



Nisga'a Lisims Government

NISGA'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 V0J 1A0

NISGAANATION.CA

2020 NASS RIVER SALMON STOCK ASSESSMENT UPDATE – THURSDAY, 25 JUNE

The following is the first general weekly public update for 2020 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 2020

1. Fishwheel Assessment data: 31 May to 24 June. Data summary below.
2. Meziadin Fishway data: Counts to begin on 1 July.
3. Kwinageese Weir data: Video-weir operations to begin early to mid-July depending on water levels.

GITWINKSIHLKW (GW) FISHWHEELS - NASS RIVER TEST FISHERY – STARTED IN 1994 [27th year]:

The Nass River test fishery fishwheels began operation on 31 May 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.

Fishwheels 1 and 2 are currently operating 0.4 m higher than average water levels (3.3 m vs. 2.9 m) based on 1994–2019 operations. The Nass River water temperature is currently 1.6°C cooler than average (7.5°C vs. 9.1°C) based on 1994–2019 operations. A high-water event occurred from June 20 to June 22 that shutdown the fishwheels for three days. The estimated discharge of the Nass River reached 3,500 m³/s (water gauge height reached 5.5 m) and few fish are anticipated to have passed the fishwheels through the GW canyon under these water levels. Fishwheels resumed operation at approximately 2,200 m³/s (water gauge height approximately 3.6 m). A chart of the water levels at the test fishery follows the text summary that compares current levels to historical levels.

GREASE HARBOUR (GH) FISHWHEELS:

Start-up dates of the upper fishwheels were on 6 June (FW3, FW5, and FW6) for the current operation of three fishwheels 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. No harvesting from the fishwheels has been permitted to date. The total Nass fishwheel catches this year are well below average for Sockeye and Chinook salmon, steelhead, and Pacific Lamprey.

Total fishwheel catches of salmon, steelhead, and Pacific Lamprey to date are shown below including tagging results and jacks caught.

FISHWHEEL CATCH SUMMARIES	SOCK	CHIN	COHO	STEEL	PINK-EVE	CHUM	LAMP
FISHWHEEL TOTAL CATCH OF ADULTS	42	58	0	2	0	0	6
HISTORICAL AVG CUM CATCH (00-19) TO DATE	1,900	600	0	10	0	0	40
HISTORICAL AVG CUM TOTAL CATCH (00-19)	42,000	4,000	14,000	1,000	12,000	130	700
AVERAGE DAILY CATCH (5 D) OF ADULTS - GW	1	0	0	0	0	0	0
AVERAGE DAILY CATCH (5 D) OF ADULTS - GH	0	0	0	0	0	0	0
FISHWHEEL TOTAL TAGGED (OR ADIPOSE FIN MARKED)	30	53	0	0	0	0	4
FISHWHEEL TOTAL JACKS	5	17	0	NA	NA	NA	NA
HISTORICAL MEAN JACKS (00-19) TO DATE	28	34	0	NA	NA	NA	NA

Other adult species and juvenile salmon catches at the fishwheels to date include: 44 Rainbow Trout, 10 Whitefish, 5 Cutthroat Trout, 4 Sculpin, 2 Suckers, 2 Peamouth Chub , 91 salmon smolts (58 Coho, 31 Chinook, 2 Sockeye), and 1 baby duck.

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 and are currently based on historical catch index methods. The current run sizes for 2020 are well below average for Nass Sockeye and Chinook salmon when compared to means to date from 1994 to 2019. Summer-run steelhead estimates begin on 1 July and the run size target is based on a minimum return goal as steelhead will continue to enter the Nass River after the fishwheels shutdown in mid-September.

	SOCK	CHIN	COHO	STEEL
IN-SEASON RUN SIZE ESTIMATE TO DATE	753	861		-
<i>HISTORICAL MEAN RUN SIZE TO GW FOR DATE (94-19)</i>	31,000	6,200	-	-
RUN SIZE TARGET 2020 (MIN. FOR STEELHEAD)	230,000	15,000	65,000	4,200

In-season preliminary forecast projections 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 current run size projection for Nass Sockeye is ranging between 189,000 and 254,000 to reach the run size goal (~230,000 for 2020) based on the in-season to final method with a point estimate of 222,000 based on mean-run timing (10%; range: 2–23%) of the run entered to date. The current run size projection for Nass Chinook is ranging between 10,000 and 20,000 to reach the run size goal (15,000) based on in-season to final method with a point estimate of 15,000 based on mean-run timing (35%; range: 10–70%) of the run entered to date.

IN-SEASON FORECASTS TO GW - METHODS:	SOCK	CHIN	COHO	STEEL	24-Jun-20
1. RUN TIMING METHOD (94-19) - Mean Run timing	Too Early	Too Early	Too Early	Too Early	
Lower (-2 S.D.)	Too Early	Too Early	Too Early	Too Early	
Upper (+2 S.D.)	Too Early	Too Early	Too Early	Too Early	In-season/Final
2. IN-SEASON TO FINAL (regression):	222,000	15,000	Too Early	Too Early	r ² (CH) = 0.26
95% CI - lower	189,000	10,000	Too Early	Too Early	r ² (SO) = 0.51
95% CI - upper	254,000	20,000	Too Early	Too Early	r ² (CO) =
<i>GW RUN SIZE TARGET (DEPENDING ON HARVESTS ABOVE GW)</i>	230,000	15,000	65,000	4,200	r ² (ST) =
Run Timing % Return Estimate to GW fishwheels	10%	35%	0%	0%	

Net Escapement Estimates for adult Nass salmon to date are shown below and relative to the Upper Nass net aggregate escapement goals.

IN-SEASON NET ESCAPEMENT ESTIMATES	SOCK	CHIN	COHO	STEEL
HARVEST ESTIMATES ABOVE GW TO DATE	17	261	-	-
NET ESCAPEMENT (ABOVE GW):	736	600	-	-
<i>NET ESCAPEMENT TARGET (UPPER RIVER ONLY)</i>	<i>200,000</i>	<i>13,000</i>	<i>60,000</i>	<i>4,000</i>

HARVEST ESTIMATES FOR ADULT NASS SALMON & STEELHEAD

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

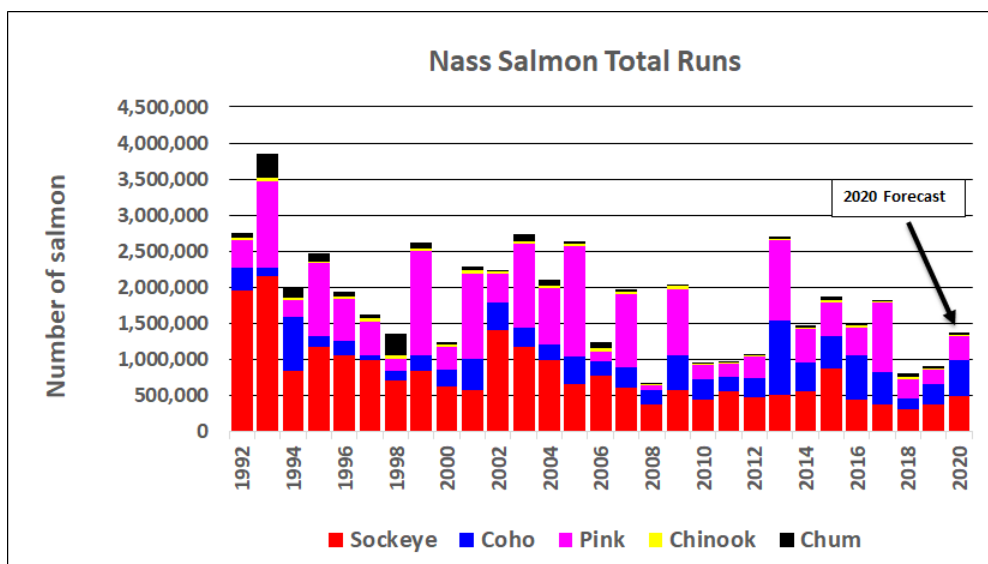
Alaskan Southeast fisheries started on 21 June 2020 for gillnet fisheries in District 101 (Tree Point) and District 106 (Sumner and Upper Clarence) and seine fisheries in District 102 (Middle Clarence). District 101 (Lower Clarence/Revilla), District 103 (Cordova), and District 104 (Noyes/Dall) seine fisheries have not opened to date. The table below shows preliminary catch estimates of salmon in Alaskan net fisheries in Districts 101–106 (and mean catch comparisons from 2000 to 2019) based on data from ADFG. Only District 102 seine has reported two days of fishing so far. The average total mean harvest of Nass salmon in Alaskan net fisheries from 2000 to 2019 is 112,000 Sockeye (range: 22,000–300,000), 64,000 Pink (range: 4,000–192,000), 147,000 Coho (range: 59,000–530,000), and 6,000 Chum (<1,000–24,000). Harvest data will be updated each week when available from ADFG’s website.

IN-SEASON SE ALASKAN CUM. SALMON CATCH ESTIMATES (ADFG WEBSITE) - 2020									WEEK END:		27-Jun-20
DISTRICTS	AREA	SOCK CATCH	AVG (00-19)	CHIN CATCH	AVG (00-19)	PINK CATCH	AVG EVE (00-18)	CHUM CATCH	AVG (00-19)	COHO CATCH	AVG (00-19)
DIST 101 GN	TREE PT	0	14,000	0	700	0	1,700	0	21,000	0	900
DIST 106 GN	UPP. CLAR	0	12,000	0	600	0	1,000	0	11,000	0	6,000
DIST 101 SN	LOW CLAR	0	0	0	0	0	0	0	0	0	0
DIST 102 SN	MID CLAR.	100	1,000	0	200	4,300	1,800	7,000	44,000	300	2,000
DIST 103 SN	CORDOVA	0	0	0	0	0	0	0	0	0	0
DIST 104 SN	NOYES/DALL	0	0	0	0	0	0	0	0	0	0
CUMULATIVE TOTAL		100	27,000	0	2,000	4,000	5,000	7,000	76,000	300	9,000

Green - opened; Red - closed.

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

Due to very low Nass salmon run sizes to date, Area 3 commercial net fisheries have not opened. DFO to make a public announcement on Friday, June 26. The pre-season forecast for 2020 predicted better returns than the past two years.



NISGA'A DOMESTIC AND SALE FISHERIES:

Nisga'a domestic and sale fisheries are monitored by the Nisga'a Fisheries and Wildlife Department and began on 19 May 2020. Cumulative harvests to week ending **20 JUNE** are shown in the table below for Food, Social, and Ceremonial (FSC) catches. Due to low Nass salmon run size to date no sale fisheries have been considered. For the same week ending period, mean cumulative harvests from 2000 to 2019 are shown for comparison. The current total harvests estimated in 2020 to date are below average for all Nass salmon and steelhead (see table below).

Reported Week Ending Period		DOMESTIC (FSC) HARVESTS TO WK END - 2020		TOTAL HARVESTS TO DATE INCLUDING SALE FISHERIES AND ESTIMATED RELEASE MORTALITIES 2020	
CHINOOK	20-Jun-20	1,531	2,200	1,534	2,200
SOCKEYE	20-Jun-20	460	4,400	461	10,700
PINK	20-Jun-20	0	15	0	17
COHO	20-Jun-20	0	1	0	1
CHUM	20-Jun-20	0	32	0	32
STEELHEAD	20-Jun-20	22	57	32	57
TOTAL		2,000	6,700	2,000	13,000
* Mean harvests from 2000-2019 for week end periods. Total harvests include all gear types estimates (net, angling, seine, etc.) and release mortality (60% of releases).					

Nisga'a Sale fishery information for 2020:

- No sale fisheries have been permitted to date with Food, Social and Ceremonial fisheries, the highest priority.

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

NISGA'A TOTAL HARVEST SUMMARY	SOCK	CHIN	COHO	PINK-EVE	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: 20 JUNE	461	1,534	0	0	0	32
SUB TOTAL (NLG TREATY FISHERIES)	461	1,534	0	0	0	32
NLG SOCK DEMONSTRATION FISHERY HARVEST - DFO INVENTORY	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
GRAND TOTAL	461	1,534	0	0	0	32

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

Pre-season TRTC and Nisga'a entitlement forecasts:

Based on the preliminary Nass salmon return and age information from 2019, preliminary forecasts for Nass salmon and Nisga'a entitlement allocations for 2020 were calculated using pre-season forecast models. The pre-season forecasts were used for general planning purposes until in-season forecasts were available. Forecast models used were a combination of sibling (Sockeye and Chinook only) and brood year mean returns that project 25%, 50%, and 75% probability point estimates.

Pre-season TRTC forecasts (50% probability estimates) for 2020 predicted a below average return forecasts for Nass Sockeye (386,000 vs. 550,000), Nass Chinook (23,000 vs. 30,000), Nass Pink (291,000 vs. 540,000); and Nass Chum (29,000 vs. 42,000; below the 45,000 escapement goal), and above average return forecast for Nass Coho (290,000 vs. 194,000) based on mean TRTC estimates from 1994 to 2019. When reviewing Nass salmon returns over a 36-year period (1985–2019), the forecasted returns in 2020 were projected to be poor for Sockeye (8th worst), Chinook (9th worst), Pink (10th worst), and Chum (14th worst); and good for Coho (5th best).

PRE-SEASON TRTC & ENTITLEMENT FORECASTS	SOCK	CHIN	COHO	PINK-EVE	CHUM
HISTORICAL MEAN TRTC (1994-2019)	548,000	30,000	194,000	540,000	42,000
PRE-SEASON TRTC FORECAST (50% PROBABILITY)	386,000	23,000	290,000	291,000	29,000
PRE-SEASON NISGA'A ENTITLEMENT	59,000	4,800	19,200	11,000	500
CUM UNDERAGE (+)/OVERAGE (-) AVAILABLE OR OWED: 2000-19	-1,828	rebuild	2,067	-2,886	< esc. goal
TOTAL PRE-SEASON NISGA'A CATCH POTENTIAL	57,000	4,800	21,000	8,000	500

Total Return to Canada estimates for Nass Salmon							Ranking - Poorest return from 1 to 29					
Year	Sockeye	Pink	Chinook	Coho	Chum	Total	Sockeye	Pink	Chinook	Coho	Chum	Total
1992	1,572,000	328,000	35,000	160,000	54,000	2,149,000	28	12	19	13	21	27
1993	1,586,000	874,000	45,000	62,000	239,000	2,806,000	29	22	27	2	29	29
1994	590,000	184,000	43,000	351,000	105,000	1,273,000	19	6	24	27	27	14
1995	855,000	829,000	22,000	68,000	83,000	1,857,000	25	21	7	3	26	22
1996	694,000	465,000	42,000	126,000	40,000	1,367,000	23	18	23	8	18	15
1997	574,000	416,000	36,000	33,000	31,000	1,090,000	18	16	20	1	15	12
1998	446,000	143,000	46,000	72,000	182,000	889,000	13	3	28	4	28	7
1999	645,000	1,259,000	29,000	107,000	68,000	2,108,000	21	28	14	6	24	25
2000	539,000	292,000	33,000	134,000	26,000	1,024,000	17	11	16	10	12	10
2001	380,000	995,000	48,000	247,000	36,000	1,706,000	7	26	29	21	17	21
2002	1,279,000	365,000	28,000	319,000	18,000	2,009,000	27	14	12	26	7	24
2003	1,024,000	1,019,000	44,000	176,000	76,000	2,339,000	26	27	25	16	25	28
2004	681,000	696,000	33,000	136,000	58,000	1,604,000	22	19	16	11	22	19
2005	522,000	1,348,000	28,000	216,000	33,000	2,147,000	16	29	12	20	16	26
2006	637,000	136,000	44,000	130,000	60,000	1,007,000	20	2	25	9	23	8
2007	351,000	896,000	40,000	179,000	13,000	1,479,000	5	23	22	17	4	17
2008	333,000	51,000	30,000	139,000	4,000	557,000	3	1	15	12	1	1
2009	425,000	810,000	39,000	362,000	22,000	1,658,000	11	20	21	28	8	20
2010	392,000	185,000	27,000	184,000	9,000	797,000	9	7	11	19	3	5
2011	458,000	174,000	18,000	121,000	7,000	778,000	14	4	4	7	2	4
2012	419,000	270,000	16,000	161,000	16,000	882,000	10	9	2	14	6	6
2013	437,000	976,000	16,000	511,000	15,000	1,955,000	12	25	2	29	5	23
2014	487,000	399,000	23,000	267,000	22,000	1,198,000	15	15	9	22	8	13
2015	753,000	422,000	33,000	181,000	48,000	1,437,000	24	17	16	18	19	16
2016	362,000	349,000	18,000	277,000	24,000	1,030,000	6	13	4	23	10	11
2017	341,000	926,000	11,000	288,000	24,000	1,590,000	4	24	1	24	10	18
2018	294,000	256,000	22,000	89,000	50,000	711,000	1	8	7	5	20	2
2019	326,000	175,000	20,000	175,000	26,000	722,000	2	5	6	15	12	3
2020	386,000	291,000	23,000	290,000	29,000	1,019,000	8	10	9	25	14	9

* Color coding from mean averages from 1992-2019: Green - above average; Yellow - below average but higher than 1 SD; and Red - below average and lower than 1 SD.

Average:	94-19	548,000	540,000	30,000	194,000	42,000	1,354,000
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In-season Total Return to Canada (TRTC) and Nisga'a entitlement estimates for Nass salmon:

Preliminary in-season TRTC estimates estimated by NFWD for Nass Sockeye (248,000; range: 211,000–283,000) and Chinook (21,000; range: 15,000–27,000) salmon are based on early run size ranges estimated from in-season to final regression methods and run timing status of returns to Area 3 to date for Nass Sockeye (10%) and Chinook (22%) salmon. The current return estimates suggest pre-season forecasts are tracking lower for Nass Sockeye and Chinook; but the recent high-water event slowed migration.

Based on the current in-season TRTC returns, the preliminary in-season Nisga'a entitlement ranges for Nass Sockeye is between 22,000 and 37,000+ with a current harvest estimate of 461 to date, and for Nass Chinook, between 3,200 and 5,700+, with a current harvest of 1,534.

IN-SEASON TRTC & ENTITLEMENT ESTIMATES	SOCK	CHIN	COHO	PINK-EVE	CHUM
PROJECTED TRTC BASED ON INSEASON TO FINAL REGRESSION	248,000	21,000	Pre-season	Pre-season	Pre-season
ESTIMATED %TRTC TO DATE: MEAN. RUN TIMING	10%	22%	0%	0%	0%
Lower (95% CI)	211,000	15,000	Pre-season	Pre-season	Pre-season
Upper (95% ci.)	283,000	27,000	Pre-season	Pre-season	Pre-season
IN-SEASON NISGA'A ENTITLEMENT TARGET	25,000	4,400	Pre-season	Pre-season	Pre-season
MINIMUM	22,000	3,200			
MAXIMUM	37,000	5,700			

The next Nass River general stock assessment update from the Nisga'a Fisheries and Wildlife Department is planned for: **Thursday, 2 July 2020.**

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

Weekly email updates are posted after each update to 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>

Daily and weekly run size information are also posted on Mondays, Wednesdays and Fridays to the following site:

- <ftp://ftp.lgl.com/Nass%20Stock%20Assessment%20Updates/>



Photo 1. Sockeye Salmon caught and spaghetti tagged at Gitwinksihlkw fishwheels on 12 June 2020.



Photo 2. Chinook Salmon caught and operculum tagged at Gitwinksihlkw fishwheels on 12 June 2020.



Photo 3. Chinook Salmon caught and operculum tagged at Gitwinksihlkw fishwheels on 13 & 15 June 2020.



Photo 4. Chinook Salmon caught and operculum tagged at Gitwinksihlkw fishwheels on 15 June 2020.



Photo 5. Chinook Salmon caught and operculum tagged at Gitwinksihlkw fishwheels on 18 June 2020.



Photo 6. Baby duck (Mallard) caught at GW fishwheels on 18 June 2020.

Photos courtesy of NFWD's senior crew leader, Ben Guno Jr, and fishwheels crews.



Photo 7. Fishwheels 1 & 2 at Gitwinksihlkw, 19 May 2020.



Photo 8. Fishwheel 2 at Gitwinksihlkw, 15 June 2020.



Photo 9. Fishwheel 2 at Gitwinksihlkw, 18 June 2020.



Photo 10. Fishwheel 1 at Gitwinksihlkw, 18 June 2020.



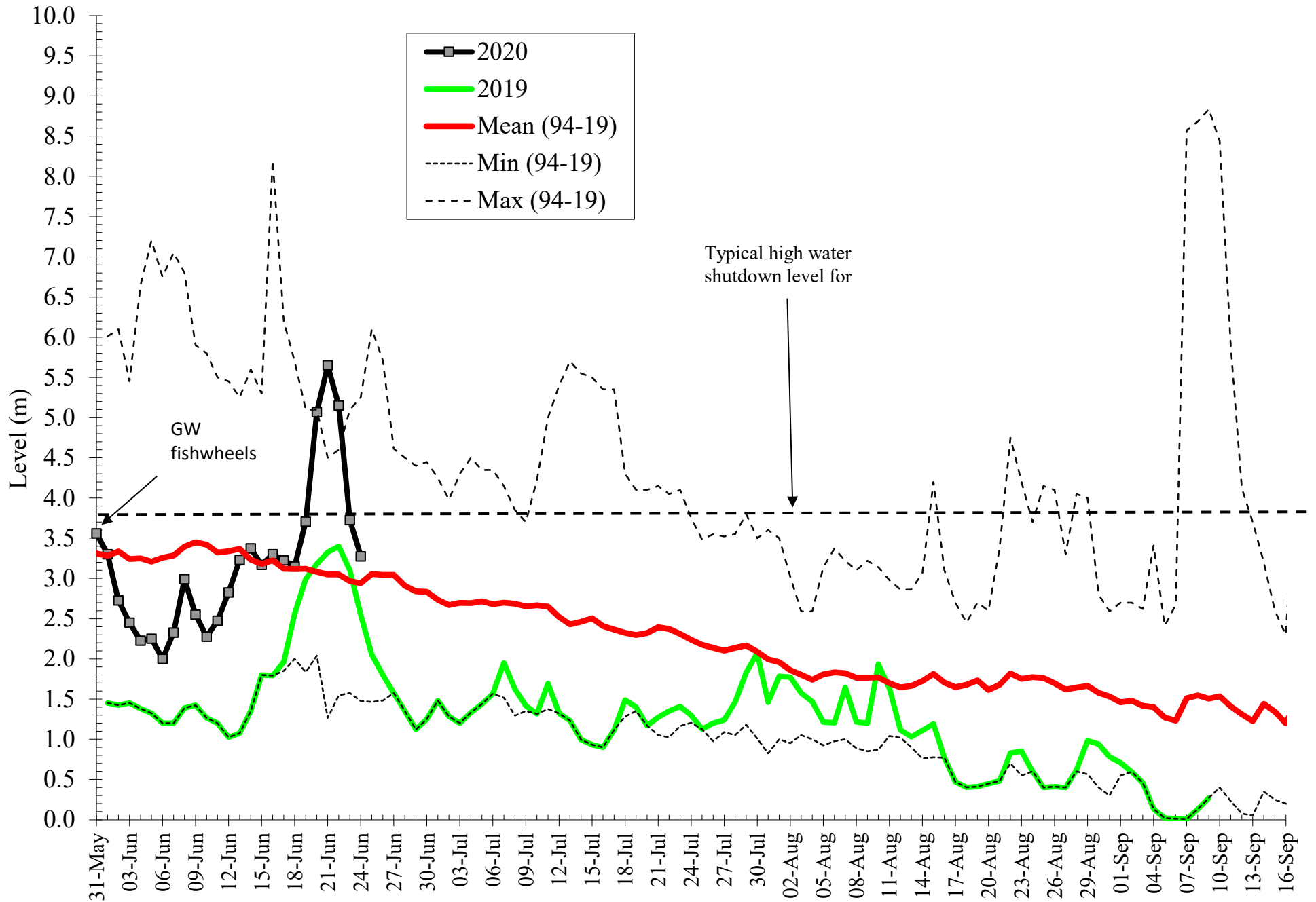
Photo 11. Gitwinksihlkw fishwheels shutdown on 22 June 2020 due to high water.



Photo 12. Fishwheel crew measuring large Chinook Salmon for input into morphometric model to predict sex, 18 June 2020.

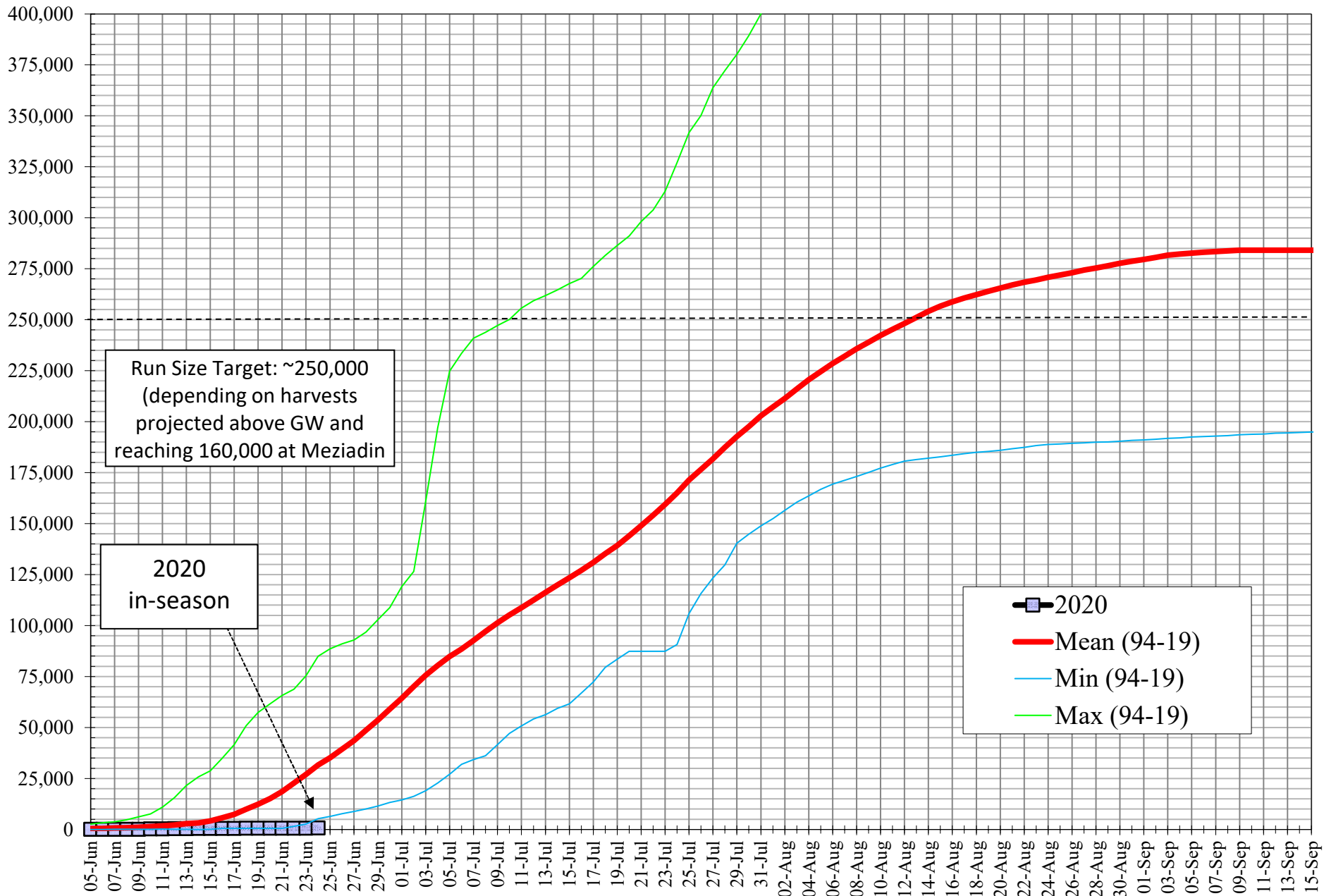
Photos courtesy of NFWD's senior crew leader, Ben Guno Jr, and fishwheels crews.

Daily Water Level at Gitwinksihlkw Fishwheels 2020



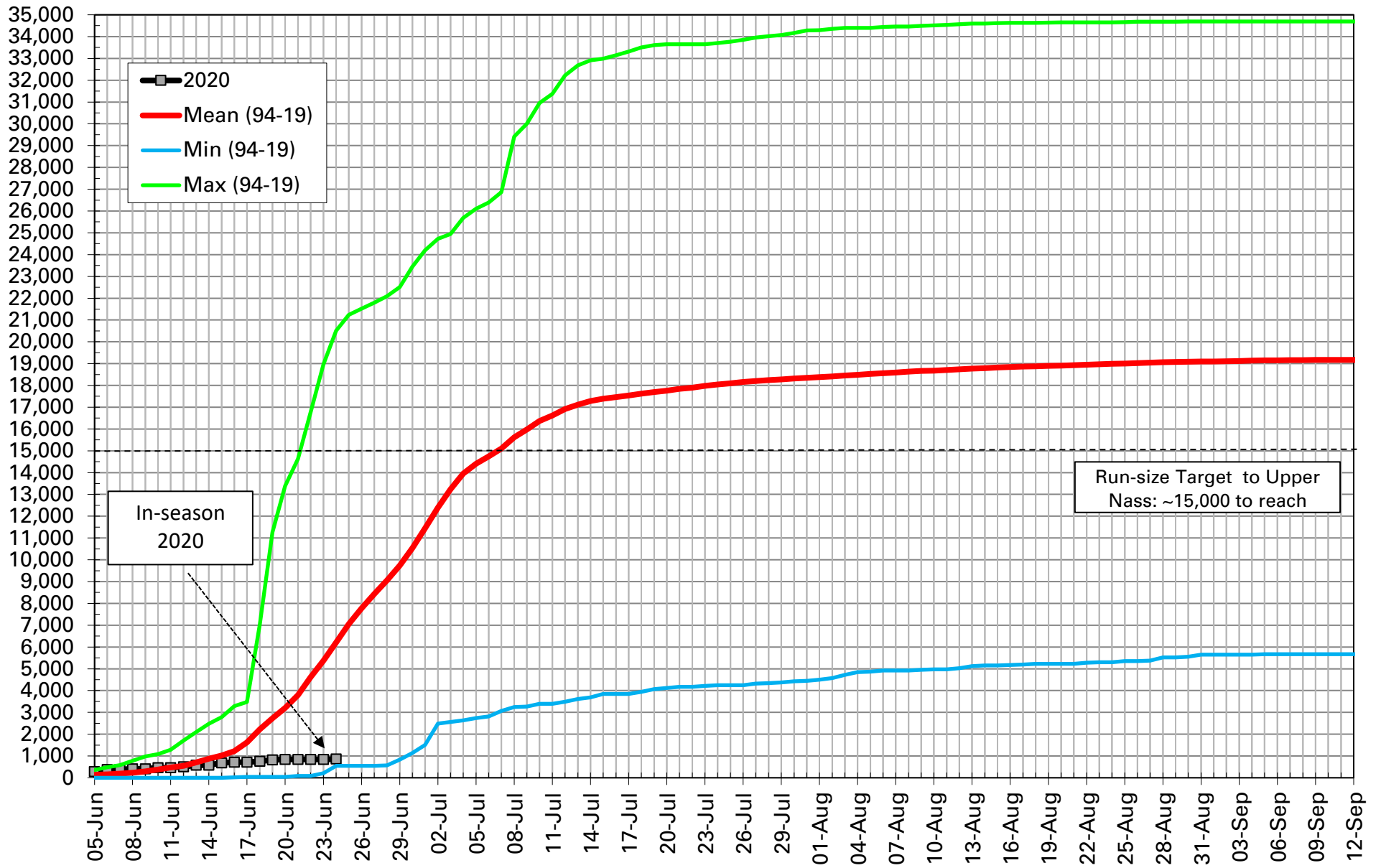
Cumulative Daily Run Sizes of Adult Nass River Sockeye Salmon (≥ 45 cm NFL) to Gitwinksihlkw Fishwheels, 2000-2020.																					IN-SEASON (FW-MR)			
Note: In-season cum. values with yellow shading are preliminary and will change as these fish pass the upper fishwheels to finalize mark-recapture data over a 5-d period.																					2020	Mean	2020	
Date	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Cum	(94-19)	Daily	
01-Jun													216			0	0	0	0		0	40	0	
02-Jun										175	119	0	809	0	0	0	0	0	0	0		0	100	0
03-Jun										175	119	0	1,173	93	275	0	0	0	0	36		32	200	32
04-Jun										175	158	0	1,609	278	687	0	127	14	34	72		32	300	0
05-Jun										175	238	0	2,646	432	824	283	190	58	34	107		32	400	0
06-Jun						40			207	175	360	25	3,245	494	1,510	534	318	101	67	143		66	500	34
07-Jun					121				326	175	401	75	3,682	572	2,060	1,069	445	173	67	197		98	700	32
08-Jun		864			229	52			533	175	441	275	4,754	788	3,444	1,699	604	216	135	286		98	800	0
09-Jun		1,326			229	234			741	175	645	524	6,136	1,070	5,060	1,983	732	245	135	483		131	1,100	32
10-Jun		1,505			229	468			1,127	175	645	699	7,027	1,523	7,644	2,141	987	245	232	662		260	1,400	129
11-Jun		1,521			174	364	469		1,542	175	849	1,024	7,398	2,071	10,921	2,487	1,210	245	264	822		325	1,700	65
12-Jun	111	1,814			1,059	836	469		1,928	175	1,134	1,322	7,413	3,136	15,583	3,811	1,784	245	296	1,180		389	2,200	65
13-Jun	111	2,577			1,783	1,196	469		2,314	175	1,294	1,620	7,413	4,137	21,491	5,102	2,263	245	361	1,412		455	2,800	66
14-Jun	111	2,756		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		477	3,200	22
15-Jun	111	3,032		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		477	4,200	0
16-Jun	553	3,877		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		499	5,700	22
17-Jun	2,517	4,832		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		521	7,400	22
18-Jun	4,342	6,216		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		586	9,900	66
19-Jun	7,799	6,687		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		643	12,400	57
20-Jun	11,781	7,033		39,866	24,670	13,426	2,818	659	13,792	17,748	9,109	12,107	13,711	13,684	61,573	40,714	5,161	2,431	4,302	11,352		643	15,100	0
21-Jun	17,506	7,075	29,917	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		643	18,600	0
22-Jun	24,476	7,075	53,842	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		643	22,800	0
23-Jun	32,662	7,075	75,318	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		643	27,000	0
24-Jun	42,231	7,741	84,932	63,106	24,670	31,011	18,170	7,209	30,400	53,871	28,552	24,229	17,866	32,181	73,868	75,066	13,807	5,303	5,750	26,176		753	31,600	110
25-Jun	55,229	10,934	88,616	70,810	24,670	33,641	20,639	10,058	36,366	65,154	33,615	26,911	17,866	34,456	75,537	82,174	16,858	6,401	7,692	28,449			35,200	
26-Jun	72,182	16,443	91,072	76,530	26,511	35,773	22,750	15,416	40,975	72,579	39,888	30,271	17,866	44,050	78,019	88,498	19,816	7,698	14,586	30,954			39,400	
27-Jun	79,898	22,058	91,072	80,990	29,568	38,720	24,384	22,065	45,804	79,358	45,962	35,037	17,888	51,420	87,281	92,872	23,117	8,782	25,913	33,053			43,600	
28-Jun	79,898	25,084	91,072	84,831	35,665	42,868	26,461	29,196	50,633	86,952	51,354	39,940	18,832	77,165	91,753	96,785	26,471	10,051	41,674	35,117			48,600	
29-Jun	79,898	26,779	98,717	86,967	41,467	48,063	31,347	36,770	54,242	91,203	55,440	43,995	31,382	91,289	94,676	102,875	31,119	11,449	47,758	36,392			53,600	
30-Jun	79,898	30,487	102,127	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			59,000	
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	14,430	56,874	43,247			64,400	
02-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			70,100	
03-Jul	112,961	37,197	146,994	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			75,700	
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	139,039	42,466	22,723	62,905	59,881			80,400	
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			84,800	
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			88,500	
07-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			92,700	
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			97,100	
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			101,300	
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			105,200	
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			108,700	
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			112,500	
13-Jul	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			116,200	
14-Jul	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			119,900	
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			123,400	
16-Jul	149,032	66,920	270,225	127,797	130,229	104,339	109,428	86,278	137,633	141,826	106,863	112,758	124,421	141,659	136,082	218,285	88,208	80,836	91,976	111,470			127,100	
17-Jul	150,546	72,272	276,077	130,616	133,526	108,093	112,389	86,278	142,705	144,324	107,740	117,770	126,835	147,866	141,276	221,173	92,180	85,383	94,792	115,570			131,000	
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			135,300	
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			139,300	
20-Jul	154,540	87,412	291,060	142,802	146,018	133,291	122,554	96,029	150,432	150,580	118,716	142,564	145,152	170,566	157,059	232,455	109,879	99,309	106,576	122,466			144,000	
21-Jul	155,565	87,412	298,146	146,769	149,068	138,063	127,308	98,444	154,															

Nass Sockeye Cum. Run Size to Gitwinksilkw Fishwheels 2020 versus 94-19 Mean, Min, Max returns (before upriver harvests)



Cumulative Daily Run Sizes of Adult Nass River Chinook Salmon (≥ 50 cm NFL) to Gitwinksihlkw Fishwheels, 2000-2020.																					IN-SEASON		
Date	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean (94-19)	2020 Daily
01-Jun-20											0	0	8	0	0	0	0	0	48	0	0	10	
02-Jun-20											0	0	24	0	0	0	0	0	144	40	48	20	48
03-Jun-20											0	0	24	17	97	0	46	0	240	100	144	50	96
04-Jun-20											122	0	24	50	97	0	68	25	288	181	192	90	48
05-Jun-20										0	244	0	47	67	161	59	91	50	288	361	288	140	96
06-Jun-20						14			23	0	488	0	71	67	290	88	114	151	288	442	384	160	96
07-Jun-20		23				72			69	0	548	21	71	84	483	133	228	201	336	582	384	190	0
08-Jun-20		168				72	47		115	0	731	106	95	134	772	177	319	226	336	783	414	230	30
09-Jun-20		306				72	141		138	0	914	212	102	167	901	177	410	251	336	984	414	300	0
10-Jun-20		345				72	157		208	0	975	212	126	301	1,030	177	547	251	336	1,084	462	380	48
11-Jun-20		352			16	101	157		600	0	1,219	212	134	318	1,287	251	707	251	384	1,144	462	470	0
12-Jun-20	32	559			49	174	157		669	0	1,280	276	142	318	1,706	487	912	251	529	1,184	510	550	48
13-Jun-20	32	1,248			98	405	157		669	0	1,524	467	142	351	2,092	811	1,322	301	577	1,204	584	710	74
14-Jun-20	32	1,409		31	147	506	157		715	0	1,645	616	142	485	2,478	1,976	1,527	352	769	1,224	584	870	0
15-Jun-20	32	1,471		279	245	550	157		738	0	1,828	722	300	619	2,768	2,403	1,573	553	865	1,245	688	1,020	104
16-Jun-20	162	1,731		1,164	636	665	157	25	853	159	2,499	892	457	686	2,929	2,624	1,687	653	1,153	1,365	718	1,220	30
17-Jun-20	851	2,252		2,513	1,908	1,143	157	37	1,222	319	2,742	977	457	686	3,315	3,170	1,801	754	1,393	1,606	718	1,620	0
18-Jun-20	1,411	2,903		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	762	2,220	44
19-Jun-20	2,014	3,209		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	823	2,730	61
20-Jun-20	2,930	3,278		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	846	3,200	23
21-Jun-20	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	846	3,790	0
22-Jun-20	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	846	4,620	0
23-Jun-20	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	846	5,370	0
24-Jun-20	9,457	3,286	5,816	20,510	4,418	6,133	5,357	1,479	3,114	11,109	11,335	3,164	552	1,221	5,600	9,259	3,738	1,784	1,970	6,403	861	6,210	15
25-Jun-20	11,665	3,692	6,144	21,240	4,418	7,840	9,662	1,886	3,483	15,388	12,615	3,461	552	1,238	5,697	10,615	4,331	1,859	2,162	6,945		7,050	
26-Jun-20	12,752	6,380	6,354	21,519	4,418	9,286	12,553	2,613	4,475	15,912	13,834	3,843	552	1,389	5,761	11,676	4,923	2,035	3,123	7,327		7,780	
27-Jun-20	12,979	9,827	6,354	21,798	4,484	9,966	13,024	3,919	5,766	16,686	14,992	4,311	552	1,506	6,276	12,148	5,334	2,085	5,670	8,029		8,430	
28-Jun-20	12,979	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		9,050	
29-Jun-20	12,979	10,738	8,168	22,512	4,908	11,022	13,590	5,571	7,289	22,172	16,454	5,181	828	5,287	7,531	14,168	6,542	2,236	8,553	8,611		9,740	
30-Jun-20	12,979	11,067	9,864	22,776	5,658	11,268	16,292	6,076	7,496	23,447	16,637	5,861	1,135	6,592	8,143	14,890	7,020	2,286	9,322	8,712		10,540	
01-Jul-20	13,140	13,495	10,821	22,900	6,130	11,514	19,340	6,187	8,027	24,198	16,759	6,901	1,506	7,061	8,625	15,849	7,431	2,437	10,187	8,977		11,440	
02-Jul-20	13,754	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		12,390	
03-Jul-20	14,734	24,501	12,544	23,117	9,163	12,049	22,419	7,679	8,811	24,949	17,003	8,324	4,233	7,646	9,526	17,765	7,864	2,562	10,859	9,138		13,240	
04-Jul-20	15,251	25,688	13,291	23,427	10,761	12,382	23,001	11,968	8,811	25,382	17,124	8,515	5,574	8,115	9,526	18,620	7,909	2,638	11,052	9,198		13,950	
05-Jul-20	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		14,410	
06-Jul-20	15,413	26,393	14,385	24,637	13,337	12,671	23,786	13,521	8,811	26,087	17,246	8,812	6,819	8,935	10,234	19,387	8,183	2,814	11,436	9,693		14,740	
07-Jul-20	15,424	26,860	14,786	25,211	13,386	12,729	24,053	15,924	8,857	26,224	17,307	9,046	7,434	9,219	10,428	19,579	8,570	3,065	11,580	10,375		15,100	
08-Jul-20	15,553	29,418	15,051	25,956	13,467	13,033	24,116	19,807	9,872	26,338	17,734	9,195	7,671	9,286	10,653	19,741	8,753	3,241	11,868	10,907		15,620	
09-Jul-20	15,919	30,008	15,124	26,189	13,630	13,510	24,242	21,878	12,224	26,543	17,917	9,301	7,789	9,387	10,975	19,756	8,981	3,266	11,964	11,049		15,980	
10-Jul-20	16,414	30,958	15,224	26,406	13,859	14,103	24,367	23,110	15,799	26,747	18,039	9,471	7,797	9,420	11,168	19,770	9,163	3,391	12,109	11,172		16,370	
11-Jul-20	16,835	31,379	15,279	26,530	14,169	14,551	24,587	23,172	18,152	26,952	18,160	9,556	7,797	9,504	11,297	19,829	9,231	3,391	12,253	11,239		16,620	
12-Jul-20	18,170	32,221	15,306	26,654	14,690	14,754	25,137	23,172	19,190	26,998	18,282	9,640	7,797	9,520	11,747	20,051	9,322	3,492	12,493	11,335		16,910	
13-Jul-20	18,762	32,681	15,370	26,732	15,342	14,884	26,064	23,172	19,351	27,066	18,404	9,768	7,805	9,537	11,876	20,286	9,414	3,617	12,541	11,456		17,120	

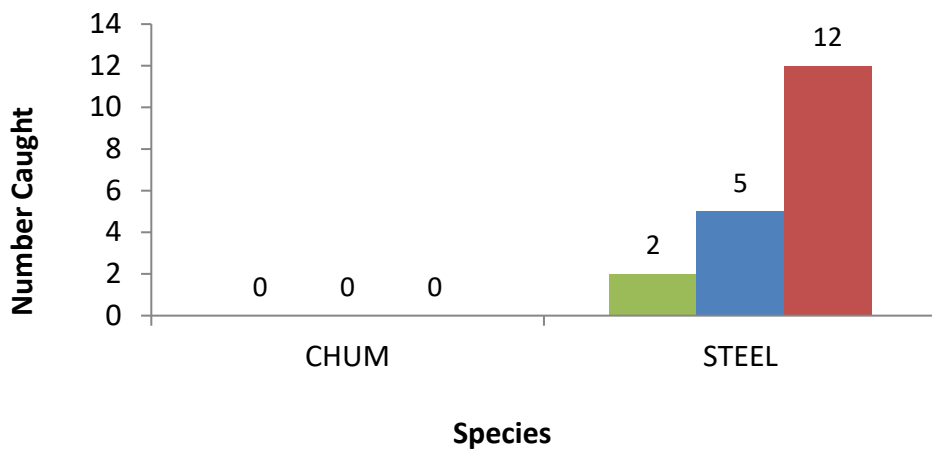
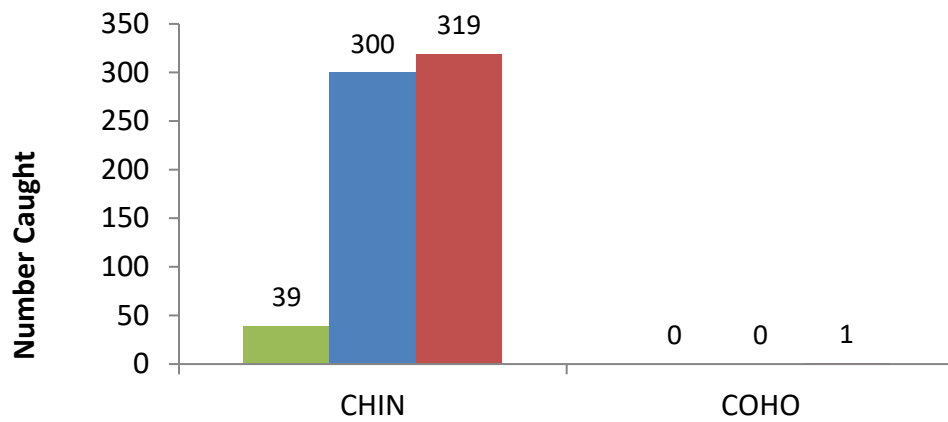
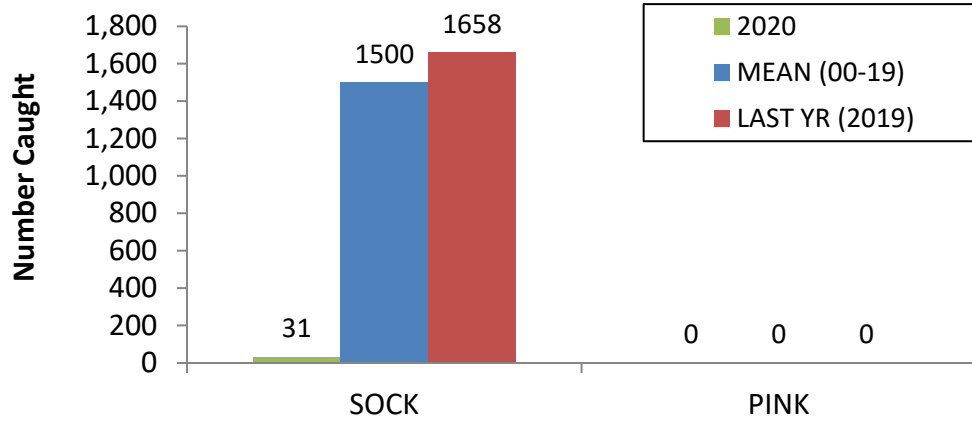
Cumulative Nass Adult Chinook Run Size to Gitwinksihlkw 2020 vs 94-19 Mean, Minimum and Maximum returns (before up river harvests)



Run-size Target to Upper Nass: ~15,000 to reach

In-season 2020

Nass Fishwheel Catches 2020 - GW only (May 31 - Jun 24)



2020 Nass Fishwheel Catches

	GW		GW Total	GH				GH Total	Grand Total
Data	FW1	FW2		FW3	FW4	FW5	FW6		
Chin-adult catch	8	31	39	6	0	5	8	19	58
Chin-tagged	8	29	37	4	0	5	7	16	53
Chin-recaps	0	0	0	0	0	0	0	0	0
Chin-Jacks	1	1	2	4	0	2	9	15	17
Sum of CH Harv	0	0	0	0	0	0	0	0	0
Sockeye-adult catch	7	24	31	2	0	4	5	11	42
Sockeye-tagged	7	23	30	0	0	0	0	0	30
Sockeye-recaps	0	1	1	0	0	0	0	0	1
Sockeye_jacks	1	4	5	0	0	0	0	0	5
Sum of sk_harvest_total	0	0	0	0	0	0	0	0	0
Coho-adult catch	0	0	0	0	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
Sum of co_harvest_total	0	0	0	0	0	0	0	0	0
Steel-adult catch	1	1	2	0	0	0	0	0	2
Steel-Adipose marked	0	0	0	0	0	0	0	0	0
Steel-unmarked	1	1	2	0	0	0	0	0	2
Steel-recap-total	0	0	0	0	0	0	0	0	0
Pacific Lamprey-catch	0	2	2	1	0	2	1	4	6
Lamprey-tagged	0	0	0	1	0	2	1	4	4
Lamprey-released	0	2	2	0	0	0	0	0	2
Lamprey-recaps	0	0	0	0	0	0	0	0	0
River Lamprey	0	0	0	0	0	0	0	0	0
Pink-adult-catch	0	0	0	0	0	0	0	0	0
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
Rainbow Trout	7	8	15	8	0	6	15	29	44
Whitefish	0	3	3	1	0	2	4	7	10
Cutthroat Trout	1	1	2	0	0	0	3	3	5
Sculpin	3	0	3	0	0	0	1	1	4
Suckers	1	0	1	0	0	0	1	1	2
Peamouth Chub	0	1	1	0	0	0	1	1	2
Redside Shiner	0	1	1	0	0	0	1	1	2
Dolly Varden	0	0	0	0	0	0	0	0	0
Pikeminnow	0	0	0	0	0	0	0	0	0
Seals	0	0	0	0	0	0	0	0	0