



Advisory Announcement

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2023 CHIGNIK COMMERCIAL SALMON SEASON SUMMARY

The following is a brief overview of the 2023 Chignik Management Area (CMA; Figure 1) commercial salmon season. The numbers provided in this season summary are preliminary.

The Chignik River watershed supports two primary sockeye salmon runs which traditionally provide a majority of directed harvest opportunities within the CMA. Despite a total run size of 1.95 million sockeye salmon, commercial harvest opportunity targeting sockeye salmon was not provided until late-June, past historical sockeye salmon opening dates in June, due to the late timing of the early-run. The overall escapement was 888,354 sockeye salmon, composed of 431,294 early-run sockeye salmon and 457,060 late-run sockeye salmon (Table 1).

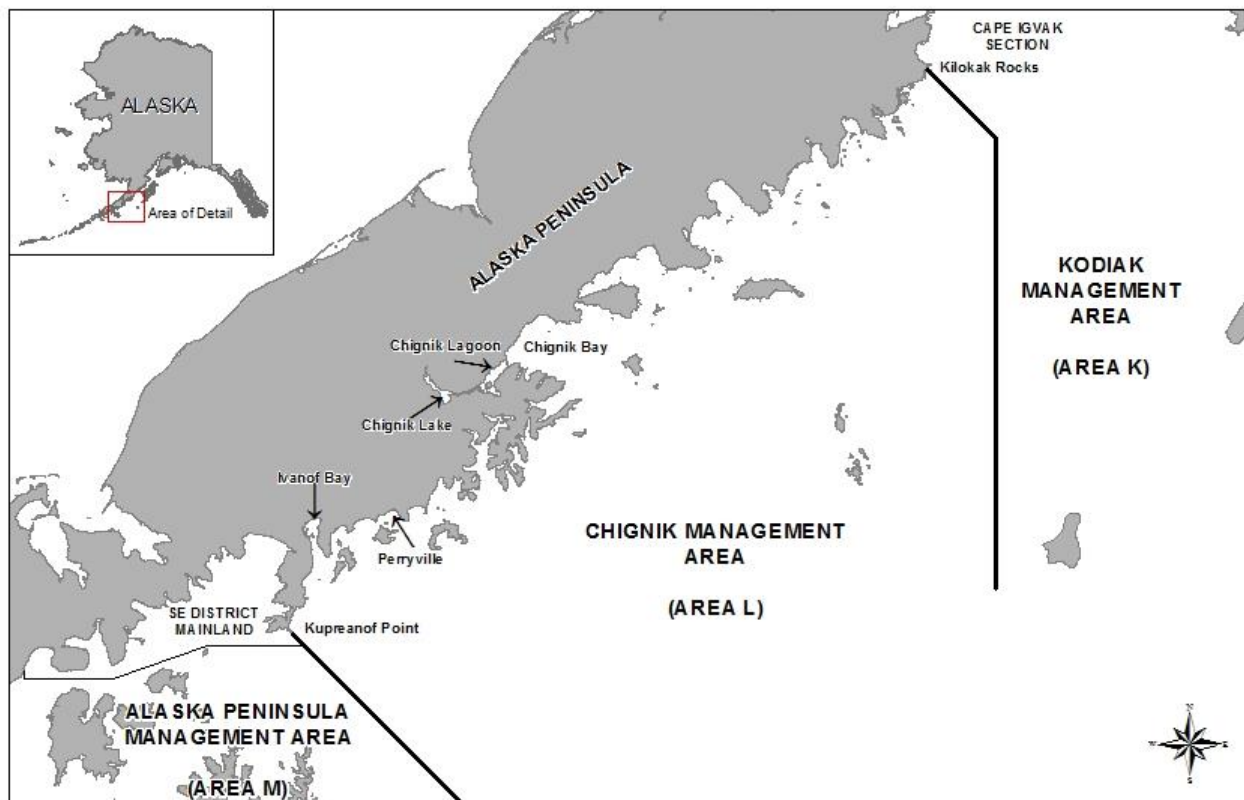


Figure 1.– Map of the Alaska Peninsula illustrating the relative locations of the Chignik, Kodiak, and Alaska Peninsula Management areas.

2023 Escapement Summary

Escapement through the Chignik River weir was monitored using underwater digital video equipment from June 1 through August 26. Two underwater camera gates in the weir were open to provide uninterrupted passage. Fish passing through the weir were counted, by species, for the first 10 minutes of each hour. The counts were expanded to obtain hourly escapement estimates and then summed to estimate daily fish passage. A digital video archive was kept of each 10-minute counting period throughout the entire monitoring time. Additionally, 24/7 footage was archived from June 1 through August 26.

Aerial surveys were flown throughout the season to monitor pink and chum salmon escapement into CMA streams. Peak survey counts, by index stream and species, were summed and compared to areawide sustainable escapement goals (SEG) established by Schaberg et al. (2019).

Chinook salmon

The Chignik River is the only major Chinook salmon-producing stream within the CMA and supports the largest Chinook salmon stock on the South Alaska Peninsula. The biological escapement goal range (BEG) for Chinook salmon into the Chignik River watershed is 1,300–2,700 fish (Schaberg et al. 2019). The 2023 Chignik River Chinook salmon escapement of 267 fish (Table 1) was far below the escapement goal and was well below all recent escapement averages.

Sockeye salmon

Sockeye salmon escapement to the Chignik River in 2023 was managed based on separate optimal escapement goal (OEG) objectives for both early-run and late-run sockeye salmon. During 2023, the commercial salmon fishery targeting sockeye salmon in the CMA was managed based upon in-season escapement information gathered at the Chignik River weir. In addition to daily escapement observations, a total of approximately 240 adult sockeye salmon were sampled each week for age, sex, and length (ASL) information. Apportionment between early- and late-run sockeye salmon was achieved in season using a historic run timing curve built using a combination of an Expectation-Maximization algorithm and historical genetic information. ASL information was also used in season to help inform management decisions.

Postseason, all sockeye salmon caught in the CMA and, as outlined in regulation, harvest from Southeastern District Mainland (SEDM) of Registration Area M and the Cape Igvak Section of Registration Area K, are apportioned as Chignik-bound sockeye salmon based on genetic stock information (Dann et al. 2012, Shedd et al. 2016). Chignik-bound harvest data are temporally aligned with Chignik River weir escapement counts to the day the harvest would have arrived at the weir had they not been caught based on Conrad (1983). The mixDist package in R is used to identify daily early- and late-run stock proportions for building the run reconstruction by modeling probability density functions with an Expectation-Maximization algorithm. This method employs the best available data, is reproducible, and yields stock proportions not significantly different than those derived using genetic information. A post-weir estimate of escapement is also calculated.

Early-run sockeye salmon have a OEG range of 300,00–400,000 fish. The early-run was extremely late, trending below minimum management objectives throughout most of June before a rapid increase in escapement late June. The early-run escapement objective was ultimately exceeded with an estimated escapement of 431,294 fish (Table 1). The early-run sockeye salmon escapement was well above all recent escapement averages.

The late-run OEG range of 240,000–360,000 sockeye salmon was also exceeded, with an estimate of 457,060 sockeye salmon escaping into the Chignik River system (Table 1). Interim escapement objectives for the late run were met or exceeded throughout the entire season with escapement staying above the top end of objectives after early August.

A total of 37,059 sockeye salmon were estimated to have escaped into the river system after August 26, when the weir was removed.

Coho salmon

Coho salmon begin to enter CMA drainages in mid-August and continue through November. In 2023, 1,366 coho salmon were observed passing the weir (Table 1). It should be noted that the weir was removed on August 27, which is early in the coho salmon run.

Pink salmon

Indexed pink salmon escapements to CMA streams were estimated via aerial surveys. The odd-year pink salmon SEG range of 260,000–450,000 fish is based on pink salmon escapement for four of the five districts and eight total index streams within those districts (Schaberg et al. 2019). In 2023, pink salmon peak estimated escapement for the eight representative index streams was 629,000 fish, above both the odd 10-year average and the upper bound of the SEG range (Table 2).

Chum salmon

Indexed chum salmon escapements to CMA streams were estimated via aerial surveys. The chum salmon SEG range of 45,000–110,000 fish is based on escapement of six total index streams within four of the five districts (Schaberg et al. 2019). The 2023 estimated total peak chum escapement for the six index streams was 183,000 fish, which was above both the 10-year average and upper bound of the SEG range (Table 2).

Table 1.– Estimated Chinook, sockeye, coho, pink, and chum salmon, and Dolly Varden escapement to the Chignik River, 2010 to 2023.

Year	Escapement						Dolly Varden
	Chinook ^a	Sockeye		Coho	Pink	Chum	
		Early-run	Late-run ^b				
2010	3,679	432,535	310,634	5,152	3,670	95	17,578
2011	2,728	488,930	264,887	5,293	16,298	145	19,225
2012	1,449	353,441	358,948	2,663	2,849	73	18,032
2013	1,253	386,782	369,319	16,783	7,231	72	17,230
2014	2,895	360,381	291,228	15,572	3,171	58	44,899
2015	2,054	534,088	589,810	60,209	4,269	54	16,346
2016	1,843	418,290	337,698	14,187	486	114	24,625
2017	1,137	453,257	339,303	33,270	123,531	615	7,664
2018	825	263,979	275,718	64,214	3,222	54	4,550
2019	1,517	345,918	336,077	282	18,073	67	6,242
2020	1,278	137,213	193,765	6,964	10,614	124	4,919
2021	1,172	244,382	396,756	0	6,057	25	4,363
2022	761	412,228	395,858	10,903	12,558	90	1,238
2023	267	431,294	457,060	1,366	19,696	26	605
Averages							
2013–2022	1,474	355,652	352,553	22,238	31,832	127	13,208
2018–2022	1,111	280,744	319,635	16,473	12,065	72	4,262

^a No escapement adjustments were made for Chinook salmon that spawn below the weir, or those removed by the sport and subsistence fisheries above the weir.

^b Late-run sockeye salmon totals include a weir estimate and post-weir escapement estimate using a time series analysis.

^c Pink salmon averages include odd years only.

Table 2.– Estimated indexed, peak pink and chum salmon escapement in the Chignik Management Area, 2010 to 2023.

Year	Indexed Peak Escapement	
	Pink	Chum
2010	98,400	102,625
2011	272,000	119,000
2012	111,000	93,800
2013	231,800	109,900
2014	87,240	46,720
2015	404,000	123,400
2016	68,100	69,900
2017	586,000	96,900
2018	41,900	33,400
2019	432,373	98,000
2020	118,585	39,675
2021	462,000	122,000
2022	303,600	73,200
2023	629,000	183,000
Averages ^a		
2013-2022	423,235	81,310
2018-2022	447,187	73,255

Note: Peak escapements are calculated using aerial surveys from the eight pink salmon and six chum salmon index streams established in Schaberg et al. 2019.

^a Pink salmon averages include odd years only.

2023 Commercial Fishery Summary

In early June, commercial salmon fishing is based on the strength of Chignik River early-run sockeye salmon. Fishing periods are determined by daily escapements as well as harvest information. From mid-June thru July, the CMA is managed to achieve adequate escapement of the Chignik River early- and late-run sockeye salmon, as well as local pink and chum salmon stocks. Beginning in early July, opportunity to target pink and chum salmon may occur in select bays of the Central, Western, Eastern, and Perryville Districts. In August, and for the remainder of the season, management of the CMA is based on achieving the Chignik River late-run sockeye salmon goal or on the department's evaluation of local stocks of pink, chum, and coho salmon. If the Chignik River sockeye salmon late run is not meeting interim escapement objectives and a harvestable surplus of pink, chum, or coho salmon is available, the department may restrict fishing to certain areas in the CMA to allow fishing, while minimizing the harvest of sockeye salmon.

Sockeye salmon

In 2023, the department managed the commercial salmon fishery based upon daily escapement levels, ASL data, and an applied average stock apportionment curve developed from using a combination of an Expectation-Maximization algorithm and historical genetic information to apportion stocks of sockeye salmon to early or late runs.

Early-run sockeye salmon escapement was late and fell behind interim escapement objectives early in June before rapidly reaching and exceeding escapement objectives late June into mid-July. As a result of the poor early-run

escapement throughout June, there were no fishing periods until June 29. Fishing periods started throughout the entire CMA once early-run escapement neared its midpoint interim escapement objective.

Typically, in early- to mid-July, late-run sockeye salmon begin to enter the Chignik watershed. Commercial fishing is frequently curtailed during this time for the department to evaluate the strength of the late run. The late run of sockeye salmon met all interim escapement goals throughout the 2023 season, with escapement trending along or above the upper end of interim escapement objectives during July. After early August, escapement levels exceeded interim escapement goals.

Commercial salmon fishing in areas with sockeye salmon opened June 29 in all districts. Commercial salmon fishing periods in all districts were continuously extended throughout the season due to the small fleet size being unable to significantly slow the passage of salmon, barring mandatory regulatory closures in the Central and Chignik Bay Districts after July. Harvest effort ceased after August 25 when processors ended fish purchasing operations.

Pink and chum salmon

Starting July 6, opportunity to target local CMA pink and chum salmon stocks may be allowed in select inner bays if early indications warrant commercial opportunity. Aerial surveys to monitor pink and chum salmon escapement began on June 26. Aerial surveys for each district were flown approximately once a week, beginning in early July and through late August. Starting June 29, commercial salmon fishing was allowed in all districts. This decision was based upon both increasing numbers of sockeye salmon observed escaping into the Chignik River and increasing numbers of pink and chum salmon observed during aerial surveys, as well as a small fleet size being unable to significantly impact escapement. Commercial salmon fishing in all districts remained open until the end of the season, barring short mandatory regulatory closures.

2023 Commercial Harvest Summary

Chinook salmon

A total of 2,300 Chinook salmon were harvested during the 2023 season, below recent five- and 10-year averages (Table 3). The majority of harvest occurred in the Western District (Table 4). Chinook salmon harvest was incidental to fisheries targeting other species. In accordance with the stock of concern action plan, retention of Chinook salmon over 28 inches in the Central and Chignik Bay Districts was disallowed the entire season. Chinook salmon escapements into the Chignik River system in 2023 were the lowest in the history of the Chignik weir at 267.

Sockeye salmon

A total of 1,068,666 sockeye salmon were harvested during 2023, above both the recent 5- and 10-year average (Table 3). The majority of the harvest occurred in the Chignik Bay District (Table 4).

SEDM was not opened during the June 1 – July 25 allocation period. The Cape Igvak fishery was not opened during the June 1 – July 5 allocation period. Both the SEDM and Cape Igvak fisheries depend upon sockeye salmon harvest in the CMA reaching certain thresholds. Generally, no commercial salmon fishing will occur in Cape Igvak or SEDM unless the department believes at least 300,000 sockeye salmon will be harvested by July 5 within the CMA, and 600,000 sockeye salmon will be harvested by July 25 for SEDM. While sockeye salmon harvest did surpass 600,000 by July 25, SEDM was not opened due to uncertainty in reaching this threshold leading up to the date.

Coho salmon

Coho salmon harvest in the CMA totaled 52,119 fish, below recent historical averages (Table 3). The majority of the coho salmon harvest occurred in the Western District (Table 4).

Pink salmon

A total of 2,158,377 million pink salmon were harvested in the CMA during 2023, in line with the odd 10-year pink salmon harvest and above the odd 5-year harvest (Table 3). Most of the pink salmon harvest occurred in the Western District (Table 4).

Chum salmon

A total of 108,098 chum salmon were harvested in the CMA during 2023, falling within recent 5- and 10-year historical averages (Table 3). Most of the chum salmon harvest occurred in the Western District (Table 4).

Table 3.– Total commercial salmon harvests, including home pack and department test fishery, from the Chignik Management Area by species and year, 2013 through 2023.

Year	Permits ^a	Landings	Chignik Management Area Harvest					Total
			Chinook	Sockeye	Coho	Pink	Chum	
2013	76	3,150	2,875	2,399,594	32,284	871,868	154,965	3,461,586
2014	70	1,521	8,809	616,879	132,459	352,099	55,149	1,165,395
2015	71	2,270	9,105	1,540,310	82,049	1,978,134	101,001	3,710,599
2016	69	2,551	20,684	1,385,673	94,373	140,895	118,418	1,760,043
2017	67	2,405	3,908	894,933	226,542	7,077,418	609,105	8,811,906
2018	6	6		128	1	6	924	1,059
2019	51	1,503	4,286	638,772	248,281	2,452,838	157,517	3,501,694
2020	0	0	0	0	0	0	0	0
2021	31	439	1,420	118,785	84,452	1,321,454	43,187	1,569,298
2022	35	582	3,623	334,644	40,099	1,043,282	70,886	1,492,534
2023	35	951	2,300	1,068,666	52,119	2,158,377	108,098	3,389,560
Averages ^{b,c}								
2013–2022	53	1,603	6,839	881,080	104,504	2,283,619	145,684	2,830,457
2018–2022	31	633	3,110	273,082	93,208	1,258,097	68,129	1,641,146

^a Includes the department's test fishery permit.

^b Pink salmon averages include odd years only.

^c Averages do not include 2020 due to no fishing opportunity.

Table 4.– Chignik Management Area commercial salmon harvest, excluding home pack and department test fishery, by district, 2023.

District	Chinook		Sockeye		Coho		Pink		Chum	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Chignik Bay	130	655	869,292	5,286,535	1,075	6,851	183,157	634,405	9,793	67,760
Central	228	1,702	146,968	824,104	2,852	16,089	181,359	603,833	22,627	131,539
Eastern	8	43	6,892	45,487	2,113	12,341	473,100	1,732,515	8,844	60,039
Western	1,874	15,887	39,667	223,808	42,722	212,832	1,274,764	3,145,984	63,036	428,011
Perryville	60	583	5,847	35,563	3,357	19,390	45,997	147,943	3,798	26,112
Total	2,300	18,869	1,068,666	6,415,497	52,119	267,503	2,158,377	6,264,680	108,098	713,461

Exvessel value

The total 2023 exvessel value in the CMA was approximately \$5.13 million, or about \$146,000 per active participant in the fishery (Table 5). The majority of the exvessel value (\$3.85 million) was made up of sockeye salmon, followed by pink salmon (\$1.09 million, Table 5).

Table 5.– Total value, by species, and average value per active permit, in dollars, in the Chignik Management Area, 2010 to 2022.

Year	Chinook ^a	Sockeye ^a	Coho ^a	Pink ^a	Chum ^a	Total	Permits ^b	Value per permit
2013	\$37,620	\$21,960,018	\$86,953	\$868,071	\$385,172	\$23,337,834	76	\$307,077
2014	\$66,875	\$6,040,512	\$434,394	\$286,942	\$185,016	\$7,013,739	70	\$100,196
2015	\$74,403	\$6,600,110	\$101,967	\$940,236	\$164,225	\$7,880,941	71	\$110,999
2016	\$176,800	\$8,044,321	\$158,010	\$95,776	\$161,028	\$8,635,935	69	\$125,158
2017	\$51,611	\$7,182,853	\$546,586	\$6,579,390	\$1,439,418	\$15,799,858	67	\$235,819
2018	\$0	\$860	\$1	\$3	\$1,235	\$2,099	6	\$350
2019	\$31,628	\$5,062,351	\$506,047	\$2,047,651	\$363,019	\$8,010,696	51	\$157,072
2020	\$0	\$0	\$0	\$0	\$0	\$0	0	\$0
2021	\$2,807	\$867,612	\$143,434	\$1,332,609	\$120,000	\$2,466,462	31	\$79,563
2022	\$4,193	\$2,259,129	\$51,567	\$1,193,624	\$176,974	\$3,685,488	35	\$105,300
2023	\$3,816	\$3,849,293	\$26,009	\$1,086,898	\$161,174	\$5,127,190	35	\$146,491
Averages^c								
2013-2022	\$49,549	\$6,446,418	\$225,440	\$1,482,700	\$332,899	\$8,537,006	53	\$135,726
2017-2021	\$9,657	\$2,047,488	\$175,262	\$1,143,472	\$165,307	\$3,541,186	31	\$85,571

Note: Values do not include home pack or department test fishery.

^a Values represent the initial price paid, and do not include any postseason adjustments by any processor. The average 2023 prices per pound were: Chinook - \$0.20, sockeye - \$0.60, coho - \$0.10, pink - \$0.17, chum - \$0.23.

^b Includes the number of commercial permits that received income from the harvest. These figures do not include department test fishery harvests.

^c Average values do not include 2020 due to no fishing opportunity.

Test Fishery and Cost Recovery

The department did not conduct test or cost recovery fisheries in the CMA during the 2023 season.

Subsistence

State and Federal subsistence fishing was open for sockeye salmon the entire season in the CMA.

Due to poor Chinook salmon escapement through the Chignik weir, both state and federal subsistence fishing for Chinook salmon was restricted on July 5. The department closed the entire Chignik Bay District to the harvest of Chinook salmon greater than 28 inches in length to all users through December 31, 2023. Subsistence fishing for Chinook salmon on all Federal public waters was closed through August 31, 2023.

State subsistence harvest totals for 2023 will not be known until the spring of 2024 when all permits have been returned.

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