

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE



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2014 Yukon River Fall Season Summary

Introduction

This news release provides a preliminary summary of the 2014 Yukon Area fall season including fall chum and coho salmon harvests and escapement (Figure 1). All reported harvest and project results are preliminary and subject to revision.

2014 Fall Season Outlook

A formal fall chum salmon run forecast was made using brood year analysis in March of 2014. The forecasted fall chum salmon run size in 2014 was a point estimate of 932,000 fish with a range of 814,000 to 1,051,000 fish. A run of that size is above average for an even-numbered year. The surplus available for commercial harvest was anticipated to be between 314,000 to 510,000 fall chum salmon.

A preseason run projection was made in mid-July and was based on a preliminary estimate of the 2014 summer chum salmon run size and a historical relationship between summer and fall chum salmon runs. Management decisions made early in the fall season were based primarily on a preseason projection of greater than 850,000 fish.

Assuming average survival, the 2014 coho salmon run was anticipated to be below average to average. A coho salmon index developed for the Yukon River from 1995 to 2012 (excluding 1996 and 2009) suggests that the average escapement is approximately 197,000 fish.

Preseason Management Strategy

Based on the preseason run projection it was anticipated that escapement and an above average subsistence harvest would be achieved while providing a limited commercial harvest. The preseason management strategy included the following components:

- All Yukon Area districts and subdistricts were placed on full regulatory subsistence fishing schedule, and the use of gillnets with a mesh size of 7.5 inches or less was allowed, upon transitioning to fall season management;
- Commercial salmon fishing with gillnets of 6-inch or smaller mesh size in both Districts 1 and 2 continued on a 2 days a week schedule during the summer-to-fall management transition.

Run Assessment

The department monitored a suite of assessment projects that provided salmon run timing, relative abundance, and stock composition information. Projects operated in the lower river included two drift gillnet test fisheries, a mainstem Yukon River sonar providing passage estimates, subsistence and commercial harvest information, and age, sex, and length information. Genetic samples collected from chum salmon at the mainstem sonar (located near Pilot Station) provided run stock composition information. Additional projects were operated in the upper Yukon River tributaries and the upper mainstem of the Yukon River. Projects operated in the upper river included two fish wheel video projects (one near Rampart-Rapids and one near Manley providing assessment on the mainstem Yukon and Tanana rivers respectively), and sonars operated in the mainstem Yukon River near U.S./Canada border as well as in three tributaries (Chandalar, Porcupine, and Tanana [feasibility only] rivers). Data from these projects were analyzed collectively inseason and are used to verify collaboration between projects.

By regulation the fall season began in District 1 on July 16. Chum salmon caught in the Lower Yukon River Drift Gillnet Test Fishery after July 16 were considered fall chum salmon. The subsequent transition of upriver districts and subdistricts to the fall season was based on the migration timing of fall chum salmon. The mainstem Yukon River sonar operated near Pilot Station began counting chum salmon as fall chum salmon after July 18.

From mid-July through the end of July, fall chum salmon entered Yukon River in below average to average. Figure 2 shows the daily passage of fall chum salmon past the mainstem sonar. The first pulse of approximately 76,000 fall chum salmon entered the river from July 20 through July 23. A smaller second pulse of approximately 63,500 fish entered the river from August 1 through August 2. At this time, the approximate first quarter point of the run based on historical information, fall chum salmon passage past the mainstem sonar was approximately 135,000 fish which was below the median passage of 177,500 fish. The department continued to base inseason management on the preseason projection for a run size of greater than 850,000 fish.

Unseasonably hot, dry, and calm weather in conjunction with above average water temperature in the lower Yukon River may have contributed to low numbers of fall chum salmon entering Yukon River between August 3 and August 13. During this period, the approximate mid-point of the run based on historical information, the number of fall chum salmon passage at the mainstem sonar fell well below historical median and the run projection fell to between 480,000 and 550,000 fish.

A third pulse of fall chum entered Yukon River on August 13 and was approximately 92,000 fish in size. After this pulse passed the mainstem sonar, fall chum salmon passage was approximately 322,500 fish which was below the median passage of 368,000 fish. The fall chum salmon run size projection improved to 600,000 to 723,000 fish.

The fourth and largest fall chum salmon pulse was approximately 252,000 fish in size and entered Yukon River from August 18 through August 19. After the pulse passed the mainstem sonar, fall chum salmon passage was above average and a run projection remained at 850,000 to 950,000 fish for the remainder of the fall chum salmon season.

Coho salmon daily and cumulative passages past the mainstem sonar were mostly above average the entire season. Figure 3 shows the daily passage of coho salmon past the mainstem sonar. The largest number of coho salmon passed the mainstem sonar from August 21 through August 23. The total estimated passage of coho salmon past the mainstem sonar of 247,000 fish was the second highest on record. Based on the Lower Yukon River Test Drift Gillnet Fishery which operated until September 20, no additional pulses of salmon were observed.

Subsistence Fisheries

In anticipation that the fall chum salmon run size in 2014 would both meet escapement needs and provide for a commercial surplus, all districts and subdistricts returned to their regulatory subsistence fishing schedules commensurate with transitioning to fall management. The transition date was based on the fall chum salmon migration timing upriver. In addition, upon transitioning subsistence fishermen were allowed to use up to 7.5 inch mesh gear. District 1 transitioned to the fall season on July 16, District 2 on July 19, and District 3 on July 20. Subsistence fishing in those districts was open 7 days a week, 24 hours a day except for 12 hours before, during, and 12 hours after commercial openings (no commercial periods were announced in District 3).

The Innoko River switched to fall season management on July 19 and was open 7 days per week, 24 hours a day. The entire District 4 was on a 5-day per week schedule by July 27, and drift gillnetting in the upper portion of Subdistrict 4-A opened on July 29. The entire District 4 went on a 7-day per week, 24-hour a day schedule on August 8. Subdistricts 5-A, 5-B, and 5-C went to a 5-day per week schedule effective July 31 (commercial salmon fishing periods were announced in Subdistricts 5-B and 5-C throughout the fall season) and then to a 7-day per week, 24-hour a day schedule on August 12. District 6 remained on the normal two 42-hour periods per week until October 1 when it was then opened to 7 days per week, 24 hours a day. The Koyukuk River and Old Minto area transitioned to fall season management on July 28, returning to 7-day per week and 5-day per week schedules respectively. Finally the entire Subdistrict 5-D was transitioned to the fall season on August 8, returning to a schedule of 7 days per week.

Commercial Fishing Summary

There were a total of 38 commercial periods during the fall season in 2014. Table 1 provides a summary of the 2014 Yukon Area fall season commercial salmon harvest by district. The majority of fall season commercial harvest occurred in the lower river districts. A regular schedule of commercial fishing periods was established in Districts 5 and 6, but limited markets resulted in low fishing effort and relatively small harvests. The total commercial harvest for the Yukon River fall season in the Alaska portion of the drainage was 115,593 fall chum and 104,638 coho salmon. Fall chum salmon commercial harvest was below while coho salmon harvest was above their respective most recent 5-year (2009–2013) and 10-year (2004–2013) averages. Table 2 shows historical commercial fall chum salmon harvest by district and Table 3 shows historical commercial coho salmon harvest by district. The fall chum salmon harvest was the tenth largest since 1990 and the coho salmon harvest was the second largest since 1990. The average weight of fall chum salmon caught commercially in Districts 1 and 2 was 7.5 lbs, the

average weight of coho salmon was 6.6 lbs. All salmon were sold in the round and no salmon roe was sold separately. The exvessel value of the total harvest was \$1,338,746 (Table 4); \$630,073 for fall chum and \$708,673 for coho salmon. Fall chum salmon exvessel values were below while coho salmon were above the most recent 5-year (2009–2013) averages. The average price per pound paid for fall chum salmon Districts 1 and 2 was \$0.75, the average price paid for coho salmon was \$1.00. A total of 445 individual permit holders participated in the fall chum and coho salmon fishery: 441 in Districts 1 and 2 combined and 4 in Districts 5 and 6 combined, Table 5 shows how permit holder participation in 2014 compared to historical numbers.

Subsistence/Personal Use Fishing Summary

A comprehensive estimate of the 2014 subsistence harvest based on household surveys and permit harvest information for salmon and nonsalmon species is not available at this time, but is anticipated to be available by early spring of 2015. Subsistence and personal use harvests are expected to be similar to 2013 which were estimated to be approximately 113,000 fall chum salmon and 14,000 coho salmon.

Salmon Escapement

Total run size, based on an adjusted abundance estimate from the mainstem sonar operated near Pilot Station and including estimated commercial and average subsistence harvests downstream of the sonar site (including test fisheries), was 880,000 fall chum salmon. Based on the location of the project, at river mile 123, the abundance estimate includes Koyukuk River drainage stocks which turn off at river mile 508.

Calculating total run size postseason is based on individually monitored spawning escapements (primarily above river mile 695), including estimated U.S. and Canadian harvests. Escapements were monitored in the Chandalar, the upper Porcupine River in Canada and the Canadian mainstem Yukon River (near Eagle) using sonars. Sheenjek River was not monitored and was estimated based on a relationship of the two bank operations compared to Fishing Branch River weir. Assessment of Tanana River stocks is preliminary at this time, however estimates were similar between the genetic proportion (both summer and fall Tanana River stocks passing after July 19) and when based on the relationship with the Canadian upper Yukon River. An additional corroborative estimate, based on the relationship to the Delta River will be conducted after the population estimate for that system is completed in December. In 2014, estimating run size based on the various projects resulted in a preliminary estimate of approximately 922,000 fall chum salmon. Using preliminary estimates of harvest resulted in an estimated escapement of 672,000 fall chum salmon which exceeds the upper end of the SEG range of 300,000 to 600,000 fish. Estimates of run size derived from individual projects are typically higher than those based on the sonar project at Pilot Station in part because of 1) apportionment of small stocks and 2) advancement of technologies used to enumerate fish in the upriver monitoring projects.

The fall chum salmon escapement of 226,000 (includes expansions to the end of the run) into Chandalar River exceeded the upper end of the BEG range of 74,000 to 152,000 fish. The estimated run size of 56,000 fall chum salmon in the Sheenjek River would suggest that the escapement based on the right bank only would not have been achieved. Table 6 shows historical escapements to selected spawning areas in the Yukon Area. The estimate of 15,000 chum salmon escapement for the upper Porcupine River was based on the sonar counts minus preliminary harvests in Old Crow Yukon Territory. Assuming the majority of these fish were headed to the Fishing Branch River spawning area would suggest that escapement did not meet the low end of

the IMEG of 22,000–49,000 fish for that portion of the system. The fall chum salmon escapement was estimated to be 158,000 fish for the mainstem Yukon River in Canada which exceeded the interim management escapement goal range of 70,000 to 104,000 fish and provided for harvest sharing agreement. The Tanana River preliminary estimate of escapement of 216,000 fall chum salmon exceeds the upper end of the BEG range of 61,000 to 136,000 fall chum salmon.

Stock composition estimates were provided by USFWS Conservation Genetics Laboratory using tissue samples (fin clips) collected from chum salmon captured in the Pilot Station sonar test net fishery. Chum salmon genetic samples processed from five strata between July 19 and September 7 (fall season) indicated that stocks represented approximately 9% summer, 32% Border U.S. (Chandalar/Sheenjek), 29% Canadian, and 30% Tanana.

In 2014, the proportion of age-3 fall chum salmon (<3%) was average, age-4 fish (52%) was below average (65%), age-5 fish (44%) was above average (31%), and age-6 (<1%) was average based on samples collected at the Lower Yukon Test Fishery using 6 inch mesh drift gillnets. Females contributed 60% to the samples and were average. Fall chum salmon length samples in 2014 averaged 591 mm compared to the 1981-2013 average of 596 mm.

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 at Pilot Station was operated through September 7 with an estimated passage of 247,000 coho salmon which is well above the historical average of 140,000 fish. Table 7 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 in the DCR in late October observed 4,285 coho salmon indicating the lower end of the escapement goal was not achieved. Fall season aerial surveys for the Nenana River drainage and the south bank Tanana River from Fairbanks to Delta Junction were below the long term averages. Four out of six aerial surveys were however slightly above the recent 5-year averages (2009-2013).

In 2014, the proportion of age-3 coho salmon (9%) was well below average (15%), age-4 fish (82%) was above average (77%), and age-5 fish (10%) was above average (5%), based on samples collected at the Lower Yukon Test Fishery using 6 inch mesh drift gillnets. Females contributed 53% to the samples which was above average (45%). Coho salmon length samples in 2014 averaged 559 mm compared to the 1981-2013 average of 579 mm, this was equal to the second smallest lengths observed in 2012 (559 mm) and slightly larger than the smallest on record which occurred in 2006 (549 mm).

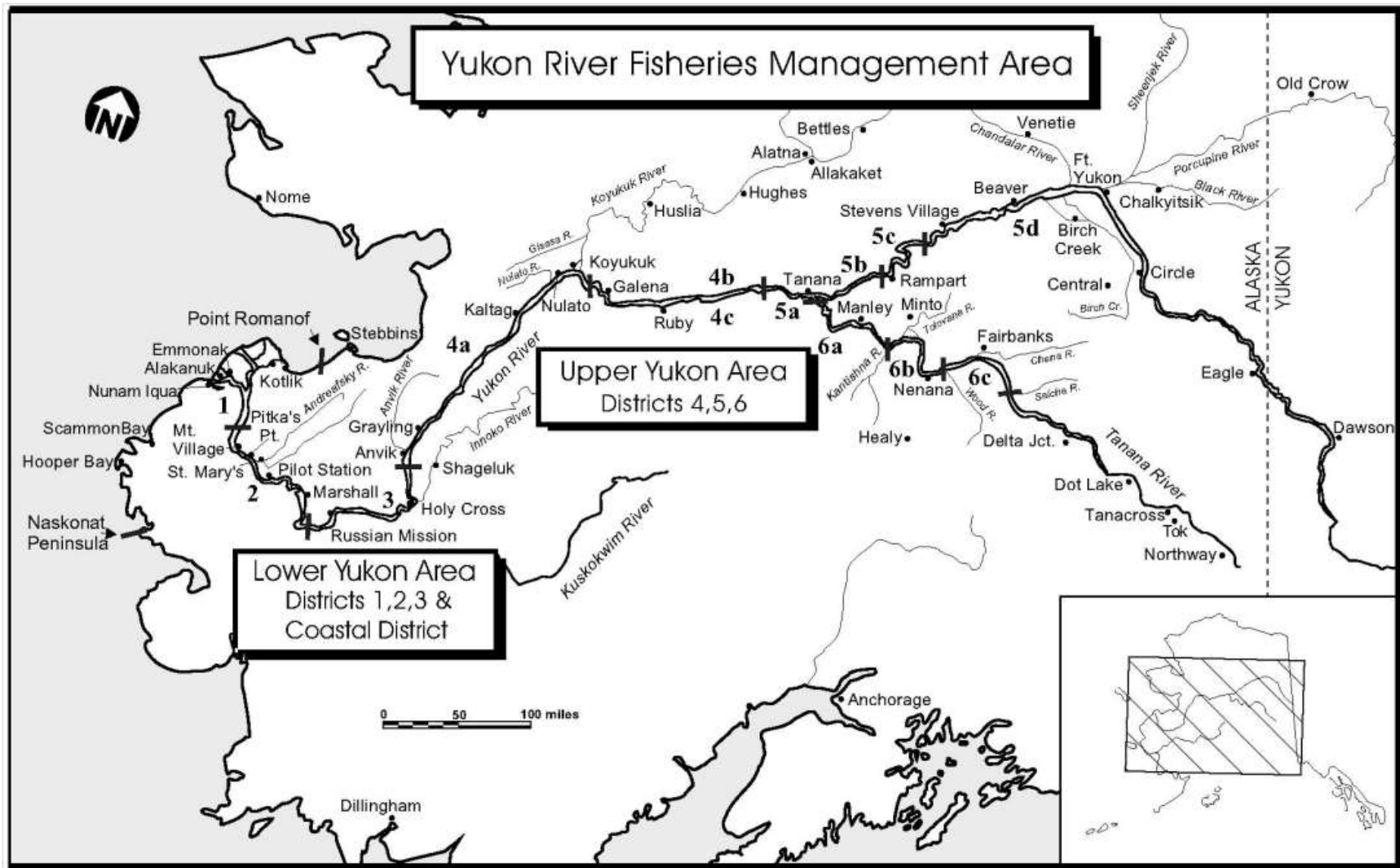


Figure 1.—Alaskan portion of the Yukon River drainage showing fishing districts and communities.

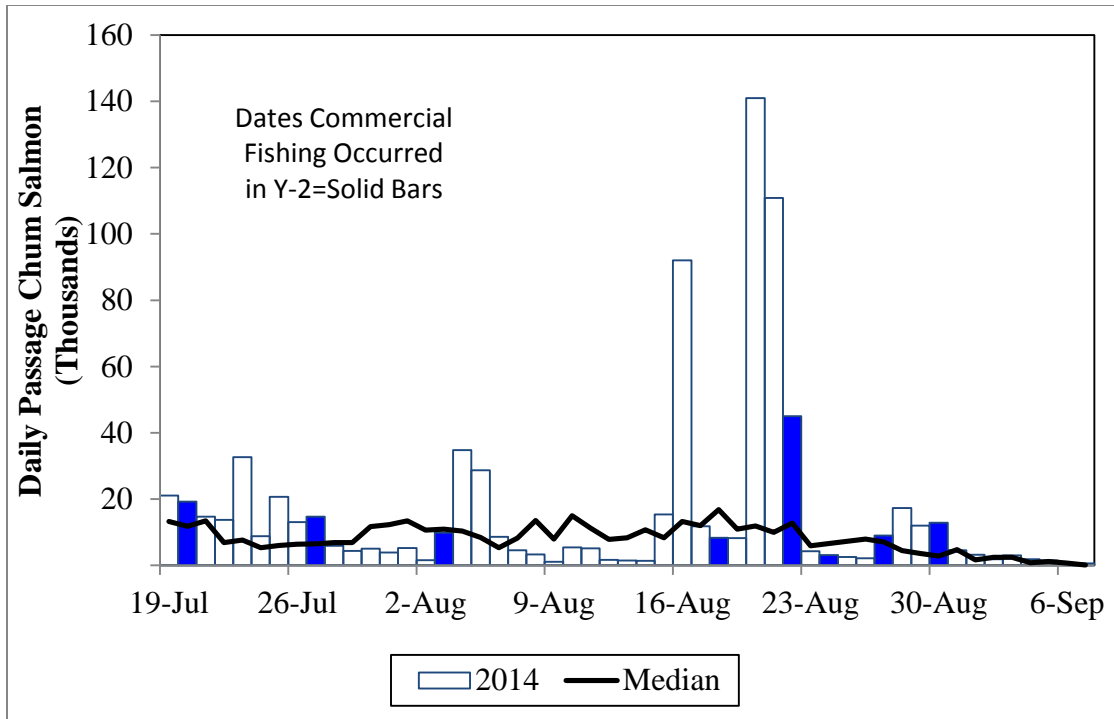


Figure 2.—Daily Pilot Station sonar passage estimates attributed to fall chum salmon 2014, based on run reconstruction, compared to historical median.

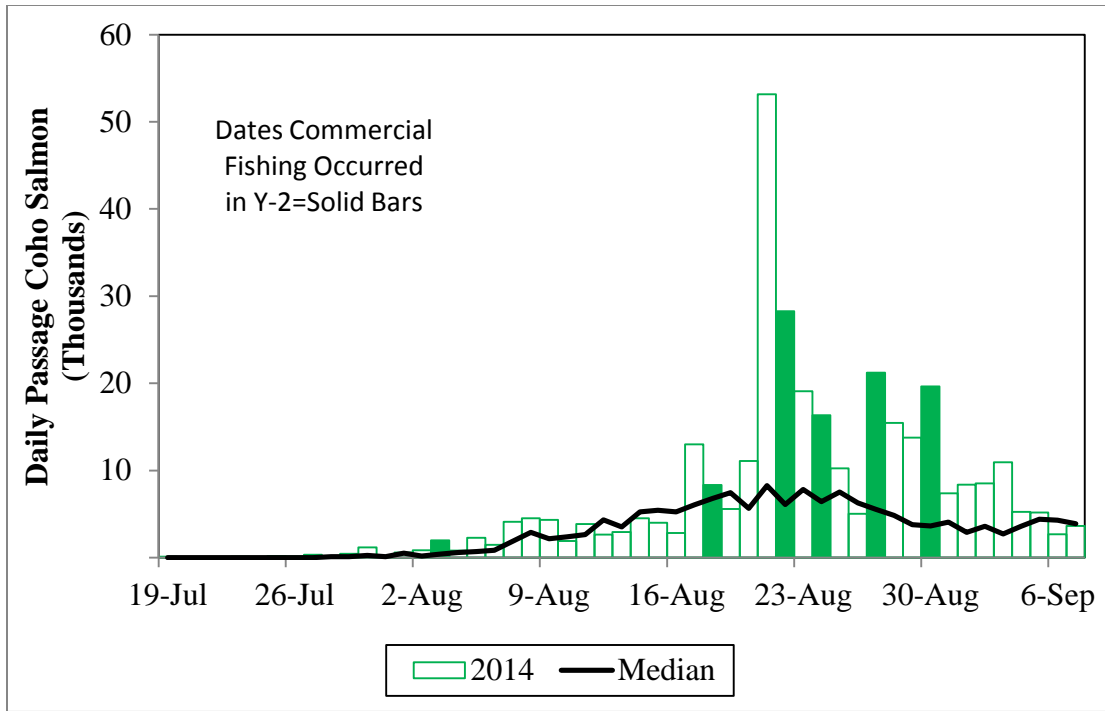


Figure 3.—Daily Pilot Station sonar passage estimates attributed to coho salmon 2014, based on run reconstruction, compared to historical median.

Table 1.—Preliminary summary of the fall season commercial salmon harvest, by district, Yukon Area, 2014.

District	Periods	Permits	Fall Chum Salmon			Coho Salmon		
			Number	Pounds	Average Weight ^a	Number	Pounds	Average Weight ^a
1	12	256	51,823	386,120	7.5	54,750	377,529	6.9
2	8	199	59,138	443,138	7.5	48,602	328,714	6.8
3			No commercial openings					
4			No commercial openings					
5 ^b	7	2	1,264	9,477	7.5	0	0	0.0
6	11	2	3,368	23,047	6.9	1,286	6,224	4.8
TOTAL	38	445	115,593	861,782	7.5	104,638	712,467	6.8

^a Average weight is weighted based on individual periods.

^b Commercial fishing occurred in Subdistricts 5-B and 5-C.

Table 2.–Fall chum salmon commercial harvest by district, Yukon Area, 1994–2014.

Year	^a District 1	<i>Lower Yukon</i>			<i>Upper Yukon</i> ^b			Yukon Total	
		District 2	District 3	Subtotal	District 4	District 5	District 6		
1994	-	-	-	-	-	3,630	4,369	7,999	7,999
1995	79,345	90,831	-	170,176	8,731	30,033	74,117	112,881	283,057
1996	33,629	29,651	-	63,280	2,918	20,376	17,574	40,868	104,148
1997	27,483	24,326	-	51,809	2,458	3,640	-	6,098	57,907
1998	-	-	-	-	-	-	-	-	-
1999	9,987	9,703	-	19,690	681	-	-	681	20,371
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	51,823	59,138	-	110,961	-	1,264	3,368	4,632	115,593
Average									
2009-2013	77,324	69,726	-	147,050	811	1,569	11,206	12,309	159,360
2004-2013	72,562	58,204	-	119,125	811	1,893	15,401	16,618	135,742

Note: Endash indicates no commercial fishing occurred.

^a Number 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.—Coho salmon commercial harvest by district, Yukon River, 1994–2014.

Year	<i>Lower Yukon</i>				<i>Upper Yukon</i> ^b				Yukon Total
	District 1	District 2	District 3	<i>Subtotal</i>	District 4	District 5	District 6	<i>Subtotal</i>	
1994	-	-	-	-	-	-	4,451	4,451	4,451
1995	21,625	18,488	-	40,113	0	-	6,900	6,900	47,013
1996	27,705	20,974	-	48,679	161	-	7,142	7,303	55,982
1997	21,450	13,056	-	34,506	814	-	-	814	35,320
1998	-	-	-	-	-	-	-	-	-
1999	855	746	-	1,601	-	-	-	-	1,601
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	-	-	7,439	7,439	66,199
2014	54,750	48,602	-	103,352	-	0	1,286	1,286	104,638
Average									
2009-2013	23,883	17,461	-	41,344	0	634	4,544	4,670	46,014
2004-2013	23,252	17,815	-	37,504	0	363	7,806	7,878	45,382

Note: Endash indicates no commercial fishing occurred.

^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 4.—Exvessel value of fall chum and coho salmon commercial salmon fishery, 1994–2014.

Year	Fall Chum					Coho						Value by Species		Value by Area		
	Lower Yukon		Upper Yukon			Lower Yukon			Upper Yukon			Fall Chum	Coho	Lower	Upper	Total
	\$/lb	Value	\$/lb	\$/lb Roe	Value	\$/lb	\$/lb Roe	Value	\$/lb	\$/lb Roe	Value					
1994	-	-	0.16	1.50	8,517	-	-	-	0.48	1.50	8,739	-	8,739	-	17,256	17,256
1995	0.15	185,036	0.13	2.96	167,571	0.29	-	80,019	0.14	2.51	11,292	352,607	91,311	265,055	178,863	443,918
1996	0.10	48,579	0.13	1.71	45,438	0.26	2.96	96,795	0.09	2.16	13,020	94,017	109,815	145,374	58,458	203,832
1997	0.22	86,526	0.17	1.75	7,252	0.32	-	79,973	0.20	-	1,062	93,778	81,035	166,499	8,314	174,813
1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1999	0.25	35,639	0.20	-	876	0.35	-	3,620	-	-	-	36,515	-	39,259	876	40,135
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	621,917	0.25	-	8,156	1.00	-	706,293	0.38	-	2,380	630,073	708,673	1,328,210	10,536	1,338,746
Average 2009-2013																
	0.84	856,307	0.20	-	14,852	1.17	-	306,680	0.19	-	4,447	871,159	311,127	1,162,987	19,299	1,182,285

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Table 5.—Number of permit holders participating in fall season commercial salmon fisheries, by district, Yukon Area, 1994–2014.

Fall Chum and Coho Salmon Season ^a									
Year	Lower Yukon Area				Upper Yukon Area				Yukon Area
	District 1	District 2	District 3	Subtotal ^b	District 4	District 5	District 6	Subtotal ^c	Total
1994	0	0	0	0	0	1	11	12	12
1995	189	172	0	357	4	12	20	36	393
1996	158	109	0	263	1	17	17	35	298
1997	176	130	0	304	3	8	0	11	315
1998	0	0	0	0	0	0	0	0	0
1999	146	110	0	254	4	0	0	4	258
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
Average									
2004-2013	184	109	0	289	0	2	6	8	296
2009-2013	198	143	0	334	1	1	4	7	339

^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 The sum of Districts 4, 5, and 6 averages may not equal Upper Yukon Area district Subtotal due to rounding error.

Table 6.–Fall chum salmon passage estimates or escapement estimates for selected spawning areas, Yukon River drainage, 1994 to 2014.

Year	Alaska						Canada	
	Yukon River Mainstem Sonar Estimate	Tanana River Drainage			Upper Yukon River Drainage		Fishing Branch River ^f	Mainstem Escapement Estimate ^g
		Delta River ^a	Bluff Cabin Slough ^b	Tanana River Estimate ^c	Chandalar River ^d	Sheenjek River ^e		
1994		23,777	2,277 ^h			150,565	65,247	98,358
1995	1,053,248	20,587 ⁱ	19,460	230,643	280,999	241,855	51,971 ^j	158,092
1996		19,758	7,074	132,922	208,170	246,889	77,302	122,429
1997	506,621	7,705	5,707	88,641	199,874	80,423 ^k	27,031	85,419
1998	372,927	7,804	3,549	82,475	75,811	33,058	13,687	46,252
1999	379,493	16,534	7,037	109,309	88,662	14,229	12,958	58,552
2000	247,935	3,001	1,595	55,983	65,894	30,084 ^l	5,057	53,732
2001	376,182	8,103	1,808 ^h	116,012	110,971	53,932	21,737	33,491
2002	326,858	11,992	3,116	163,421	89,850	31,642	13,600	98,679
2003	889,778	22,582	10,600 ^h	263,302	214,416	44,047 ^m	29,713	143,133
2004	594,060	25,073	10,270 ^h	187,409	136,706	37,878	20,417	154,080
2005	1,813,589	28,132	11,964 ^h	372,758	496,484	561,863 ⁿ	119,058	437,733
2006	790,563	14,055		233,193	245,090	160,178 ⁿ	30,954	220,898
2007	684,011	18,610		357,016	228,056	65,435 ⁿ	32,150	236,987
2008	615,127	23,055	1,198	264,200 ^o	162,024	50,353 ⁿ	19,086	167,898 ^p
2009	233,169 ^q	13,492	2,900 ^h	159,828 ^o	150,000 ^r	54,126 ⁿ	25,828	93,626 ^p
2010	393,326	17,993	1,610 ^h	212,660 ^o	157,744	22,053	15,440	118,272 ^p
2011	764,194	23,639	2,655 ^h	270,846 ^o	273,965	97,976 ⁿ	13,085	205,566 ^p
2012	682,510	9,377 ^b		102,096 ^o	197,931	104,701 ⁿ	22,399	137,662 ^p
2013	716,158	20,666 ^b	5,554 ^h	274,456 ^t	227,145	113,000 ^u	25,376 ^v	200,262 ^p
2014 ^s	650,808	32,480 ^b	4,095 ^h	216,739 ^t	212,159	56,000 ^u		157,776 ^p
All Years Average	658,775 ^q	18,081	5,693	194,728	191,098	107,157	32,121	144,233
5 Year Average 2009–2013	639,189 ^q	19,291	3,180	204,107	204,107	78,371	20,492	151,078
BEG Range	300,000 ^w 600,000	6,000 13,000		61,000 136,000	74,000 152,000	50,000 104,000	50,000 120,000	> 80,000 ^x
Interim Escapement Objective							22,000-49,000 ^y	70,000-104,000 ^z

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Table 6.–Page 2 of 2.

- ^a Population estimate generated from replicate foot surveys and stream life data using AUC (area-under-curve) method unless otherwise indicated.
- ^b Peak counts from foot surveys unless otherwise noted.
- ^c 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.
- ^d Split beam sonar estimate (1995 to 2006). DIDSON sonar (2007-present). Does not include expansions to the end of the run.
- ^e Single beam sonar estimate (1993–2002), split beam sonar estimate (2003-2004), DIDSON sonar (2005-2012).
- ^f Located within the Canadian portion of the Porcupine River drainage. Weir count, unless otherwise indicated. Late season adjustments have been made for the period when weir was not operating for most years.
- ^g Estimated mainstem Yukon River Canadian escapement derived from mark-recapture project minus Canadian mainstem harvest and excluding Canadian Porcupine River drainage escapement, unless otherwise noted.
- ^h Peak aerial survey counts.
- ⁱ Total escapement estimate generated from the migratory time density curve method.
- ^j Minimal count because weir was closed while submerged due to high water, during the period August 31 to September 8, 1995.
- ^k The passage estimate includes an additional 15,134 salmon that were estimated to have passed during 127 hours that the sonar was inoperable due to high water from August 29 until September 3, 1997.
- ^l 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.
- ^m Project ended on peak daily passage in 2003 due to late run timing, estimate was expanded based on run timing (87%) at Rapids.
- ⁿ BEG based on right bank only. Inseason right bank counts include 266,963, 106,397, 39,548, 35,912, 28,480, 49,080, and 57,823 in 2005 through 2009 and 2011 to 2012 respectively.
- ^o Tanana River estimate for 2008–2011 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).
- ^p 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.
- ^q Excludes 2009 because of problems with apportionment during extremely low water operations.
- ^r Project ended early, estimate based on regression of Chandalar to Fishing Branch River plus Mainstem Yukon River Border from 1995–2009.
- ^s Preliminary data.
- ^t Preliminary estimate based on regression of Tanana with mainstem Yukon River Canada from 1995 to 2012 excluding 2005.
- ^u 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.
- ^v Fishing Branch River weir did not operate and escapement was estimated from a sonar operated on the upper Porcupine River minus Old Crow harvest and the proportion of radio-tags to Fishing Branch River.
- ^w Yukon River drainagewide sustainable escapement goal is assessed inseason using Pilot Station sonar estimates minus upstream estimated harvests. Post season run reconstruction using harvest and escapements is used to measure whether the goal was achieved.
- ^x The escapement goal after rebuilding is greater than 80,000 fish. Since 2008 has been based on Eagle sonar counts.
- ^y Interim Management Escapement Goal (IMEG) established 2008. Based on Bue and Hasbrock SEG method.
- ^z IMEG of 70,000 to 104,000 was established for 2010 to present is based on Canadian stock Ricker model which was to be reviewed after the 2005 returns were completed.

Table 7.–Coho salmon passage estimates or escapement estimates for selected spawning areas, Yukon River drainage, 1994 to 2014.

Year	Yukon River Mainstem Sonar Estimate ^a	Nenana River Drainage				Upper Tanana River Drainage		
		Lost Slough	Nenana Mainstem ^c	Wood Creek	Seventeen Mile Slough	Delta Clearwater River ^d	Clearwater Lake and Outlet	Richardson Clearwater River
1994		944 (h)	1,648 (h)	1,317 (w) ^e	2,909 (h)	62,675 (b)	3,425 (b)	5,800 (f)
1995	101,806	4,169 (f)	2,218 (h)	500 (w)	1,512 (h)	20,100 (b)	3,625 (b)	
1996		2,040 (h)	2,171 (h)	201 (u) ⁱ	3,668 (g/b)	14,075 (b)	1,125 (b) ⁱ	
1997	104,343	1,524 (h)	1,446 (h)	^j	1,996 (h)	11,525 (b)	2,775 (b)	
1998	136,906	1,360 (h) ⁱ	2,771 (h) ⁱ	^j	1,413 (g/b)	11,100 (b)	2,775 (b)	
1999	62,521	1,002 (h) ⁱ	745 (h) ⁱ	370 (h)	662 (h) ⁱ	10,975 (b)		
2000	175,421	55 (h) ⁱ	68 (h) ⁱ	^j	879 (h) ⁱ	9,225 (b)	1,025 (b)	2,175 (h)
2001	137,769	242 (h)	859 (h)	699 (h)	3,753 (h)	27,500 (b)	4,425 (b)	1,531 (f)
2002	122,566	0 (h)	328 (h)	935 (h)	1,910 (h)	38,625 (b)	5,900 (b)	874 (f)
2003	269,081	85 (h)	658 (h)	3,055 (h)	4,535 (h)	102,800 (b)	8,800 (b)	6,232 (h)
2004	188,350	220 (h)	450 (h)	840 (h)	3,370 (h)	37,550 (b)	2,925 (b)	8,626 (h)
2005	184,718	430 (h)	325 (h)	1,030 (h)	3,890 (h)	34,293 (b)	2,100 (b)	2,024 (h)
2006	131,919	194 (h)	160 (h)	634 (h)	1,916 (h)	16,748 (b)	4,375 (b)	271 (h)
2007	173,289	63 (h)	520 (h)	605 (h)	1,733 (h)	14,650 (b)	2,075 (b)	553 (h)
2008	135,570	1,342 (h)	1,539 (h)	578 (h)	1,652 (h)	7,500 (b)	1,275 (b)	265 (h)
2009	206,620 ^k	410 (h)		470 (h)	680 (h)	16,850 (b)	5,450 (b)	155 (h)
2010	155,784	1,110 (h)	280 (h)	340 (h)	720 (h)	5,867 (b)	813 (b)	1,002 (h)
2011	124,931	369 (h)			912 (h)	6,180 (b)	2,092 (b)	575 (h)
2012	106,782		106 (h)		405 (h)	5,230 (b)	396 (h)	515 (h)
2013	84,795	721 (h)		55 (h)	425 (h)	6,222 (b)	2,221 (h)	647 (h)
2014	247,047 ^l	333 (h)	378 (h)	649 (h)	886 (h)	4,285 (b)	434 (h)	1,941 (h)
SEG ^m						5,200-17,000 ^m		
All Years								
Average	146,867 ^k	808	899	761	1,837	21,584	2,931	2,074
5 Year Average								
2009-2013	118,073 ^k	653	193	288	628	8,070	2,194	579

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Table 7.–Page 2 of 2.

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.

^a Passage estimates for coho salmon are incomplete. The sonar project is terminated prior to the end of the coho salmon run.

^c Index area includes mainstem Nenana River between confluence's of Lost Slough and Teklanika River.

^d Index area is lower 17.5 miles of system.

^e Weir project terminated on October 4, 1993. Weir normally operated until mid to late October.

ⁱ Weir project terminated September 27, 1994. Weir normally operated until mid-October.

^j No survey of Wood Creek due to obstructions in creek.

^k Pilot Station sonar project encountered record low water levels during the fall season causing difficulties with species apportionment and catchability. Coho salmon are suspected of being over estimated therefore this value should not be used in averages or run reconstructions.

^l Data preliminary.

^m 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.