

# ALASKA DEPARTMENT OF FISH AND GAME

## DIVISION OF COMMERCIAL FISHERIES

### NEWS RELEASE



*Sam Cotten, Commissioner*  
*Scott Kelley, Director*



---

Contact:  
Jeff Estensen, Area Management Biologist  
Bonnie Borba, Fall Season Research Biologist  
Christy Gleason, Assistant Area Management Biologist  
Phone: (907) 459-7274  
Fax: (907) 459-7271

Fairbanks Area Office  
1300 College Road  
Fairbanks, Alaska 99701  
Date Issued: 12/10/15

### **2015 Yukon River Fall Season Summary**

#### **Introduction**

This news release provides a preliminary summary of the 2015 Yukon Area fall season including fall chum and coho salmon harvests and escapement. All reported results are preliminary and subject to revision.

#### **2015 Fall Season Outlook**

A formal fall chum salmon run forecast was made using brood year analysis in March of 2015. The forecasted fall chum salmon run size in 2015 was a point estimate of 1,060,000 fish with a range of 944,000 to 1,176,000 fish. A run of that size is slightly below average for an odd-numbered year. The surplus available for commercial harvest was anticipated to be between 394,000 to 626,000 fall chum salmon.

A preseason run projection was made in mid-July using the historical relationship between summer and fall chum salmon run sizes. Based on an estimated summer chum salmon run size of 1.8 M fish, the resulting preseason fall chum salmon projection was a range of 700,000 to 800,000 fish.

Assuming average survival, the 2015 coho salmon run was anticipated to be below average to average based on average survival from the 2011 parent year. A coho salmon index developed for the Yukon River from 1995 to 2012 (excluding 1996 and 2009) suggests that the average escapement is approximately 193,000 fish.

#### **Preseason Management Strategy**

The preseason run projection indicated 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:

- Concurrent with the fall chum salmon migration upriver, all Yukon Area districts and subdistricts would be placed on their full regulatory subsistence fishing schedule, and the use of gillnets with a mesh size of 7.5 inches or less would be allowed.
- Commercial salmon fishing in Districts 1 and 2 would continue, on a 2 days a week schedule, during the summer-to-fall management transition, with gillnets restricted to 6-inch or less mesh size.

## 2015 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 abundance estimates, and subsistence and commercial harvest 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. Assessment projects operated in the upper river included a fish wheel video project near Rampart-Rapids, sonars operated in the mainstem Yukon River near U.S./Canada border as well as in two tributaries (Chandalar and Porcupine), and a weir on the Fishing Branch River (Upper Porcupine River). Data from these projects were analyzed collectively inseason and are used to verify collaboration between projects. Age, sex, and length information were collected at the lower river test fisheries, as well as various upriver escapement 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. Mountain Village Drift Gillnet Test Fishery began operation on July 18, and the mainstem Yukon River sonar operated near Pilot Station began counting chum salmon as fall chum salmon July 19. The subsequent transition of upriver districts and subdistricts to the fall season was based on the migration timing of fall chum salmon.

The Lower Yukon River Drift Gillnet Test Fishery ceased operations on September 20 (the project was operated by the Yukon Delta Fisheries Development Association after ADF&G ceased operations on August 29) and had a cumulative catch per unit effort (CPUE) for fall chum salmon of 1,353 which is above the historical median of 1,286. The Mountain Village test fishery ceased operations after September 11 with a cumulative CPUE for fall chum salmon of 1,682, which is below the historical median of 2,053. Finally, the mainstem sonar near Pilot Station ceased operations on after August 31, which was a week earlier than the sonar has operated in the previous years. The preliminary fall chum salmon passage estimate at the mainstem sonar project near Pilot Station was 546,894 fish, which is below the historical median of 632,968 fish. Six pulses of fall chum salmon were detected, with the largest pulse, approximately 120,000 fish, having finished passing the mainstem sonar by July 22. Run timing for fall chum salmon was slightly late averaging three days late over all the assessment projects.

The preliminary coho salmon passage estimate at the mainstem sonar project near Pilot Station was 97,587 fish, which is below the historical median of 121,023 fish. A portion of the coho salmon run is missed because of the mainstem sonar shuts down prior to the completion of the run. Run timing for coho salmon was average in the majority of the assessment projects.

## **Subsistence Fisheries**

In anticipation that the fall chum salmon run size in 2015 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.

Subsistence fishing was liberalized to seven days a week in District 4 and Subdistricts 5-A, 5-B, 5-C, 6-A, and 6-B in light of the conservation efforts for Chinook salmon this season. Subsistence fishing in Subdistrict 4-A was liberalized to 7 days a week on July 28, Subdistricts 4-B and 4-C on July 31. The subsistence schedule in Subdistricts 5-A, 5-B, and 5-C was liberalized to 7 days per week on August 4 and in Subdistricts 6-A and 6-B on October 2.

The mainstem Porcupine River was closed to subsistence salmon fishing on August 22 and remained closed for the remainder of the fall season. This closure was because fall chum salmon escapements into the Canadian Fishing Branch River, a tributary of the Porcupine River, have fallen short of meeting the escapement objective agreed upon by U.S. and Canadian representatives in 3 of the last 5 years despite other Yukon River stocks meeting or exceeding their escapement goals or objectives. The closure was an attempt to improve fall chum salmon escapement into the Canadian portion of the drainage.

## **Commercial Fishing Summary**

There were a total of 44 commercial periods during the fall season in 2015. Table 1 provides a summary of the 2015 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 191,470 fall chum and 129,700 coho salmon. Fall chum salmon commercial harvest was above the most recent 5-year (2010–2014) and 10-year (2005–2014) averages (Table 2). The coho salmon harvest was the highest on record, eclipsing the previous high of 106,696 fish in 1991. Table 3 shows historical commercial coho salmon harvest by district. The average weight of fall chum salmon caught commercially in Districts 1 and 2 was 7.3 lbs, the average weight of coho salmon was also 7.3 lbs. All salmon were sold in the round and no salmon roe was sold separately. The exvessel value of the total harvest was \$1,401,319 (Table 4); \$777,825 for fall chum and \$623,494 for coho salmon. Fall chum salmon exvessel values were below while coho salmon were above the most recent 5-year (2010–2014) averages. The average price per pound paid for fall chum salmon in Districts 1 and 2 was \$0.60; the average price paid for coho salmon was \$0.70. A total of 446 individual permit holders participated in the fall chum and coho salmon fishery: 440 in Districts 1 and 2 combined and six in Districts 5 and 6 combined (Table 5).

## **Subsistence Fishing Summary**

A comprehensive estimate of the 2015 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 2014 which were estimated to be approximately 92,500 fall chum salmon and 17,000 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 740,000 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 using sonars in the Chandalar River, upper Porcupine River in Canada, and Canadian mainstem Yukon River (near Eagle). The Fishing Branch River weir was reinstalled this season in the headwaters of the Porcupine River in Canada. 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 was based on a relationship with the Canadian mainstem component and estimates were similar between the genetic proportion (both summer and fall Tanana River stocks passing after July 19). The Delta River escapement estimate was higher than the normal relationship, probably an effect of the warm fall conditions. In 2015, estimating run size based on the various projects resulted in a preliminary estimate of approximately 740,000 fall chum salmon but is expected to increase when the final estimate is completed. Using preliminary estimates of harvest resulted in an estimated escapement of 450,000 fall chum salmon which is within 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 164,000 (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 34,000 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 20,000 chum salmon escapement for the upper Porcupine River was based on the sonar counts minus preliminary harvests in Old Crow Yukon Territory. The Fishing Branch River weir estimate was approximately 9,000 fall chum salmon which did not meet the low end of the IMEG of 22,000–49,000 fish. The fall chum salmon escapement was estimated to be 109,000 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 124,000 fall chum salmon was within 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 August 31 (fall season) indicated that stocks represented approximately 22% summer, 29% Border U.S. (Chandalar/Sheenjek), 27% Canadian, and 22% Tanana.

In 2015, the proportion of age-3 fall chum salmon (8%) was above average (<3), age-4 fish (59%) was below average (66%), age-5 fish (30%) was average, and age-6 fish (<3%) was above average (<1%) based on samples collected at the Lower Yukon Test Fishery using 6 inch mesh drift gillnets. Females contributed 64% of the samples and were slightly above average. Fall chum salmon length samples in 2015 averaged 584 mm compared to the 1981-2014 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 August 31 with an estimated passage of 97,600 coho salmon which is well below the historical average of 121,000 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 19,533 coho salmon indicating the upper end of the escapement goal was exceeded. Two out of six aerial surveys for coho salmon in the Nenana River drainage and the south bank Tanana River from Fairbanks to Delta Junction also were above the long term (1974-present) and only one survey was below the recent 5-year averages (2010-2014).

In 2015, age and sex samples were collected from the Lower Yukon Test Fishery using 6 inch mesh drift gillnets. The sex composition and length data are preliminary and ages are not currently available. Females contributed 56% to the samples which was well above the average (46%). Coho salmon in 2015 averaged 583 mm in length compared to the 1981-2014 average of 579 mm, this was considerably larger than the last three years for both males and females.

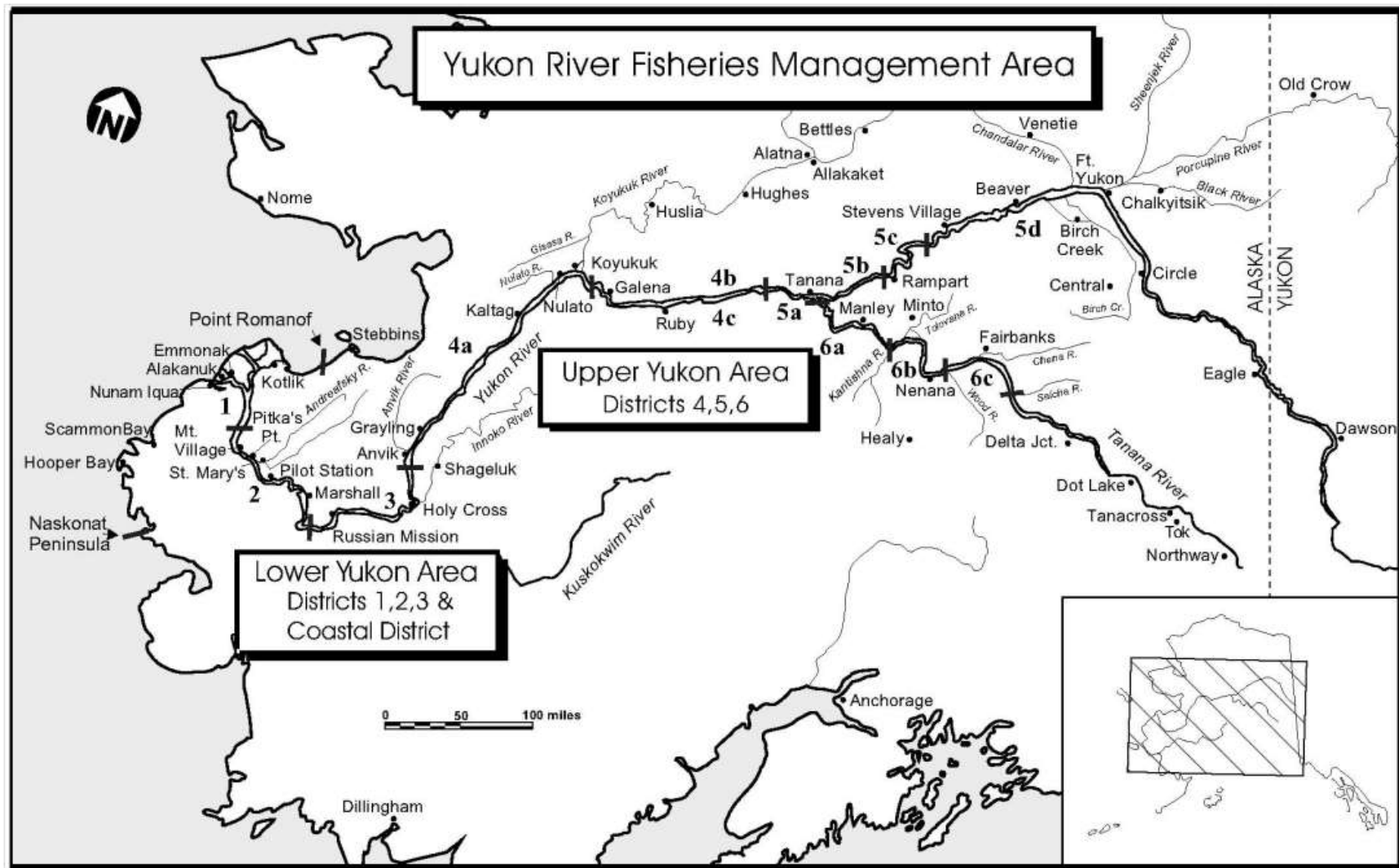


Figure 1.—Alaskan portion of the Yukon River drainage showing fishing districts and communities.

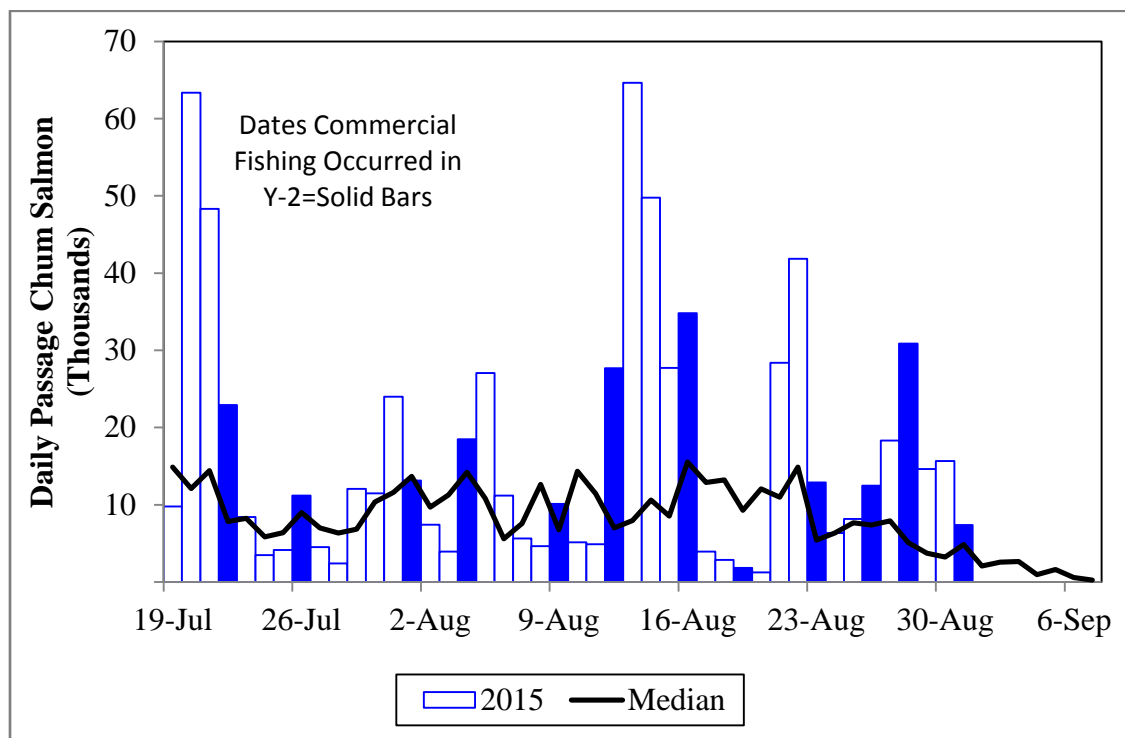


Figure 2.—Daily Pilot Station sonar passage estimates attributed to fall chum salmon 2015, based on run reconstruction, compared to historical median.

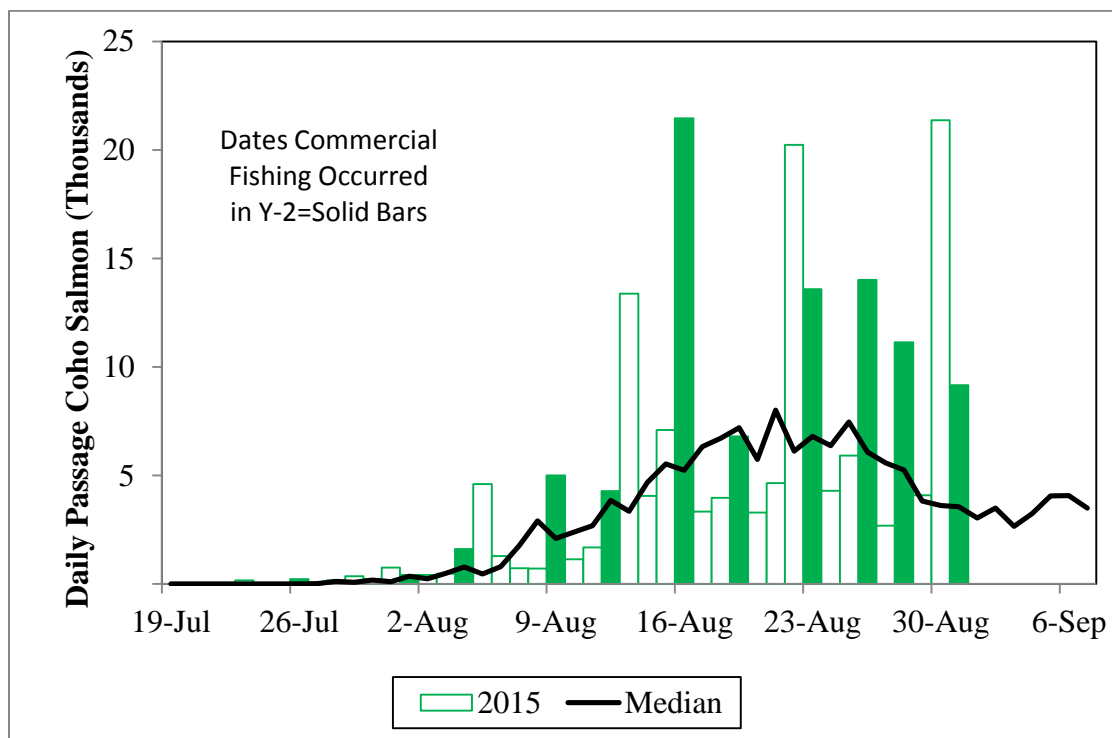


Figure 3.—Daily Pilot Station sonar passage estimates attributed to coho salmon 2015, based on run reconstruction, compared to historical median.



Table 1.—Preliminary summary of the fall season commercial salmon harvest, by district, Yukon Area, 2015.

District	Periods	Permits	Fall Chum Salmon			Coho Salmon		
			Number	Pounds	Average Weight <sup>a</sup>	Number	Pounds	Average Weight <sup>a</sup>
1	14	266	100,562	737,573	7.3	66,029	483,521	7.3
2	14	184	74,214	533,018	7.2	54,860	397,380	7.2
3			No commercial openings					
4			No commercial openings					
5 <sup>b</sup>	2	1	1,048	7,575	7.2	0	0	—
6	14	5	15,646	104,925	6.7	8,811	55,020	6.2
TOTAL	44	446	191,470	1,383,091	7.2	129,700	935,921	7.2

*Note:* Endash indicates no data available.

<sup>a</sup> Average weight is weighted based on individual periods.

<sup>b</sup> Commercial fishing occurred in Subdistricts 5-B and 5-C.

Table 2.—Fall chum salmon commercial harvest by district, Yukon Area, 1995–2015.

Year <sup>a</sup>	<i>Lower Yukon</i>				<i>Upper Yukon</i> <sup>b</sup>				Yukon
	District 1	District 2	District 3	<i>Subtotal</i>	District 4	District 5	District 6	<i>Subtotal</i>	Total
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	51,829	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
Average									
2010-2014	85,308	79,139	—	164,447	811	1,493	11,501	12,857	177,304
2005-2014	77,679	58,308	—	130,156	811	1,803	15,393	16,736	146,891

*Note:* Endash indicates no commercial fishing occurred.

<sup>a</sup> Number of fish harvested are based on reports from the State TIX, Zephyr, and OceanAK programs.

<sup>b</sup> 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, 1995–2015.

Year <sup>a</sup>	<i>Lower Yukon</i>				<i>Upper Yukon</i> <sup>b</sup>				Yukon
	District 1	District 2	District 3	<i>Subtotal</i>	District 4	District 5	District 6	<i>Subtotal</i>	Total
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	54,804	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
Average									
2010-2014	29,677	28,969	–	60,511	0	317	4,652	4,779	65,290
2005-2014	28,574	21,236	–	47,686	0	242	6,070	6,142	53,828

Note: Endash indicates no commercial fishing occurred.

<sup>a</sup> Numbers of fish harvested are based on reports from the State TIX, Zephyr, and OceanAK programs.

<sup>b</sup> 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, 1995–2015.

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					
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	621,975	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
Average																
2010-2014	0.85	958,946	0.22		16,226	1.17		437,578	0.24		4,831	975,172	442,409	1,396,524	21,057	1,417,581

Note: En dash indicates no commercial fishing occurred.

Table 5.—Number of permit holders participating in fall season commercial salmon fisheries, by district, Yukon Area, 1995–2015.

Fall Chum and Coho Salmon Season <sup>a</sup>									
Year	Lower Yukon Area				Upper Yukon Area				Yukon Area Total
	District 1	District 2	District 3	Subtotal <sup>b</sup>	District 4	District 5	District 6	Subtotal <sup>c</sup>	
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
2015	266	184	0	440	0	1	5	6	446
Average									
2005-2014	207	128	0	330	0	2	6	8	338
2010-2014	216	157	0	364	1	2	4	7	369

<sup>a</sup> Number of permit holders which made at least one delivery.

<sup>b</sup> 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.

<sup>c</sup> 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, 1995 to 2015.

Year	Alaska						Canada			
	Yukon River Mainstem Sonar Estimate	Tanana River Drainage			Upper Yukon River Drainage		Fishing Branch River	Porcupine River Sonar	Mainstem Escapement Estimate	
		Delta River <sup>a</sup>	Bluff Cabin Slough <sup>b</sup>	Tanana River Estimate <sup>c</sup>	Chandalar River <sup>d</sup>	Sheenjek River <sup>e</sup>				
1995	1,053,245	20,587 <sup>i</sup>	19,460	230,643	323,586	241,855	51,971 <sup>j</sup>	—	158,092	
1996	— <sup>k</sup>	19,758	7,074	132,922	230,450	246,889	77,302	—	122,429	
1997	506,621	7,705	5,707	88,641	211,914	80,423 <sup>l</sup>	27,031	—	85,419	
1998	372,927	7,804	3,549	82,475	83,899	33,058	13,687	—	46,252	
1999	379,493	16,534	7,037	109,309	92,685	14,229	12,958	—	58,552	
2000	247,935	3,001	1,595	55,983	71,048	30,084 <sup>m</sup>	5,057	—	53,732	
2001	376,182	8,103	1,808 <sup>n</sup>	116,012	112,664	53,932	21,737	—	33,491	
2002	326,858	11,992	3,116	163,421	94,472	31,642	13,600	—	98,679	
2003	889,778	22,582	10,600 <sup>n</sup>	263,302	221,343	44,047 <sup>o</sup>	29,713	—	143,133	
2004	594,060	25,073	10,270 <sup>n</sup>	187,409	169,848	37,878	20,417	—	154,080	
2005	1,813,589	28,132	11,964 <sup>n</sup>	372,758	526,838	561,863 <sup>p</sup>	119,058	—	437,733	
2006	790,563	14,055	—	233,193	254,778	160,178 <sup>p</sup>	30,954	—	220,898	
2007	684,011	18,610	—	357,016	243,805	65,435 <sup>p</sup>	32,150	—	236,987	
2008	615,127	23,055	1,198	264,200 <sup>q</sup>	178,278	50,353 <sup>p</sup>	19,086	—	167,898	<sup>r</sup>
2009	— <sup>k</sup>	13,492	2,900 <sup>n</sup>	159,828 <sup>q</sup>	150,000 <sup>s</sup>	54,126 <sup>p</sup>	25,828	—	93,626	<sup>r</sup>
2010	393,326	17,993	1,610 <sup>n</sup>	212,660 <sup>q</sup>	167,532	22,053	15,773	—	117,789	<sup>r</sup>
2011	764,194	23,639	2,655 <sup>n</sup>	270,846 <sup>q</sup>	298,223	97,976 <sup>p</sup>	13,085	—	205,566	<sup>r</sup>
2012	682,510	9,377 <sup>b</sup>	—	102,096 <sup>q</sup>	205,791	104,701 <sup>p</sup>	22,399	—	137,662	<sup>r</sup>
2013	716,727	31,955	5,554 <sup>n</sup>	275,103 <sup>t</sup>	252,710	113,000 <sup>u</sup>	—	35,615	200,262	<sup>r</sup>
2014	650,808	32,480 <sup>b</sup>	4,095 <sup>n</sup>	216,739 <sup>t</sup>	226,489	56,000 <sup>u</sup>	—	17,698	156,796	<sup>r</sup>
2015 <sup>v</sup>	546,894	33,401 <sup>b</sup>	6,020 <sup>n</sup>	124,000 <sup>t</sup>	164,486	34,000 <sup>u</sup>	9,000	21,077	108,611	<sup>r</sup>
All Years Average	652,887 <sup>k</sup>	18,539	5,901	191,360	203,849	101,606	29,516	24,797	144,652	
Five Year Average										
2010-2014	641,513	23,089	3,479	215,489	230,149	78,746	17,086	—	163,615	
BEG Range	300,000 <sup>w</sup>	6,000		61,000	74,000	50,000	50,000		> 80,000	<sup>x</sup>
	600,000	13,000		136,000	152,000	104,000	120,000 <sup>x</sup>			
Interim Escapement Objective							22,000-49,000 <sup>y</sup>		70,000-104,000 <sup>z</sup>	

-Continued-

Table 6.–Page 2 of 2.

*Note:* En dash indicates no data were collected or calculated.

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

<sup>b</sup> Peak counts from foot surveys unless otherwise noted.

<sup>c</sup> 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.

<sup>d</sup> Split beam sonar estimate (1995 to 2006). DIDSON sonar (2007-present). Includes expansions to the end of the run.

<sup>e</sup> Single beam sonar estimate (1993–2002), split beam sonar estimate (2003–2004), DIDSON sonar (2005–2012).

<sup>f</sup> 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.

<sup>g</sup> Porcupine River Sonar is located near Canadian border, downstream of community of Old Crow. Includes expansions to the end of the run.

<sup>h</sup> Estimated mainstem Canadian escapement derived from mark-recapture project minus Canadian mainstem harvest and excluding Canadian Porcupine River drainage escapement, unless otherwise noted.

<sup>i</sup> Total escapement estimate generated from the migratory time density curve method.

<sup>j</sup> Minimal count because weir was closed while submerged due to high water, during the period August 31 to September 8, 1995.

<sup>k</sup> Project operated all or partial season, estimate was not usable.

<sup>l</sup> 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.

<sup>m</sup> 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.

<sup>n</sup> Peak aerial survey counts.

<sup>o</sup> Project ended on peak daily passage in 2003 due to late run timing, estimate was expanded based on run timing (87%) at Rapids.

<sup>p</sup> Biological Escapement Goal (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.

<sup>q</sup> 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).

<sup>r</sup> 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.

<sup>s</sup> Project ended early, estimate based on regression of Chandalar to Fishing Branch River plus Mainstem Border from 1995–2009.

<sup>t</sup> Preliminary estimate based on regression of Tanana with mainstem Yukon River Canada from 1995 to 2012 excluding 2005.

<sup>u</sup> 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.

<sup>v</sup> Data is preliminary.

<sup>w</sup> 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.

<sup>x</sup> Escapement goal as written in the Pacific Salmon Treaty.

<sup>y</sup> Interim Management Escapement Goal (IMEG) was established in 2008 based on percentile approach for establishing Sustainable Escapement Goals in lieu of stock productivity information.

<sup>z</sup> IMEG of 70,000 to 104,000 was established in 2010 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, 1995 to 2015.

Yukon River										Upper Tanana River Drainage					
Mainstem		Nenana River Drainage								Delta		Clearwater		Richardson	
Sonar		Lost		Nenana		Wood		Seventeen		Clearwater		Lake and		Clearwater	
Year	Estimate	<sup>a</sup>	Slough	<sup>c</sup> Mainstem		Creek		Mile Slough		<sup>d</sup> River		Outlet		River	
1995	101,806		4,169	(f)	2,218	(h)	500	(w)	1,512	(h)	20,100	(b)	3,625	(b)	—
1996	—	<sup>e</sup>	2,040	(h)	2,171	(h)	201	(u) <sup>i</sup>	3,668	(g/b)	14,075	(b)	1,125	(b) <sup>i</sup>	—
1997	104,343		1,524	(h)	1,446	(h)	—	<sup>j</sup>	1,996	(h)	11,525	(b)	2,775	(b)	—
1998	136,906		1,360	(h) <sup>i</sup>	2,771	(h) <sup>i</sup>	—	<sup>j</sup>	1,413	(g/b)	11,100	(b)	2,775	(b)	—
1999	62,521		1,002	(h) <sup>i</sup>	745	(h) <sup>i</sup>	370	(h)	662	(h) <sup>i</sup>	10,975	(b)	—		—
2000	175,421		55	(h) <sup>i</sup>	68	(h) <sup>i</sup>	—	<sup>j</sup>	879	(h) <sup>i</sup>	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)	3055	(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)	1030	(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	—	<sup>e</sup>	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		333	(h)	378	(h)	649	(h)	886	(h)	4,285	(b)	434	(h)	1,941 (h)
2015	97,587	<sup>k</sup>	242	(h)	1,789	(h)	1419	(h)	3,890	(h)	19,533	(b)	1,621	(h)	3,742 (h)
SEG <sup>m</sup>										5,200-17,000 <sup>l</sup>					
All Years															
Average	144,273	<sup>e</sup>	796		934		774		1,943		20,040		2,811		1,946
Five Year Average															
2010-2014	143,868		633		255		348		670		5,557		1,191		936

-Continued-



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. En dash indicates no data available.

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

<sup>c</sup> Index area includes mainstem Nenana River between confluence's of Lost Slough and Teklanika River.

<sup>d</sup> Index area is lower 17.5 miles of system.

<sup>e</sup> Project operated all or partial season, estimate was not usable.

<sup>i</sup> Poor survey.

<sup>j</sup> No survey of Wood Creek due to obstructions in creek.

<sup>k</sup> Data is preliminary.

<sup>l</sup> 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.