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**Advisory Announcement**  
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**2023 Kodiak Management Area Salmon Forecasts**

The 2023 Kodiak Management Area (KMA) predicted pink salmon harvest is expected to be in the *Strong* category with a point estimate of 26.2 million fish combining the wild stock and Kitoi Bay Hatchery harvest estimates (Table 1).

Table 1.—Point estimate and ranges (80% prediction intervals) of the 2023 Kodiak pink salmon forecast.

Stock	Escapement goal (millions)	2023 run	Point estimate (millions)	Range (millions)
Kodiak Management Area	SEG: 3.25–6.0	Wild stock total run	26.0	14.4–37.5
	Odd-year, Mainland and Kodiak Archipelago combined	Wild stock escapement	5.0	
		Wild stock harvest	21.0	9.4–32.5
		Kitoi Bay hatchery harvest	5.3	3.9–6.7
		Total KMA harvest	26.2	13.3–39.2
		Harvest category	<b>Strong</b>	

Harvest categories were delimited from the 20<sup>th</sup>, 40<sup>th</sup>, 60<sup>th</sup>, and 80<sup>th</sup> percentiles of historical commercial harvest in the KMA from 1988 to 2022 (Table 2).

Table 2.—Categorical ranges of total KMA pink salmon harvest and this year’s forecast in bold.

Harvest Category	Range (millions)	Percentile
<i>Poor</i>	Less than 8.7	Less than 20 <sup>th</sup>
<i>Weak</i>	8.7 to 14.2	21 <sup>st</sup> to 40 <sup>th</sup>
<i>Average</i>	14.2 to 20.3	41 <sup>st</sup> to 60 <sup>th</sup>
<b>Strong</b>	<b>20.3 to 27.8</b>	<b>61<sup>st</sup> to 80<sup>th</sup></b>
<i>Excellent</i>	Greater than 27.8	81 <sup>st</sup> to 100 <sup>th</sup>

The KMA wild stock pink salmon harvest forecast is derived from a total run forecast minus the estimated KMA escapement (5.0 million). The total run estimates were derived from a combination of weir counts, aerial survey index, and harvest estimates. The 2023 KMA wild stock pink salmon forecast was based on a simple linear regression model using environmental indices fit to the odd-year KMA returns from 1981 to 2021. The hatchery pink salmon forecast is

developed examining the average survival rates of hatchery releases and for this forecast was calculated using the last two 4-year cyclical returns (parent class 2013 and 2017). The mean absolute percent error since 2001 is 56% for the wild stock and 68% for the hatchery pink salmon forecast.

The 2023 Kodiak Management Area (KMA) predicted sockeye salmon harvest is expected to be in the **Poor** category with a point estimate of 1,789 thousand fish combining the formal and non-formal harvest estimates (Table 3).

Table 3.—Point estimate and ranges (80% prediction intervals) of the 2023 Kodiak sockeye salmon forecasts.

Stock	Escapement goal (thousands)	2023 run	Point estimate (thousands)	Range (thousands)
Spiridon Lake/ Telrod Cove	NA	Spiridon Run	68	23–114
		Telrod Run	57	17–98
		Harvest	126	40–212
Ayakulik	SEG (early and late runs combined): 200–400	Total run	574	235–935
		Escapement	300	200–400
		Harvest	274	
Early-run Karluk	BEG: 150–250	Early run	263	55–475
		Early-run escapement	200	150–250
		Early-run harvest	63	
Late-run Karluk	BEG: 200–450	Late run	814	371–1,304
		Late-run escapement	325	200–450
		Late-run harvest	489	
Total Karluk		Total run	1,077	425–1,778
		Total escapement	525	350–700
		Total Karluk harvest	552	
Early-run Upper Station	BEG: 43–93	Early run	76	40–156
		Early-run escapement	65	43–93
		Early-run harvest	11	
Late-run Upper Station	BEG: 120–265	Late run	210	50–406
		Late-run escapement	186	120–265
		Late-run harvest	24	
Frazer Lake	BEG: 75–170	Total run	383	198–590
		Escapement (Dog Salmon Crk)	143	95–190
		Harvest	240	
Total Alitak District		Alitak run	669	288–1,152
		Alitak escapement	394	258–548
		Alitak harvest estimate	275	
Total Kodiak Harvest Forecast		Formal forecast <sup>a</sup>	1,226	
		Non-formal forecast <sup>b</sup>	563	
		Total Kodiak	1,789	
		Harvest category	<b>Poor</b>	

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Table 3.—(continued)

- <sup>a</sup> The formal forecast includes summed forecasts for Karluk, Ayakulik, Upper Station, Frazer, and Spiridon runs anticipated to be harvested in the Northwest, Southwest, and Alitak Districts of the Kodiak Management Area. In addition, anticipated harvest of Chignik bound sockeye salmon in the Cape Igvak section based on the Chignik forecast.
- <sup>b</sup> Non-formal forecasts include harvest of formally forecasted runs outside the traditional run reconstruction areas, minor Kodiak local stocks (e.g., Uganik, Little River, Ocean Beach, Portage, Malina, Thorsheim, Pasagshak, Saltery, Pauls Bay, Kafliia, and Discoverer), minor local hatchery enhancement, and non-local stocks transiting Kodiak Management Area borders.

Harvest categories were delimited from the 20<sup>th</sup>, 40<sup>th</sup>, 60<sup>th</sup>, and 80<sup>th</sup> percentiles of historical commercial harvest in the KMA from 1988 to 2022 (Table 4).

Table 4.—Categorical ranges of total KMA sockeye salmon harvest and this year’s forecast in bold.

Harvest Category	Range (thousands)	Percentile
<b>Poor</b>	<b>Less than 1,975</b>	<b>Less than 20<sup>th</sup></b>
<i>Weak</i>	1,975 to 2,489	21 <sup>st</sup> to 40 <sup>th</sup>
<i>Average</i>	2,489 to 2,962	41 <sup>st</sup> to 60 <sup>th</sup>
<i>Strong</i>	2,962 to 4,166	61 <sup>st</sup> to 80 <sup>th</sup>
<i>Excellent</i>	Greater than 4,166	81 <sup>st</sup> to 100 <sup>th</sup>

The KMA sockeye salmon harvest forecast is derived from a combination of the formal forecasts for the major sockeye salmon systems and the non-formal forecasts. The formal forecast harvest estimates are calculated from the total run forecast minus the estimated escapement. The formal forecasts are primarily made by investigating simple linear regression models utilizing recent outmigration year age-class relationships and median returns. The non-formal forecast is calculated by applying the average proportion (2018–2022) of sockeye salmon harvested falling outside the traditional formal forecasted method and areas (0.31). The mean absolute percent error since 2007 is 24% for the wild stock sockeye salmon forecast.