	314,180	17,744	2,004,191	30	14	16	28	7	27
2003	1,024,000	1,018,901	43,600	171,932	75,960	2,334,393	29	30	28	19	25	31
2004	681,000	696,270	33,100	131,881	57,729	1,599,980	25	21	21	12	21	22
2005	522,000	1,348,144	28,100	211,287	33,198	2,142,729	19	32	15	23	15	29
2006	637,000	135,913	43,600	125,945	60,478	1,002,936	23	2	28	10	22	10
2007	351,000	896,058	39,600	174,940	12,911	1,474,509	6	26	25	20	4	19
2008	333,000	51,341	30,200	132,418	3,751	550,710	4	1	18	14	1	1
2009	425,000	809,704	39,200	354,879	21,781	1,650,564	13	23	24	31	9	23
2010	392,000	184,697	27,400	179,914	9,143	793,154	9	7	14	21	3	5
2011	458,000	173,951	18,400	122,816	7,030	780,196	16	4	6	9	2	4
2012	419,000	270,319	15,800	153,338	16,485	874,942	12	9	3	16	6	6
2013	437,000	975,543	16,400	443,322	15,272	1,887,537	14	28	4	32	5	26
2014	487,000	399,270	22,700	291,953	21,529	1,222,452	17	15	12	27	8	13
2015	753,000	421,726	33,000	91,646	53,754	1,353,125	27	17	20	6	19	17
2016	362,000	348,942	17,700	225,765	23,879	978,286	7	13	5	24	11	9
2017	341,000	925,835	11,100	240,037	23,312	1,541,285	5	27	2	25	10	21
2018	294,000	255,834	10,641	89,620	47,064	697,160	2	8	1	5	18	2
2019	326,000	174,641	20,300	162,734	24,558	708,233	3	5	8	18	12	3
2020	265,000	743,787	21,100	107,332	102,247	1,239,467	1	22	10	8	28	14
2021	413,000	566,787	19,400	188,836	119,777	1,307,800	11	20	7	22	30	16
2022	520,000	502,000	23,000	345,000	99,000	1,489,000	18	19	13	29	27	20
2023	405,000	319,000	21,000	132,000	74,000	951,000	10	11	9	13	24	8

MEANS:							COLOR CODING:			
92-22	600,000	324,000	30,000	181,000	55,000	1,416,000	BEST RETURN:	32	Good	21-32
* Color coding from mean averages from 1992-2022: Green - above average; Tan - below average but higher than 1 SD; and Red - below average and lower than 1 SD.							WORST:	1	Average	11-20
									Poor	1-10

The next Nass River general stock assessment update from the Nisga'a Fisheries and Wildlife Department is planned for: **Friday, 28 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=n51s6ggu0yze0vrphue8dk4ap>

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 salmon and non-salmon caught at fishwheels between July 15 and July 22 prior to release – salmon are tagged in water filled trough with pumped water from river during handling:

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



Photo 1. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 20 and 21 July 2023.



Photo 2. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels, 22 July 2023.



Photo 3. Chinook Salmon caught, operculum and PIT tagged at Gitwinksihlkw fishwheels, 11 July 2023.



Photo 4. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 18 July 2023.



Photo 5. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 18 July 2023.



Photo 6. Chinook Salmon caught, operculum and PIT tagged at Grease Harbour fishwheels, 18 July 2023.



Photo 7. Coho Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 21 July 2023.



Photo 8. Pink Salmon caught and anchor tagged at the Gitwinksihlkw fishwheels, 21 July 2023.



Photo 9. Chum Salmon caught and operculum tagged at the Gitwinksihlkw fishwheels, 19 July 2023.



Photo 10. Chum Salmon caught and operculum tagged at the Gitwinksihlkw fishwheels, 20 July 2023.



Photo 11. Steelhead caught and fin marked at Grease Harbour, 17 July 2023.



Photo 12. Steelhead caught and fin marked at Grease Harbour fishwheels, 21 July 2023.



Photo 13. Dolly Varden caught and anchor tagged at Gitwinksihlkw fishwheels, July 17, 2023.

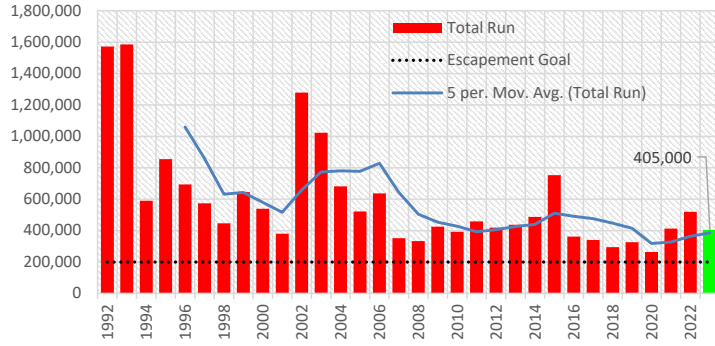


Photo 14. Dolly Varden caught and anchor tagged at Gitwinksihlkw fishwheels, July 20, 2023.

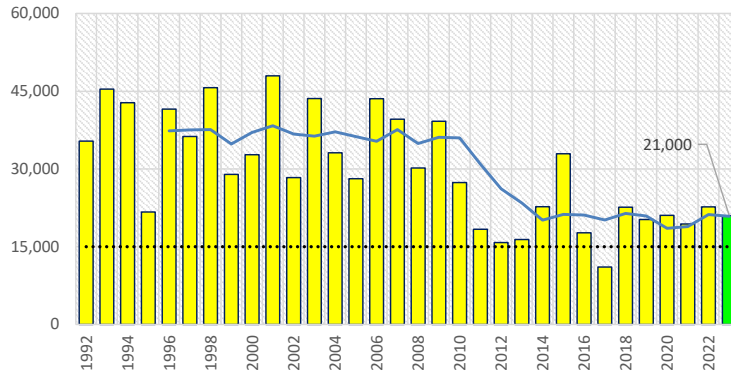


Photo 15. Pacific Lamprey caught and spaghetti tagged at Grease Harbour fishwheels, 20 July 2023.

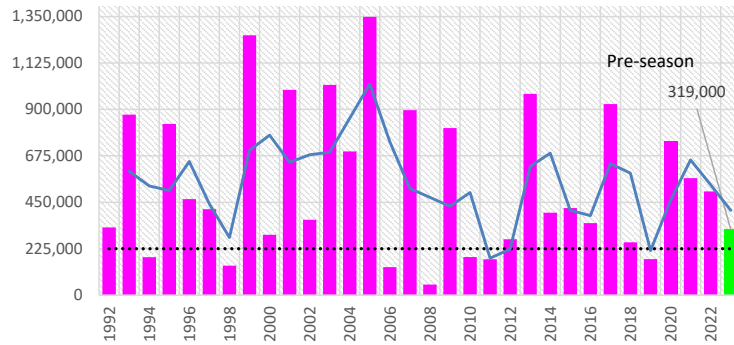
Nass Sockeye - TRTC



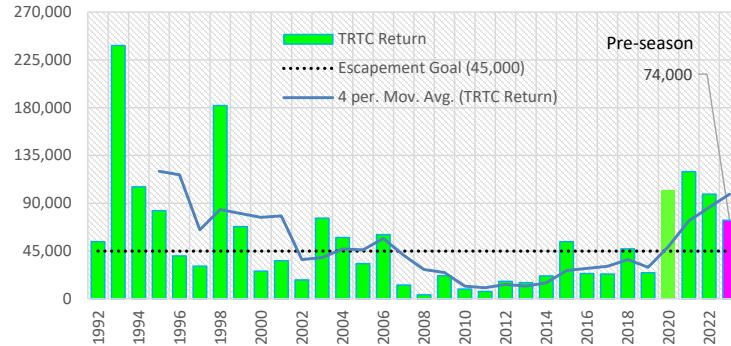
Nass Chinook - TRTC



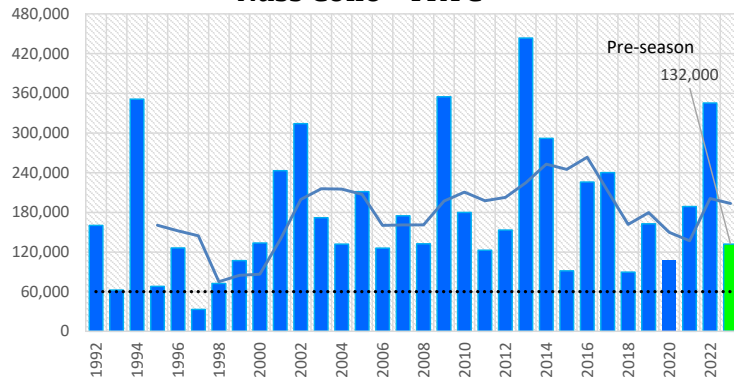
Nass Pink - TRTC



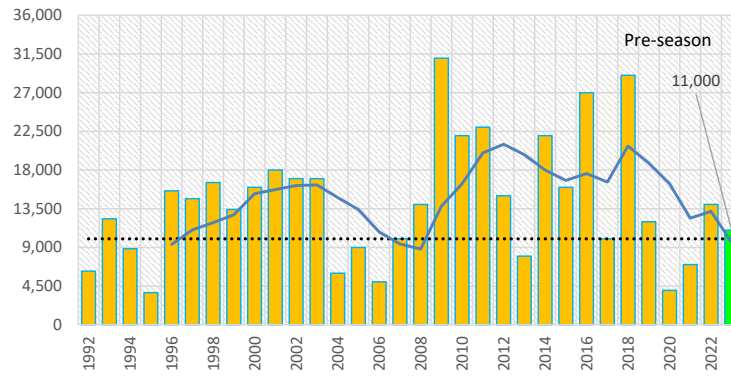
Nass Chum - TRTC



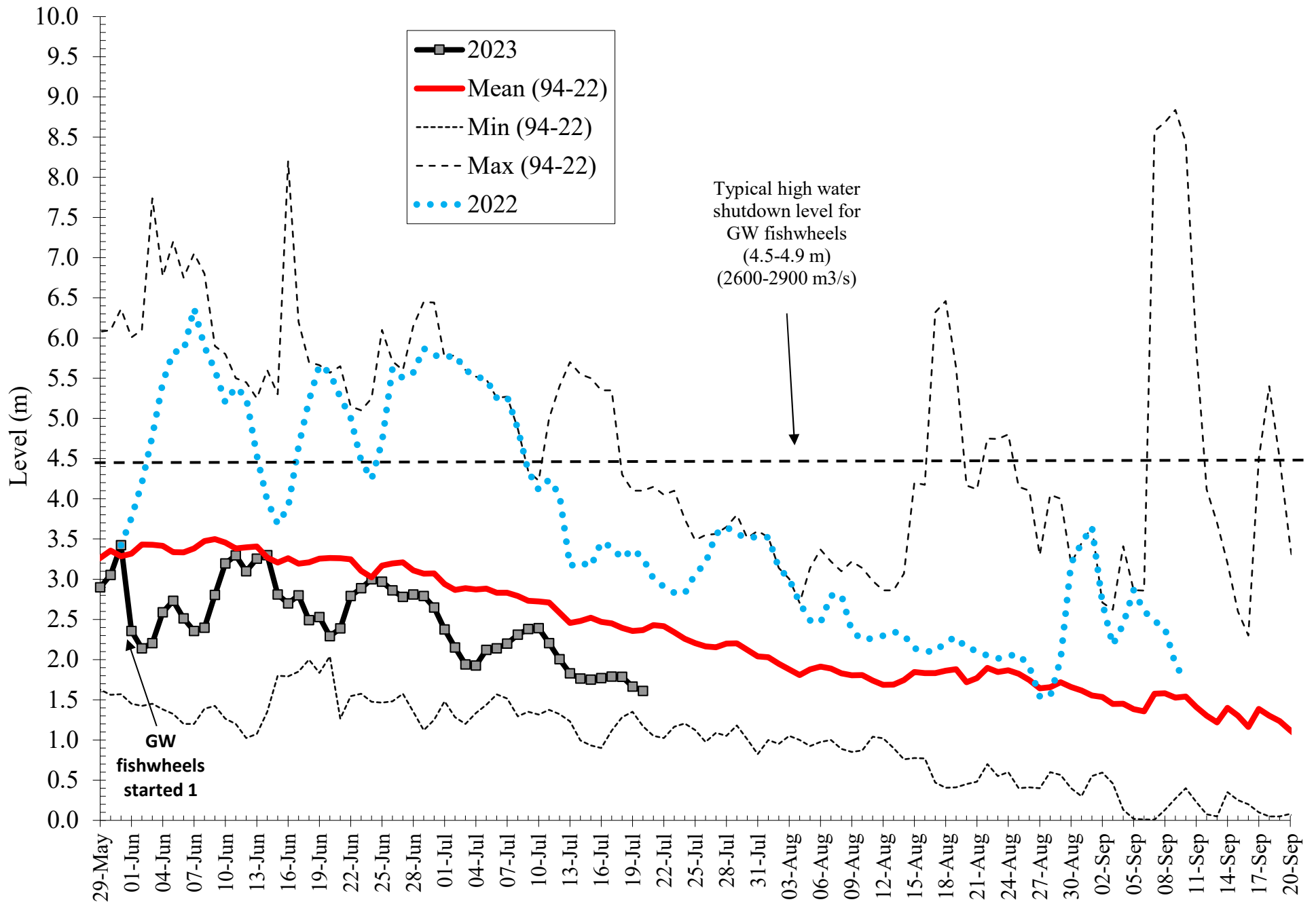
Nass Coho - TRTC

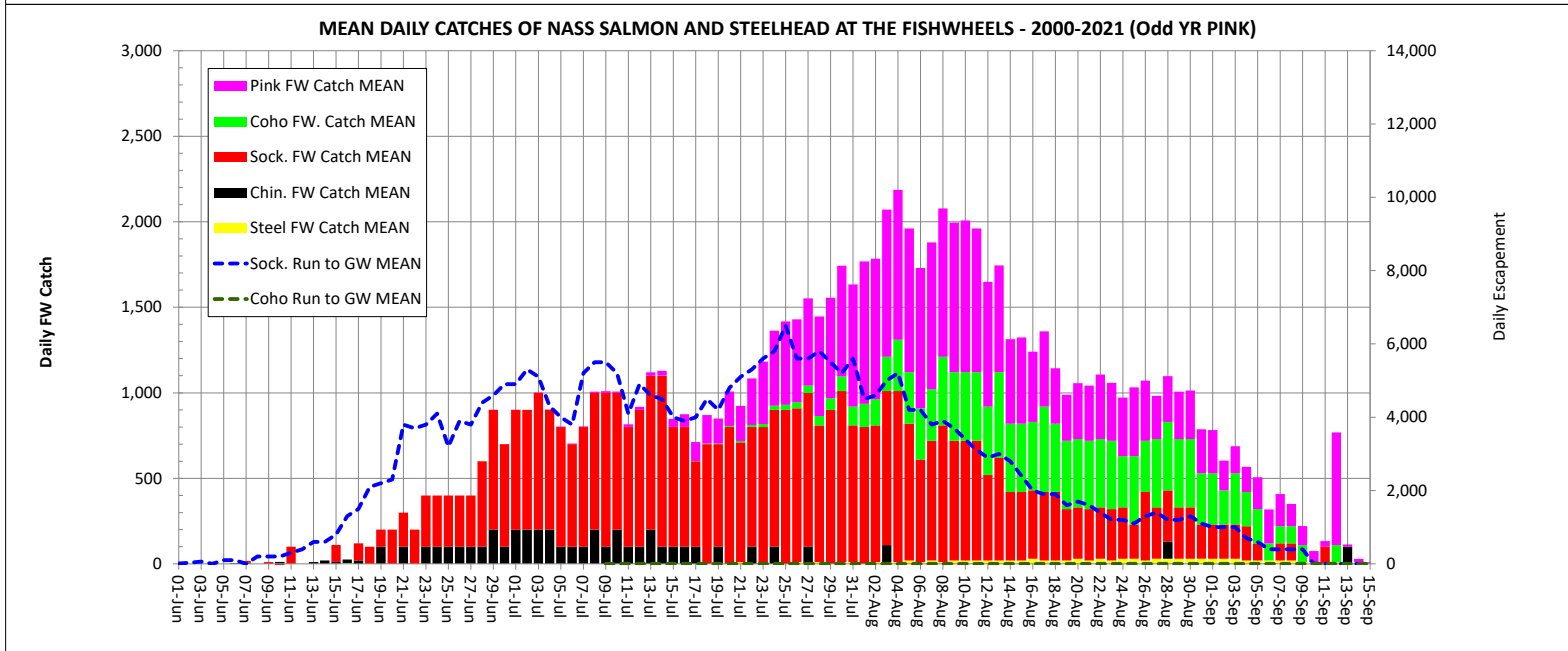
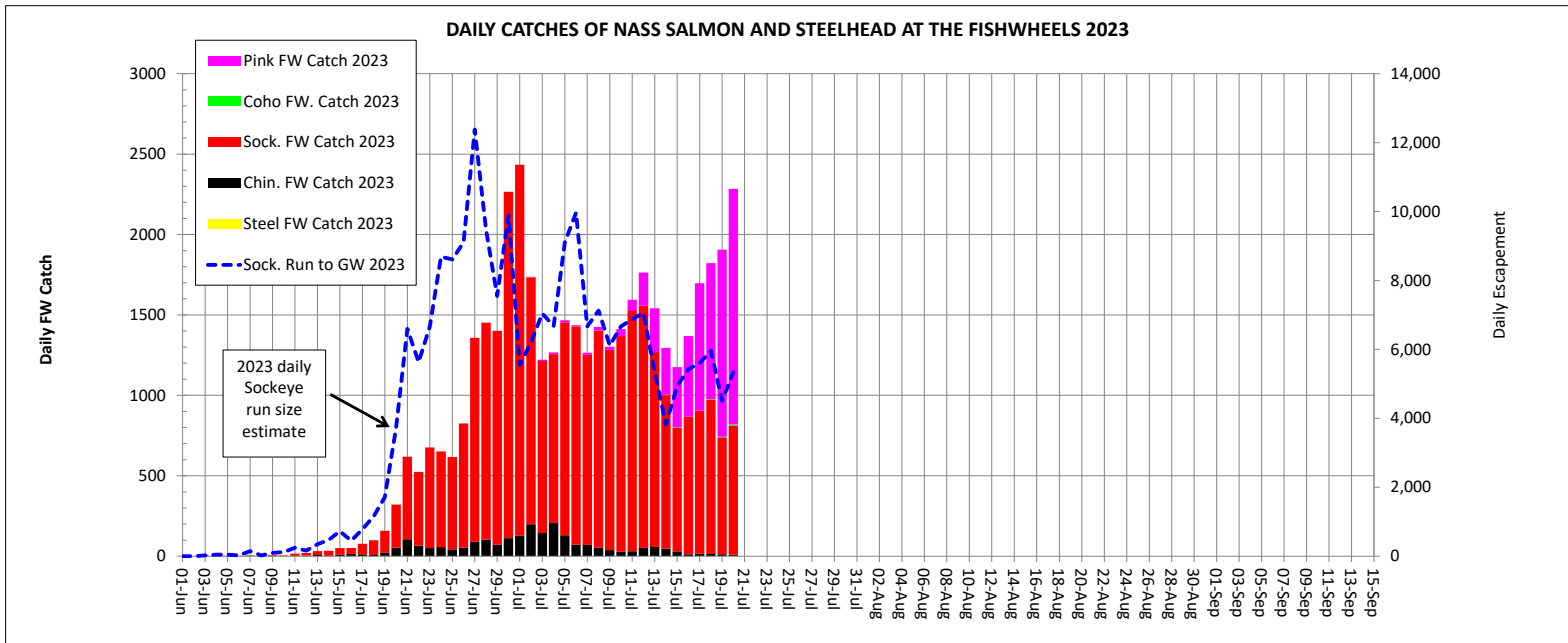


Nass Steelhead - TRTC

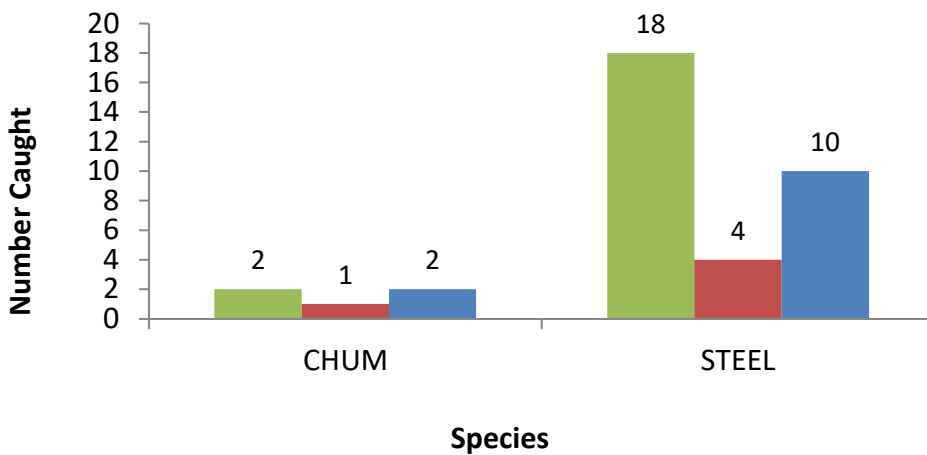
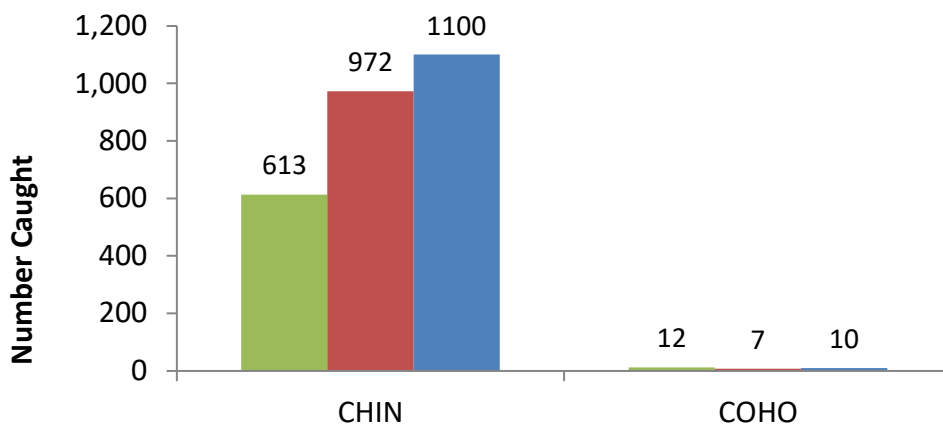
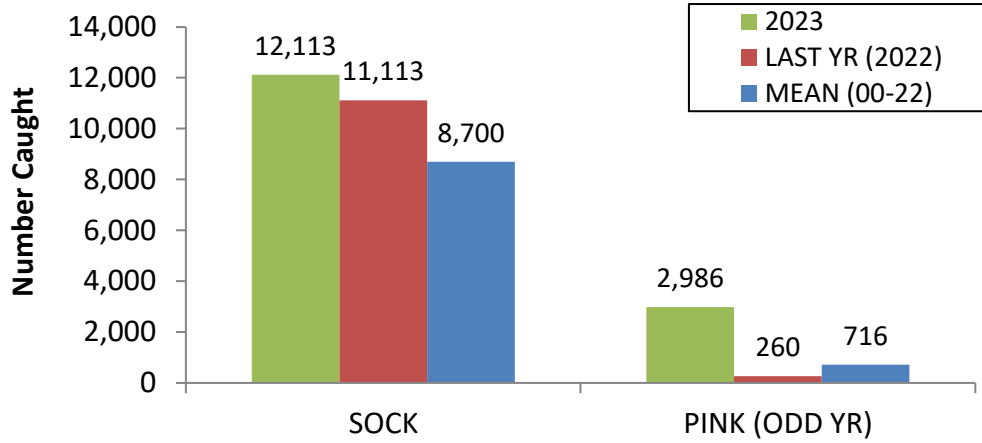


Daily Water Level at Gitwinksihlkw Fishwheels 2023

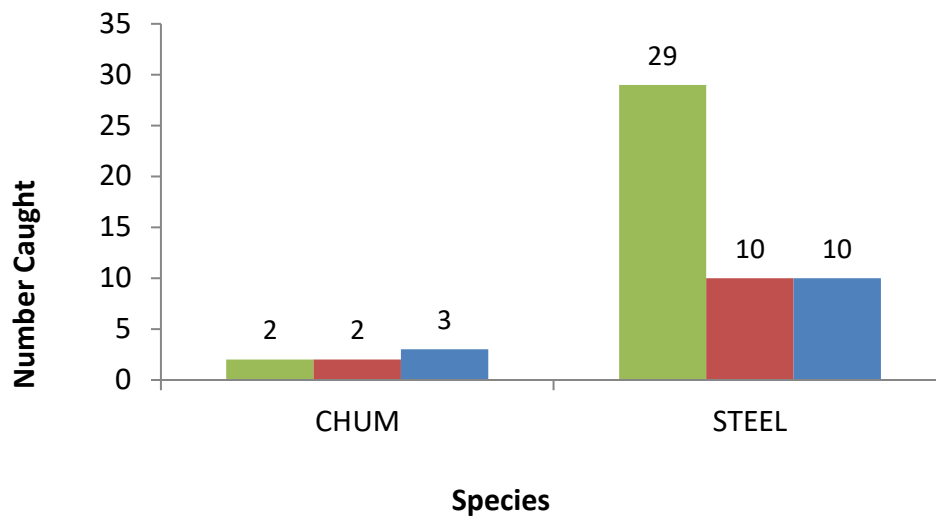
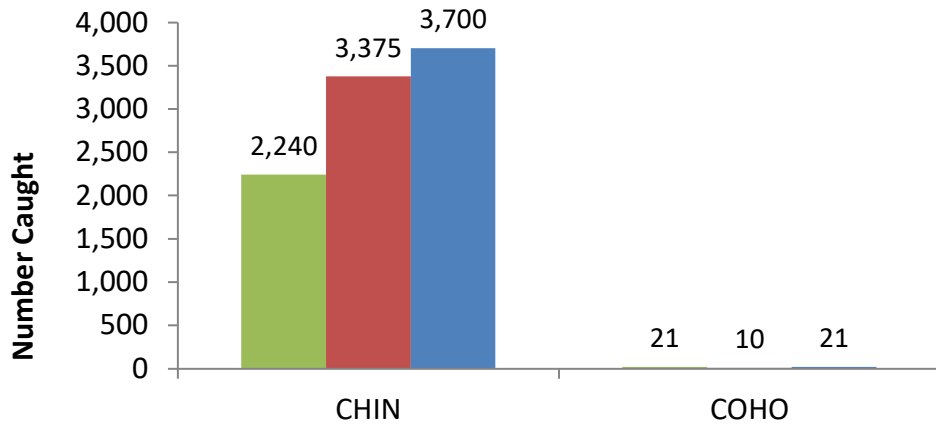
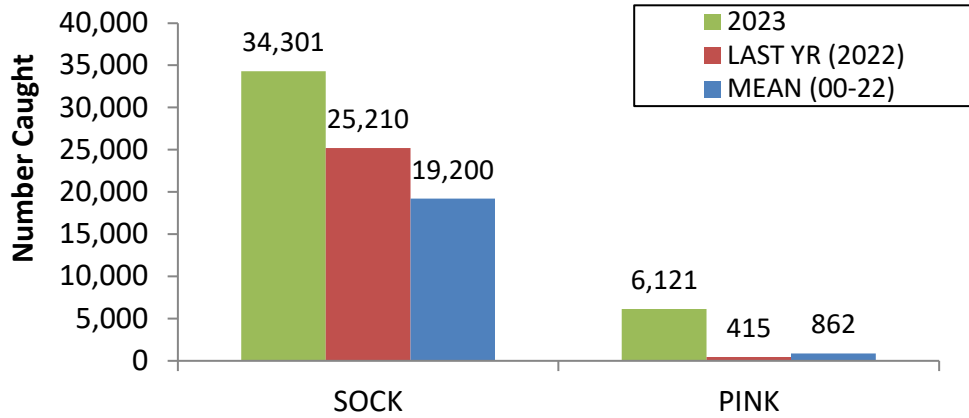




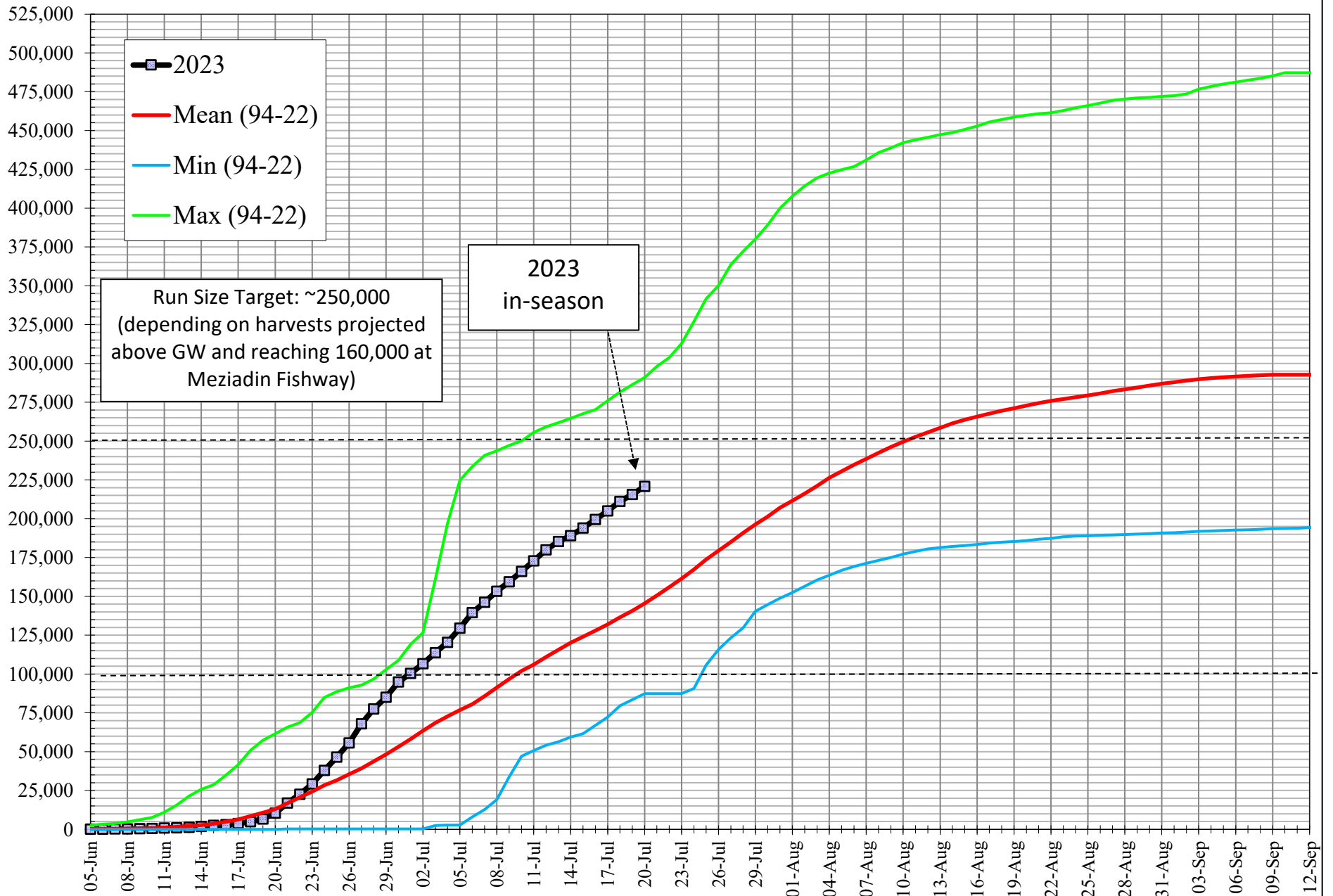
Nass Fishwheel Catches 2023 - GW only (June 1 - July 20)



Nass Fishwheel Catches 2023 - All (June 1 - July 20)



Nass Sockeye Cum. Run Size to Gitwinksilhkw Fishwheels 2023 versus 94-22 Mean, Min, Max returns (before upriver harvests)



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

