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2015 NASS RIVER SALMON STOCK ASSESSMENT UPDATE – SUNDAY, 29 NOVEMBER

Attached is the final public Nass River salmon and steelhead stock assessment update for 2015 and preliminary forecasts for 2016 from the Nisga'a Fisheries and Wildlife Department (NFWD) of Nisga'a Lisims Government.

All data presented in this update are preliminary and subject to change with further assessment information and analyses. Please review final program summary reports prepared by NFWD for final numbers.

DAILY FISHWHEEL CATCHES AND IN-SEASON ESCAPEMENT ESTIMATES FROM THE NISGA'A FISHERIES AND WILDLIFE DEPARTMENT FOR 2015 ARE AVAILABLE AT THE FOLLOWING LINK:

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

NISGA'A FISHERIES POST-SEASON UPDATE ON NASS RIVER SALMON & STEELHEAD STOCK ASSESSMENT PROJECTS FOR 2015:

NASS FISHWHEEL OPERATIONAL AND CATCH SUMMARY 2015

The Nass River mainstem water levels in 2015 permitted efficient fishwheel operation throughout the season, ranging between 0.04 m (6 Sep) and 3.9 m (8 June) with only one date (8 June) where some fishwheels were shut down due to high water flows. The mean water level (1.8 m) in 2015 was 0.6 m lower than the historical mean water level (2.4 m) from 1994–2014. The Nass River water temperature averaged 9.7°C during fishwheel operations in 2015, ranging between 7.0°C (8 June) and 13.0 °C (4 July and 6 August). The mean water temperature in 2015 was 0.5°C higher than the historical mean water temperature (9.2°C) from 1994–2014.

Of the 89,763 salmon (87,367 adults and 2,396 jacks) and steelhead (778) caught at the fishwheels in 2015, 82,895 were released (with 18,926 tagged or fin marked) and 7,646 harvested (7,508 Sockeye and 138 Coho salmon) at Grease Harbour fishwheels. Details of fishwheel site operations at Gitwinksihlkw and Grease Harbour are described below.

GITWINKSIHLKW (GW) FISHWHEELS (NASS TEST FISHERY –STARTED IN 1994 [22nd year])

The Nass River test fishery fishwheels operated from 4 June (FW1 and FW2) to 11 September 2015 for tagging and historical catch index assessments for salmon and summer-run steelhead. All fish caught in the GW fishwheels were released alive after tagging and/or counting. Of the 32,790 salmon (31,132 adults and 1,289 jacks) and steelhead (369) caught at the GW fishwheels in 2015, all were released with 17,154 tagged or fin marked.

GREASE HARBOUR (GH) FISHWHEELS

Four fishwheels (FW3, FW4, FW5, and FW6) operated at Grease Harbour (upstream of Ts'im Anwiihlist) in 2015. Start-up dates were 10 June (FW5), 12 June (FW3 and FW6), and 28 June (FW4); and shutdown dates were 21 August (FW4), 31 August (FW3), 6 Sep (FW6), and 11 Sep (FW5). These fishwheels were used for in-season mark-recapture tag recoveries, abundance estimates, additional tagging (adult Chinook and Chum salmon, and

Pacific Lamprey), and for harvesting (Sockeye Salmon for the Nisga'a Lisims Government's Nass River In-land Demonstration Fishery that was part of DFO's Inland Selective Demonstration Fishery Program and Coho Salmon as part of the Nisga'a Treaty). Of the 57,751 salmon (56,235 adults and 1,107 jacks) and steelhead (409) caught at the GH fishwheels in 2015, 50,105 were released (with 1,772 tagged or fin marked) and 7,646 harvested (7,508 Sockeye and 138 Coho salmon).

NASS FISHWHEEL CATCH SUMMARY FOR 2015

The Nass fishwheel catches in 2015 were above average for two salmon species (Sockeye and Chum) and Pacific Lamprey, and below average for three salmon species (Chinook, Coho, and odd-year Pink) and steelhead (Table 1). The fishwheel catches of small (jacks) salmon (<50 cm NFL for Chinook, <45 cm NFL for Sockeye, and <40 cm NFL for Coho) in 2015 were below average for Chinook (374 vs. 620), Sockeye (1,990 vs. 3,700), and Coho salmon (32 vs. 500) when compared to the mean catches from 1994–2015.

Other adult species and juvenile salmon catches at the fishwheels included: 256 Dolly Varden, 136 Pike Minnow, 111 Rainbow Trout, 108 Whitefish sp., 73 Peamouth Chub, 68 Cutthroat Trout, 21 Sculpin, 17 Red-Side Shiner, 1 River Lamprey, 122 salmon smolts (27 Coho, 84 Chinook, 11 Sockeye), 2 frogs, and 1 Otter.

NFWD also partnered with the Integrated Fukushima Ocean Radionuclide Monitoring (InFORM) Program in 2015 conducted by Health Canada and the University of Victoria where 10 Nass Sockeye, 10 Pink, and 10 summer-run steelhead were sacrificed from the GH fishwheels on 17 August for radiation testing. The results of the sampling program will be made public when available.

Table 1. Nass fishwheels catches of salmon and non-salmon species from 1994–2015.

Year	# of Fw	Start date	End date	Total Effort (days)	Chinook Salmon (≥50 cm FL)	Sockeye Salmon (≥45 cm FL)	Coho Salmon (≥40 cm FL)	Pink Salmon	Chum Salmon	Summer-run steelhead (≥50 cm FL)	Dolly Varden (≥20 cm FL)	Cutthroat (≥20 cm FL)	Rainbow (≥20 cm FL)	White Fish	Pacific Lamprey	Pike Minnow	Pea-mouth Chub	Suckers	Sculpins	Red-side Shiner
1992	2	5-Jun	29-Sep		444	9,046	559	5,699	42	40										
1993	3	9-Jun	13-Sep		919	10,963	466	3,944	99	66										
1994	4	7-Jun	7-Sep	92	2,667	24,746	6,990	12,436	250	211	42	5	2	11	47					
1995	4	8-Jun	4-Sep	88	920	21,090	1,837	8,881	224	111	101	8	6	42	81					
1996	4	29-May	22-Sep	116	2,191	23,063	4,029	23,601	371	485	177	29	21	108	384					
1997	4	21-May	2-Sep	104	3,736	27,762	1,438	13,167	130	485	294	27	23	145	388			7		
1998	4	12-Jun	20-Sep	100	3,071	17,185	3,760	10,624	272	701	388	61	9	140	194	84		38	69	
1999	4	7-Jun	30-Sep	115	3,476	41,545	6,393	22,019	127	641	1,189	97	17	155	185	65		24	24	
2000	6	11-Jun	18-Sep	99	5,003	33,879	8,529	10,206	241	1,404	558	97	5	75	251	53		34	14	
2001	6	7-Jun	14-Sep	99	12,106	32,821	22,705	42,508	162	1,435	347	69		67	238	75		42	13	
2002	6	20-Jun	9-Sep	81	6,785	58,728	14,556	15,893	54	1,100	429	72	22	51	187	93		8	17	
2003	6	14-Jun	5-Sep	83	5,802	47,556	9,460	33,560	175	583	524	94	26	99	936	105	9	29	25	
2004	6	11-Jun	10-Sep	91	3,314	43,782	11,788	35,605	242	655	276	71	54	55	1,132	137	29	44	11	
2005	6	6-Jun	16-Sep	102	4,111	40,320	14,508	19,788	141	726	150	26	48	55	615	100	73	33	16	
2006	6	8-Jun	3-Sep	87	9,089	50,769	9,671	2,817	158	466	286	62	66	91	363	145	36	33	9	
2007	6	14-Jun	20-Sep	98	9,440	38,942	11,638	17,669	136	783	254	47	69	70	315	140	22	20	31	
2008	5	5-Jun	6-Sep	93	4,331	34,702	14,640	1,932	52	851	193	88	55	55	198	72	9	18	14	6
2009	6	1-Jun	12-Sep	103	7,136	43,426	20,270	42,120	108	1,688	328	93	117	119	483	93	46	27	56	-
2010	6	1-Jun	22-Sep	113	1,140	25,703	12,938	4,614	78	1,191	557	132	161	388	313	126	18	46	21	7
2011	5	1-Jun	17-Sep	108	1,795	38,083	5,752	10,719	166	988	481	156	86	353	632	181	35	45	17	10
2012	5	1-Jun	15-Sep	106	4,059	62,385	15,608	7,694	106	1,525	424	59	45	108	674	180	129	27	22	4
2013	5	2-Jun	13-Sep	103	1,981	39,184	14,555	24,801	52	612	169	67	46	79	567	137	111	21	12	9
2014	6	1-Jun	13-Sep	104	1,693	38,345	17,137	24,038	83	1,472	213	72	72	68	629	97	42	12	33	9
2015	**6**	**4-Jun**	**11-Sep**	**99**	**3,397**	**70,737**	**6,616**	**6,476**	**141**	**778**	**256**	**68**	**111**	**108**	**746**	**136**	**73**	**14**	**21**	**17**
2000 to 2014:																				
Mean	**6**	**6-Jun**	**12-Sep**	**98**	**5,200**	**42,000**	**14,000**	**20,000**	**130**	**1,000**	**350**	**80**	**60**	**120**	**500**	**120**	**50**	**30**	**20**	**10**
Min	5	31-May	3-Sep	81	1,100	26,000	5,800	2,000	50	470	150	30	10	50	190	50	10	10	10	-
Max	6	20-Jun	22-Sep	113	12,100	62,000	23,000	43,000	240	1,700	560	160	160	390	1,130	180	130	50	60	10

MEZIADIN FISHWAY OPERATION AND COUNT SUMMARY 2015

The Meziadin Fishway was operated from 1 July to 8 October 2015. The fishway water levels and temperatures averaged 1.2 m (ranged from 1.1 to 1.3 m) and 14.1°C (ranged from 9.5°C to 17.5°C), respectively. Water levels at the fishway were 0.1 m lower than average (1.3 m) when compared to historical levels from 1999–2014. Large fish (primarily Chinook Salmon) were observed jumping the falls in 2015. Water temperatures were near average levels for the same period of monitoring including the minimum and maximum recordings.

Counts at the Meziadin Fishway in 2015 were below average for large adult salmon [Chinook (95 vs. 400) and Coho (2,713 vs. 4,600)] except for Sockeye (185,917 vs. 161,500), and summer-run steelhead (3 versus 40) when compared to mean counts from 2000–2014 (Table 2). Counts of small salmon (jacks) at the fishway were below average for Sockeye (2,551 vs. 6,000), Chinook (7 vs. 50), and near average for Coho (62 vs. 70) when compared with mean counts from 1994–2014. A total of 30 adult Bull Trout (>20 cm NFL) were also counted at the fishway in 2015 (including two recaps from Meziadin tagging operations).

Table 2. Counts of large salmon and steelhead at the Meziadin Fishway, 2000–2015.

Meziadin Fishway (~149 km from tagg		Adult large salmon and steelhead counted				Tags counted				Mark rates (%) observed			
Year	Period of Operation	Chinook	Sockeye	Coho	Steel	Chinook	Sockeye	Coho	Steel	Chinook	Sockeye	Coho	Steel
2000	29 June to 13 October	416	137,042	1,423	46	30	2,964	35	2	7.2%	2.2%	2.5%	4.3%
2001	4 July to 15 October	613	116,192	5,942	72	66	2,982	173	9	10.8%	2.6%	2.9%	12.5%
2002	1 July to 15 October	464	332,442	5,082	41	21	6,027	99	2	4.5%	1.8%	1.9%	4.9%
2003	2 July to 10 October	479	196,852	3,907	30	18	4,650	91	1	3.8%	2.4%	2.3%	3.3%
2004	3 July to 3 October	490	140,923	4,172	58	20	4,417	154	12	4.1%	3.1%	3.7%	20.7%
2005	1 July to 15 October	638	142,751	7,189	85	33	3,819	259	9	5.2%	2.7%	3.6%	10.6%
2006	1 July to 12 October	721	146,954	5,466	39	35	4,694	251	1	4.9%	3.2%	4.6%	2.6%
2007	1 July to 11 October	754	104,308	2,504	27	34	4,082	67	2	4.5%	3.9%	2.7%	7.4%
2008	1 July to 9 October	518	150,396	3,861	29	17	5,016	167	2	3.3%	3.3%	4.3%	6.9%
2009	1 July to 6 October	336	168,392	5,423	18	15	4,887	96	2	4.5%	2.9%	1.8%	11.1%
2010	1 July to 23 October	315	159,120	4,138	81	3	2,670	129	7	1.0%	1.7%	3.1%	8.6%
2011	1 July to 6 October	330	167,524	2,336	12	28	4,213	44	1	8.5%	2.5%	1.9%	8.3%
2012	1 July to 4 October	255	144,923	4,980	34	42	6,112	246	5	16.5%	4.2%	4.9%	14.7%
2013	1 July to 4 October	126	170,376	5,934	23	19	3,726	128	0	15.1%	2.2%	2.2%	0.0%
2014	1 July to 7 October	51	144,920	7,223	28	5	2,875	268	1	9.8%	2.0%	3.7%	3.6%
2015	**1 July to 8 October**	**95**	**185,917**	**2,713**	**3**	**14**	**3,859**	**89**	**0**	**14.7%**	**2.1%**	**3.3%**	**0.0%**
Average (2000-14)		**400**	**161,500**	**4,600**	**40**	**30**	**4,210**	**150**	**4**	**7.5%**	**2.6%**	**3.3%**	**10.0%**

Escapement targets for adult large salmon at Meziadin Fishway are approximately: 160,000 Sockeye, 500 Chinook, and 3,500 Coho. The escapement targets for salmon at Meziadin were reached for Sockeye in 2015 and not known for Coho or Chinook salmon as Coho continue to enter after operation and Chinook are known to jump the falls. Harvests in the Gitanyow fishery occurred below the Meziadin Fishway in 2015 where 11,385 Sockeye were harvested as part of the Gitanyow Fisheries Authority (GFA)'s Nass inland selective demonstration economic fishery from late July to mid-August. The Gitanyow fishery also harvested 9,412 Sockeye Salmon in FSC fisheries but some of these harvests occurred in the Nass mainstem near Kinskuch River.

KWINAGEESE WEIR NET UPSTREAM COUNTS AND OPERATION SUMMARY 2015

The Kwinageese video-counting weir operations were from 3 July to 9 October 2015. The water levels and temperatures at the weir averaged 0.45 m (ranged from 0.26 m to 0.69 m) and 12.9 ^{o}C (ranged from 9 ^{o}C to 19 ^{o}C), respectively. Water levels and temperatures in 2015 were 0.11 m higher and 1 ^{o}C lower, respectively, than mean levels from 2009–2014. The weir was functional for the entire period of monitoring in 2015 and water levels never exceeded 0.90 m when the weir is topped.

Adult salmon net upstream counts were 1,093 Chinook, 6,888 Sockeye, and 298 Coho salmon through the Kwinageese River video weir from 3 July to 9 October 2015 (Table 3). Other net upstream counts in 2015 include: 163 summer-run steelhead, 88 adult Bull Trout (>20 cm NFL), and eight salmon jacks (1 Sockeye and 7 Coho). It is uncertain how many more of Coho Salmon and steelhead would subsequently pass the weir after operation, therefore these counts should be considered minimum escapement estimates to the Upper Kwinageese River for 2015. In addition, reported video counts are preliminary until final video reviews are completed. Net upstream counts at the Kwinageese weir were above average for Chinook and Sockeye salmon, and below average for Coho Salmon and steelhead when compared to the average counts from monitored years up to 2014.

With funding support from the Pacific Salmon Commission's Northern Fund, two helicopter flights (3 March and 23 July) were conducted in 2015 on the Lower Kwinageese River for assessing the water pooling capacity below the blockage falls area and engineering planning for future remediation. Crew visited the barrier site on July 23 under normal water level and observed that the concrete weir structure was in the same condition as when visited in 2014 and was still functioning by pooling water at the base of the bedrock barrier. Numerous Chinook

were observed holding in the pool below barrier and a few were observed jumping the barrier. No concerns of salmon passage to the Upper Kwinageese was evident in 2015.

Table 3. Counts of large salmon and steelhead at the Kwinageese Weir, 2002–2015.

Kwinageese Weir (~208 km from ta		Adult large salmon and steelhead counted (net upstream)				Tags counted (net upstream)				Mark rates (%) observed			
Year	Period of Operation	Chinook	Sockeye	Coho	Steel	Chinook	Sockeye	Coho	Steel	Chinook	Sockeye	Coho	Steel
2002	17 July to 17 October	1,893	5,891	1,283	267	114	86	8	8	6.0%	1.5%	0.6%	3.0%
2005	12 August to 22 October	538	3,186	2,663	304	19	37	59	25	3.5%	1.2%	2.2%	8.2%
2006	25 August to 5 October	410	2,700	1,582	129	27	123	51	6	6.6%	4.6%	3.2%	4.7%
2009	12 July to 15 October	895	107	60	33	28	0	0	4	3.1%	0.0%	0.0%	12.1%
2010	9 July to 19 October	131	48	191	110	2	0	8	7	1.5%	0.0%	4.2%	6.4%
2011	10 July to 5 October	740	10,273	226	50	87	240	10	0	11.8%	2.3%	4.4%	0.0%
2012	19 July to 11 October	715	3,688	155	296	224	143	9	28	31.3%	3.9%	5.8%	9.5%
2013	13 July to 11 October	813	397	763	208	109	4	13	7	13.4%	1.0%	1.7%	3.4%
2014	10 July to 14 October	560	438	1,229	459	41	3	25	29	7.3%	0.7%	2.0%	6.3%
2015	**3 July to 9 October**	**1,093**	**6,888**	**298**	**163**	**108**	**70**	**6**	**7**	**9.9%**	**1.0%**	**2.0%**	**4.3%**
MEAN COUNT AT KWIN (2002-201		**700**	**3,000**	**900**	**200**	**70**	**70**	**20**	**10**	**9.7%**	**1.8%**	**2.8%**	**5.9%**

CHINOOK SALMON GROUND SURVEYS CONDUCTED BY NFWD 2015

- **KWINAGEESE RIVER** - Due to high water conditions in 2015, only one aerial Chinook Salmon count (15 September) was conducted in Kwinageese River upstream of the weir site. Chinook were most abundant in the reach downstream of Second Lake (n=358). In the reach between Fred Wright Lake and Second Lake, 189 Chinook were counted. Expanding these counts for observer efficiency (50%) yields a live count of 1094 adults. This expanded count was nearly identical to the total net-upstream Chinook count through the video weir (1093 adults). **We recommend that the weir count (1093) be used as the final Chinook Salmon escapement estimate for the Kwinageese/Fred Wright system in 2015.**
- **DAMDOCHAX RIVER** - Four Chinook Salmon carcass surveys were conducted by air and ground on 29 August, and 3, 8, and 15 September 2015. A planned fifth survey for 18 September was cancelled due to poor weather/flying conditions. Although nearly 3000 adult Chinook were estimated to have returned in 2015, above average water levels and heavy predation limited recoveries of Chinook Salmon carcasses from Damdochax. Three marked Chinook Salmon were recovered from 54 adult Chinook salmon carcasses examined downstream of Damdochax Lake. An additional three marked Chinook were also recovered but from fragments of carcasses and were not included in the mark-recapture sample. Scale samples for aging and updating genetic baselines were collected from nine Chinook salmon carcasses. For both peak count and AUC escapement estimates, raw live counts were expanded for habitat not surveyed and reach and survey specific estimates of observer efficiency. An AUC escapement estimate of 2,730 Chinook Salmon was calculated using a 27.8 day survey life (Koski et al. 1996) and assuming that fish entered the survey area on 4 August. The expanded peak live (2,517) plus dead count (11) on 28 August was 2,528. The similarity between the peak count and AUC estimate for Damdochax Creek in 2015 suggests that in future years a well-timed peak count, expanded for observer efficiency, may be an adequate to generate a minimum escapement estimate for this system. **We recommend that the AUC estimate of 2,730 (90% CIs 2,309-3,393) adult Chinook salmon be used as a minimum escapement estimate for Damdochax Creek in 2015**.

SOCKEYE SALMON GROUND SURVEYS CONDUCTED BY NFWD 2015

- **GINGIT CREEK:** Eight Sockeye Salmon surveys were conducted at Gingit Creek (a sea-type Nass Sockeye stock) on: 17 and 26 July; 3, 11 19, and 28 August; and, 8 and 15 September 2015 by a minimum crew of three walking upstream from an old road crossing at 55° 13.979’ N, 129° 05.300’ W to the head pond at 55° 13.236’ N, 129° 03.516’ W. Along with live adults, jacks and carcasses, reach and tag colour specific counts of live tagged fish, tagged carcasses, and 2015 tags found on the bank or streambed were also recorded. A total of 353 tags applied in 2015 were found during surveys. For AUC escapement calculation, it was assumed that spawning occurs in an additional 1,000 m of habitat downstream of the 3,550 m survey area at an density 1/3 of that in the survey area. Survey life for Gingit Creek Sockeye in 2015 (13.1 days) was estimated using a tag life curve for spaghetti tags applied at the Gitwinksihlkw fishwheels and observed during visual surveys. Survey life was modelled as varying

normally with a standard deviation of 2.2 days (this is the standard deviation of the tag life curve based survey life estimates since 2004; n = 10). An AUC estimate of jack Sockeye escapement was also generated assuming the same observer efficiency and survey life parameters as used for adult Sockeye. **Escapement estimates of 19,944 (90% CIs 15,037-28,292) adults and 2,245 (90% CIs 1,671-3,237) jacks were calculated for Gingit Creek in 2015 using the AUC methods**. The peak estimated (observer efficiency expanded) live count (6,195) occurred on 11 August and the peak carcass count (5,300) occurred on 19 August. Carcass counts remained over 1,500 between 11 and 28 August (range 1,778-5,300). The escapement estimate for 2015 is the highest since NFWD began escapement surveys in 2000 and is well above the 2000-14 average (4,701; range: 323 [2002] to 12,941 [2011]).

- **TSEAX RIVER SIDE CHANNEL**: Sockeye Salmon were observed in 2015 during surveys of the Tseax River Side Channel to enumerate Chum and Pink salmon. It is likely that these fish were also sea-type Sockeye Salmon similar to the Gingit Creek population. **Adult Sockeye Salmon were observed during each Tseax River Side Channel survey and an AUC escapement estimate of 289 (90% CIs 230-33) spawners was calculated for 2015**. Survey life for this AUC estimate was the 2000-2015 average for Gingit Creek (14.7 days) and the first day Sockeye Salmon arrive in the side channel was assumed to be the same as at Gingit Creek (15 July 2015). The last day when fish were alive was estimated by the AUC program. Only Sockeye Salmon actually observed in the spawning areas of the side channel were included in this estimate as large schools seen at the mouth of the channel may have been enroute to other spawning areas (possibly Gingit Creek).
- **GITZYON CREEK**: Four surveys were conducted in Gitzyon Creek from where it flows into Spencer Lake (part of the Tseax River) to a point approximately one kilometre upstream of the Skateen Avenue culvert (total survey length approximately 2.0 km). Surveys were conducted on 7, 16, and 25 August and 2 September 2015. Sockeye were only observed during the first survey. Accounting for observer efficiency, an estimated 588 live Sockeye spawners and 187 carcasses were present, yielding a minimum escapement estimate of 775 Sockeye. Given the absence of Sockeye from subsequent surveys, peak spawning activity likely occurred prior to the first survey. **A minimum peak expanded estimate of 1550 Sockeye Salmon is estimated for 2015**.
- **WIMINASIK CREEK (DAMDOCHAX WATERSHED)**: Four aerial counts of Sockeye Salmon in Wiminasik Creek were conducted in 2015, between Wiminasik Lake and Damdochax Lake, on 29 August, and 3, 8, and 15 September. Raw live counts were expanded by the helicopter observer efficiency expansion factor (1.95 x) developed in 2011 using same day helicopter and ground counts at Upper Kwinageese River. The expanded peak count (15 September) was 1,890 adult Sockeye Salmon. **An AUC escapement estimate of 4,117 (90% CIs 2,615-7,608) Sockeye spawners to Wiminasik Creek was calculated using a survey life of 14.7 days (± standard deviation of 2.2 days)** based on the average of Gingit Creek Sockeye salmon tag life curve based survey life estimates since 2004 (n=10); zero count dates were estimated using the MonteMaster AUC program.

LOWER NASS CHUM AND PINK SALMON GROUND SURVEYS CONDUCTED BY NFWD 2015

A minimum of four surveys were conducted in August and September on four systems in the Lower Nass River to assess Chum and Pink salmon returns in 2015.

- **KSEMAMAITH CREEK (CHUM INDICATOR)**: Four complete ground surveys were conducted in 2015 (6, 15, 24 August, and 1 September). The AUC escapement estimates were **91 Chum Salmon (90% CIs 55-269)** and **1,495 Pink Salmon (90% CIs 1,007-3,117).** For the AUC escapement estimation, Chum Salmon survey life was assumed to be 7 days with a standard deviation of 3 days. The standard deviation estimate was based on the coefficient of variation for Chum Salmon survey life (0.42) reported in Perrin and Irvine (1990) multiplied by our estimated survey life of 7 days. Survey life for Pink Salmon was assumed to be 12.6 days and vary normally with a standard deviation of 4 days. These values are based on an average of seven BC Central Coast streams reported in Perrin and Irvine (1990).

- **TSEAX RIVER SIDE CHANNEL**: Six ground surveys were conducted in 2015 (6, 15, 24 August and 1, 14, 23 September). The AUC escapement estimates were **302 Chum Salmon (90% CIs 178-889)** and **70 Pink Salmon (90% CIs 52-144)** using the same methods as described for Ksemamaith Creek.
- **ZOLZAP CREEK**: Five ground surveys were conducted in 2015 (6, 15, 24 August and 1, 14 September). No Chum were observed during any survey and Pink were only observed during two surveys (24 August [n=13] and 1 September [n=38]). No escapement estimates were possible for Chum or Pink salmon in Zolzap Creek.
- **GITZYON CREEK**: Four ground surveys were conducted in 2015 (7, 16, 25 August and 2 September). Only three Chum (2 live [7 Aug], 1 carcass [16 Aug]) were observed so no escapement estimates were possible. Pink salmon were counted during each survey and the AUC escapement estimate was **1,563 Pink Salmon (90% CIs 1,004-3,107)** using the same methods described for Ksemamaith Creek.

Between the four lower Nass systems surveyed in 2015, 29 Chum Salmon were captured and sampled. No fish tagged at the Gitwinksihlkw fishwheels were sampled. Scales were collected from 29 Chum Salmon (n = 18 [Ksemamaith]; n = 8 [Tseax]; n = 3 [Gitzyon]) for aging and genetic baselines. Otoliths were collected from five fish (n = 3 [Ksemamaith]; n = 1 [Tseax]; n = 1 [Gitzyon]) to determine wild or hatchery origin (otoliths from Alaskan hatchery Chum are thermally marked).

COASTAL NASS CHUM AND PINK SALMON GROUND SURVEYS CONDUCTED BY NFWD 2015

With funding support from the Pacific Salmon Commission, Northern Fund, Area 3 Coastal Nass Chum Salmon assessments were conducted in Area 3 in 2015. A minimum of three surveys were conducted on nine coastal streams in Area 3 between late July and early October to assess Chum Salmon returns in 2015. Five assessed streams are indicator systems for Area 3 Chum Salmon escapement. For all coastal Chum Salmon AUC estimates, Perrin and Irvine (1990) Central Coast values for survey life (10 days) and standard deviation (5.4 days) were used. Pink Salmon were also counted in many coastal streams and AUC estimates were calculated using the same methods as described for Ksemamaith Creek above.

All surveys were conducted from the estuary to either: 1) the upper limit of potential Chum Salmon spawning habitat, 2) impassable barriers, or 3) to the end of safe access. Alice Arm streams (Illiance River, Kitsault River, and Wilauks Creek) were accessed via small boat from Kitsault resort. All other coastal streams were accessed using the Nisga'a vessel *Xsgaagim Lisims*.

- **STAGOO RIVER (CHUM INDICATOR)**: Four stream walks were conducted (27 July; 9, 20, 29 August) but a complete survey was only completed on 29 August due to poor stream conditions (high turbid flow) and/or difficult access. Insufficient data were collected to calculate an AUC escapement estimate for Stagoo River. From all surveys, a total of 4,965 Chum Salmon were observed and the observer efficiency expanded peak count was 3,379). The expanded peak count estimate for Stagoo River was **6,758 Chum Salmon**. For Pink Salmon, total and peak observer efficiency expanded counts were 446 and 244, respectively. The expanded peak count estimate for Stagoo was **488 Pink Salmon.**
- **ILLIANCE RIVER (CHUM INDICATOR)**: Five ground surveys were conducted in 2015 (3, 16, 26 August and 8, 16 September). The AUC escapement estimates were **1,836 Chum Salmon (90% CIs 1,081-6,803)** and **251 Pink Salmon (90% CIs 169-511)**.
- **WILAUKS CREEK (CHUM INDICATOR)**: Four ground surveys were conducted in 2015 (3, 26 August; 8, 16 September). The AUC escapement estimate was **449 Chum Salmon (90% CIs 225-1,973)**. Pink Salmon were only counted (n = 28) on 26 August.
- **KITSAULT RIVER (CHUM INDICATOR)**: Due to the high turbidity in the mainstem Kitsault River, surveys were limited to the lower reaches of four tributaries (Falls Creek, Gwunya Creek, La Rose Creek, and Klayduc Creek) and a mainstem side-channel. Four ground surveys were conducted in 2015 (4, 17, 27 August and 7 September). A fifth survey was attempted on 19 September but was cancelled due to high turbid flows in the tributaries. The AUC escapement estimate was **445 Chum Salmon (90% CIs 283-**

1540). Both Pink and Chinook Salmon were also counted. Total observer efficiency expanded counts were **22 Pink** and **140 Chinook** salmon.

- **KSHWAN RIVER (CHUM INDICATOR)**: Due the high turbidity in the mainstem Kshwan River, surveys were limited to seven side-channels and tributaries of Kshwan River. Each survey spanned two days due to its remote location. Four surveys were conducted in 2015 (31 Aug-1 September; 9-10, 20-21 September; and 1-2 October). Counts in the final two surveys were limited to a small number of channels due to turbid flows. The lack of counts prevented the calculation of an AUC escapement estimate. The total and peak observer efficiency expanded live counts were 15,755 and 8,700 Chum Salmon, respectively. The expanded peak count estimate for Kshwan River was **17,400 Chum Salmon.**
- **DONAHUE CREEK**: Three surveys were conducted in 2015 (21 August; 5, 13 September). The AUC escapement estimate was **71 Chum Salmon (90% CIs 49-209).** The peak observer efficiency expanded count (n = 48) was observed during the first survey. Pink Salmon were also observed during surveys. The expanded peak count estimate was **124 Pink Salmon.**
- **LIZARD CREEK**: Two surveys were conducted in 2015 (22 August; 3 September). A third survey was attempted on 12 September but high flows prevented safe access to the stream. No Chum Salmon were observed in Lizard Creek. Pink Salmon were also counted in Lizard Creek, with the highest observer efficiency expanded count (n = 1,288) observed on 3 September. The expanded peak count estimate was **2,576 Pink Salmon.**
- **PIRATE COVE CREEK**: Three surveys were conducted in 2015 (22 August; 3, 12 September). The total live count was three Chum Salmon. There were insufficient data for an AUC escapement estimate. The expanded peak count estimate was **6 Chum Salmon** as a minimum estimate. Pink salmon were also counted at Pirate Cove Creek. The expanded peak count estimate was **572 Pink Salmon.**
- **CRAG CREEK**: Three surveys were conducted in 2015 (23 August; 4, 12 September). The peak count was only six Chum Salmon (4 September). The expanded peak count estimate was **12 Chum Salmon.** An AUC estimate from the three surveys was estimated for Pink Salmon (SL=12.6 d). The AUC escapement estimate was **3367 Pink Salmon.**

COASTAL NASS COHO SALMON GROUND SURVEYS CONDUCTED BY NFWD 2015

With funding support from the Pacific Salmon Commission, Northern Fund, Area 3 Coastal Nass Coho Salmon assessments were conducted in Area 3 in 2015. Ground surveys in Area 3 in 2015 are on-going and include five streams (Salmon Cove, Scowban, Lizard, Pirate Bay, and Crag creeks). Below are a summary of surveys to date:

- **SALMON COVE CREEK**: Four surveys were conducted from 4 October to 23 November. The highest observer efficiency expanded count (n = 88) was observed on 25 October. The preliminary expanded peak count estimate is **176 Coho Salmon.**
- **SCOWBAN CREEK**: Four surveys were conducted from 5 October to 24 November. The highest observer efficiency expanded count (n = 1) was observed on 12 November. The preliminary minimum expanded peak count estimate is **2 Coho Salmon.**
- **LIZARD CREEK**: Three surveys were conducted from 6 October to 25 November. The highest observer efficiency expanded count (n = 54) was observed on 6 October. The preliminary expanded peak count estimate is **108 Coho Salmon.**
- **PIRATE BAY CREEK**: Three surveys were conducted from 6 October to 25 November. The highest observer efficiency expanded count (n = 32) was observed on 6 October. The preliminary expanded peak count estimate is **64 Coho Salmon.**
- **CRAG CREEK**: One survey was conducted on 27 October and 203 Coho were counted. The preliminary expanded peak count estimate is **406 Coho Salmon.**

LOWER NASS COHO SALMON ASSESSMENTS BY NFWD 2015

- **ANSEDIGAN CREEK**: Five surveys were conducted to date from 30 September to 10 November. The highest observer efficiency expanded count (n = 90) was observed on 20 October. The preliminary expanded peak count estimate is **180 Coho Salmon.**
- **DISKANGIEQ CREEK**: Five surveys were conducted to date from 29 September to 9 November. The highest observer efficiency expanded count (n = 307) was observed on 28 October. The preliminary expanded peak count estimate is **614 Coho Salmon.**
- **ZOLZAP CREEK WEIR OPERATIONS**: A counting fence was operated from 15 September to 13 November. Counts at the weir were: 105 adult salmon [90 Coho (22 CWT), 11 Sockeye, and 4 Chum], 26 Dolly Varden and 1 Cutthroat char. A preliminary mark-recapture estimate of **140 Coho Salmon** for 2015 is well below the 1992–2014 average return (1,200; range: 250–2,400) to Zolzap Creek. Mark-recapture surveys will continue into December 2015 for generating the final return estimate of Zolzap Coho Salmon.

PRELIMINARY NASS SALMON AND SUMMER-RUN STEELHEAD RUN SIZE ESTIMATES TO GITWINKSIHLKW AND NET ESCAPEMENT ESTIMATES FOR 2015

UPPER NASS SALMON AND SUMMER-RUN STEELHEAD ESTIMATES

Preliminary post-season aggregate estimates for Upper Nass salmon and summer-run steelhead returns in 2015 (Table 4) were calculated from current mark-recapture data (Table 5).

The in-season population estimates in 2015 tracked the Upper Nass salmon and steelhead returns quite well; the Sockeye Salmon estimate was 3% higher than the post-season estimate, Chinook was 24% higher, Coho was 1% higher, and summer-run steelhead was 24% lower. The in-season estimates are independent to post-season estimates that are based on spawning ground surveys, counts at the Meziadin Fishway and Kwinageese Weir. The in-season estimates are based on fishwheel catches at Gitwinksihlkw and in-season fishwheel catchability estimates from historical indices or mark-rates observed at the Grease Harbour fishwheels.

The preliminary Upper Nass escapement estimates for salmon and summer-run steelhead to Gitwinksihlkw in 2015 were based on mark-recapture results presented in Table 5. The preliminary adult summer-run steelhead estimate for 2015 is based on the steelhead fishwheel catch index method that involves an expansion of the adult summer-run steelhead catches at GW fishwheels after 1 July by post-season Coho Salmon mark rates with adjustments to GW fishwheel operational effort and mean difference in method to historical steelhead mark-recapture estimates. Upper Nass net escapement goals were met for all species in 2015, although Coho Salmon was well below the in-season goal (60,000) for reaching in-season Nass Area escapement.

Table 4. Preliminary estimates of GW run size and net escapement for Nass salmon and summer-run steelhead, 2015.

Post-season estimate	Sockeye	Chinook	Coho	Steelhead
Run size estimate to Gitwinksilkw (GW) fishwheels	**469,466**	**21,260**	**45,093**	**13,279**
In-season estimate to GW fishwheels	*481,341*	*26,279*	*45,326*	*10,029*
% Difference of in-season to post-season	*3%*	*24%*	*1%*	*-24%*
Net Escapement Estimate Above Gitwinksihlkw	**389,503**	**17,260**	**42,517**	**13,113**

Population estimates for Upper Nass salmon in 2015 were quite precise (<15% CV) from mark-recapture surveys with high number of marks recovered on the spawning grounds for Sockeye (3859; CV=2%), Chinook (125; CV=9%), and Coho (95; CV=10%). The comparison of two methods to generate the summer-run steelhead population estimate provided a reliable abundance estimate for 2015 (Table 5).

Table 5. Mark-recapture estimates for Nass salmon (Chinook, Sockeye and Coho) and summer-run steelhead returns to Gitwinksihlkw and spawning grounds, 2015. Best estimates are bolded.

Species	Marked (M)	Censored	% marks removed	Net marks available (M*)	Examined (C)	Marks recovered (R)	Population Estimate to GW (N)	SE	CV%	Net escapement estimate
Chinook-stratified by size	**2,814**	**984**	**35%**	**1,830**	**1,231**	**125**	**21,260**	**1,490**	**8.9%**	**17,260**
Chinook-pooled	*2,814*	*984*	*35%*	*1,830*	*1,242*	*125*	*21,546*	*1,519*	*8.9%*	*17,546*
Sockeye	**13,702**	**5,184**	**38%**	**8,518**	**185,917**	**3,859**	**469,466**	**6,535**	**1.6%**	**389,503**
Coho	**1,721**	**360**	**21%**	**1,361**	**3,011**	**95**	**45,093**	**4,269**	**10.2%**	**42,517**
Steelhead (Coho MR index)							**13,279**	**1,952**	**32.3%**	**13,113**
Steelhead (fin marks)	*547*	*43*	*8%*	*504*	*166*	*7*	*10,707*	*3,428*	*35.5%*	*10,541*

% marks removed are associated with initial handling/capture induced mortality, primary tag loss if applicable, and selective removal in fisheries below Grease Harbour.

NASS AREA SALMON AND SUMMER-RUN NET ESCAPEMENT ESTIMATES:

The 2015 preliminary post-season estimates of net escapement for Sockeye, Pink, Chinook, Pink, Lower/Upper Nass and Coastal Coho, and summer-run steelhead were calculated according to methods developed by the Nisga'a-Canada-BC Joint technical committee (NCBJTC) and preliminary results are shown in Table 6. Nass Coho escapement estimates were calculated by prorating stream specific results to habitat-capacity model (Bocking and Peacock 2004) aggregate area estimates; Lower Nass - 35% was used based on a mean estimate from Zolzap/Ansedegan/Diskangieq escapements and Coastal Nass – 29% was used based on a mean estimate from Salmon Cove/Lizard escapements. Based on these preliminary results, escapement goals were reached for all species in 2015 except Coho Salmon that was just below target. Nass Area salmon and steelhead run size returns and escapements in 2015 were above average for Sockeye, Chum, and summer-run steelhead; average for Chinook; and below average for Pink and Coho salmon based on returns from 2000–2014.

Table 6. Estimates of run size to GW fishwheels and net escapement for Nass salmon and summer-run steelhead, 2000–2015 (NCBJTC 2015 [draft]).

	RUN SIZE TO GITWINKSIHLKW FISHWHEELS						NET ESCAPEMENT (COASTAL, LOWER, MIDDLE AND UPPER NASS)					
Year	Sockeye	Pink	Chinook	Coho	Chum	Steelhead	Sockeye	Pink	Chinook	Coho	Chum	Steelhead
2000	243,584	119,000	21,617	72,175	3,200	13,545	204,407	350,455	19,348	106,136	22,766	13,431
2001	206,033	314,000	34,703	89,536	1,600	11,524	167,253	839,628	32,340	194,761	37,226	11,325
2002	470,083	191,000	16,081	167,829	700	15,375	405,473	408,969	14,804	292,323	18,238	15,110
2003	328,916	525,000	29,462	77,574	1,800	14,790	263,688	1,069,946	28,274	140,901	79,791	14,546
2004	283,712	197,000	17,984	60,106	2,300	4,308	215,857	604,554	16,875	98,998	61,192	4,045
2005	285,916	136,000	16,764	99,906	1,300	7,090	224,559	1,332,756	15,571	159,861	37,237	7,008
2006	296,338	20,000	28,609	54,730	1,400	4,225	250,642	144,036	28,061	101,693	63,783	4,141
2007	195,238	147,000	27,165	55,944	800	5,864	164,747	811,070	24,964	141,930	13,593	5,823
2008	235,222	17,000	21,681	84,817	700	11,857	218,375	55,417	22,138	115,477	3,773	11,785
2009	281,235	564,000	30,253	201,683	1,400	23,203	244,900	906,286	29,576	380,882	25,052	23,066
2010	261,722	31,000	20,720	92,134	1,400	19,407	229,010	216,551	20,729	168,914	10,567	19,191
2011	308,636	143,000	11,573	74,108	2,700	19,420	276,700	160,418	10,826	85,910	7,826	19,334
2012	239,400	35,000	10,785	69,383	700	12,831	203,028	282,396	9,797	125,756	19,446	12,538
2013	248,650	322,000	10,240	129,882	700	6,862	210,126	430,149	9,034	518,485	17,541	6,637
2014	301,072	222,000	14,354	123,223	1,900	19,369	260,102	320,659	13,112	231,710	19,164	19,220
2015	**469,466**	**67,000**	**21,260**	**45,093**	**2,400**	**13,335**	**389,503**	**390,255**	**19,465**	**58,689**	**51,800**	**13,169**
Mean 00-14	**279,000**	**199,000**	**21,000**	**97,000**	**2,000**	**13,000**	**236,000**	**529,000**	**20,000**	**191,000**	**29,000**	**12,000**
Targets	**275,000**		**13,000**	**60,000**		**4,500-10,500**	**200,000**	**225,000**	**15,000**	**60,000**	**45,000**	**4000-10000**

PRELIMINARY HARVEST ESTIMATES FOR ADULT NASS SALMON & STEELHEAD

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

Alaskan commercial gillnet fisheries in 2015 for District 101 (Tree Point) and District 106 (Sumner and Upper Clarence) started on 21 June and 17 June, respectively, and ended on 1 October. Alaskan commercial seine fisheries in 2015 start/end dates by SE districts: District 101 (Lower Clarence/Revilla) on 5 July/13 August, District 102 (Middle Clarence) on 21 June/25 September, District 103 (Cordova) on 19 July/2 September, and District 104 (Noyes/Dall) on 5 July/2 September. Preliminary Alaskan net catches of salmon in 2015 were above average for Sockeye (except in Districts 101 gillnet fishery) and Chum, near average for Chinook, and below average for Pink and Coho (Table 7).

Table 7. In-season commercial gillnet and seine catch estimates of salmon in Alaskan fisheries in Districts 101-104, 2015.

IN-SEASON SE ALASKAN CUM. SALMON CATCH ESTIMATES (ADFG WEBSITE) - 2015										WEEK END:	3-Oct-15
DISTRICTS	AREA	SOCK CATCH	AVG (00-14)	CHIN CATCH	AVG (00-14)	PINK CATCH	AVG ODD (00-13)	CHUM CATCH	AVG (00-14)	COHO CATCH	AVG (00-14)
DIST 101 GN	TREE PT	22,000	80,000	1,100	1,400	130,000	371,000	417,000	254,000	37,000	55,000
DIST 106 GN	UPP. CLAR	116,000	90,000	1,500	1,500	217,000	158,000	236,000	179,000	106,000	146,000
DIST 101 SN	LOW CLAR	69,000	59,000	200	800	1,354,000	4,407,000	592,000	264,000	19,000	40,000
DIST 102 SN	MID CLAR.	76,000	35,000	600	800	2,454,000	3,208,000	695,000	484,000	46,000	52,000
DIST 103 SN	CORDOVA	31,000	26,000	100	500	1,870,000	2,071,000	62,000	146,000	19,000	33,000
DIST 104 SN	NOYES/DALL	430,000	285,000	6,300	6,900	3,811,000	2,381,000	222,000	190,000	62,000	74,000
CUMULATIVE TOTAL		**744,000**	**575,000**	**9,800**	**11,900**	**9,836,000**	**12,596,000**	**2,224,000**	**1,517,000**	**289,000**	**400,000**

*Chinook catch data were not available from June to 11 July. For those weeks, mean weekly catches from 2000-2014 were used as approximate estimates for 2015.

Of the total in-season Sockeye catch reported in Alaskan net fisheries (744,000) in 2015, approximately 128,000 (17%) are estimated as Nass origin based on mean stock composition estimates from 1982–2014. The estimated catch of Nass Sockeye was just below average. The average total mean harvest of Nass Sockeye Salmon in Alaskan fisheries from 2000–2014 is 129,000 (range: 47,000–300,000). Preliminary estimates of harvests of other Nass salmon in Alaskan fisheries in 2015 are 148,000 Pink, <1000 Chinook, 58,000 Coho, and 5,000 Chum (Table 8).

Table 8. Preliminary estimates of Nass salmon harvests in Alaskan fisheries, 2000–2015 (NCBJTC 2015 [draft]).

	ALASKAN HARVEST				
Year	Sock.	Pink	Chin.	Coho	Chum
2000	86,000	39,000	700	92,000	5,000
2001	202,000	240,000	700	176,000	22,000
2002	125,000	50,000	700	63,000	2,000
2003	153,000	170,000	700	89,000	14,000
2004	304,000	106,000	600	91,000	30,000
2005	145,000	219,000	300	163,000	11,000
2006	138,000	6,000	1,800	66,000	16,000
2007	251,000	149,000	300	107,000	11,000
2008	47,000	5,000	200	56,000	1,000
2009	150,000	128,000	1,100	118,000	9,000
2010	47,000	21,000	700	92,000	1,000
2011	99,000	9,000	500	77,000	2,000
2012	58,000	40,000	400	108,000	3,000
2013	67,000	70,000	400	767,000	3,000
2014	67,000	57,000	600	138,000	2,000
2015	**128,000**	**148,000**	**800**	**58,000**	**5,000**
Mean 00-14	**129,000**	**87,000**	**1,000**	**147,000**	**9,000**

CANADIAN COMMERCIAL HARVEST DATA 2015

IN-SEASON AREA 3 GILLNET AND SEINE CATCH DATA (information courtesy from DFO Prince Rupert)

Area 3 commercial net fisheries start dates in 2015 were 9 June for gillnet and 6 July for seines. DFO commercial net fishery openings in Area 3 for 2015 were 28 gillnet and 13 seine. Commercial fishery openings in Area 3 were closed on 13 August. Commercial net harvest and release data for 2015 for salmon and steelhead in Area 3 are shown in Tables 9 and 10.

DFO implemented management actions in Area 3 to reduce harvest impacts on the Kwinageese Sockeye stock during their migration through Area 3 in July. The stock required rebuilding from a past spawning barrier detected in 2011 and poor returns from 2010 and 2012–2014. Sockeye retention was not be permitted in commercial fisheries in Area 3 from 19–25 July (WK 30), the anticipated peak of the Kwinageese Sockeye migration, as documented in DFO's 2015 Integrated Fisheries Management Plan (IFMP).

Table 9. In-season salmon and steelhead gillnet and seine catch estimates by week in DFO commercial net fisheries in Area 3, 2015.

GEAR	AK W	Vessels	SO-harv	SO-Rel	CO-HARV	CO-Rel	PK-HARV	PK-Rel	Chum-harv	Chum-Rel	CH-harv	CH-Rel	STEEL-Rel
GN	24	104	2,223	0	4	0	0	2	0	5	0	90	38
	25	283	9,880	0	9	3	2	0	0	80	0	675	20
	26	512	18,371	0	1,893	14	828	9	0	1,249	783	234	80
	27	339	21,845	0	326	0	5,154	7	2,738	797	469	118	16
	28	317	29,136	0	1,179	4	25,976	82	23,935	1,160	169	85	39
	29	471	37,915	0	1,694	11	55,300	104	29,932	1,744	147	95	57
	31	300	26,975	1	2,062	64	49,199	322	0	10,673	100	59	87
	32	209	26,544	0	2,038	7	18,222	0	0	3,582	72	26	134
	33	124	10,521	0	1,609	0	4,407	34	0	2,096	52	36	129
GN Total		**2,659**	**183,410**	**1**	**10,814**	**103**	**159,088**	**560**	**56,605**	**21,386**	**1,792**	**1,418**	**600**
SN	28	29	6,746	0	651	0	25,205	0	24,818	13	0	182	28
	29	106	9,543	0	4,104	0	79,295	0	85,068	0	0	499	104
	30	16	0	5,641	312	1	12,944	2	0	8,454	0	51	7
	31	37	5,760	0	2,573	43	63,774	0	0	14,613	0	111	25
SN Total		**188**	**22,049**	**5,641**	**7,640**	**44**	**181,218**	**2**	**109,886**	**23,080**	**0**	**843**	**164**
Grand Total		**2,847**	**205,459**	**5,642**	**18,454**	**147**	**340,306**	**562**	**166,491**	**44,466**	**1,792**	**2,261**	**764**

LABELS: SO=SOCKEYE, PK=PINK, CO=COHO, CH=CHINOOK; STEEL=STEELHEAD, HARV=HARVESTED, AND REL=RELEASED; VESSELS=BOAT DAYS.

Table 10. In-season salmon and steelhead gillnet and seine catch estimates by area in DFO commercial net fisheries in Area 3, 2015.

GEAR	AREA 3	Vessels	SO-harv	SO-Rel	CO-HARV	CO-Rel	PK-HARV	PK-Rel	Chum-harv	Chum-Rel	CH-harv	CH-Rel	STEEL-Rel
GN	3-12	1177	88,456	0	3,872	38	68,838	109	0	6,752	714	688	351
	3-7A	534	31,860	0	2,053	23	28,901	312	0	6,009	483	354	111
	3-7B	794	53,668	1	3,810	42	49,881	102	33,213	8,521	504	340	123
	BOSTON R	105	6,761	0	786	0	9,545	27	20,088	0	71	25	15
	TRACEY BA	46	2,556	0	274	0	1,856	9	3,304	73	20	11	0
GN Total		**2,659**	**183,410**	**1**	**10,814**	**103**	**159,088**	**560**	**56,605**	**21,386**	**1,792**	**1,418**	**600**
	3-7A	8	237	1,675	351	0	8,890	0	0	3,665	0	28	4
	3-7B	77	13,405	1,108	3,565	30	100,831	0	32,846	12,763	0	398	72
	BOSTON R	70	5,369	2,050	2,639	14	44,959	2	53,455	4,980	0	307	69
	TRACEY BA	29	3,038	0	1,013	0	23,906	0	23,585	3	0	92	19
SN Total		**188**	**22,049**	**5,641**	**7,640**	**44**	**181,218**	**2**	**109,886**	**23,080**	**0**	**843**	**164**
Grand Total		**2,847**	**205,459**	**5,642**	**18,454**	**147**	**340,306**	**562**	**166,491**	**44,466**	**1,792**	**2,261**	**764**

**Sub-area catches reporting fewer than 5 boats are not shown by sub area but included in totals by gear type.*

Of the total estimated commercial net catch (206,000) of Sockeye Salmon in Area 3 in 2015, NFWD is estimating approximately 153,500 are of Nass origin (74%) based on stock composition modeling. The average total mean harvest of Nass Sockeye in Canadian commercial net fisheries from 2000–2014 is 95,000 (range: 26,000-280,000).

PRELIMINARY POST-SEASON NET, TROLL, AND RECREATIONAL CATCH ESTIMATES FOR NASS SALMON STOCKS 2015

COMMERCIAL CATCH ESTIMATES OF NASS SALMON 2015

Preliminary total harvest estimates of Nass salmon in commercial net and troll fisheries for 2015 are approximately: 153,000 Sockeye, 80,000 Pink, 1,700 Chinook, 12,000 Coho, and 6,700 Chum based on preliminary data from DFO Prince Rupert and methods developed by the NCBJTC (Table 11). Preliminary post-season commercial catch estimates in 2015 are below average for all Nass salmon species with the exception of above average catches of Nass Chum Salmon when compared to the mean catches from 2000–2014.

Table 11. Preliminary post-season commercial net and troll catch estimates of Nass salmon in DFO commercial fisheries in Areas 1-5, 2000–2015 (NCBJTC 2015 [draft]).

	COMMERCIAL (GILLNET & SEINE)					COMMERCIAL (TROLL)					TOTAL COMMERCIAL CATCH ESTIMATES				
Year	Sockeye	Pink	Chinook	Coho	Chum	Sockeye	Pink	Chinook	Coho	Chum	Sockeye	Pink	Chinook	Coho	Chum
2000	239,000	205,000	1,800	24,000	11,500	UNK	UNK	NA	NA	UNK	239,000	205,000	1,800	24,000	11,500
2001	132,000	982,000	900	9,000	31,200	UNK	UNK	NA	16,000	UNK	132,000	982,000	900	25,000	31,200
2002	725,000	239,000	3,800	2,000	9,800	UNK	UNK	2,100	7,000	UNK	725,000	239,000	5,900	9,000	9,800
2003	616,000	183,000	3,600	2,000	13,700	UNK	UNK	2,500	9,000	UNK	616,000	183,000	6,100	11,000	13,700
2004	318,000	235,000	6,300	3,000	8,400	UNK	UNK	400	4,000	UNK	318,000	235,000	6,700	7,000	8,400
2005	174,000	350,000	2,700	11,000	2,700	UNK	UNK	400	19,000	UNK	174,000	350,000	3,100	30,000	2,700
2006	292,000	16,000	3,200	2,000	9,300	UNK	UNK	1,300	8,000	UNK	292,000	16,000	4,500	10,000	9,300
2007	131,000	302,000	3,400	10,000	1,100	UNK	UNK	600	9,000	UNK	131,000	302,000	4,000	19,000	1,100
2008	60,000	2,000	300	2,000	200	UNK	UNK	0	4,000	UNK	60,000	2,000	300	6,000	200
2009	103,000	69,000	800	3,000	1,300	UNK	UNK	300	16,000	UNK	103,000	69,000	1,100	19,000	1,300
2010	86,000	2,000	600	2,000	200	UNK	UNK	300	13,000	UNK	86,000	2,000	900	15,000	200
2011	108,000	15,000	800	3,000	500	UNK	UNK	400	15,000	UNK	108,000	15,000	1,200	18,000	500
2012	133,000	22,000	400	3,000	500	UNK	UNK	400	28,000	UNK	133,000	22,000	800	31,000	500
2013	142,000	45,000	900	33,000	700	UNK	UNK	200	146,000	UNK	142,000	45,000	1,100	179,000	700
2014	127,000	40,000	1,600	3,000	400	UNK	UNK	100	17,000	UNK	127,000	40,000	1,700	20,000	400
2015	**153,000**	**80,000**	**1,400**	**5,000**	**6,700**	**UNK**	**UNK**	**300**	**7,000**	**UNK**	**153,000**	**80,000**	**1,700**	**12,000**	**6,700**
Mean 00-14	**226,000**	**180,000**	**2,000**	**7,000**	**6,000**	**UNK**	**UNK**	**1,000**	**22,000**	**UNK**	**226,000**	**180,000**	**3,000**	**28,000**	**6,000**

RECREATIONAL CATCH ESTIMATES OF NASS SALMON 2015

Preliminary minimum harvest estimates of Nass salmon in recreational fisheries for 2015 are approximately: <100 Sockeye, 1,100 Chinook, and 3,600 Coho based on preliminary data from NFWD, DFO Prince Rupert, and methods developed by the NCBJTC (Table 12). **The recreational catch estimates of Nass salmon that are shown in Table 12 are considered minimum** and based on many assumptions (e.g., relative stock composition of Nass salmon in total recreational catches in Area 3 and Area 4 (tidal only). The recreational harvest estimates for Nass salmon in 2015 indicate above average catches of Pink, and below average catches of Sockeye, Chinook, and Coho when compared to mean estimates from 2000–2014 (Table 12).

In-river recreational catches were monitored by NFWD at four systems in 2015 from July to end of August (Kincolith, Cranberry, and Meziadin) and July to September (Tseax) to generate minimum in-river catch estimates. Systems monitored in 2015 included: Kincolith River (16 Chinook kept [15 released] and 47 Pink kept), Tseax River (274 Chinook [695 released] and 29 Coho kept), Cranberry River (169 Chinook kept [205 released]), and Meziadin River (27 Sockeye and 54 Chinook kept [19 released]). These system estimates combined with a historical harvest rate method were used to generate minimum estimates of the Lower Nass and Upper Nass in-river harvests for Nass Chinook (600), Coho (500), Pink (50), and Sockeye (20) in 2015. In-river monitoring results for 2015 indicated above average catches of Nass Coho and Pink and below average catches of other species when compared to mean estimates from 2000–2014 (Table 12).

Table 12. Preliminary post-season Nass salmon harvest estimates in recreational fisheries, 2000–2015 (NCBJTC 2015 [draft]).

	IN-RIVER RECREATIONAL CATCH					MARINE (TIDAL) RECREATIONAL CATCH					TOTAL RECREATIONAL CATCH				
Year	Sock.	Pink	Chin.	Coho	Chum	Sock.	Pink	Chin.	Coho	Chum	Sock.	Pink	Chin.	Coho	Chum
2000	20	UNK	1,200	300	UNK	UNK	UNK	1,000	1,400	UNK	20	UNK	2,200	1,700	UNK
2001	0	UNK	1,100	500	UNK	UNK	UNK	1,700	7,400	UNK	UNK	UNK	2,800	7,900	UNK
2002	30	UNK	900	400	UNK	UNK	UNK	1,100	4,100	UNK	30	UNK	2,000	4,500	UNK
2003	UNK	UNK	1,200	200	UNK	UNK	UNK	1,200	4,500	UNK	UNK	UNK	2,400	4,700	UNK
2004	UNK	UNK	900	200	UNK	UNK	UNK	1,900	4,400	UNK	UNK	UNK	2,800	4,600	UNK
2005	UNK	UNK	800	500	UNK	UNK	UNK	1,500	4,800	UNK	UNK	UNK	2,300	5,300	UNK
2006	UNK	UNK	1,300	100	UNK	UNK	UNK	1,000	4,100	UNK	UNK	UNK	2,300	4,200	UNK
2007	UNK	UNK	1,500	600	UNK	UNK	UNK	1,800	3,900	UNK	UNK	UNK	3,300	4,500	UNK
2008	UNK	UNK	1,300	100	UNK	UNK	UNK	1,600	5,100	UNK	UNK	UNK	2,900	5,200	UNK
2009	UNK	UNK	1,300	2,000	UNK	UNK	UNK	1,300	5,900	UNK	UNK	UNK	2,600	7,900	UNK
2010	120	UNK	500	300	UNK	UNK	UNK	400	3,800	UNK	120	UNK	900	4,100	UNK
2011	10	0	600	200	UNK	UNK	UNK	900	4,800	UNK	10	UNK	1,500	5,000	UNK
2012	UNK	10	600	200	UNK	UNK	UNK	500	2,100	UNK	UNK	10	1,100	2,300	UNK
2013	30	20	500	400	UNK	UNK	UNK	500	8,600	UNK	30	20	1,000	9,000	UNK
2014	120	UNK	900	300	UNK	UNK	UNK	700	3,800	UNK	120	UNK	1,600	4,100	UNK
2015	**20**	**50**	**600**	**500**	**UNK**	**UNK**	**UNK**	**500**	**3,100**	**UNK**	**20**	**50**	**1,100**	**3,600**	**UNK**
Mean 00-14	**50**	**10**	**1,000**	**400**	**UNK**	**UNK**	**UNK**	**1,000**	**5,000**	**UNK**	**60**	**20**	**2,000**	**5,000**	**UNK**

GITANYOW HARVEST ESTIMATES OF NASS SALMON 2015 (information courtesy of the Gitanyow Fisheries Authority [GFA]):

Reported salmon harvests in Upper Nass Gitanyow fisheries in 2015 were: 20,797 Sockeye (9,412 FSC and 11,385 Demo), 253 Chinook (252 large and 1 small), and 38 Coho based on FSC catches to 12 September and GFA's Inland Selective Economic Demonstration Fishery Program for Sockeye. The Gitanyow acquired 55 Area C gillnet licenses and were allocated up to 11,559 Sockeye from DFO based on Area 3 commercial gillnet catches in 2015. The majority of the total Gitanyow harvest was from the Meziadin River. Of the total catch reported in Gitanyow fisheries, 567 tags (551 Sockeye, 13 Chinook, and 3 Coho) were returned to NFWD. Harvests of Nass salmon in the Gitanyow fisheries in 2015 were above average for Sockeye and Chinook, and below average for Coho. The average Nass salmon harvests in Gitanyow fisheries from 2000–2014 are: 8,000 Sockeye, 150 Chinook (large), and 180 Coho (Table 13).

Table 13. Nass adult salmon harvest estimates in Upper Nass River Gitanyow fisheries, 2000–2015.

	GITANYOW HARVEST				
Year	Sock.	Pink	Chin.	Coho	Chum
2000	2,884	NA	49	98	NA
2001	2,544	NA	195	399	NA
2002	6,958	NA	151	26	NA
2003	3,472	NA	181	68	NA
2004	2,622	NA	230	44	NA
2005	10,113	NA	179	718	NA
2006	6,460	NA	456	392	NA
2007	1,325	NA	24	127	NA
2008	9,406	NA	174	54	NA
2009	8,172	NA	148	327	NA
2010	9,154	NA	88	193	NA
2011	13,091	NA	103	18	NA
2012	14,298	NA	105	187	NA
2013	10,779	NA	52	46	NA
2014	17,336	NA	72	60	NA
2015	**20,797**	**NA**	**252**	**38**	**NA**
Mean 00-14	**8,000**		**150**	**180**	

NISGA'A NATION CATCH ESTIMATES OF NASS SALMON AND STEELHEAD 2015

The 2015 Nisga'a salmon and steelhead fisheries were monitored from 1 May to 29 August as part of the NFWD's salmon catch monitoring program. Incidental salmon and steelhead catches before 1 May and after 29 August were also accounted for in NFWD's non-salmon catch monitoring program. Estimates from May to August were expanded for non-reporting based on catch and fishing effort analyses. Tables 14 and 15 show preliminary post-season harvest estimates of Nass salmon and steelhead in Nisga'a fisheries in 2015. Total salmon harvests were: 154,140 Sockeye (133,094 Treaty, 13,545 Chum underage conversion, and 7,501 Demo), 8,251 Chinook, 7,905 Coho, 22,331 Pink, and 255 Chum. Harvest of steelhead in 2015 was 424 (including 3 winter-run in spring fisheries and 421 summer-run from June to August).

Of the total Nisga'a harvests of Nass salmon in 2015, 15 marine and 10 in-river individual-sale gillnet fisheries were conducted; and 106,652 Sockeye, 2,062 Chinook, 4,635 Coho, and 16,592 Pink salmon were harvested with restricted sale fishery periods (19-25 July marine and 23-29 July in-river) to allow for Kwinageese Sockeye stock to pass upriver (Tables 14 and 15). Total Individual-sale (IS) fisher permits issued in 2015 was 296 (including 62 elder permits). Of the permits issued, 194 sold in the Nisga'a sale fisheries for salmon in 2015. Permit distribution by community was: 87 Gitlaxt'aamiks, 50 Laxgalts'ap, 45 Gingolx, 35 Gitwinksihlkw, 34 Prince Rupert, 33 Terrace, and 12 other areas (Bella Bella, Kitimat, Kitkatla, Port Alberni, Prince George, Richmond, Telkwa, and Vancouver).

Table 14. Nisga'a individual-sale (IS) fisheries conducted in 2015.

NISGA'A MARINE SALE FISHERY:		
NUMBER OF NISGA'A MARINE FISHERIES (16 HR OPENINGS):	15	JUNE 18; JULY 2, 3, 7, 8, 12, 13, 15, 16, 29, 30; AUG 16, 17, 19, 20
DATA FROM JUNE 18 FISHERY (25 BOATS; 22 FISHERS SOLD) - FINAL		1853 SOCKEYE
DATA FROM JULY 2 FISHERY (24 BOATS; 23 FISHERS SOLD) - FINAL		3403 SOCKEYE, 51 CHINOOK, AND 456 PINKS
DATA FROM JULY 3 FISHERY (25 BOATS; 32 FISHERS SOLD) - FINAL		3665 SOCKEYE, 48 CHINOOK, 543 PINKS, AND 1 COHO
DATA FROM JULY 7 FISHERY (23 BOATS; 14 FISHERS SOLD) - FINAL		2064 SOCKEYE, 12 CHINOOK, AND 685 PINKS
DATA FROM JULY 8 FISHERY (25 BOATS; 27 FISHERS SOLD) - FINAL		2574 SOCKEYE, 28 CHINOOK, AND 1523 PINKS
DATA FROM JULY 12 FISHERY (23 BOATS; 17 FISHERS SOLD) - FINAL		2430 SOCKEYE, 13 CHINOOK, 1403 PINKS, AND 3 COHO
DATA FROM JULY 13 FISHERY (23 BOATS; 24 FISHERS SOLD) - FINAL		2452 SOCKEYE, 14 CHINOOK, 1564 PINKS, AND 3 COHO
DATA FROM JULY 15 FISHERY (23 BOATS; 17 FISHERS SOLD) - FINAL		2633 SOCKEYE, 31 CHINOOK, 1998 PINKS, AND 13 COHO
DATA FROM JULY 16 FISHERY (23 BOATS; 31 FISHERS SOLD) - FINAL		3797 SOCKEYE, 31 CHINOOK, 2634 PINKS, AND 24 COHO
DATA FROM JULY 29 FISHERY (20 BOATS; 18 FISHERS SOLD) - FINAL		1299 SOCKEYE, 11 CHINOOK, 3031 PINKS, AND 118 COHO
DATA FROM JULY 30 FISHERY (18 BOATS; 19 FISHERS SOLD) - FINAL		1883 SOCKEYE, 26 CHINOOK, 2325 PINKS, AND 103 COHO
DATA FROM AUG 16 FISHERY (12 BOATS; 13 FISHERS SOLD) - FINAL		3040 SOCKEYE, 20 CHINOOK, 116 PINKS, AND 366 COHO
DATA FROM AUG 17 FISHERY (12 BOATS; 14 FISHERS SOLD) - FINAL		2132 SOCKEYE, 16 CHINOOK, 94 PINKS, AND 232 COHO
DATA FROM AUG 19 FISHERY (20 BOATS; 19 FISHERS SOLD) - FINAL		3192 SOCKEYE, 15 CHINOOK, 151 PINKS, AND 475 COHO
DATA FROM AUG 20 FISHERY (20 BOATS; 19 FISHERS SOLD) - FINAL		2156 SOCKEYE, 12 CHINOOK, 69 PINKS, AND 172 COHO
NISGA'A IN-RIVER SALE FISHERY:		
NUMBER OF NISGA'A IN-RIVER FISHERIES (10 HR OPENINGS):	10	JULY 6, 8, 10, 13, 15, 17, 31; AUG 5, 18, 20
DATA FROM JULY 6 FISHERY (64 FISHERS) - FINAL		6318 SOCKEYE AND 336 CHINOOK
DATA FROM JULY 8 FISHERY (63 FISHERS) - FINAL		5920 SOCKEYE, 296 CHINOOK, AND 2 COHO
DATA FROM JULY 10 FISHERY (53 FISHERS) - FINAL		5660 SOCKEYE AND 243 CHINOOK
DATA FROM JULY 13 FISHERY (71 FISHERS) - FINAL		8937 SOCKEYE AND 311 CHINOOK
DATA FROM JULY 15 FISHERY (70 FISHERS) - FINAL		8189 SOCKEYE, 242 CHINOOK, AND 6 COHO
DATA FROM JULY 17 FISHERY (60 FISHERS) - FINAL		5680 SOCKEYE, 210 CHINOOK, AND 31 COHO
DATA FROM JULY 31 FISHERY (54 FISHERS) - FINAL		10,519 SOCKEYE, 31 CHINOOK, AND 207 COHO
DATA FROM AUG 5 FISHERY (47 FISHERS) - FINAL		7102 SOCKEYE, 29 CHINOOK, AND 645 COHO
DATA FROM AUG 18 FISHERY (40 FISHERS) -FINAL		5923 SOCKEYE, 22 CHINOOK, AND 1332 COHO
DATA FROM AUG 20 FISHERY (32 FISHERS) - FINAL		3831 SOCKEYE, 14 CHINOOK, AND 902 COHO

In addition to IS fisheries, Nisga'a communal (selective) fisheries were also conducted in 2015 at the Grease Harbour fishwheels (7,508 Sockeye and 138 Coho harvested) as part of the DFO's Nass Inland Selective demonstration and Nisga'a Treaty fisheries, and by seine (220 Sockeye, 5 Chinook, 28 Coho, and 2,830 Pink) to fish the Nisga'a allocation of Nass Area Pink Salmon (Table 15). Nisga'a Lisims Government (NLG) was successful in negotiating the leasing of 45 Area C commercial gillnet licenses (20 at start of fisheries and 25 from 27 July onward) to participate in DFO's Inland Selective Demonstration Fishery Program in 2015. DFO allocated weekly gillnet catches of Sockeye to NLG's inland selective fishery program based on a license sharing formula from commercial gillnet catches in Area 3. DFO allocated 7,510 Sockeye Salmon to NLG from the Area 3 commercial gillnet catches (4.1% of 183,410) in 2015. These harvests were additional to Nisga'a Treaty allocations (and IS

targets) and had to be caught selectively (no gillnets). The Grease Harbour fishwheels were used to harvest these additional catch shares as arranged by NLG and the Nisga'a Pacific Ventures Limited Partnership. Of 47,299 Sockeye caught at the GH fishwheels, 7,508 were harvested (7,501 Sockeye as part of the demonstration fishery from 3-4 July, 9-10 July, 16-17 July, 25-26 July, 5-7 August, 13-16 August, and 19-20 August; and 7 as part of the NLG treaty catch) and 39,791 were released. The demonstration harvest completed on 20 August. The NLG demonstration fishery closed from 29 July to 3 August for the Kwinageese Sockeye Salmon rebuilding management period as the stock passed upriver.

Table 15. Preliminary Nass salmon and steelhead harvests in Nisga'a fisheries, 2015.

NISGA'A TOTAL HARVEST SUMMARY	SOCK	CHIN	COHO	PINK-ODD	CHUM	STEEL
MARINE SALE FISHERY TOTAL	38,573	328	1,510	16,592	CLOSED	CLOSED
IN-RIVER SALE FISHERY TOTAL	68,079	1,734	3,125	0	CLOSED	CLOSED
INDIVIDUAL SALE (IS) FISHERY TOTAL	**106,652**	**2,062**	**4,635**	**16,592**	**CLOSED**	**CLOSED**
NLG COMMUNAL SELECTIVE FISHWHEEL TREATY FISHERY	7	0	138	CLOSED	CLOSED	CLOSED
NLG COMMUNAL SEINE SELECTIVE TREATY FISHERY	220	5	28	2,830	CLOSED	CLOSED
DOMESTIC (FSC) GILLNET FISHERY - 1 MAY - 15 SEP	**39,760**	**6,184**	**3,104**	**2,909**	**255**	**424**
SUB TOTAL (NLG TREATY FISHERIES)	**146,639**	**8,251**	**7,905**	**22,331**	**255**	**424**
NLG SOCK DEMONSTRATION SELECTIVE FISHERY HARVEST	7,501	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED
GRAND TOTAL	**154,140**	**8,251**	**7,905**	**22,331**	**255**	**424**

Preliminary post-season Nisga'a entitlement estimates for Nass salmon in 2015 were above average for Sockeye and Chum, near average for Chinook, and below average for Pink and Coho based on mean entitlements from 2000–2015 (Table 16). Preliminary post-season Nisga'a harvest estimates of Nass salmon and steelhead in 2015 (not including inland demonstration catches or species conversion for the cumulative Chum underage) were above average for Sockeye, Chinook, and Pink, near average for steelhead, and below average for Coho and Chum based on mean harvests from 2000–2015. Note that there are currently no defined Nisga'a entitlement for steelhead (winter or summer-run); but domestic harvests are permitted each year. The Nisga'a entitlement estimates shown in Table 16 for 2015 are based on preliminary data to date and include entitlement adjustments from any over harvests in other fisheries as calculated from the Nisga'a Final Agreement. An additional 21,046 Nass Sockeye Salmon was caught in Nisga'a fisheries as part of the demonstration fishery (7,501) and species conversion (13,545) of the cumulative Nass Area Chum Salmon owed from 2000–2014. The total cumulative underage of Nass Area Chum Salmon (30,780) owed to the Nisga'a Nation was converted to Sockeye equivalency as defined in the Nisga'a Final Agreement and agreed to by the Nisga'a-Canada-BC Joint Fisheries Management Committee.

Table 16. Nisga'a Treaty entitlement and harvest estimates for Nass salmon and steelhead, 2000–2015 (NCBJTC 2015 [draft]).

	NISGA'A TREATY ENTITLEMENT					NISGA'A TREATY HARVESTS (NOT INCLUDING INLAND DEMO OR SE CATCHES)					
Year	Sock	Pink	Chin	Coho	Chum	Sock	Pink	Chin	Coho	Chum	Steel
2000	93,855	42,118	6,935	9,397	12,601	93,179	6,086	9,326	1,950	1,067	495
2001	66,781	257,071	10,447	17,055	7,071	77,183	79,378	11,764	14,706	1,617	403
2002	195,288	67,129	6,315	19,200	9,899	140,666	2,043	5,431	9,016	132	557
2003	161,879	162,621	9,155	13,753	7,506	140,861	18,949	6,709	14,882	318	445
2004	117,388	98,124	6,830	10,474	5,647	145,241	10,528	5,876	20,337	1,030	512
2005	89,454	224,927	5,822	16,862	3,412	113,345	4,519	6,545	14,969	698	244
2006	111,590	111	9,036	9,969	5,931	88,021	3,753	7,706	8,425	1,110	251
2007	56,245	139,766	8,205	13,992	455	53,863	6,159	6,724	9,515	932	116
2008	47,799	32	6,318	10,482	161	45,648	4,372	4,450	3,450	506	179
2009	68,094	121,349	8,168	19,200	324	69,446	24,572	5,435	13,794	139	266
2010	60,733	2,946	5,705	15,946	79	67,691	2,493	4,581	10,292	102	709
2011	75,380	15,566	6,593	8,882	156	60,441	45,719	4,584	2,635	210	193
2012	66,760	16,632	5,153	13,708	180	68,759	20,224	3,547	12,082	316	542
2013	70,601	45,589	5,384	19,200	178	68,424	36,081	4,352	19,370	111	433
2014	81,291	23,418	5,898	19,200	206	74,957	8,264	5,914	8,452	553	468
2015	**122,122**	**42,726**	**6,446**	**6,938**	**4,698**	**133,094**	**22,331**	**8,251**	**7,905**	**255**	**424**
Mean 00-14	**91,000**	**81,000**	**7,000**	**14,000**	**4,000**	**87,000**	**18,000**	**6,000**	**11,000**	**1,000**	**400**

PRELIMINARY NASS SALMON TOTAL RETURN TO CANADA (TRTC) ESTIMATES FOR 2015

The preliminary post-season TRTC estimates for determining the Nisga'a entitlements for Nass salmon in 2015 are approximately: 718,000 Sockeye, 493,000 Pink, 31,000 Chinook, 82,000 Coho, and 59,000 Chum (Table 17). The preliminary post-season TRTC salmon estimates for 2015 were higher than the pre-season estimates for Sockeye (718,000 vs. 562,000), Chinook (31,000 vs. 24,000), and Chum (59,000 vs. 15,000); and substantially lower for Pink (496,000 vs. 734,000) and Coho (82,000 vs. 236,000). Charts of the 2015 TRTC, escapement, and Nisga'a catches compared to past years are provided in the attachment that follows this summary.

The TRTC returns for Nass salmon in 2015 were the 7th best for Sockeye, 18th best for Pink, 19th for Chinook, 25th for Coho, and 15th for Chum over a 31 year return period (1985–2015; Table 18). Preliminary TRTC harvest rate estimates for Nass salmon were 46% Sockeye, 21% Pink, 35% Chinook, 28% Coho, and 12% Chum and were above average for Coho, average for Chinook and Chum, and below average for Sockeye and Pink.

Table 17. Preliminary Total Return to Canada and total harvest estimates for Nass salmon, 2000–2015 (NCBJTC 2015 [draft]).

	TOTAL RETURN TO CANADA (TRTC)					HARVEST TOTALS (ALL CAN FISHERIES)				
Year	Sock	Pink	Chin	Coho	Chum	Sock	Pink	Chin	Coho	Chum
2000	539,000	562,000	33,000	117,000	36,000	335,000	211,000	13,000	27,000	9,000
2001	379,000	1,901,000	50,000	213,000	72,000	212,000	1,062,000	16,000	48,000	6,000
2002	1,279,000	650,000	30,000	324,000	30,000	873,000	241,000	14,000	22,000	4,000
2003	1,024,000	1,272,000	44,000	172,000	94,000	760,000	202,000	15,000	31,000	14,000
2004	681,000	850,000	33,000	131,000	71,000	466,000	246,000	16,000	32,000	9,000
2005	522,000	1,687,000	28,000	211,000	41,000	297,000	354,000	12,000	51,000	3,000
2006	637,000	164,000	43,000	125,000	74,000	386,000	20,000	15,000	23,000	10,000
2007	351,000	1,119,000	39,000	175,000	16,000	186,000	308,000	14,000	33,000	2,000
2008	333,000	61,000	30,000	131,000	4,000	115,000	6,000	8,000	16,000	1,000
2009	425,000	1,000,000	39,000	422,000	26,000	180,000	94,000	9,000	41,000	1,000
2010	392,000	221,000	27,000	199,000	11,000	163,000	5,000	6,000	30,000	0
2011	458,000	221,000	18,000	111,000	9,000	181,000	61,000	7,000	25,000	1,000
2012	419,000	325,000	15,000	171,000	20,000	216,000	42,000	5,000	46,000	1,000
2013	436,000	512,000	16,000	726,000	18,000	226,000	81,000	6,000	208,000	1,000
2014	485,000	369,000	22,000	264,000	20,000	225,000	48,000	9,000	32,000	1,000
2015	**718,000**	**493,000**	**31,000**	**82,000**	**59,000**	**328,000**	**103,000**	**11,000**	**23,000**	**7,000**
Mean 00-14	**557,000**	**728,000**	**31,000**	**233,000**	**36,000**	**321,000**	**199,000**	**11,000**	**44,000**	**4,000**

PRELIMINARY NASS SALMON TOTAL RETURN TO CANADA (TRTC) AND NISGA'A PRE-SEASON ALLOCATION FORECASTS FOR 2016

Based on the preliminary Nass salmon return and age information from 2015, preliminary forecasts for Nass salmon and Nisga'a entitlement allocations for 2016 were calculated using pre-season forecast models (Table 19). Forecast models used were a combination of sibling (Sockeye and Chinook only) and 5 year mean returns that project 25%, 50%, and 75% probability point estimates.

Pre-season TRTC forecasts (50% probability estimates) for 2016 suggest a near average return forecast for Nass Sockeye (567,000 vs. 557,000); and below average returns for even-year, Nass Area Pink (193,000 vs. 400,000), Nass Chinook (24,000 vs. 31,000), Nass Coho (197,000 vs. 233,000), and Nass Chum (21,000 vs. 36,000) based on mean TRTC estimates from 2000–2015. When reviewing Nass salmon returns over a 32 year period (1985–2016), the forecasted returns in 2016 (Table 18) are projected to be poor for Pink (29th), Chinook (26th), and Chum (25th), and fair for Sockeye (15th) and Coho (11th).

Pre-season Nisga'a Treaty entitlement forecasts for 2016 (not including cumulative underages) are above average for Nass Sockeye (100,000 vs. 90,000) and Coho (15,800 vs. 11,000), and below average for Nass even-year Pink (1,000 vs. 31,000 assuming escapement goal is not reached), Chinook (5,000 vs. 6,000), and Chum (<500 vs. 4,000) based on entitlement allocations from 2000–2015.

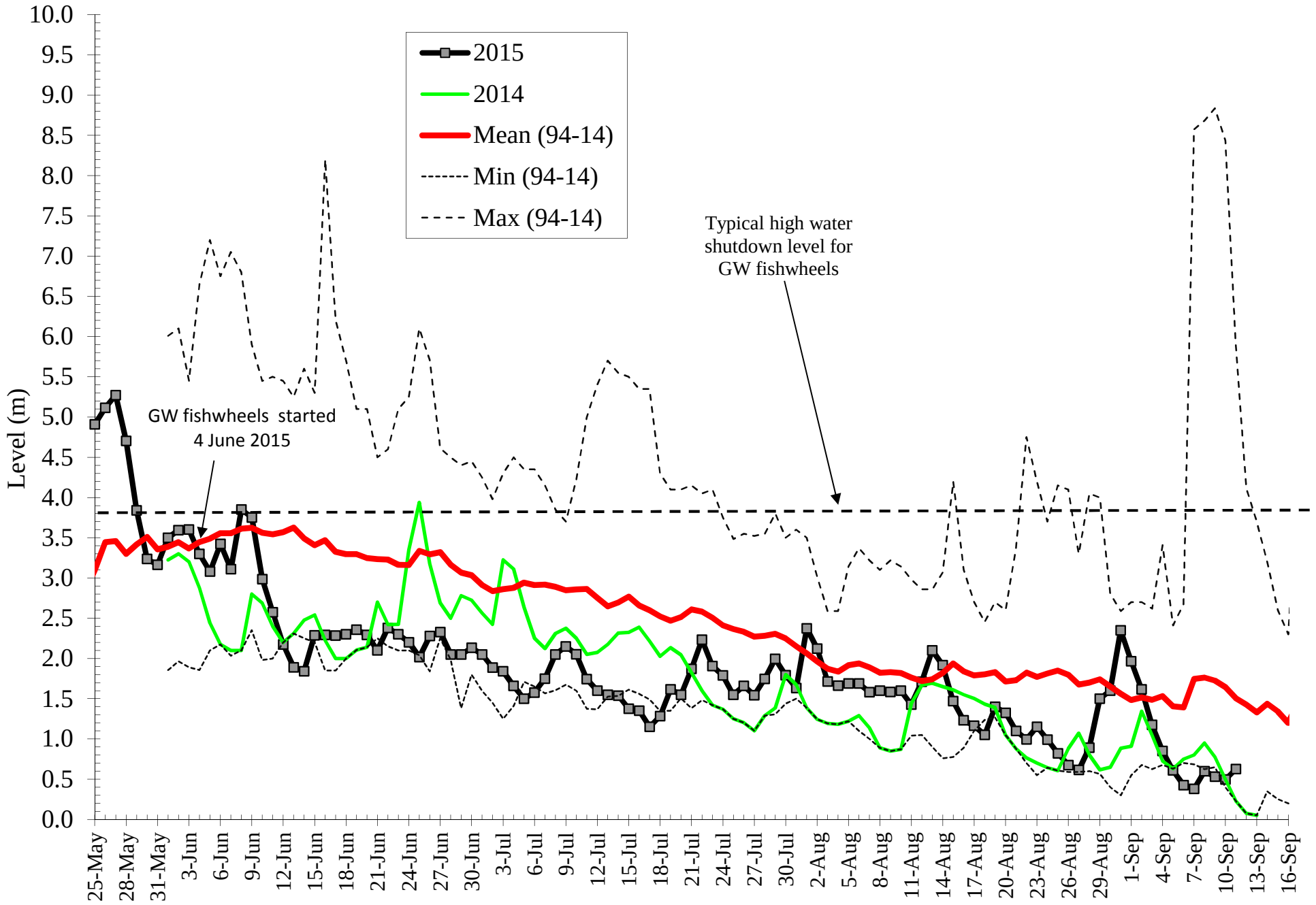
Table 18. Preliminary Total Return to Canada rankings by year for Nass salmon from 1985–2015 and forecasted for 2016.

TRTC	SOCKEYE	PINK	CHINOOK	COHO	CHUM
1985	10	6	17	11	12
1986	26	14	1	9	6
1987	23	12	14	20	10
1988	31	23	23	30	18
1989	27	4	2	19	8
1990	30	25	6	7	9
1991	6	2	29	29	16
1992	2	20	15	15	14
1993	1	9	5	28	1
1994	13	26	9	3	3
1995	5	10	27	27	4
1996	8	15	10	21	17
1997	14	16	13	31	21
1998	19	29	4	26	2
1999	11	3	21	24	7
2000	15	22	16	16	22
2001	25	7	3	6	19
2002	3	19	22	4	24
2003	4	5	7	13	5
2004	9	13	18	18	13
2005	16	1	24	8	20
2006	12	30	8	22	11
2007	28	8	11	12	28
2008	29	31	20	17	31
2009	21	11	12	2	23
2010	24	27	25	10	29
2011	18	28	28	23	30
2012	22	24	31	14	25
2013	20	17	30	1	27
2014	17	21	26	5	26
2015*	7	18	19	25	15
2016*	15	29	26	11	25
*2015 preliminary; 2016 forecast					

Table 19. Preliminary Total Return to Canada and Nisga'a entitlement forecasts for Nass salmon for 2016.

2016 NASS SALMON PRELIMINARY FORECASTS:					
TRTC AND NISGA'A ENTITLEMENT					
TRTC	SOCKEYE	PINK	CHINOOK	COHO	CHUM
75% prob.	472,000	120,000	19,000	112,000	13,000
50% prob.	**567,000**	**193,000**	**24,000**	**197,000**	**21,000**
25% prob.	688,000	310,000	31,000	347,000	33,000
NISGA'A ENTITLEMENT	SOCKEYE	PINK	CHINOOK	COHO	CHUM
75% prob.	78,000	-	4,000	9,000	<500
50% prob.	**100,000**	**1,000**	**5,000**	**15,800**	**<500**
25% prob.	118,000	14,000	6,500	19,200	(0)
Nisga'a cum. overage (-) or underage (+) status from 2000-2015 allocations	3,265	1,092	6,423	9,370	0
Nisga'a potential harvest at 50% prob. if cumulative overages/underages/SE equivalents apply in large return	**103,000**	**2,000**	**11,400**	**25,000**	**<500**

Daily Water Level at Gitwinksihlkw Fishwheels 2015

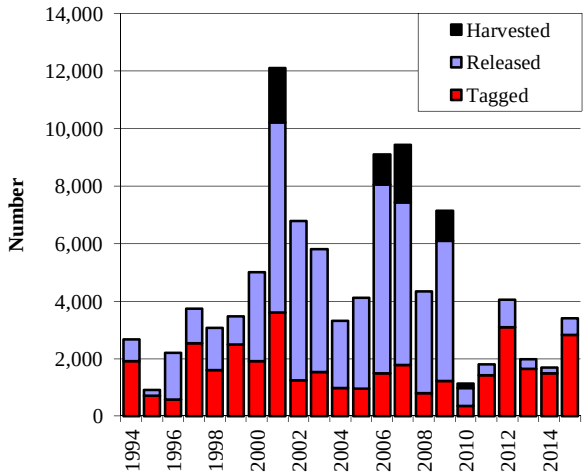


Prepared by Nisga'a Fisheries

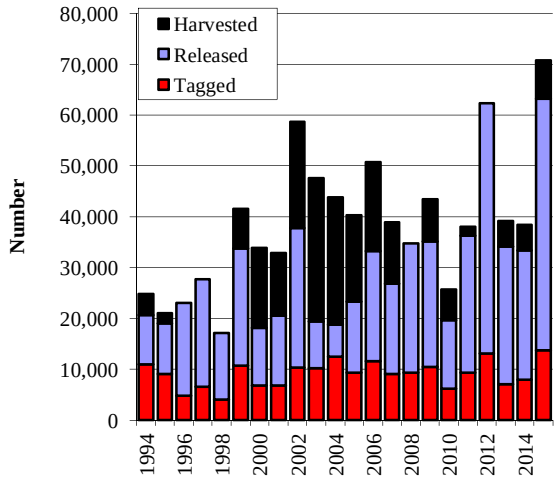
9/15/2015

NASS FISHWHEEL SALMON AND STEELHEAD CATCH CHARTS - 1994 TO 2015

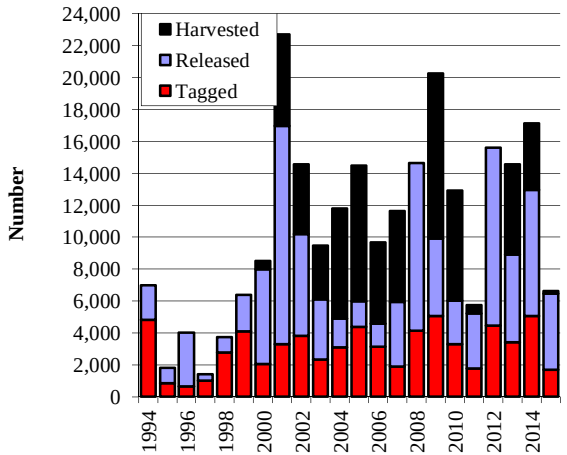
Chinook FW Catch



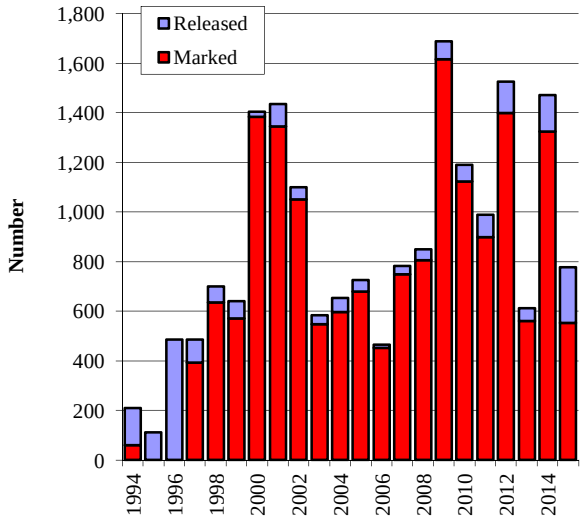
Sockeye FW Catch



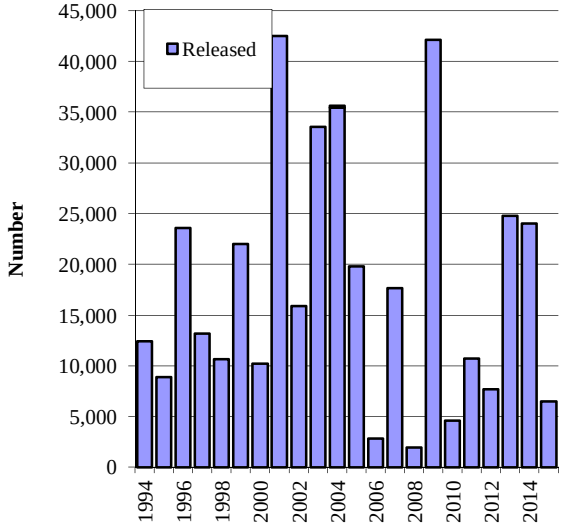
Coho FW Catch



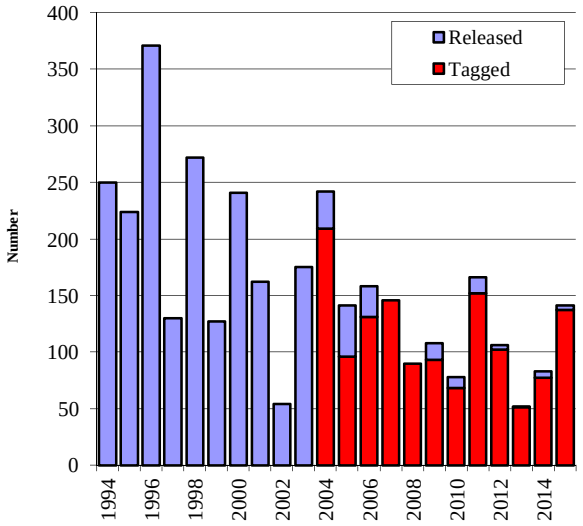
Steelhead FW Catch



Pink FW Catch

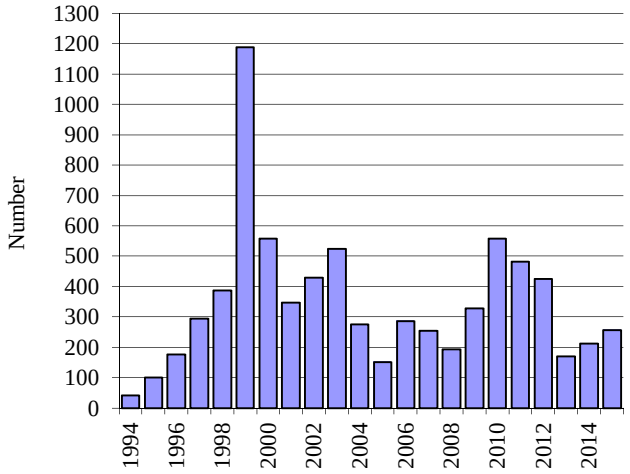


Chum FW Catch

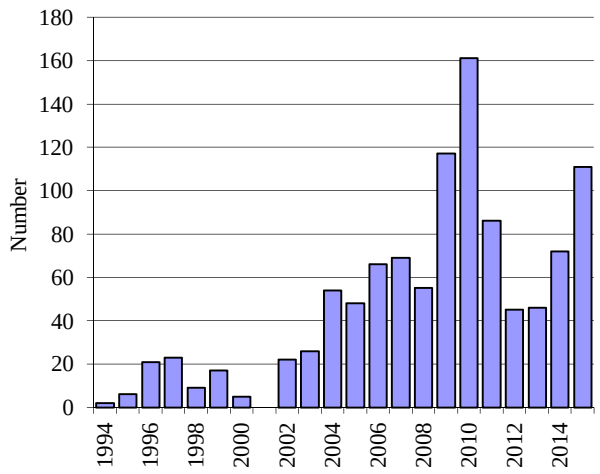


NASS FISHWHEEL NON-SALMON CATCH CHARTS - 1994 TO 2015

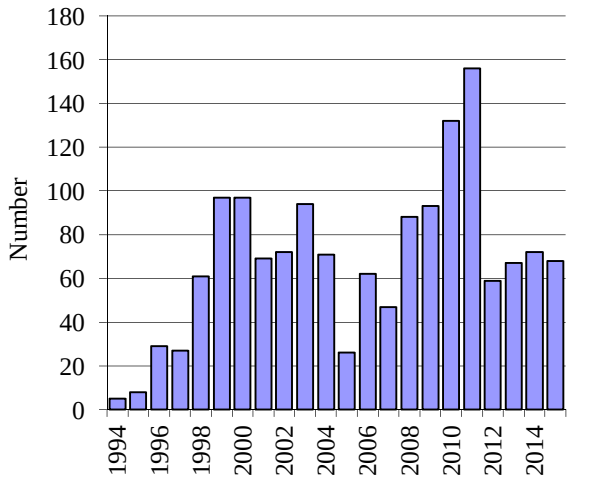
Dolly FW Catch (>19 cm NFL)



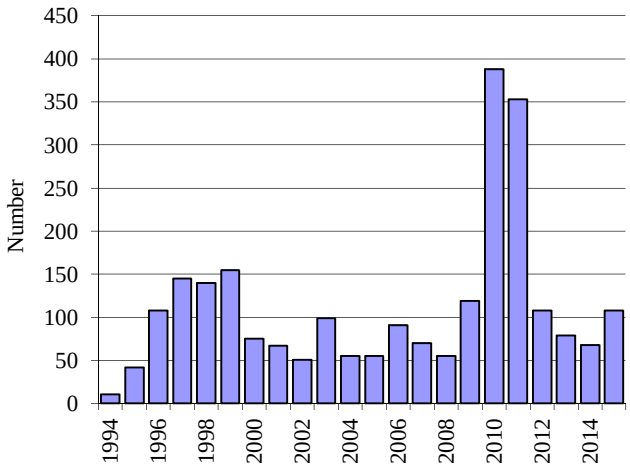
Rainbow FW Catch (>19 cm NFL)



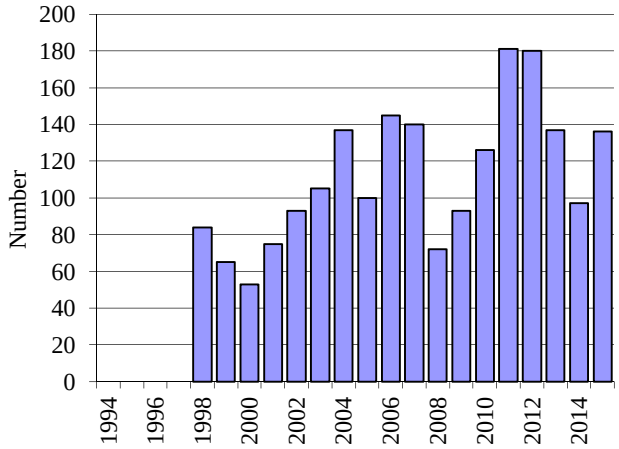
Cutthroat FW Catch (>19 cm NFL)



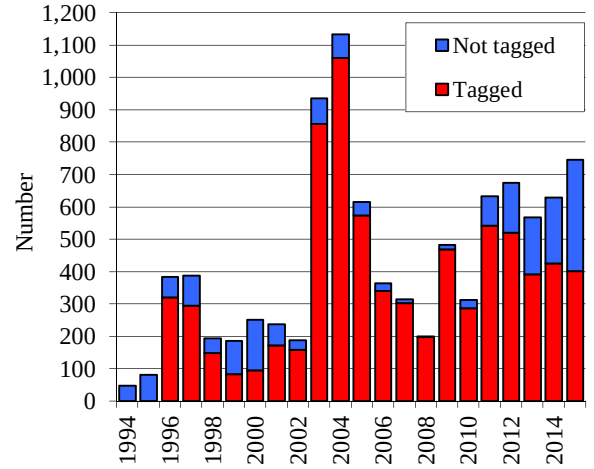
Whitefish FW Catch

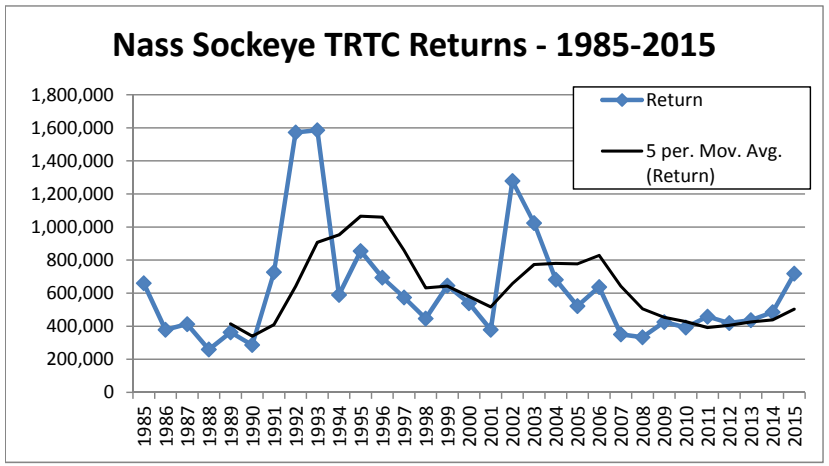


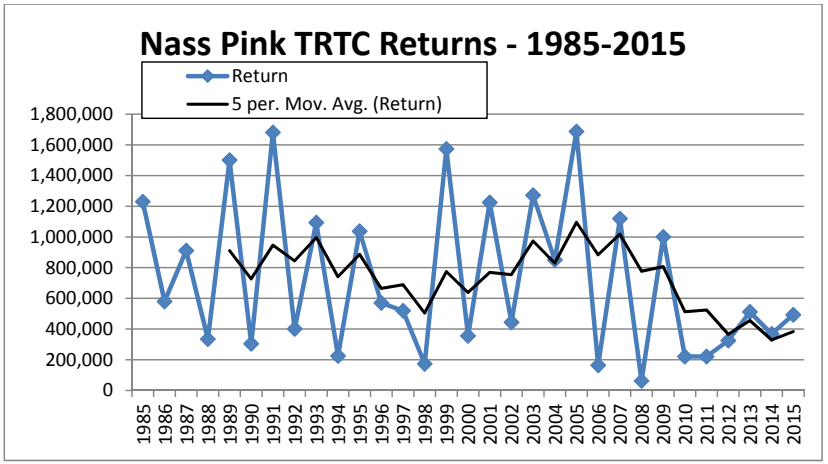
Northern Pike Minnow FW Catch

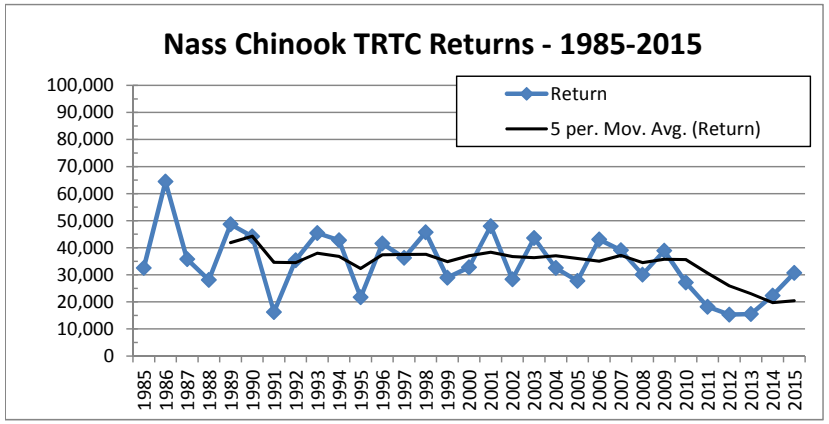


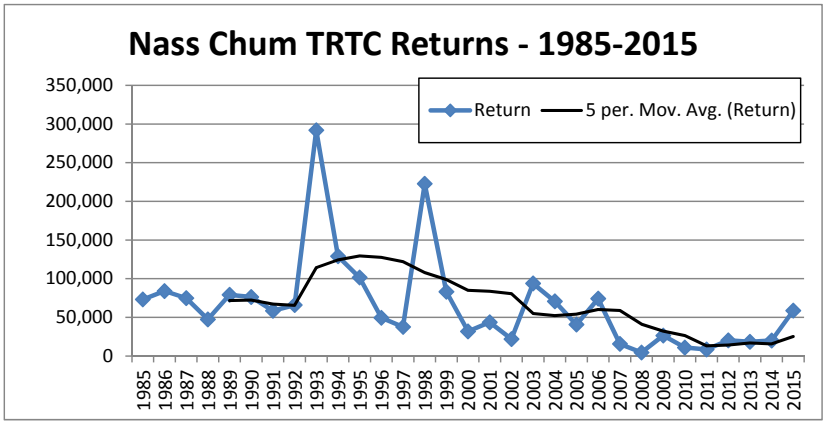
Pacific Lamprey FW Catch

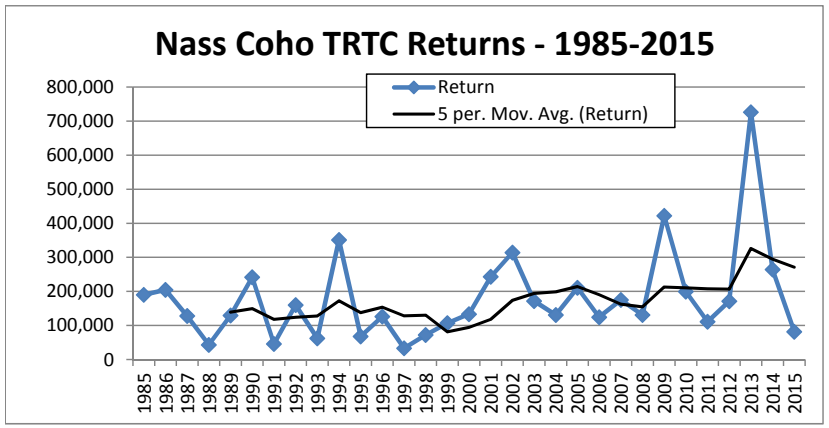


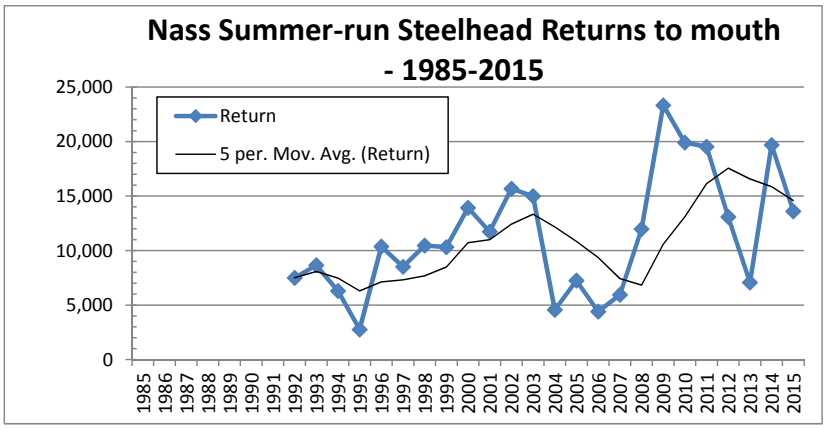

Nass Sockeye TRTC Returns - 1985-2015
Return
5 per. Mov. Avg. (Return)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

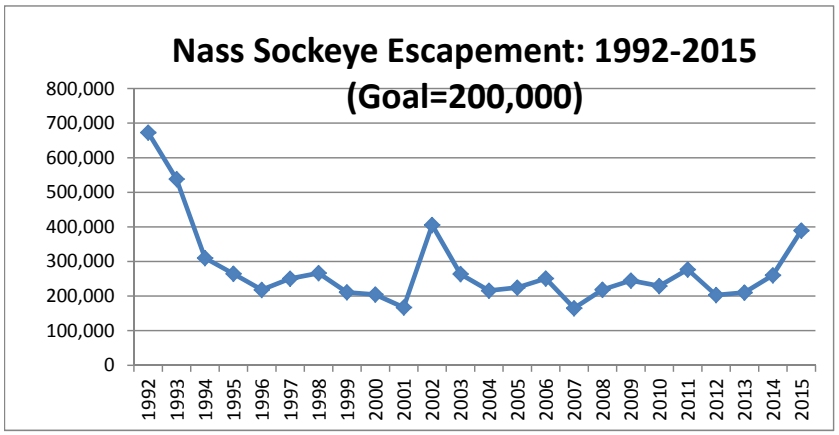

Nass Pink TRTC Returns - 1985-2015
Return
5 per. Mov. Avg. (Return)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

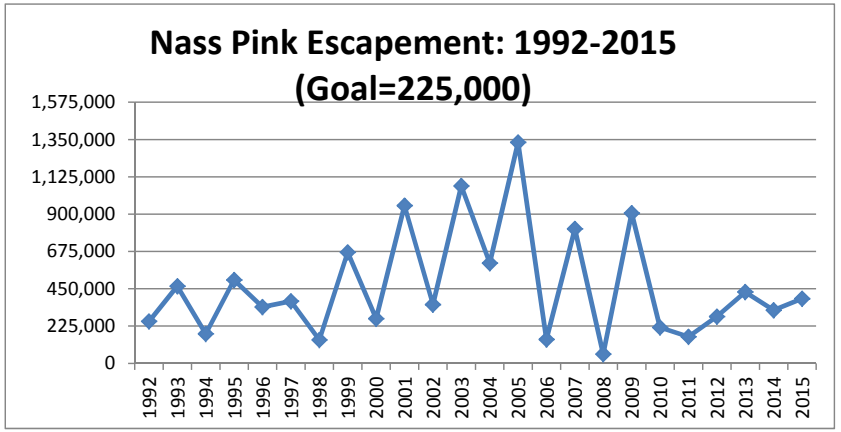

Nass Chinook TRTC Returns - 1985-2015
Return
5 per. Mov. Avg. (Return)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

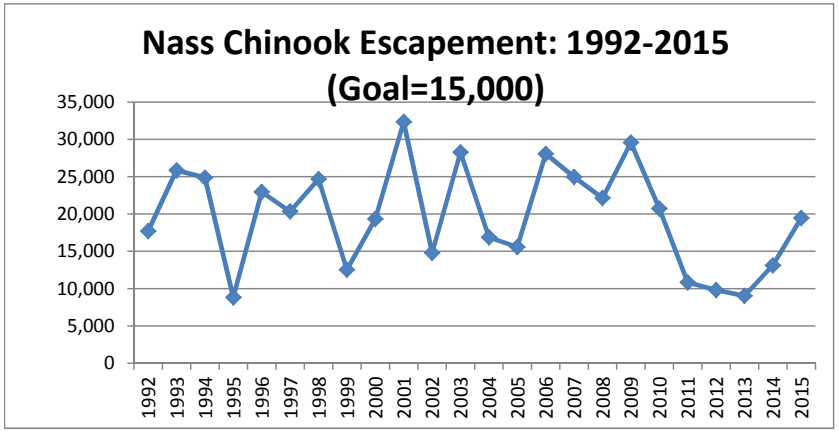

Nass Chum TRTC Returns - 1985-2015
Return
5 per. Mov. Avg. (Return)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

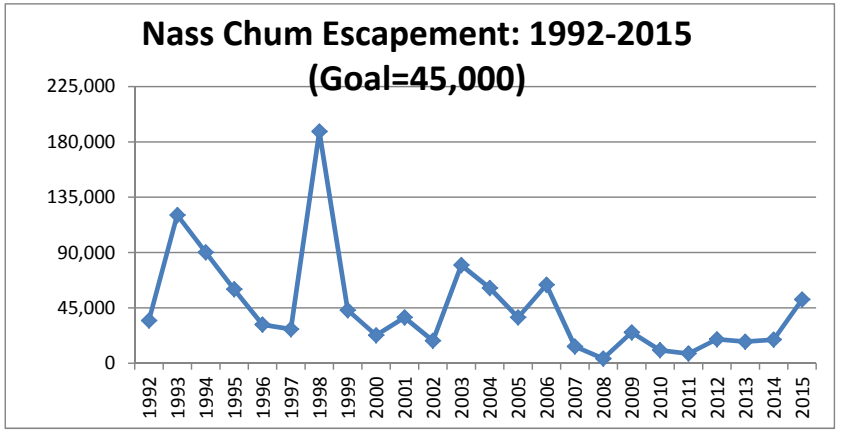

Nass Coho TRTC Returns - 1985-2015
Return
5 per. Mov. Avg. (Return)
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

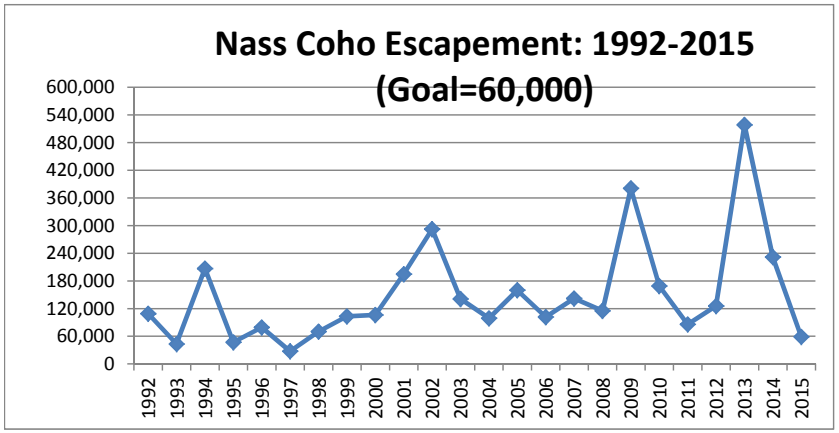

Nass Summer-run Steelhead Returns to mouth - 1985-2015
Return
5 per. Mov. Avg. (Return)
25,000
20,000
15,000
10,000
5,000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

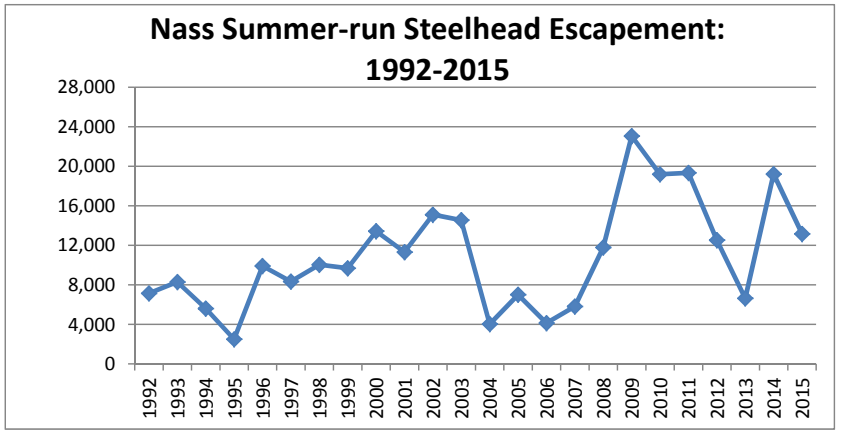

Nass Sockeye Escapement: 1992-2015
(Goal=200,000)
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

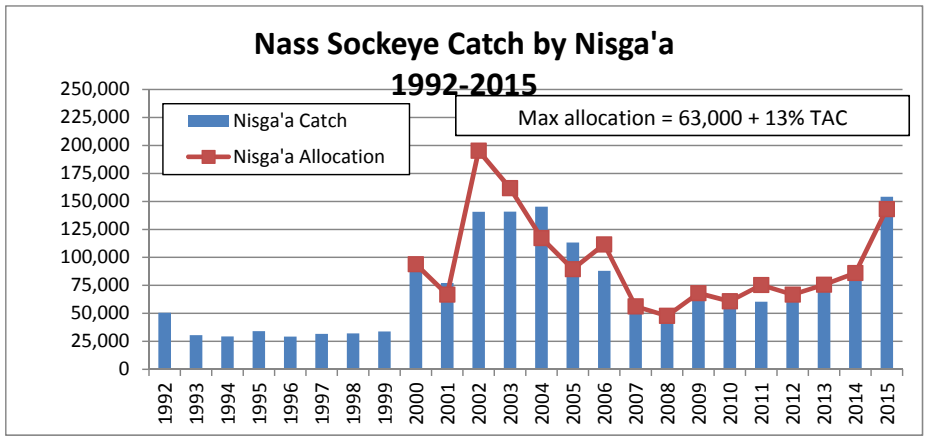

Nass Pink Escapement: 1992-2015
(Goal=225,000)
1,575,000
1,350,000
1,125,000
900,000
675,000
450,000
225,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

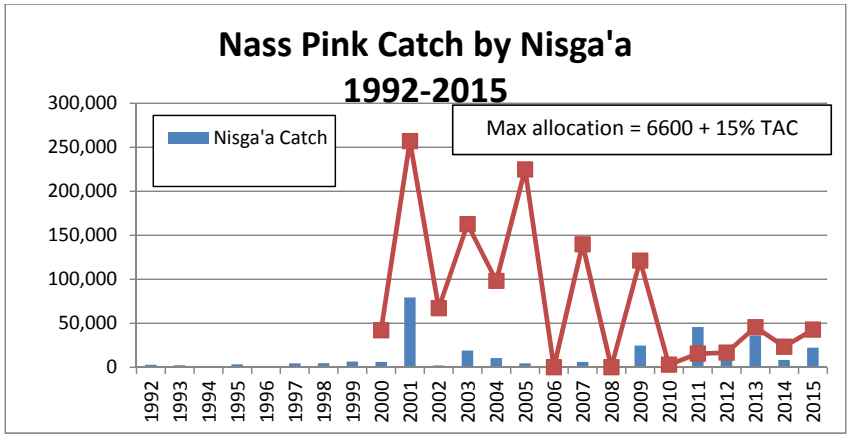

Nass Chinook Escapement: 1992-2015
(Goal=15,000)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

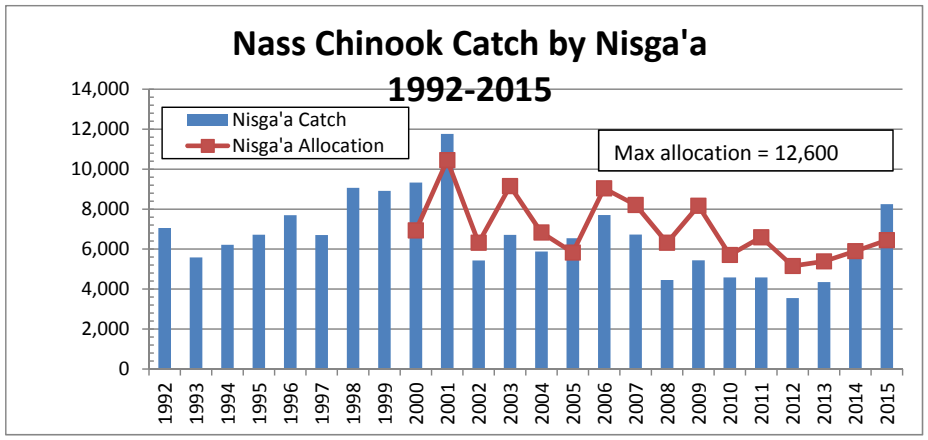

Nass Chum Escapement: 1992-2015
(Goal=45,000)
225,000
180,000
135,000
90,000
45,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

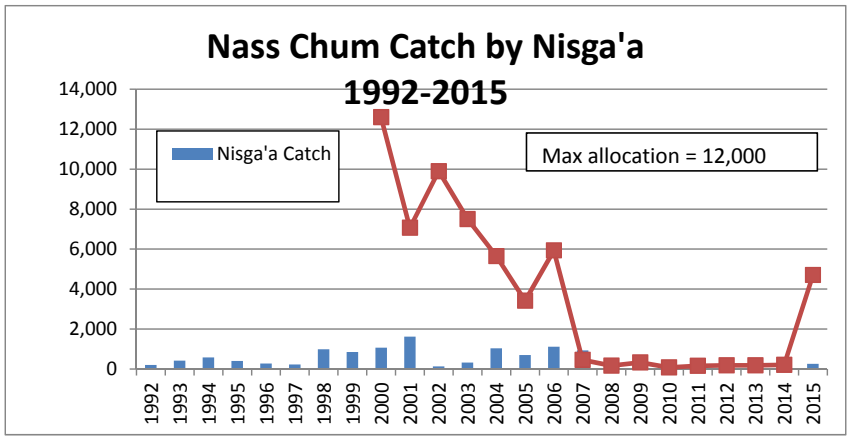

Nass Coho Escapement: 1992-2015
(Goal=60,000)
600,000
540,000
480,000
420,000
360,000
300,000
240,000
180,000
120,000
60,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

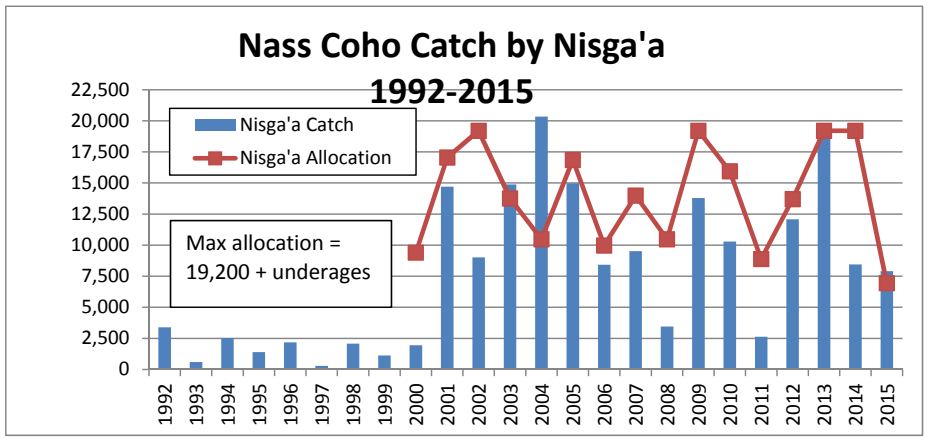

Nass Summer-run Steelhead Escapement:
1992-2015
28,000
24,000
20,000
16,000
12,000
8,000
4,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

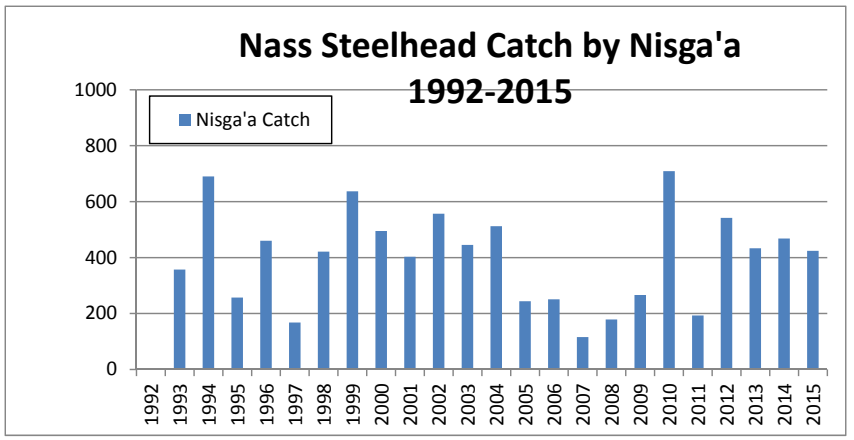

Nass Sockeye Catch by Nisga'a
1992-2015
Nisga'a Catch
Nisga'a Allocation
Max allocation = 63,000 + 13% TAC
250,000
225,000
200,000
175,000
150,000
125,000
100,000
75,000
50,000
25,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

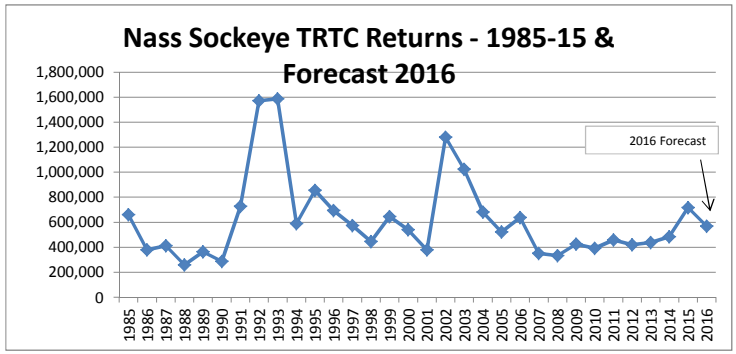

Nass Pink Catch by Nisga'a
1992-2015
Nisga'a Catch
Max allocation = 6600 + 15% TAC
300,000
250,000
200,000
150,000
100,000
50,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

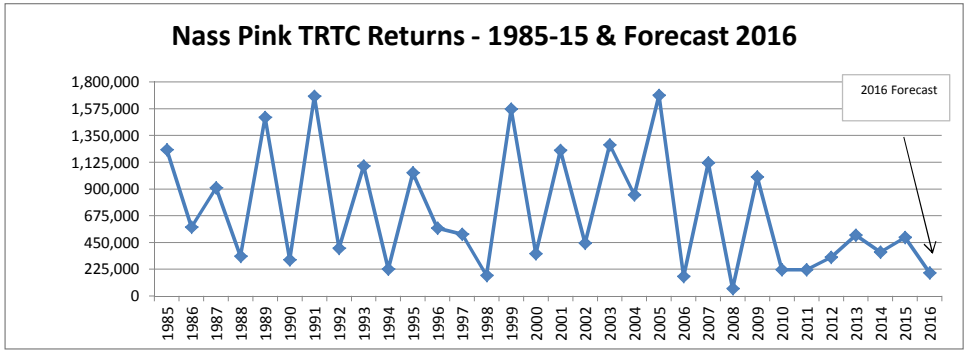

Nass Chinook Catch by Nisga'a
1992-2015
Nisga'a Catch
Nisga'a Allocation
Max allocation = 12,600
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

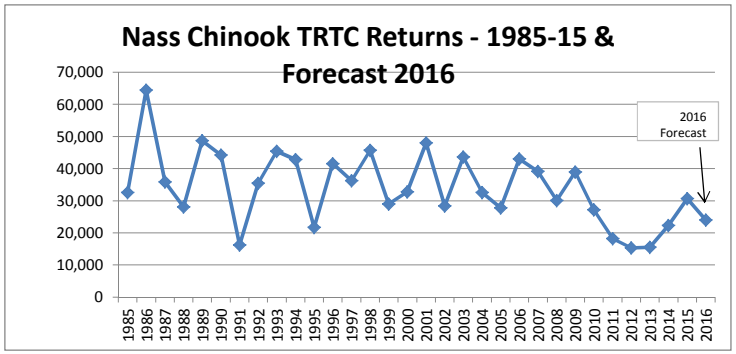

Nass Chum Catch by Nisga'a
1992-2015
Nisga'a Catch
Max allocation = 12,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

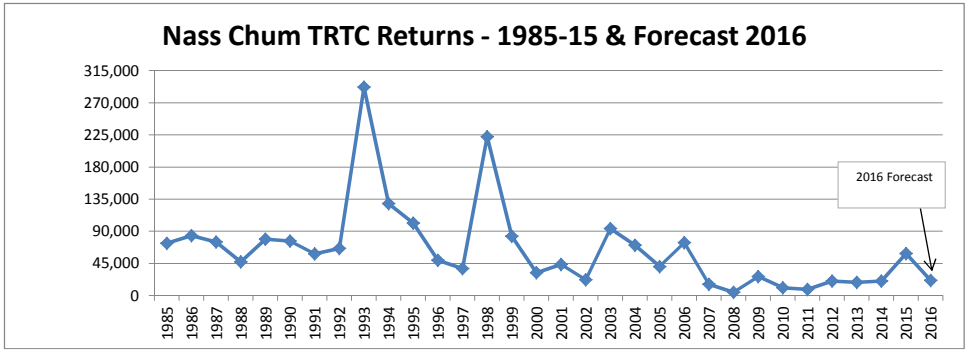

Nass Coho Catch by Nisga'a
1992-2015
Nisga'a Catch
Nisga'a Allocation
Max allocation =
19,200 + underages
22,500
20,000
17,500
15,000
12,500
10,000
7,500
5,000
2,500
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

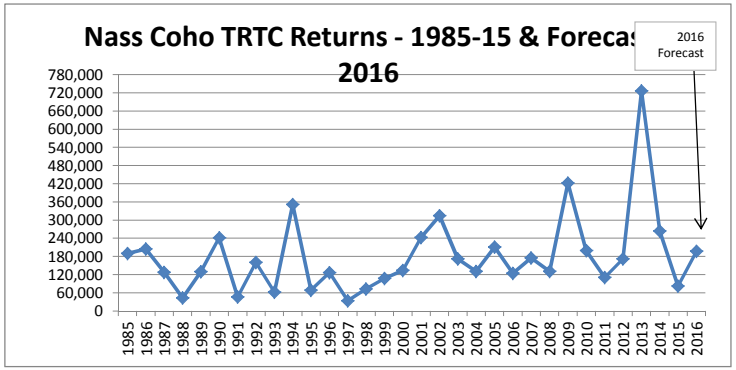

Nass Steelhead Catch by Nisga'a
1992-2015
Nisga'a Catch
1000
800
600
400
200
0
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015











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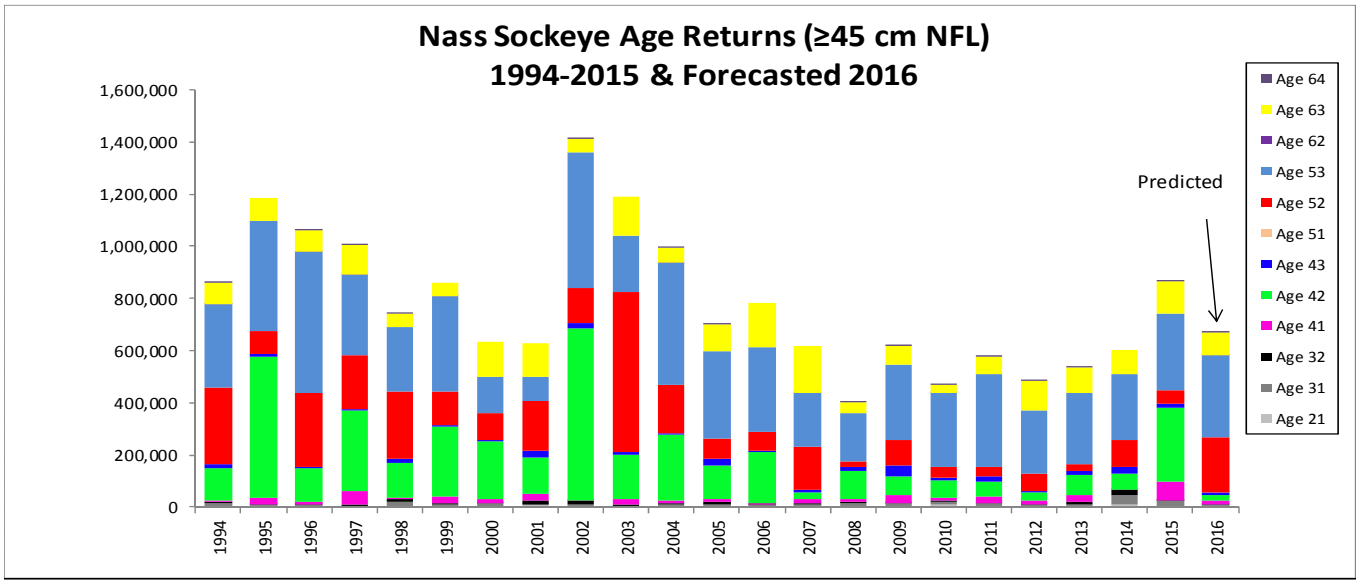
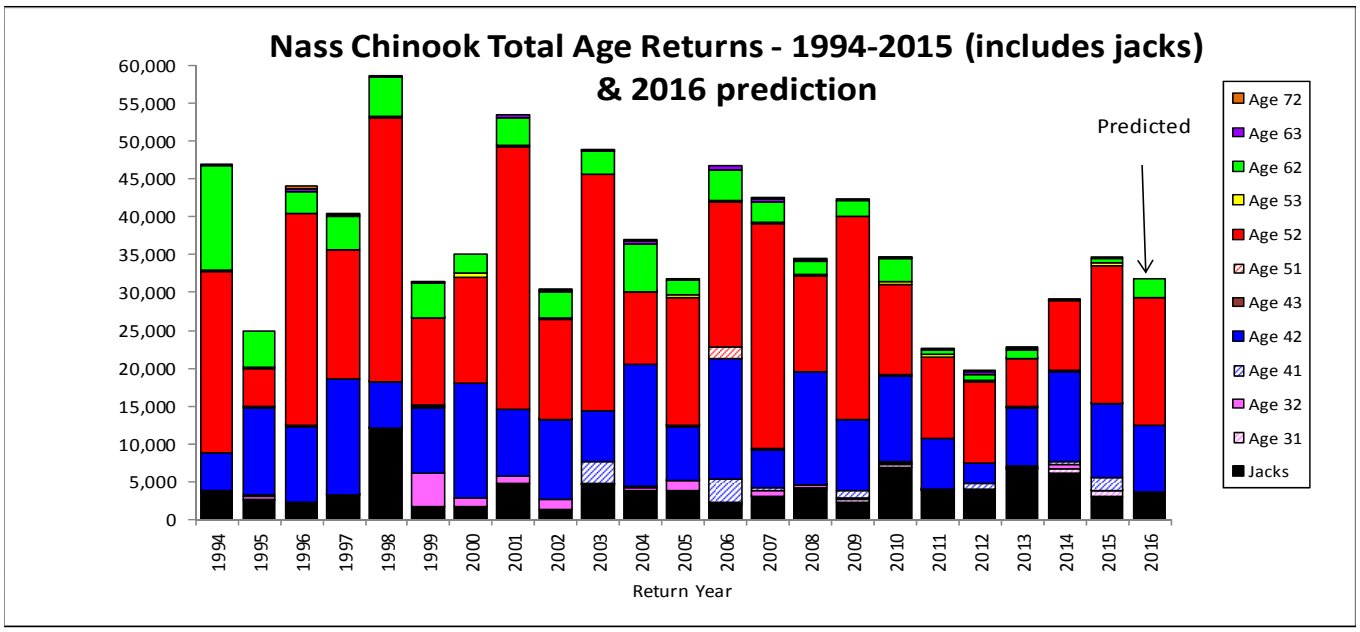
Nisga'a cum. overage (-) or underage (+) status from 2000-2015 allocations	3,265	1,092	6,423	9,370	0
Nisga'a potential harvest at 50% prob. if cumulative overages/underages/SE equivalents apply in large return	**103,000**	**2,000**	**11,400**	**25,000**	**<500**


Nass Sockeye Age Returns (≥45 cm NFL)
1994-2015 & Forecasted 2016
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Predicted
Age 64
Age 63
Age 62
Age 53
Age 52
Age 51
Age 43
Age 42
Age 41
Age 32
Age 31
Age 21


Nass Chinook Total Age Returns - 1994-2015 (includes jacks)
& 2016 prediction
60,000
55,000
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Return Year
Predicted
Age 72
Age 63
Age 62
Age 53
Age 52
Age 51
Age 43
Age 42
Age 41
Age 32
Age 31
Jacks