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Advisory Announcement

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2022 CHIGNIK COMMERCIAL SALMON SEASON SUMMARY

The following is a brief overview of the 2022 Chignik Management Area (CMA; Figure 1) commercial salmon season. The numbers provided in this season summary are preliminary.

The Chignik River watershed supports two genetically distinct sockeye salmon runs which traditionally provide a majority of directed harvest opportunities within the CMA. In 2022, while sockeye salmon harvest was below historical averages, returns were the highest seen since 2017. Commercial harvest opportunity targeting sockeye salmon was not provided until mid-July, past historical sockeye salmon opening dates in June. The overall escapement was 808,086 sockeye salmon, composed of 412,228 early-run sockeye salmon and 395,858 late-run sockeye salmon (Table 1).

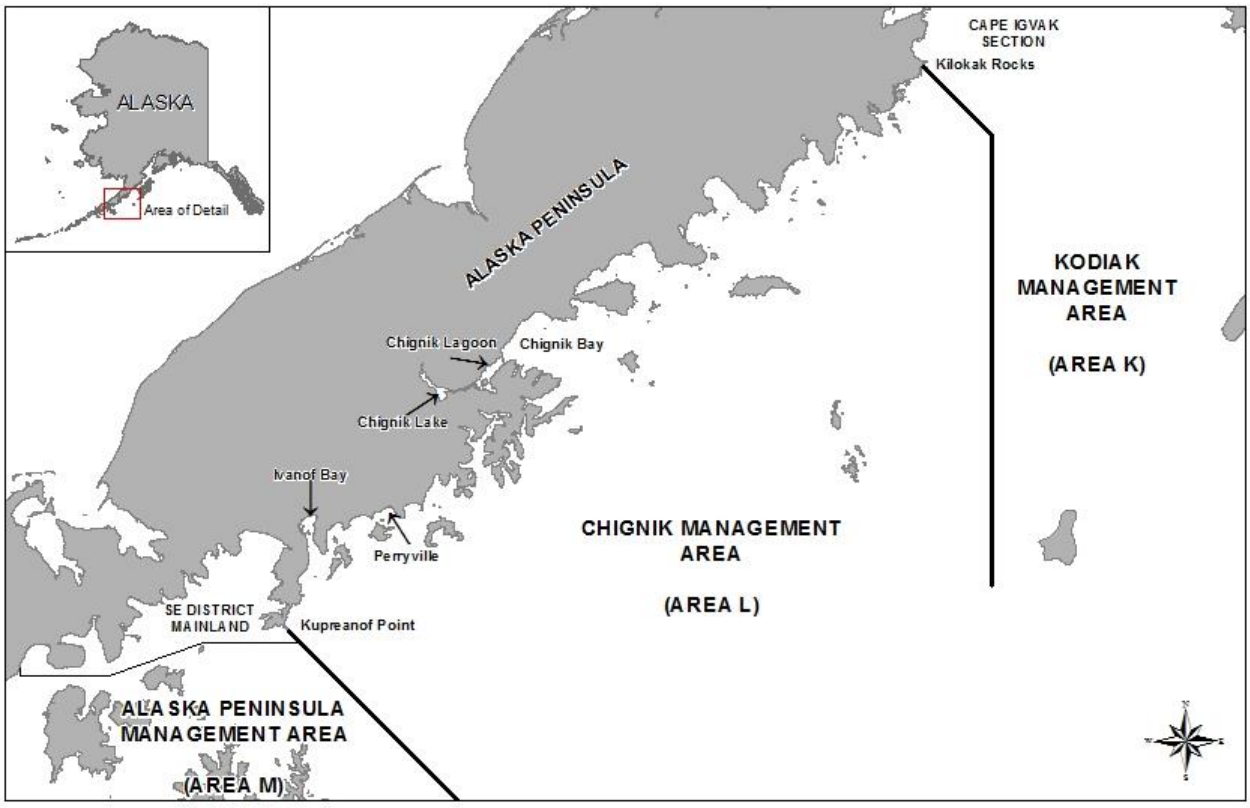

Figure 1.– Map of the Alaska Peninsula illustrating the relative locations of the Chignik, Kodiak, and Alaska Peninsula Management areas.

2022 Escapement Summary

Escapement through the Chignik River weir was monitored using underwater digital video equipment from May 28 through August 31. 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, as well as 24/7 footage from June 20 through August 31.

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 one of the largest Chinook salmon streams 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 2022 Chignik River Chinook salmon escapement of 761 fish (Table 1) did not meet the escapement goal and was below all recent escapement averages. State subsistence and sport fishery harvest of Chinook salmon will not be known until permits and questionnaires are returned and tabulated in the spring of 2022.

Sockeye salmon

Sockeye salmon escapement to the Chignik River in 2022 was managed based on separate escapement objectives for both early-run and late-run sockeye salmon. During 2022, 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 using a historic run timing curve built using historical genetic information. ASL information was also used in season to help inform management decisions.

Postseason, all harvest caught in the CMA and, as outlined in regulation, harvest from SEDM of Area M and the Igvak Section of Area K, are apportioned as Chignik-bound sockeye salmon based on genetic stock information (Dann et al. 2012, Shedd at al. 2016). Chignik-bound harvest 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 BEG range of 350,00–450,000 fish. Early-run escapement trended below minimum management objectives throughout all of June. Early-run escapement was met in 2022 for the first time since 2017, with an estimated escapement of 412,228 fish (Table 1). The early-run sockeye salmon escapement was well above all recent escapement averages.

The late-run SEG range of 200,000–400,000 sockeye salmon was met, with 395,858 sockeye salmon escaping into the Chignik River system (Table 1). Interim escapement objectives for the late run were met throughout the season, although escapements trended along or above the top end of interim escapement objectives until early August where escapement remained within the top 25th percentile of escapement objectives.

The Chignik River has an inriver run goal (IRRG) of 20,000 additional sockeye salmon (10,000 in August and 10,000 in September) to provide additional freshwater subsistence fishing opportunities. This IRRG is in

addition to the lower end of the Chignik River late-run SEG of 200,000 sockeye salmon. In 2022, the August IRRG was met with a total of 116,626 fish escaping into the river system, and the September IRRG was met with a total of 27,292 fish escaping into the river system. A total of 27,292 sockeye salmon were estimated to have escaped into the river system after August 31, when the weir was removed

Coho salmon

Coho salmon begin to enter CMA drainages in mid-August and continue through November. In 2022, 10,903 coho salmon were observed passing the weir (Table 1). It should be noted that the weir was removed on September 1, which is early on within the coho salmon run.

Pink salmon

Indexed pink salmon escapements to CMA streams were estimated via aerial surveys. The even-year pink salmon SEG range of 170,000–280,000 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 2022, pink salmon peak estimated escapement for the eight representative index streams was 303,600 fish, above both the even 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 2022 estimated total peak chum escapement for the six index streams was 73,200 fish, which was within the established SEG range near the 10-year average (Table 2).

Table 1.– Estimated Chinook, sockeye, coho, pink, and chum salmon, and Dolly Varden escapement to the Chignik River, 2010 to 2022.

	Escapement						
	Chinook[a]	Sockeye		Coho	Pink[c]	Chum	Dolly Varden
Year		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
Averages							
2012–2021	1,542	349,773	348,862	21,414	4,068	126	14,887
2017–2021	1,186	288,950	308,324	20,946	6,918	177	5,548

[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 even years only.

Table 2.– Estimated indexed, peak pink and chum salmon escapement in the Chignik Management Area, 2010 to 2022.

	Indexed Peak Escapement	
Year	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	495,000	122,000
2022	303,600	73,200
Averages[a]		
2012-21	85,365	83,370
2017-21	80,243	77,995

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 even years only.

2022 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 2022, the department managed the commercial salmon fishery based upon daily escapement levels, ASL data, and an applied average stock apportionment curve developed from genetic data collected at the weir during the 2010–2021 seasons 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 reaching escapement objectives around mid-July. As a result of the poor early-run escapement in June, there were no fishing periods until mid-July. 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 2022 season, with escapement trending along or above the upper end of interim escapement objectives during July. During August, escapement levels trended in the upper 25th percentile of interim escapement goals.

Commercial salmon fishing in areas with sockeye salmon opened July 11 in the Eastern, Central, Western, and Perryville Districts. The Chignik Bay District was opened on July 13. Commercial salmon fishing periods in all districts were continuously extended and remained open until September 16 due to a small fleet size being unable to significantly slow the passage of late-run sockeye salmon. Harvest effort however ceased after August 24 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 late June through late August. Starting July 11, commercial salmon fishing was allowed in the Eastern, Central, Western and Perryville Districts. Commercial salmon fishing was allowed in the Chignik Bay District starting on July 13. 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. After the start of the first period in each district, commercial salmon fishing did not close until September 16.

2022 Commercial Harvest Summary

Chinook salmon

A total of 3,630 Chinook salmon were harvested during the 2022 season, between recent five- and 10-year averages (Table 3). The majority of the harvest occurred in the Central and Western Districts (Table 4). Chinook salmon harvest was incidental to fisheries targeting other species. Chinook salmon escapements into the Chignik River system were lowest in recent history throughout the season, resulting in restrictions on commercial salmon harvest opportunities. From July 13 through the end of the commercial salmon fishing season, Chinook salmon 28 inches or greater could not be retained in the commercial salmon fishery.

Sockeye salmon

A total of 334,704 sockeye salmon were harvested during 2022, below the recent 10-year average and comparable to the recent five-year average (Table 3). The majority of the harvest occurred in the Chignik Bay District (Table 4).

The Southeastern District Mainland (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, which did not occur during 2022. Generally, no commercial salmon fishing will occur in either Cape Igvak or SEDM unless the department believes at least 600,000 sockeye salmon will be harvested within the CMA.

Coho salmon

Coho salmon harvest in the CMA totaled 40,099 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 1,043,282 million pink salmon were harvested in the CMA during 2022, which is significantly higher than the recent historical even-year pink salmon harvest of 126,148 fish since 2012 (Table 3). Most of the pink salmon harvest occurred in the Western and Perryville Districts (Table 4).

Chum salmon

A total of 70,886 chum salmon were harvested in the CMA during 2022, which is approximately half of 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, 2010 through 2022.

			Chignik Management Area Harvest					
Year	Permits[a]	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
2010	66	2,532	10,380	1,379,785	159,198	489,781	581,329	2,620,473
2011	65	2,617	6,586	2,497,004	76,792	905,166	269,503	3,755,051
2012	70	2,915	3,687	1,800,121	33,316	137,706	171,112	2,145,942
2013	77	3,153	2,962	2,405,151	32,312	871,871	154,964	3,467,260
2014	71	1,525	8,846	620,339	132,459	352,115	55,152	1,168,911
2015	72	2,276	9,204	1,552,495	82,054	1,978,211	101,017	3,722,981
2016	70	2,554	20,719	1,394,091	94,397	140,913	118,435	1,768,555
2017	68	2,408	3,946	897,489	226,829	7,077,924	609,236	8,815,424
2018	6	6	0	128	1	6	924	1,059
2019	51	1,503	4,312	638,784	248,282	2,452,838	157,517	3,501,733
2020	0	0	0	0	0	0	0	0
2021	31	439	1,422	118,785	84,453	1,321,454	43,187	1,569,301
2022	35	584	3,630	334,704	40,099	1,043,282	70,886	1,492,601
Averages[b]								
2012–21	52	1,678	5,510	942,738	93,410	126,148	141,154	2,616,117
2017–21	31	871	1,936	331,037	111,913	3	162,173	2,777,503

[a] Includes the department's test fishery permit.
[b] Pink salmon averages include even years only.

Table 4.– Chignik Management Area commercial salmon harvest, excluding home pack and department test fishery, by district, 2022.

	Chinook		Sockeye		Coho		Pink		Chum	
District	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Chignik Bay	27	206	220,099	1,120,472	378	2,172	20,431	76,950	7,863	48,487
Central	1,836	10,389	14,549	71,685	4,877	25,975	179,961	615,507	6,656	42,558
Eastern	2	22	297	1,483	33	132	2,073	6,222	107	876
Western	1,559	8,168	80,339	366,733	24,313	148,264	452,194	1,598,837	40,988	240,305
Perryville	199	1,173	19,360	96,688	10,498	58,116	388,623	1,437,034	15,272	91,359
Total[a]	3,621	19,935	334,347	1,655,577	40,066	234,526	1,041,209	3,728,327	70,779	422,709

Exvessel value

The total 2022 exvessel value in the CMA was approximately $3.69 million, or about $105,000 per active participant in the fishery (Table 5). The majority of the exvessel value ($2.3 million) was made up of sockeye salmon, followed by pink salmon ($1.2 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	Sockeye	Coho	Pink	Chum	Total	Permits	Value per permit ($)
2010	$160,076	$9,549,462	$566,191	$565,941	$1,774,763	$12,616,433	65	$194,099
2011	$57,524	$21,469,153	$278,391	$1,040,264	$919,586	$23,764,918	64	$371,327
2012	$47,612	$12,803,505	$97,430	$146,011	$634,705	$13,729,263	69	$198,975
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
Averages								
2012-2021	$48,936	$6,856,214	$207,482	$1,229,669	$345,382	$8,687,683	51	$131,521
2017-2021	$17,209	$2,622,735	$239,214	$1,991,931	$384,734	$5,255,823	31	$94,561

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

Test Fishery and Cost Recovery

The department did not conduct test or cost recovery fisheries in the CMA during the 2022 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 13. 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, 2022. Subsistence fishing for Chinook salmon on all Federal public waters was closed through August 31.

State subsistence harvest totals for 2022 will not be known until the spring of 2023, once all permits have been returned.

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