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Advisory Announcement

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2020 Yukon Area Fall Season Summary

This announcement provides a preliminary summary of the 2020 Yukon Area (Figure 1) fall chum and coho salmon harvests and escapements. All results are considered preliminary.

2020 Fall Season Outlook

The fall chum salmon run size forecast, using brood year analysis, was for 936,000 fish, with a range of 827,000 to 1,045,000 fish. A preseason run size projection was made in mid-July using the relationship between historical summer and fall chum salmon run size estimates. Using the estimate of 782,000 summer chum salmon, the preseason projection for a fall chum salmon was a run size of less than 450,000 fish.

The coho salmon outlook for 2020 was for an average run size of 240,000 fish. The outlook assumed an average survival of fish from the 2016 parent year and was based on recent trends of average to below average runs.

Preseason Management Strategy

Management of the Yukon Area fall season commercial salmon fisheries is in accordance with the *Yukon River Drainage Fall Chum Salmon Management Plan* (5 ACC 01.249). The plan requires that a run size of at least 300,000 fall chum salmon is needed to allow directed subsistence fishing. The plan also requires a run size of at least 550,000 fall chum salmon to allow directed commercial fishing on the surplus above that level.

Based on the preseason projection of less than 450,000 fall chum, preseason management strategies included the following:

- Concurrent with the fall chum salmon migration upriver, all Yukon Area districts and subdistricts would be placed on regulatory subsistence fishing schedules.
- Porcupine River fall chum salmon stock abundances have been low in recent years compared to other stocks in the Yukon River drainage. Escapements into the Canadian Fishing Branch River, a tributary of the Porcupine River, have consistently fallen short of meeting the escapement objectives agreed upon by U.S. and Canadian representatives in recent years. To improve fall chum salmon escapement to the spawning grounds, the department anticipated implementing a complete closure of subsistence salmon fishing in the Alaska portion of the mainstem Porcupine River as the fall chum salmon migration reached that area.

- Commercial salmon fishing would not be allowed unless the inseason fall chum salmon run projection exceeded 550,000 fish, and a commercial surplus was identified.

2020 Run Assessment

Assessment information collected from projects located in the lower river were used to inform management decisions. The projects included two lower river drift gillnet test fisheries that provided run timing and relative abundance information, and a mainstem Yukon River sonar, located near the community of Pilot Station, that provided fish abundance estimates. Stock composition information for chum salmon was provided by genetic samples collected at the mainstem Yukon River sonar.

Upriver projects that monitored escapement consisted of a mainstem Yukon River sonar operated near the U.S./Canada border, a weir/sonar project operated in the Fishing Branch River (Porcupine River headwater), foot surveys conducted in the Delta River (a tributary of the Tanana River), boat surveys in the Delta Clearwater River (a tributary of the Tanana River), and aerial surveys in the Tanana River drainage. A sonar in the Teedriinjik River, and a sonar in the Canadian portion of the Porcupine River, did not operate in 2020 because of travel restrictions related to pandemic protocols. Age, sex, and length information was collected at the lower river test fisheries, the mainstem Yukon River sonar near the U.S./Canada border, and from the Fishing Branch and Delta rivers.

By regulation, the fall season began in District 1 on July 16, and chum salmon caught after that date in the Lower Yukon River Drift Gillnet Test Fishery (LYTF) are considered fall chum salmon. Mountain Village Drift Gillnet Test Fishery (MVTF) began operating on July 18, and the mainstem Yukon River sonar, operated near the community of Pilot Station, began counting fall chum salmon on July 19. The transition of upriver districts and subdistricts to the fall season management was based on the migration timing of fall chum salmon. The LYTF completed operations on September 10 (Yukon Delta Fisheries Development Association operated a modified project the entire season, with ADF&G oversite, due to issues associated with the COVID 19 pandemic) and resulted in a preliminary total fall chum salmon cumulative catch per unit effort (CPUE) of 1,172, which was below the historical median of 1,614. The MVTF ceased operations after September 12 with a preliminary cumulative fall chum salmon CPUE of 705, which was well below the historical median of 2,173. The mainstem Yukon River sonar near Pilot Station ceased operations on September 7.

After July 19, seven groups of chum salmon were monitored entering the Yukon River (Figure 2). The first two groups that entered in July contained a mixture of summer and fall chum salmon. After that, predominantly fall chum salmon entered the river. The preliminary chum salmon passage estimate at the mainstem sonar project near Pilot Station was 262,439 fish, which was well below the historical median of 740,000 fish. Applying mixed stock analysis to all the chum salmon that passed the mainstem sonar after July 18, the estimated number of fall chum salmon was 190,000 fish.

The cumulative fall chum salmon passage at the mainstem sonar tracked below the historical median throughout the run (Figure 2). By early August, and throughout the remainder of the season, the run size tracked below the 300,000 fall chum salmon threshold necessary to allow subsistence fishing for fall chum salmon (Figure 2). Run timing for fall chum salmon in the lower river assessment projects was two days earlier than average while upriver escapement projects were three days later than average, likely due to high water level on the Yukon River mainstem.

Coho salmon appeared to be weak and/or late through the entire run (Figure 3). The preliminary coho salmon run size was estimated to be 108,000 fish, which was below the historical median of 209,000 fish (Figure 3). Both the preliminary total cumulative CPUE for coho salmon at the LYTF and MVTF were well below their respective historical medians. Run timing for coho salmon was six days later than average across all the assessment projects.

Subsistence Fisheries

Subsistence salmon fishing in Districts 1-3 were placed on regulatory schedules of two 36-hour periods per week to start of the fall season. From July 16 through the last week of July, the fall chum salmon run size was tracking to be 400,000 fish. On July 27, subsistence salmon fishing in District 4 opened on their regulatory schedule of two 48-hour periods per week.

By the end July, the fall chum salmon run was tracking between 350,000 and 400,000 fish. The drop in projection allowed for a limited subsistence harvest and subsistence salmon fishing schedules in Districts 1-4 were restricted to two 18-hour periods per week. Additionally, a subsistence fishing period was skipped in Districts 1-3. By August 12, the inseason fall chum salmon run projection dropped below 300,000 fish and all fishing for fall chum salmon in the Yukon Area was closed by regulation.

Subsistence fishermen in all Districts could use four-inch mesh or less to target non-salmon species during the fall chum salmon closure. In addition, subsistence fishermen in Districts 1-4, Subdistrict 5-A, and District 6, were allowed to use selective gear, such as of live-release (manned) fish wheels, and dip nets, to target other salmon and non-salmon fish species.

By September 8, subsistence salmon fishing restrictions were lifted in Districts 1-3. Restriction were subsequently lifted in upriver districts and subdistricts as the tail-end of the fall chum salmon run reached those areas.

The preliminary subsistence harvest of fall chum salmon was estimated to be 6,200 fish which is well below the 2014–2018 average of 82,700 fish. The preliminary subsistence harvest of coho salmon was estimated to be 3,000 fish which is well below the 2014–2018 average of 11,000 fish.

Commercial Fishing Summary

There was no commercial fishing in the Yukon Area during the fall season, in 2020. Historical harvest, value, and numbers of permits in the fall chum and coho salmon fishery can be found in Tables 1-4.

Salmon Escapement

The total run size of fall chum salmon is estimated using information from individually monitored spawning escapements and includes U.S. and Canadian harvests. In 2020 a limited number of escapement projects could be operated which included the Canadian mainstem Yukon River (near Eagle; Table 5) and two smaller components: the Fishing Branch River weir and the Delta River foot surveys. One of the largest contributors to the overall fall chum salmon run, the Teedriinjik (Chandalar) River stock, was not monitored in 2020 because of issues associated with the Covid-19 pandemic.

In 2020, the preliminary estimate of the drainagewide run size was 193,000 fall chum salmon. The total run reconstruction estimate will be determined once the subsistence and personal use harvest estimates are available. The drainagewide fall chum salmon escapement will be below the lower end of the sustainable escapement goal (SEG) range of 300,000 to 600,000 fish for the first time in 19 years.

The fall chum salmon passage estimate at the mainstem Yukon River sonar project near Eagle was 20,766 fish (90% CI: 20,474–21,058) for the dates August 28 through October 6. To account for passage after the sonar operations ceased, an estimate through October 18 resulted in a conservative estimate of 23,512 fish. The preliminary escapement for the mainstem Yukon River in Canada will be determined by subtracting the upstream U.S. and Canadian harvests from the expanded sonar estimate. The mainstem Yukon River escapement estimate will be well below the IMEG range of 70,000 to 104,000 fall chum salmon (Table 5). This is the first time in 18 years that the escapement goal has not been achieved and 2020 may be one of the lowest escapements on record since 1980 when estimates of Canadian fall chum salmon escapement began.

In Canada although the upper Porcupine sonar was not operated near the community of Old Crow because of issues associates with the Covid-19 pandemic, However, the remote weir in the Fishing Branch River did operate. The preliminary count of 4,785 fall chum salmon migrating through the weir was well below the lower end of the

interim management escapement goal (IMEG) of 22,000–49,000 fish (Table 5). The 2020 count is the lowest on record in 49 years, but only slightly below the count in the year 2000 of 5,057 fall chum salmon.

Fall chum salmon escapement in the Tanana River is primarily monitored by conducting foot surveys in the Delta River. The estimated escapement in the Delta River of 9,854 fall chum salmon was within the sustainable escapement goal of 7,000 to 20,000 fish (Table 5). Unlike the Fishing Branch River, the Delta River escapement was three times higher than the lowest run on record of 3,001 fall chum salmon that occurred in the year 2000. This was expected based on the higher than usual contributions of Tanana River stocks using genetics.

Chum salmon stock composition estimates were provided by US Fish and Wildlife Conservation Genetics Laboratory using tissue samples (fin clips) collected at the mainstem Yukon River sonar near Pilot Station. Samples processed from four strata between July 19 and September 7 (fall season) indicated that stocks represented approximately 30% summer, 23% Border U.S. (Teedriinjik/Sheenjek), 16% Canadian, and 31% Tanana. The low proportion of Canadian components may be a result of production loss from the Kluane Lake glacier retreat, as 2020 would be the first returns of age-4 fall chum salmon however, since the overall run size is extremely low more years of data will be needed to determine the effect.

In 2020, the proportion of age-3 (3%) fall chum salmon was near average, age-4 fish (50%) was well below average of 66%, age-5 fish (46%) was well above average of 31%, and age-6 fish (1%) was average based on samples collected at the LYTF using 6 inch mesh drift gillnets. The 2015 brood year estimates of return per spawner was predicted to be 1.7 (which was near the 1974–2013 average) but the value came in slightly lower at 1.5 return per spawner. The 2016 brood year was predicted to be 1.2 return per spawner however post season this return equated to 0.18 return per spawner resulting in no yield. Females contributed 55% of the samples which was below the 1986 to 2019 average (58%). Fall chum salmon length samples in 2020 averaged 599 mm, which was much larger than the long term 1981–2019 average of 593 mm. Fall chum salmon have not been this size since 2005 and the large increase in growth can be seen starting with the age-3 fish.

There are few coho salmon spawning escapement assessment projects in the Yukon River drainage because of funding limitations and late timing relative to onset of winter. The sonar in the mainstem Yukon River near Pilot Station was operated through September 7 and had an estimated passage of 107,680 coho salmon (SE 4,160) which is well below the historical average of 150,000 fish. Table 6 shows historical escapements to selected spawning areas in the Yukon Area. The Delta Clearwater River (DCR) has the only established escapement goal for coho salmon, a SEG of 5,200–17,000 fish. A boat survey conducted on the DCR in early November counted an estimated 2,557 coho salmon which was below the escapement goal (Table 6). Escapement count estimates for coho salmon were conducted by aerial surveys in the Nenana River drainage, where four spawning areas are monitored, all of which were below their 2000–2019 averages (Table 6).

In 2020, coho salmon age, sex, and length samples were collected from LYTF using 6-inch mesh drift gillnets. The proportion of age-3 (18%) coho salmon was above the average of 15%, age-4 fish (76%) was below average of 80%, and age-5 fish (7%) was slightly above the average of 5%. Females contributed 45% to the coho salmon samples which was slightly below the 1987–2019 average of 47% females. Coho salmon in 2020 LYTF samples averaged 549 mm in length which compares to the 1981–2019 average of 577 mm. Coho salmon in 2020 were the smallest in 40 years of data for this project, while the second smallest occurred in 2006.

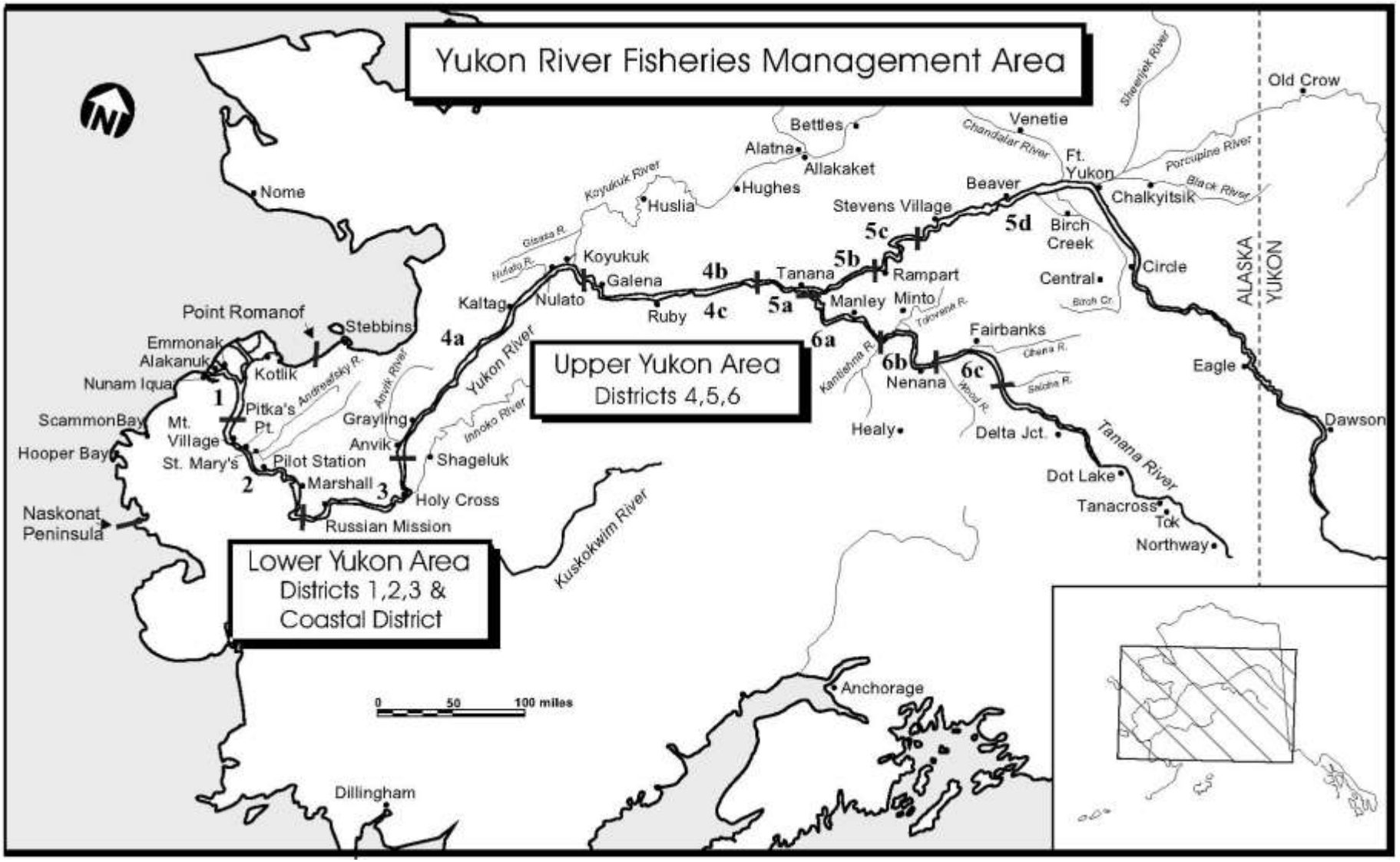

Figure 1. Alaskan portion of the Yukon River drainage showing communities and fishing districts.

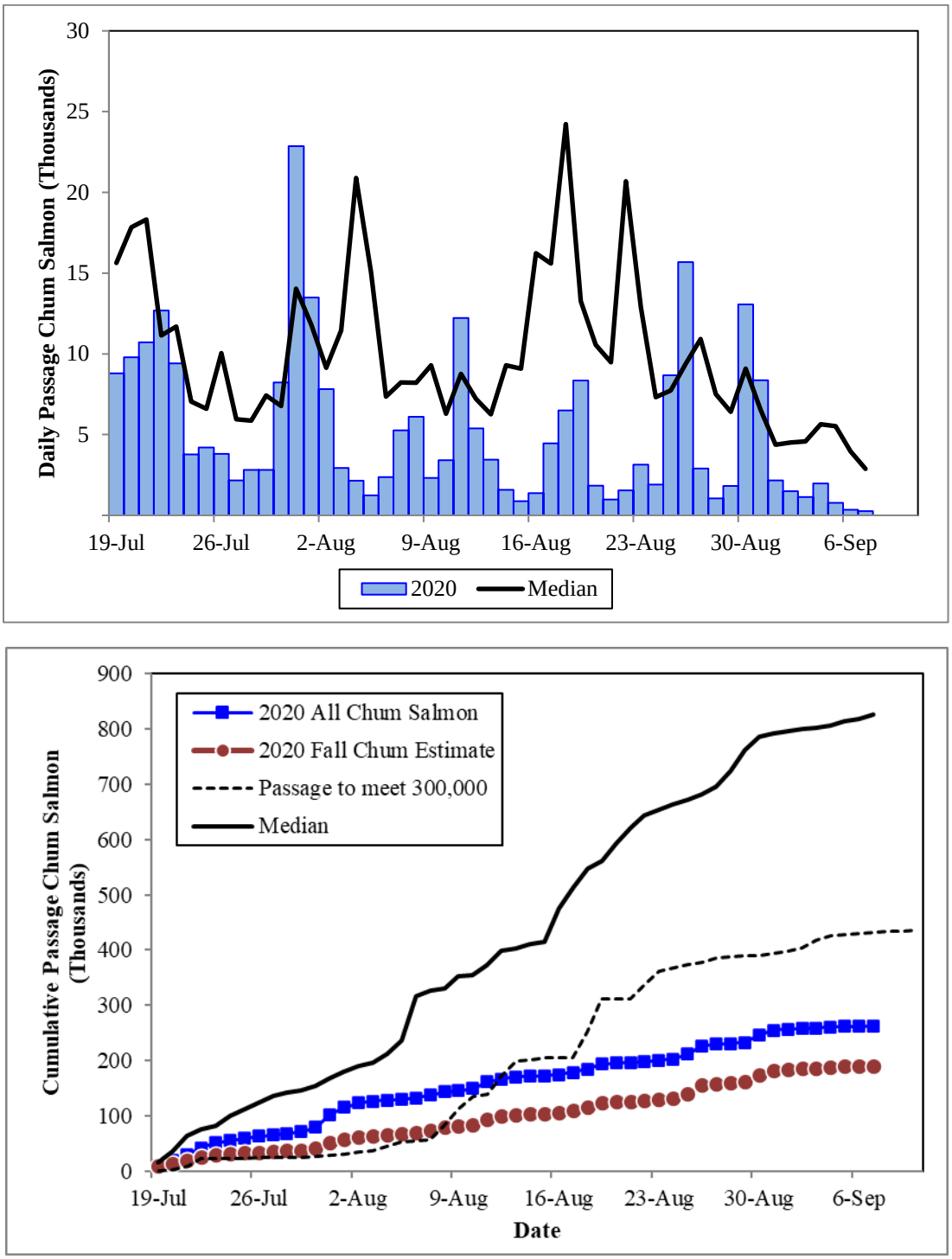

Figure 2.– Estimated daily passage of chum salmon (top) based on the Yukon River mainstem sonar (Pilot Station) and cumulative of all chum and adjusted fall chum salmon (using genetics) for 2020 (bottom), 2020 compared to historical (1995, 1997–2008, 2010–2019) median run size.

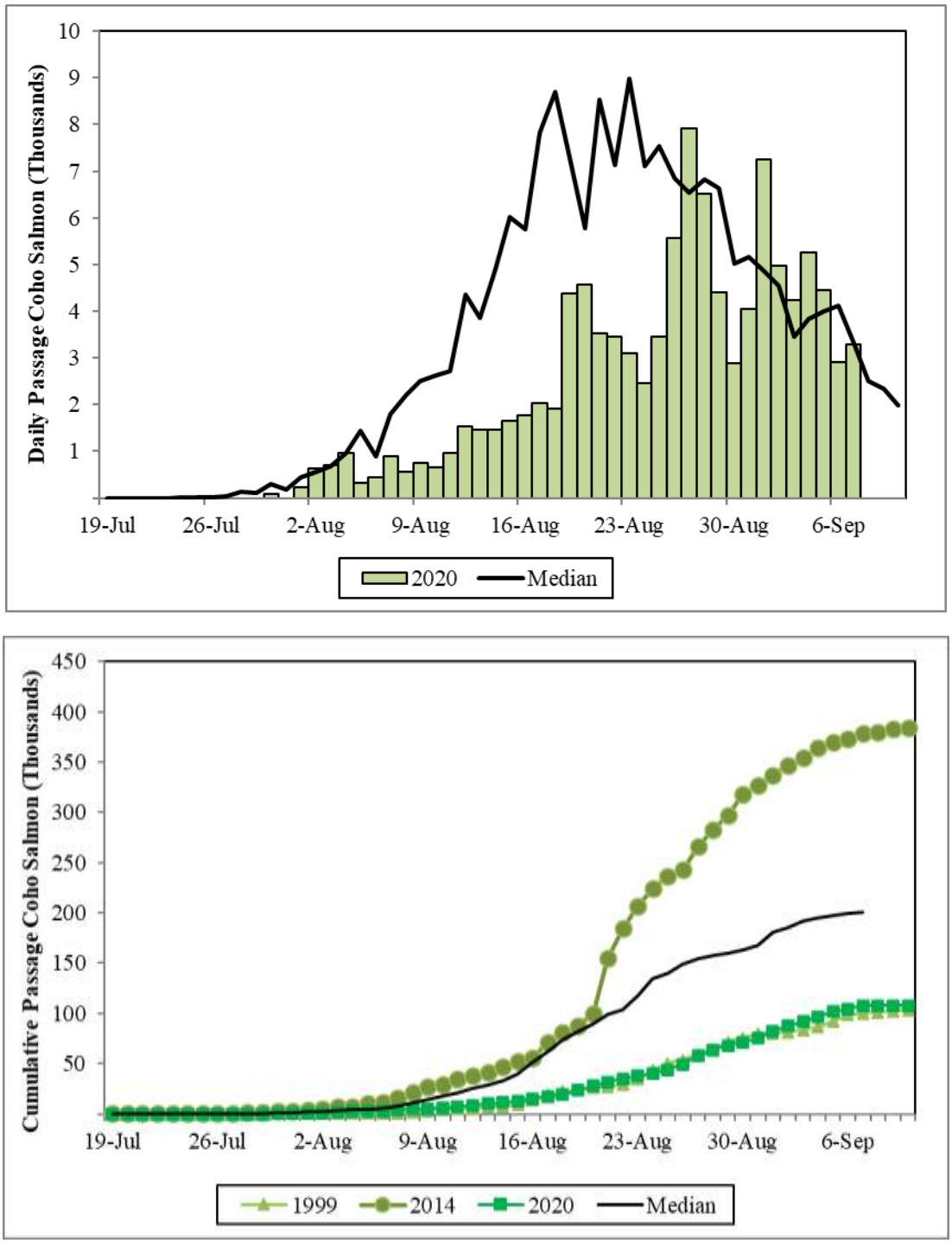

Figure 3.–Estimated daily passage attributed to coho salmon (top) based on the Yukon River mainstem sonar (Pilot Station) and cumulative (bottom), 2020 compared to historical (1995, 1997–2008, 2010–2019) median run size index and minimum and maximum years.

Table 1.– Fall chum salmon commercial harvest by district, Yukon Area, 2000–2020.

	Lower Yukon				*Upper Yukon* [b]				Yukon
Year [a]	District 1	District 2	District 3	*Subtotal*	District 4	District 5	District 6	*Subtotal*	Total
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	5,586	–	–	5,586	1,315	–	4,095	5,410	10,996
2004	660	–	–	660	–	–	3,450	3,450	4,110
2005	130,525	–	–	130,525	–	–	49,637	49,637	180,162
2006	101,254	39,905	–	141,159	–	1,667	23,353	25,020	166,179
2007	38,852	35,826	–	74,678	–	427	15,572	15,999	90,677
2008	67,704	41,270	–	108,974	–	4,556	5,967	10,523	119,497
2009	11,911	12,072	–	23,983	–	–	1,893	1,893	25,876
2010	545	270	–	815	–	–	1,735	1,735	2,550
2011	127,735	100,731	–	228,466	–	1,246	10,917	12,163	240,629
2012	139,842	129,284	–	269,126	811	2,419	17,336	20,566	289,692
2013	106,588	106,274	–	212,862	–	1,041	24,148	25,189	238,051
2014	51,829	59,138	–	110,967	–	1,264	3,368	4,632	115,599
2015	100,562	74,214	–	174,776	–	1,048	15,646	16,694	191,470
2016	226,576	213,225	–	439,801	–	7,542	18,053	25,595	465,396
2017	328,410	134,668	–	463,078	1,402	1,952	23,270	26,624	489,702
2018	198,950	170,645	–	369,595	596	896	16,698	18,190	387,785
2019	145,692	106,141	–	251,833	–	900	15,627	16,527	268,360
2020	–	–	–	–	–	–	–	–	–
Average									
2015–2019	200,038	139,779		339,817	999	2,468	17,859	20,726	360,543
2010–2019	142,673	109,459		252,132	936	2,034	14,680	16,792	268,923

Note: En dash indicates no commercial fishing occurred. Blank cells indicate insufficient information to generate average.

[a] Numbers of fish harvested are based on reports from the State TIX, Zephyr, and OceanAK programs.

[b] Estimated harvest is the number of fish sold in the round plus the estimated number of females to produce the roe sold.

Table 2.–Coho salmon commercial harvest by district, Yukon Area, 2000–2020.

	Lower Yukon				*Upper Yukon* [b]				Yukon
Year [a]	District 1	District 2	District 3	*Subtotal*	District 4	District 5	District 6	*Subtotal*	Total
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	9,757	–	–	9,757	–	–	15,119	15,119	24,876
2004	1,583	–	–	1,583	–	–	18,649	18,649	20,232
2005	36,533	–	–	36,533	–	–	21,778	21,778	58,311
2006	39,323	14,482	–	53,805	–	–	11,137	11,137	64,942
2007	21,720	21,487	–	43,207	–	–	1,368	1,368	44,575
2008	13,946	19,248	–	33,194	–	91	2,408	2,499	35,693
2009	5,992	1,577	–	7,569	–	–	742	742	8,311
2010	1,027	1,023	–	2,050	–	–	1,700	1,700	3,750
2011	45,335	24,184	–	69,519	–	–	7,502	7,502	77,021
2012	39,757	29,063	–	68,820	0	634	5,335	5,969	74,789
2013	27,304	31,456	–	58,760	–	0	7,439	7,439	66,199
2014	54,804	48,602	–	103,406	–	0	1,286	1,286	104,692
2015	66,029	54,860	–	120,889	–	0	8,811	8,811	129,700
2016	113,669	67,208	–	180,877	–	54	20,551	20,605	201,482
2017	95,982	33,277	–	129,259	0	0	9,656	9,656	138,915
2018	65,431	40,845	–	106,276	0	0	4,314	4,314	110,590
2019	40,621	15,622	–	56,243	–	0	2,348	2,348	58,591
2020	–	–	–	–	–	–	–	–	–
Average									
2015–2019	76,346	42,362		118,709		11	9,136	9,147	127,856
2010–2019	54,996	34,614		89,610		86	6,894	6,963	96,573

Note: En dash indicates no commercial fishing occurred. Blank cells indicate insufficient information to generate average.

[a] Numbers of fish harvested are based on reports from the State TIX, Zephyr, and OceanAK programs.

[b] Estimated harvest is the number of fish sold in the round plus the estimated number of females to produce the roe sold.

Table 3.–Exvessel value of fall chum and coho salmon commercial salmon fishery, 2000–2020.

	Fall chum						Coho										
	Lower Yukon		Upper Yukon				Lower Yukon			Upper Yukon			Value by species			Value by area	
Year	$/lb	Value	$/lb	$/lb Roe	Value		$/lb	$/lb Roe	Value	$/lb	$/lb Roe	Value	Fall Chum	Coho		Lower	Upper	Total
2000	–	–	–		–		–		–	–		–	–	–		–	–	–
2001	–	–	–		–		–		–	–		–	–	–		–	–	–
2002	–	–	–		–		–		–	–		–	–	–		–	–	–
2003	0.15	5,993	0.10		3,398		0.25		18,168	0.05		5,095	9,391	23,263		24,161	8,493	32,654
2004	0.25	1,126	0.05		848		0.25		2,774	0.06		6,372	1,974	9,146		3,900	7,220	11,120
2005	0.32	316,698	0.14		48,159		0.32		83,793	0.12		19,182	364,857	102,975		400,491	67,341	467,832
2006	0.20	202,637	0.14		33,806		0.20		50,299	0.19		11,137	236,443	61,436		252,936	44,943	297,879
2007	0.27	144,256	0.20		16,907		0.39		127,869	0.20		1,368	161,163	129,237		272,125	18,275	290,400
2008	0.55	428,969	0.27		22,089		0.97		216,777	0.20		3,717	451,058	220,494		645,746	25,806	671,552
2009	0.70	108,778	0.19		1,286		1.00		52,176	0.15		457	110,064	52,633		160,954	1,743	162,697
2010	1.00	5,428	0.23		2,761		1.50		20,535	0.26		442	8,189	20,977		25,963	3,203	29,166
2011	1.00	1,627,575	0.22		16,114		1.00		472,168	0.15		6,792	1,643,689	478,960		2,099,743	22,906	2,122,649
2012	0.75	1,385,550	0.22		28,354		1.25		534,523	0.22		7,428	1,413,904	541,951		1,920,073	35,782	1,955,855
2013	0.75	1,154,203	0.16		25,744		1.10		453,998	0.17		7,115	1,179,947	461,113		1,608,201	32,859	1,641,060
2014	0.75	621,975	0.25		8,156		1.00		706,665	0.38		2,380	630,131	709,045		1,328,640	10,536	1,339,176
2015	0.60	762,142	0.14		15,683		0.70		616,617	0.12		6,877	777,825	623,494		1,378,759	22,560	1,401,319
2016	0.68	2,093,566	0.14		22,477		1.00		1,143,844	0.13		15,540	2,116,043	1,159,384		3,237,410	38,017	3,275,427
2017	0.60	2,038,232	0.15	1.75	29,176		1.00		814,580	0.15	2.00	8,778	2,067,408	823,358		2,852,812	37,954	2,890,766
2018	0.78	2,113,454	0.13		17,933		1.00		677,205	0.15		3,688	2,131,387	680,892		2,790,659	21,620	2,812,279
2019	0.60	1,054,751	0.17		18,395		1.00		336,578	0.21		2,371	1,073,146	338,949		1,391,329	20,766	1,412,095
2020	–	–	–		–		–		–	–		–	–	–		–	–	–
Average 2015–2019	0.65	1,612,429		0.15	20,733		0.94		717,765	0.15		7,451	1,633,162	725,215		2,330,194	28,183	

Note: En dash indicates no commercial fishing occurred.

Table 4.–Number of participating commercial salmon fishing gear permit holders by district and season, Yukon Area in Alaska, 2000–2020.

Fall Chum and Coho Salmon Season [a]

	Lower Yukon Area				Upper Yukon Area				Yukon Area
Year	District 1	District 2	District 3	Subtotal [b]	District 4	District 5	District 6	Subtotal [c]	Total
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	75	0	0	75	2	0	5	7	82
2004	26	0	0	26	0	0	6	6	32
2005	177	0	0	177	0	0	7	7	184
2006	219	71	0	286	0	4	11	15	301
2007	181	122	0	300	0	2	8	10	310
2008	251	177	0	428	0	3	8	11	439
2009	165	130	0	292	0	0	2	2	294
2010	72	18	0	90	0	0	4	4	94
2011	234	169	0	395	0	2	5	8	403
2012	266	201	0	457	4	3	5	13	462
2013	251	197	0	436	0	1	6	7	443
2014	256	199	0	441	0	2	2	4	445
2015	266	184	0	440	0	1	5	6	446
2016	275	197	0	459	0	4	4	8	467
2017	318	144	0	438	5	4	4	13	451
2018	284	172	0	448	4	3	3	10	458
2019	276	136	0	404	0	3	4	7	411
2020	0	0	0	0	0	0	0	0	0
Average									
2015-2019	284	167	0	438	2	3	4	9	447
2010-2019	250	162	0	401	1	2	4	8	408

[a] Number of permit holders which made at least one delivery.

[b] The Lower Yukon Area subtotal is the unique number of permits fished in Districts 1, 2, and 3 as fishermen may transfer between districts during the season.

[c] Sum of Districts 4, 5, and 6 averages may not equal Upper Yukon Area district subtotal due to rounding error.

Table 5.–Fall chum salmon passage or escapement estimates for selected spawning areas, Yukon River drainage, 2000–2020.

	Alaska								Canada			
		Tanana River Drainage			Upper Yukon River Drainage							
Year	Yukon River Mainstem (Pilot) Sonar Estimate [b]	Delta River [a]	Tanana River Estimate [b]		Teedriinjik (Chandalar) River [c]	Sheenjek River [d]		Yukon River Mainstem (Eagle) Passage Estimate [e]	Mainstem Escapement Estimate [f]	Porcupine River Sonar [g]	Fishing Branch River [h]	
2000	273,206	3,001	55,983		71,048	30,084	[i]	–	53,732	–	5,057	
2001	408,961	8,103	116,012		112,664	53,932		–	33,491	–	21,737	
2002	367,886	11,992	163,421		94,472	31,642		–	98,679	–	13,600	
2003	923,540	22,582	263,302		221,343	44,047	[j]	–	143,133	–	29,713	
2004	633,368	25,073	187,409		169,848	37,878		–	154,080	–	20,417	
2005	1,894,078	28,132	372,758		526,838	561,863	[k]	–	437,733	–	119,058	
2006	964,238	14,055	233,193		254,778	160,178	[k]	245,290	220,898	–	30,954	
2007	740,195	18,610	357,016		243,805	65,435	[k]	265,008	236,987	–	32,150	
2008	636,525	23,055	264,200	[l]	178,278	50,353	[k]	185,409	167,898	[m] –	19,086	
2009	– [n]	13,492	159,828	[l]	150,000	[o] 54,126	[k]	101,734	93,626	[m] –	25,828	
2010	458,103	17,993	212,660	[l]	167,532	22,053		132,930	117,789	[m] –	15,773	
2011	873,877	23,639	270,846	[l]	298,223	97,976	[k]	224,355	205,566	[m] –	13,085	
2012	778,158	9,377 [p]	102,096	[l]	205,791	104,701	[k]	153,248	137,662	[m] –	22,399	
2013	865,295	31,955	275,089	[q]	252,710	130,000	[r]	216,791	200,262	[m] 35,615	–	
2014	706,630	32,480 [p]	215,393	[q]	226,489	51,000	[r]	172,887	156,796	[m] 17,698	–	
2015	669,483	33,401 [p]	149,265	[q]	164,486	64,000	[r]	125,095	109,505	[m] 21,396	9,000	
2016	994,760	21,913 [p]	199,102	[q]	295,023	180,000	[r]	161,027	145,267	[m] 54,395	29,397	
2017	1,829,931	48,783 [p]	525,293	[q]	509,115	250,000	[r]	419,099	401,489	[m] 67,818	48,422	
2018	928,664	39,641 [p]	302,013	[q]	170,356	81,000	[r]	168,798	153,988	[m] –	10,151	
2019	842,041	51,748 [p]	189,994	[q]	116,323	91,000	[r]	113,266	98,738	[m] 27,805	18,171	
2020 [s]	262,439	9,854 [p]	–		–	–		23,512	23,512	[m] –	4,785	
Average												
2000–2019	812,022 [n]	23,598	224,961		215,324	103,595		191,781	163,195	37,455	26,127	
2015–2019	1,052,976	39,097	273,133		251,061	133,200		197,457	182,044	42,854	22,919	
SEG Range	300,000 [t]	7,000 [u]		[v]	85,000	[u]		[v]	> 80,000	[w]	50,000	
	600,000	20,000			234,000						120,000	[w]
Interim Escapement Objective									70,000-104,000	[x]	22,000-49,000	[y]

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Note: En dash indicates no data were collected or calculated. Yukon River mainstem sonar historical estimates were revised in 2016, using updated selectivity parameters.

[a] Population estimate generated from replicate foot surveys and stream life data using AUC (area-under-curve) method unless otherwise indicated.

[b] Fall chum salmon passage estimate based on mark-recapture projects operated from 1995–2007 on the upper Tanana River and from 1999–2007 on the Kantishna River minus harvests, unless otherwise noted.

[c] Split beam sonar estimate (1995–2006). DIDSON sonar (2007-present). Includes expansions to the beginning end of the run.

[d] Single beam sonar estimate (2000–2002), split beam sonar estimate (2003–2004), DIDSON sonar (2005–2012).

[e] Sonar estimates include an expansion for fish that may have passed after operations ceased through October 18, except 2018 was expanded through October 23 for an extremely late run.

[f] Estimated mainstem Canadian escapement derived from mark-recapture project minus Canadian mainstem harvest and excluding Canadian Porcupine River drainage escapement, unless otherwise noted.

[g] Porcupine River Sonar is located near Canadian border, downstream of community of Old Crow. Includes expansions to the end of the run.

[h] Weir located within the Canadian portion of the Porcupine River drainage. Late season adjustments have been made for the period when weir was not operating for most years.

[i] Project ended early, sonar passage estimate was 18,652 (62% of normal run timing). The total sonar passage estimate, 30,083, was expanded to reflect the 1986–1999 average run timing through September 24.

[j] Project ended on peak daily passage in 2003 due to late run timing, estimate was expanded based on run timing (87%) at Rapids.

[k] BEG based on right bank only. Inseason right bank counts include 266,963, 106,397, 39,548, 35,912, 28,480, 49,080, and 72,746 in 2005 through 2009 and 2011 to 2012 respectively.

[l] Tanana River estimate is based on regression of Delta River 1995-2006 with estimate for Tanana River (Kantishna 1999-2007 and Upper Tanana 1995–2007 based on mark-recapture).

[m] Estimated mainstem Yukon River Canadian escapement is derived from Eagle sonar estimate (expanded through October 18; 2008 to present) minus harvest from Eagle community upstream including Canadian harvests.

[n] Extreme low water levels were experienced in 2009, affecting species apportionment, therefore passage estimates are not used.

[o] Project ended early, estimate based on regression of Chandalar to Fishing Branch River plus Mainstem Border from 1995–2009.

[p] Peak counts from foot surveys unless otherwise noted.

[q] Preliminary estimate based on regression of Tanana with mainstem Yukon River Canada from 1995 to 2012 excluding 2005 from 2013-2017. Used mixed stock analysis for 2018 and 2019.

[r] Preliminary estimate based on regression of Fishing Branch River weir counts (1985–2012) to Sheenjek estimates from two bank operations in 1985–1987, 2005 to 2009, and 2011 to 2012 and remaining years were expanded using average 36% for second bank operations.

[s] Data is preliminary.

[t] Yukon River drainagewide sustainable escapement goal is assessed inseason using Pilot Station sonar estimates minus upstream estimated harvests. Post season run reconstruction uses harvest and escapements to determine whether the goal was achieved.

[u] Escapement goal revised to a sustainable escapement goal in 2019 based on percentile method.

[v] Tanana escapement goal 61,000-136,000 was discontinued 2019, Sheenjek escapement goal 50,000-104,000 was discontinued in 2016.

[w] Escapement goal as written in the Pacific Salmon Treaty.

[x] Interim Management Escapement Goal (IMEG) established 2008. Based on percentile method.

[y] IMEG of 70,000 to 104,000 was established for 2010 to present is based on Canadian stock Ricker model.

Table 6.–Coho salmon passage or escapement estimates for selected spawning areas, Yukon River drainage, 2000–2020.

Year	Yukon River Mainstem Sonar Estimate [a]	Nenana River Drainage								Upper Tanana River Drainage					
		Lost Slough		Nenana Mainstem [b]		Wood Creek		Seventeen Mile Slough		Delta Clearwater River [c]		Clearwater Lake and Outlet		Richardson Clearwater River	
2000	206,365	55	(h) [d]	68	(h) [d]	–	[e]	879	(h) [d]	9,225	(b)	1,025	(b)	2,175	(h)
2001	160,272	242	(h)	859	(h)	699	(h)	3,753	(h)	27,500	(b)	4,425	(b)	1,531	(f)
2002	137,077	0	(h)	328	(h)	935	(h)	1,910	(h)	38,625	(b)	5,900	(b)	874	(f)
2003	280,552	85	(h)	658	(h)	3,055	(h)	4,535	(h)	102,800	(b)	8,800	(b)	6,232	(h)
2004	207,844	220	(h)	450	(h)	840	(h)	3,370	(h)	37,550	(b)	2,925	(b)	8,626	(h)
2005	194,622	430	(h)	325	(h)	1,030	(h)	3,890	(h)	34,293	(b)	2,100	(b)	2,024	(h)
2006	163,889	194	(h)	160	(h)	634	(h)	1,916	(h)	16,748	(b)	4,375	(b)	271	(h)
2007	192,406	63	(h)	520	(h)	605	(h)	1,733	(h)	14,650	(b)	2,075	(b)	553	(h)
2008	145,378	1,342	(h)	1,539	(h)	578	(h)	1,652	(h)	7,500	(b)	1,275	(b)	265	(h)
2009	– [f]	410	(h)	–		470	(h)	680	(h)	16,850	(b)	5,450	(b)	155	(h)
2010	177,724	1,110	(h)	280	(h)	340	(h)	720	(h)	5,867	(b)	813	(b)	1,002	(h)
2011	149,533	369	(h)	–		–		912	(h)	6,180	(b)	2,092	(b)	575	(h)
2012	130,734	–		106	(h)	–		405	(h)	5,230	(b)	396	(h)	515	(h)
2013	110,515	721	(h)	–		55	(h)	425	(h)	6,222	(b)	2,221	(h)	647	(h)
2014	283,421	333	(h)	378	(h)	649	(h)	886	(h)	4,285	(b)	434	(h)	1,941	(h)
2015	121,193	242	(h)	1,789	(h)	1,419	(h)	3,890	(h)	19,533	(b)	1,621	(h)	3,742	(h)
2016	168,297	334	(h)	1,680	(h)	1,327	(h)	2,746	(h)	6,767	(b)	1,421	(h)	1,350	(h)
2017	166,320	1,278	(h)	862	(h)	2,025	(h)	1,942	(h)	9,627	(b)	–		–	
2018	136,347	1,822	(h)	241	(h)	361	(h)	347	(h)	2,884	(b)	2,465	(h)	976	(h)
2019	86,214	–		749	(h)	184	(h)	424	(h)	2,043	(b)	258	(h)	300	(h)
2020	107,680 [g]	28	(h)	206	(h)	231	(h)	507	(h)	2,557	(b)	210	(h)	472	(h)
SEG [h]										5,200-17,000					
Average															
2000–2019	164,753 [f]	540		652		865		1,794		18,350		2,635		1,777	
2015–2019	135,712	919		1,064		1,063		1,870		8,171		1,441		1,592	

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Note: Only peak counts presented. Survey rating is fair to good, unless otherwise noted. Denotations of survey methods include: (b)=boat, (f)=fixed wing, (g)=ground/foot, (h)=helicopter, and (u)=undocumented. En dash indicates no data available.

[a] Passage estimates for coho salmon are incomplete. The sonar project is terminated prior to the end of the coho salmon run. Yukon River mainstem sonar historical estimates were revised in 2016, using updated selectivity parameters.

[b] Index area includes mainstem Nenana River between confluences of Lost Slough and Teklanika River.

[c] Index area is lower 17.5 miles of system.

[d] Poor survey.

[e] No survey of Wood Creek due to obstructions in creek.

[f] Extreme low water levels were experienced in 2009, affecting species apportionment, therefore passage estimates are not used.

[g] Data is preliminary.

[h] Sustainable escapement goal (SEG) established January 2004, (replaces BEG of greater than 9,000 fish established March 1993) based on boat survey counts of coho salmon in the lower 17.5 river miles during the period October 21 through 27.