

Division of Commercial Fisheries
Sam Rabung, Director

Kodiak Office
351 Research Court
Kodiak, AK 99615



Alaska Department of Fish and Game
Doug Vincent-Lang, Commissioner

PO Box 115526
Juneau, AK 99811-5526
www.adfg.alaska.gov

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CONTACT: M. Birch Foster
Finfish Research Biologist
907-486-1857

2023 Chignik and Alaska Peninsula Management Areas Salmon Forecasts

Chignik Management Area

The 2023 Chignik Management Area predicted sockeye salmon harvest is expected to be in the *Weak* category with a point estimate of 937 thousand (Table 1).

Table 1.—Point estimate and ranges (80% prediction intervals) of the 2023 Chignik sockeye salmon forecasts.

Stock	Escapement goal (thousands)	2023 run	Point estimate (thousands)	Range (thousands)
Total Chignik	SEG: 470–800	Total Run Estimate	1,524	563–3,367
		Escapement goal ^a	635	470–800
		Harvest	889	
		CMA harvest ^b	937	
		SEDM Area ^c	43	
		Cape Igvak ^d	0	
		Harvest Category	<i>Weak</i>	

^a The escapement estimate is the midpoint of the escapement goal. An inriver run goal of 20,000 sockeye salmon is added to the lower bound of the escapement goal.

^b To approximate for the mixed-stock nature of the CMA fishery, the total Chignik River sockeye harvest is expanded to project the total CMA harvest (20-year average estimate of Chignik-bound sockeye harvest in Chignik area is approximately 90.6%) less the Chignik sockeye harvested at SEDM and Cape Igvak.

^c Based on projected harvest, a commercial fishery is anticipated in the Southeastern District Mainland (SEDM) during the regulatory timeframe thru July 25, as outlined in regulation (5 AAC 09.360).

^d Based on projected harvest, no commercial fishery is anticipated in the Cape Igvak Section during the regulatory timeframe through July 5, as outlined in regulation (5 AAC 18.360).

Harvest categories were delimited from the 20th, 40th, 60th, and 80th percentiles of historical Chignik Management Area commercial harvest 1990 to 2022 (Table 2).

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

Harvest Category	Range (thousands)	Percentile
<i>Poor</i>	Less than 734	Less than 20 th
<i>Weak</i>	734 to 1,052	21st to 40th
<i>Average</i>	1,052 to 1,383	41 st to 60 th
<i>Strong</i>	1,383 to 1,777	61 st to 80 th
<i>Excellent</i>	Greater than 1,777	81 st to 100 th

The Chignik sockeye salmon harvest forecast is derived from a combination of the formal forecasts for the Chignik early and late runs. Harvest estimates are calculated from the total run forecast minus the estimated escapement. The run forecasts are primarily made by investigating simple linear regression models utilizing recent outmigration year age-class relationships and median returns. The mean absolute percent error since 2001 is 45% for the total sockeye salmon forecast compared to actual.

Alaska Peninsula Management Area

The 2023 South Alaska Peninsula predicted pink salmon harvest (post June) is expected to be in the *Strong* category with a point estimate of 9.0 million (Table 3).

Table 3.—Point estimate and ranges (80% prediction intervals) of the 2023 South Alaska Peninsula pink salmon forecast.

Stock	Escapement goal (millions)	2023 run	Point estimate (millions)	Range (millions)
South Alaska Peninsula	SEG: 1.75–4.0	Total run forecast ^a	13.0	6.8–19.1
		Escapement ^b	4.0	1.8–4.0
		Post-June harvest estimate	9.0	2.8–15.1
		Harvest category	<i>Strong</i>	

^a Post-June harvest and escapement. The 5-year (odd-year) average harvest of pink salmon in June is 1.0 million fish.

^b The escapement estimate is the upper end of the aggregate goal range (1.75–4.0 million) in 2023.

Harvest categories were delimited from the 20th, 40th, 60th, and 80th percentiles of historical post-June commercial harvest on the South Alaska Peninsula from 1988 to 2022 (Table 4).

Table 4.—Categorical ranges of South Alaska Peninsula pink salmon harvest and this year’s forecast in bold.

Harvest Category	Range (millions)	Percentile
<i>Poor</i>	Less than 2.0	Less than 20 th
<i>Weak</i>	2.0 to 4.0	21 st to 40 th
<i>Average</i>	4.0 to 6.9	41 st to 60 th
<i>Strong</i>	6.9 to 9.9	61st to 80th
<i>Excellent</i>	Greater than 9.9	81 st to 100 th

The 2023 South Alaska Peninsula pink salmon harvest forecast is derived from a total run forecast minus the upper end (4 million fish) of the annual South Alaska Peninsula escapement goal range. Based on best model fit, the total run was forecasted fitting a simple linear regression using the average air temperature in Cold Bay between emergence (April) and early ocean survival (November). The regression model was fit to odd-year South Peninsula pink salmon returns lagged 2 years ahead from 1983 through 2021. The mean absolute percent error since 2011 is 69% for the pink salmon forecast.

Table 5.—Point estimate and ranges of 2023 North Alaska Peninsula sockeye salmon forecasts.

Stock	Escapement goal (thousands)	2023 run	Point estimate (thousands)	Range (thousands)
Nelson River	BEG: 97–219	Forecast	177	0–393
		Escapement	158	97–219
		Harvest estimate	19	
Late-run Bear Lake	BEG: 117–195	Late-run forecast	354	179–646
		Late-run escapement	156	117–195
		Late-run harvest estimate	198	

On the North Peninsula, the Nelson River and Bear Late-run sockeye salmon harvest forecasts are calculated from the total run forecast minus the estimated escapement (Table 5). The run forecasts are primarily made by investigating simple linear regression models utilizing recent outmigration year age-class relationships and median returns. Forecasting sockeye salmon harvest for the North Alaska Peninsula outside Nelson Lagoon and Bear Late run (post July 31) is not done as stock specific harvest estimates outside of these areas and timeframes is unknown.