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## Advisory Announcement

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### 2021 KODIAK COMMERCIAL SALMON SEASON SUMMARY

The following is a brief overview of the 2021 Kodiak Management Area (KMA; Figure 1) commercial salmon season.

Commercial fishing effort in 2021 was below average compared to recent years. Of the 587 eligible commercial salmon permits, only 300 (51%) made commercial landings. By gear type, a total of 168 purse seine and 130 set gillnet permit holders made deliveries in 2021. Less than 3 beach seine permits were fished in 2021. Participation rates for purse seine was average (45%), but participation of set gillnet was below average (69%; (Table 1).

Table 1.— Commercial salmon fishery 2021 limited entry permit activity and 10-yr. averages, by gear type, in the KMA, 2021.

Gear Type	2021 Permits			2011-2020 Average Permits		
	Available	Fished	% of permits fished	Available	Fished	% of permits fished
Purse Seine	370	168	45%	374	168	45%
Beach Seine	29	<sup>a</sup>	<sup>a</sup>	31	3	10%
Set Gillnet	188	130	69%	188	147	78%
Total	587	300	51%	593	318	54%

<sup>a</sup> Confidential data.



Figure 1.–Map of the commercial salmon fishing districts in the KMA.

The 2021 commercial harvest (not including personal use or ADF&G test fishery) in the KMA was 9,065 Chinook salmon, 3,290,981 sockeye salmon, 306,329 coho salmon, 26,180,495 pink salmon, and 409,339 chum salmon. The total KMA salmon harvest of 30,196,209 was above the 2021 forecast as well as the previous 10-year average of approximately 23,043,715 fish (Table 2).

Table 2.–2021 commercial salmon harvest for KMA compared to the previous 10-year average and the 2021 harvest forecast.

	Chinook	Sockeye	Coho	Pink	Chum	Total
2021 Harvest	9,065	3,290,981	306,329	26,180,495	409,339	30,196,209
2010-2020 Avg.	11,791	2,349,088	338,014	19,617,705	727,118	23,043,715
2021 Forecast	6,800	2,023,000	426,000	22,500,000	777,500	25,733,300

Note: harvest numbers do not include harvest from the ADF&G test fisheries or personal use but does include aquaculture carcasses sales.

The estimated exvessel value of the 2021 fishery (not including hatchery cost recovery) was approximately \$47.1 million. This was above the 10-year average exvessel value of \$39.6 million (Table 3).

Purse seine fishermen accounted for most of the total harvest (in number of fish), and their earnings averaged \$250,550 per fished permit. Set gillnet earnings averaged \$38,407 per permit fished while beach seine earnings were confidential.

Table 3.—Estimated commercial salmon harvest and value, by gear type, in the KMA, 2011 - 2021.

Year	Total Catch <sup>a</sup>	Total Value <sup>b</sup>	Average Exvessel Value		
			Purse Seine	Gillnet	Beach Seine
2011	18,228,922	\$44,247,720	\$225,633	\$31,155	\$13,750
2012	19,032,409	\$44,988,487	\$219,164	\$52,084	\$16,367
2013	30,145,552	\$59,391,598	\$304,526	\$55,673	\$24,487
2014	13,995,803	\$42,806,102	\$183,451	\$61,504	\$23,796
2015	34,353,663	\$34,381,769	\$163,566	\$29,953	<sup>c</sup>
2016	5,031,781	\$14,509,665	\$66,243	\$25,972	\$7,111
2017	29,978,602	\$54,750,472	\$277,675	\$65,957	\$19,216
2018	8,618,297	\$27,263,475	\$147,748	\$35,118	<sup>c</sup>
2019	34,361,257	\$45,823,478	\$227,552	\$38,725	\$1,461
2020	23,898,965	\$26,461,042	\$157,217	\$23,187	<sup>c</sup>
2021	27,275,659	\$47,099,145	\$250,550	\$38,407	<sup>c</sup>
<u>Recent 10-year average</u>					
2011–2020	21,764,525	\$39,626,740	\$198,422	\$41,963	<sup>c</sup>

<sup>a</sup> Number of fish: Does not include hatchery cost recovery, test fisheries, or personal use harvests.

<sup>b</sup> Exvessel values based on inseason price estimates and do not include postseason adjustments.

<sup>c</sup> Confidential data.

## 2021 Commercial Harvest Summary

### Chinook Salmon

There are no directed Chinook salmon commercial fisheries in the KMA, but incidental commercial harvest occurs during targeted sockeye and pink salmon fisheries. The Karluk and Ayakulik Rivers both support small populations of Chinook salmon. By regulation, non-retention of Chinook salmon was implemented for the purse seine fleet areawide from June 1 through July 5. Due to a poor Chinook salmon run to both Karluk and Ayakulik, non-retention of Chinook salmon was extended for the purse seine fleet from July 6 until the end of the season along the westside of Kodiak from the latitude of Cape Kuliuk to the latitude of Low Cape. The 2021 commercial harvest of Chinook salmon in the KMA totaled 9,065 fish, which was below the previous 10-year average (11,791 fish) but above the 2021 forecast (6,800 fish; Table 2).

### Sockeye Salmon

The 2021 commercial harvest of sockeye salmon totaled 3,290,981 fish. The harvest was above the recent 10-year average (2,349,088 fish) and the preseason forecast (2,023,000 fish; Table 2).

Early-season management for much of the Westside of Kodiak Island is driven by Karluk River early-run sockeye salmon. The 2021 Karluk River early run was weak, and minimal fishing time was allowed along much of the westside of Kodiak until the management focus turned to pink salmon (July 6). The lower value of the Karluk River early-run sockeye salmon escapement goal (150,000 fish) was not achieved. A total of 100,412 sockeye salmon were harvested in early-season Westside areas based on Karluk River early-run sockeye salmon and the beginning of the pink salmon fishery (June 1 – July 15). Westside sockeye salmon numbers include an estimated

contribution of 42,353 sockeye salmon from the enhanced Spiridon Lake sockeye salmon run harvested outside of the Spiridon Bay Special Harvest Area.

Late-season management for much of the westside of Kodiak is driven by the Kodiak Island pink salmon fishery and the Karluk River late-run sockeye salmon run. Most of the wild pink salmon runs to the westside of Kodiak Island were average, and weekly fishing time was allowed in July and early August. The Karluk River late-run sockeye salmon run was below average but a large buildup of sockeye salmon in Karluk Lagoon in mid-August allowed for liberal fishing time in August and September. A total of 845,944 sockeye salmon were commercially harvested in late-season westside areas opened based on Karluk River late-run sockeye and westside Kodiak pink and chum salmon abundance. Westside sockeye salmon numbers include an estimated contribution of 72,436 sockeye salmon from the enhanced Spiridon Lake sockeye salmon run, harvested outside of the Spiridon Bay Special Harvest Area.

The Ayakulik River early-run sockeye salmon run was one of the largest on record and liberal fishing time was allowed in the Outer Ayakulik Section and Halibut Bay Sections of the Southwest Kodiak District during early-run sockeye salmon management. A total of 697,819 sockeye salmon were harvested in areas managed based on abundance of Ayakulik River early-run sockeye salmon.

The Ayakulik River late-run sockeye salmon run was also one of the largest on record and there was liberal fishing time was allowed in the Outer Ayakulik Section of the Southwest Kodiak District. A total of 647,892 sockeye salmon were harvested in areas managed based on Ayakulik River late-run sockeye. A total of 1,345,711 sockeye salmon were harvested from Westside sections opened based on abundance of Ayakulik River sockeye salmon, which was well above the 2021 forecast of 590,000 fish.

Upper Station early-run sockeye salmon escapement was one of the largest on record, and the traditional fishing areas of the Alitak District (i.e. purse seine and set gillnet sections) were open for most of June. The Frazer Lake sockeye salmon escapement was above average, allowing for Alitak District early-run sockeye salmon commercial salmon openings through July 15. The Alitak District early-run sockeye salmon harvest was the largest in 12 years at approximately 249,744 fish, well above the projected harvest of 26,000 fish.

The Upper Station late-run sockeye salmon run was above average, and despite near continuous fishing time, set gillnet effort was below average. The Alitak District late-run sockeye salmon harvest was the largest in 17 years at 403,044 fish, well above the projected harvest of 152,000 fish. The total harvest of the Alitak District late-run sockeye salmon was 652,788 fish, which was well above the forecasted harvest of 178,000 fish.

***Cape Igvak Salmon Management Plan:*** This regulatory management plan (5 AAC 18.360) allocates up to 7.5% of the total Chignik-bound sockeye salmon harvest to KMA fishermen in the Cape Igvak Section. Based on regulations, ninety percent (90%) of all sockeye salmon caught prior to July 5 in the Cape Igvak Section are considered to be Chignik-bound.

The Chignik early-run sockeye salmon run was weak, and the allocative and biological criteria were never met to allow fishing in the Cape Igvak Section. No sockeye salmon were harvested in the Cape Igvak Section through July 5.

***North Shelikof Strait Sockeye Salmon Management Plan:*** From July 6 to August 1, this regulatory management plan (5 AAC 18.363) places harvest limits on areas along the Mainland District and northern Shelikof Strait to limit harvest of sockeye salmon that are considered Cook Inlet-bound. During the period that this management plan is in effect, KMA fisheries are managed based on local pink and chum salmon runs. If it appears that the

sockeye salmon harvest will meet or exceed limits set by the management plan, then fisheries are to be restricted to inshore “Shoreward Zones” only, and offshore “Seaward Zones” are closed (Figure 2).

A department biologist was present on the grounds to determine the sockeye salmon catch and to facilitate orderly and short-notice closures if the harvest limits are met. A Seaward Zone closure was implemented in the North Shelikof Unit at 3:30 p.m. July 22 when it was estimated that the cumulative sockeye salmon harvest had approached the 20,000 fish limit. The total July 6 to August 1 harvest in the North Shelikof Unit was 27,737 sockeye salmon, which included both the Shoreward and Seaward Zone harvests. A Seaward Zone closure did not take place in the Cape Igvak Management Unit. The total July 6 to August 1 harvest in the Cape Igvak Management Unit was 1,681 sockeye salmon, which included both the Shoreward and Seaward Zone harvests. A Seaward Zone closure did not take place in the Southwest Afognak Section. The total July 6 to July 25 harvest in the Southwest Afognak Section Unit was 23,298 sockeye salmon.

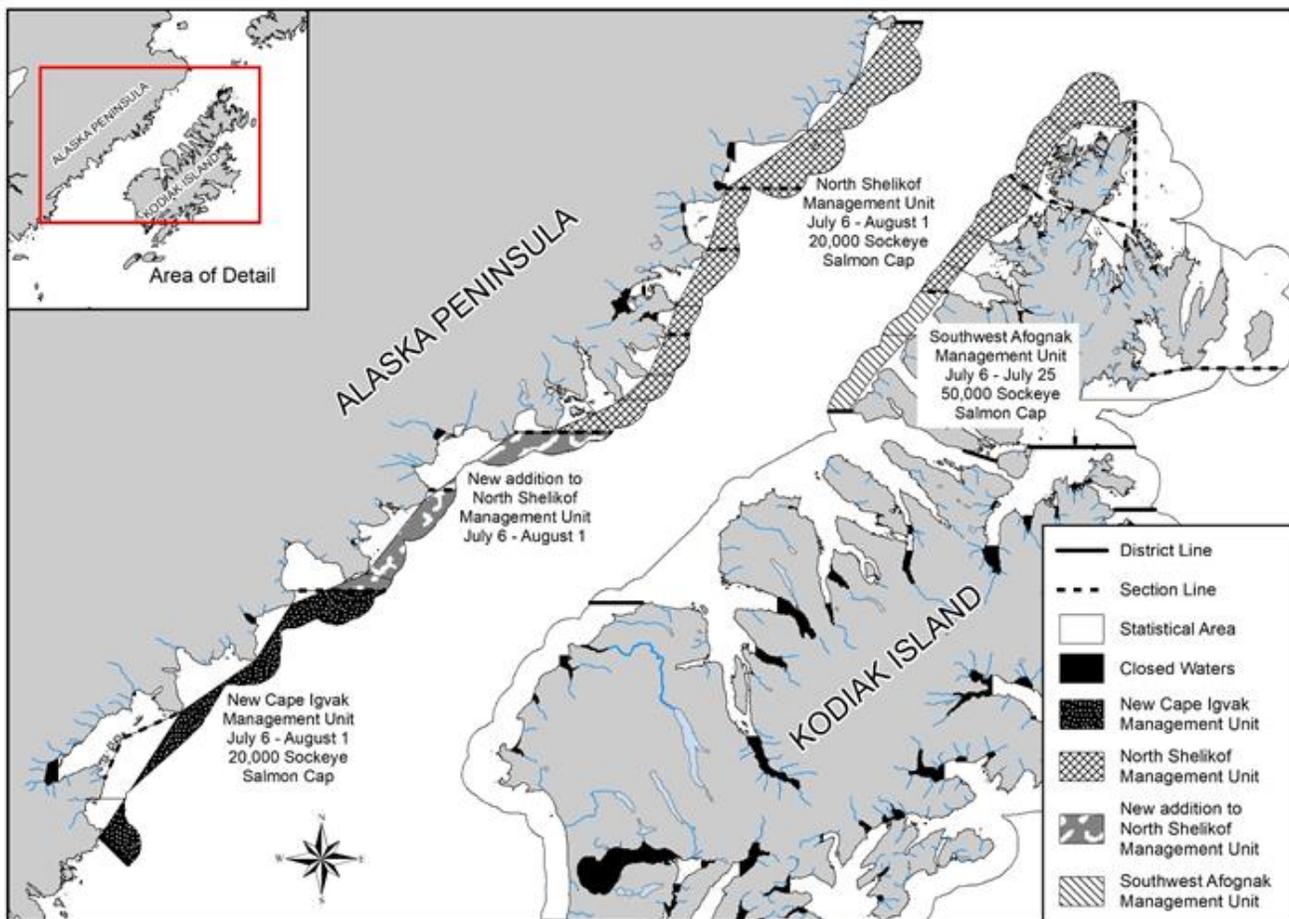


Figure 2.—Map of the North Shelikof Management Area.

**Terminal and Special Harvest Areas:** Some fisheries occur in areas where salmon enhancement projects create surplus production.

There was below-average effort and harvest in the Foul Bay Special Harvest Area (SHA), with only 6,982 sockeye salmon harvested.

In the Spiridon Bay SHA (Telrod Cove) and the Spiridon Bay Section, about 124,208 sockeye salmon were harvested. Cost-recovery fish harvested by Kodiak Regional Aquaculture Association accounted for 43% of the

harvest within the SHA or 52,997 fish. The harvest in the Spiridon Bay SHA and the Spiridon Bay Section represents only a portion of the total harvest of Spiridon enhancement fish; the remainder is harvested in traditional pink and chum fisheries along the westside of Kodiak. It is estimated that approximately 114,789 Spiridon enhancement fish were harvested outside of Telrod Cove and the Spiridon Bay Section, bringing the total Spiridon enhancement sockeye salmon harvest to 250,485 fish, which was above the forecast of 177,000 fish.

The Kitoi Bay Hatchery harvest was 23,139 sockeye salmon, which was above the forecast of 14,000 fish. This includes the commercial harvest of both enhanced and wild salmon from the Inner Kitoi Bay, Outer Kitoi Bay, Duck Bay, and Izhut Bay Sections.

### **Coho Salmon**

The commercial coho salmon harvest of 306,329 fish was below the forecast (426,000 fish) and below the previous 10-year average (338,014 fish; Table 2). The majority of the coho salmon were harvested in the Westside Kodiak fishery in August and September and at Kitoi Bay Hatchery in August and September.

### **Pink Salmon**

The 2021 KMA pink salmon harvest of 26,180,495 fish was above the forecast (22,500,000 fish) and above the previous 10-year average harvest of 19,617,705 fish (Table 2). Pink salmon harvested in the areas managed on KMA wild stocks totaled 15,699,609 fish (11,600,000 forecast).

The Kitoi Bay Hatchery pink salmon run was strong with 10,480,886 pink salmon harvested in sections near the hatchery (10,900,000 forecast). Kitoi-bound pink salmon are likely harvested along the west and east sides of Kodiak and Afognak Islands. Likewise, additional wild stock salmon are likely harvested in areas associated with Kitoi Bay Hatchery. The department does not have a stock separation program for pink salmon and is unable to differentiate the KMA wild and hatchery stocks. Cost-recovery fish harvested by Kodiak Regional Aquaculture Association accounted for 30% of the harvest or 3,065,086 fish.

### **Chum Salmon**

Most of the KMA wild chum salmon are harvested during the directed pink and chum salmon fisheries in July. Most of the 2021 KMA chum salmon runs were weak, and closures were necessary to achieve escapement. The 2021 KMA chum salmon harvest of 409,339 fish was well below the 2021 forecast (777,500 fish). Additionally, the Kitoi Bay Hatchery chum salmon harvest of only 40,493 chum salmon was well below the forecast of 128,100 fish.

### **2021 Escapement Summary**

Fish counting weirs were operated on 8 systems in 2021, including the Karluk, Ayakulik, Upper Station, Dog Salmon, Litnik, Buskin, Saltery, and Pasagshak systems. Two observers also flew 27 aerial surveys, and several observers conducted foot and skiff survey escapement estimates.

### **Chinook Salmon**

The total Chinook salmon escapement (5,815) was below the previous 10-year average of 5,916 fish (Table 4). Escapement goals for Chinook salmon have been developed for the Karluk and Ayakulik rivers, and escapements are estimated using fish counting weirs (Table 5).

The Chinook salmon escapement through the Karluk River weir (2,796 fish; Table 5) was below the biological escapement goal (BEG) range of 3,000 to 6,000 fish. Chinook salmon escapement through the Ayakulik River weir (2,961 fish; Table 5) was below the BEG range of 4,800 to 8,400 fish.

**Sockeye Salmon**

Sockeye salmon runs in many systems in the KMA were strong. However, one major system (Karluk River early-run) and one small system (Buskin Lake) did not achieve their escapement goals. The rest either met or exceeded their established escapement goals. The entire KMA estimated sockeye salmon escapement of 1,738,891 fish (Table 4) was well above the previous 10-year average of 1,349,317 fish (Table 4) and the largest in 18 years.

**Coho Salmon**

Although the KMA has substantial coho salmon runs, the department no longer has the funds to monitor most stocks. The only established coho salmon escapement goals occur in the Northeast Kodiak and Eastside Kodiak Districts for the following systems: American (400 fish), Olds (1,000 fish), Buskin (4,700 to 9,600 fish), and the Pasagshak Rivers (1,200 fish). At the time of this report, the final estimated escapement numbers have not been finalized.

**Pink Salmon**

The KMA pink salmon escapement of 5,041,248 fish was slightly below the previous 10-year average of 5,224,777 fish (Table 4). Pink salmon escapement goals have been established as aggregate goals for the entire Kodiak Archipelago and the Mainland District. The escapement for the Kodiak Archipelago (4,562,998 fish) was within escapement goal range of 2.0 to 5.0 million fish (Table 5). The Mainland District pink salmon escapement of 478,250 fish was average and within the established escapement goal range (250,000 to 1,000,000 fish; Table 5).

**Chum Salmon**

The overall KMA chum salmon escapement of 309,003 fish was below the previous 10-year average (378,731 fish; Table 4). Chum salmon runs were weak in many KMA districts. A peak indexed escapement goal based on 17 streams on Kodiak Island has been established; the 2021 peak indexed escapement of 113,000 fish was above the goal of 101,000 fish.

Table 4. Total salmon escapements in the KMA for all species in 2021 compared to average escapement from 2011 to 2020.

Species	2021 KMA Escapement <sup>a</sup>	2011–2020 Average KMA Escapement
Chinook	5,815	5,916
Sockeye	1,738,891	1,367,971
Coho	50,869	87,607
Pink	5,041,248	5,224,777
Chum	309,003	378,731

<sup>a</sup> 2021 escapement estimates are the sum of all weir, aerial survey, and foot survey estimates. These are minimum estimates and are incomplete due to limited dates of weir operation and poor survey conditions. This includes escapement from all streams surveyed including many non-index streams that are not measured against established escapement goals.

Table 5. Salmon peak escapements and escapement goals by species in the KMA, 2021.

Species	District/System (stock)	Stream Number	Escapement Goal		2021 Peak Escapement
			Lower	Upper	
<b>Chinook</b>					
	Karluk	255-101	3,000	6,000	2,796
	Ayakulik	256-201	4,800	8,400	2,961
		<b>Total</b>	<b>7,800</b>	<b>14,400</b>	<b>5,757</b>
<b>Sockeye</b>					
	Malina	251-105	1,000	10,000	1,450
	Afognak	252-342	20,000	50,000	31,997
	Karluk	255-101			
	Early run		150,000	250,000	128,373
	Late run		200,000	450,000	379,611
	Ayakulik	256-201			
	Early run		140,000	280,000	265,756
	Late run		60,000	120,000	118,418
	Upper Station	257-304			
	Early run		43,000	93,000	108,225
	Late run		120,000	265,000	349,507
	Frazer Lake	257-403	75,000	170,000	219,098
	Buskin	259-211	5,000	8,000	2,330
	Pasagshak	259-411	3,000		8,551
	Saltery	259-415	15,000	35,000	64,602
			<b>832,000</b>	<b>1,731,000</b>	<b>1,677,918</b>
<b>Pink<sup>a</sup></b>					
	Mainland District		250,000	1,000,000	478,250
	Kodiak Archipelago		2,000,000	5,000,000	4,562,998
		<b>Total</b>	<b>2,250,000</b>	<b>6,000,000</b>	<b>5,041,248</b>
<b>Chum<sup>b</sup></b>					
		Kodiak Archipelago	101,000		113,300
		<b>Total</b>	<b>101,000</b>		<b>113,300</b>

<sup>a</sup> 2021 escapement estimates are the sum of all weir, aerial survey, and foot survey estimates. These may be minimum estimates only, and are incomplete due to limited dates of weir operation, and poor survey conditions.

<sup>b</sup> The Kodiak Archipelago peak index escapement goal is based on 17 Kodiak Archipelago streams and does not represent actual the KMA chum salmon escapement.