
**Alaska Department of Fish and Game Report to the Kodiak-
Aleutian Islands Subsistence Regional Advisory Council: Buskin
River Sockeye Salmon Fishery and Stock Assessment Project
Update through Dec 31, 2025**

By

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INTRODUCTION

The Buskin River drainage, located on Kodiak Island approximately 3 miles southwest from the city of Kodiak, traditionally supports the single largest subsistence salmon fishery within the Kodiak/Aleutian Islands Region in federal waters. The fishery occurs in nearshore marine waters adjacent to the river mouth and targets several species of salmon (Table 1). Sockeye salmon typically comprise about 70% of the total Buskin River subsistence harvest (Table 1), but due to low runs in the past several years, the most recent 5-year average is 47% sockeye salmon. Between 2019 and 2023, federally qualified subsistence users harvested an average of 752 Buskin River sockeye salmon, which accounted for 6% of the total subsistence sockeye salmon harvest reported for Kodiak Island (Table 2).

During 2008 and 2009, low sockeye salmon escapement on the Buskin and closure of the subsistence fishery prompted subsistence users to fish elsewhere. Participation and harvests have been sporadic since then, corresponding with variable sockeye salmon runs to the Buskin River drainage. In 2019 and 2020, the sockeye salmon run rebounded from a well-below average run in 2018; however, it was still lower than previous years. During 2021, the sockeye salmon escapement failed to meet the lower end of the goal despite subsistence, sport, and commercial fisheries closures. In 2022, the sockeye salmon run rebounded and exceeded the recent 5-year average. In 2023, the sockeye salmon run was the lowest on record and failed to meet the lower end of the escapement goal. In both 2024 and 2025, the sockeye salmon run rebounded dramatically and exceeded the 5-year average. Historically, 40 to 50% of the sockeye salmon harvest in the Kodiak area has come from the Buskin fishery and half of all permit holders in the region report fishing in the Buskin area.

Table 1.- Buskin River drainage reported subsistence salmon harvest by species, 2020-2024^a.

Year	Permits	Reported Subsistence Harvest									
		Chinook		Sockeye		Coho		Pink		Chum	
		No. Fish	% of Total	No. Fish	% of Total	No. Fish	% of Total	No. Fish	% of Total	No. Fish	% of Total
2020	163	8	<1%	1,642	64%	760	30%	152	6%	4	0%
2021	52	0	<1%	232	31%	516	68%	7	1%	0	0%
2022	64	1	<1%	367	36%	585	58%	49	5%	15	1%
2023	61	15	1%	562	44%	618	48%	76	6%	10	1%
2024	84	5	1%	956	64%	483	32%	55	4%	4	1%
Average	89	6	1%	770	50%	550	43%	81	5%	11	1%

^a. Source: ADF&G Division of Commercial Fisheries, Kodiak. 2025 data unavailable.

Table 2.- Kodiak Area reported subsistence harvest of sockeye salmon by location, 2020-2024^a.

Location	2020	2021	2022	2023	2024	2020-2024 avg.
Buskin River	1,642	232	367	562	956	752
Pasagshak River	580	1,182	943	835	1,200	948
Afognak Bay	1,475	956	2,075	1,108	800	1,283
Ouzinkie Narrows	2,876	3,383	1,571	219	5,953	2,800
Settler Cove/Barabara Cove	391	905	473	150	406	465
East Side	2,583	2,474	2,017	2,355	1,774	2,241
South End	1,031	695	773	869	868	847
West Side	3,983	3,035	2,307	2,934	3,244	3,101
Remainder Afognak	1,971	1,155	1,054	1,046	1,094	1,264
Total	16,532	14,017	11,580	10,078	16,295	13,700

^a. Source: ADF&G Division of Subsistence Database, Kodiak. 2025 data unavailable.

In 2000, to ensure sustained sockeye salmon production over time, a stock assessment study was initiated by Alaska Department Fish and Game (ADF&G) on the Buskin River. It was funded by the United States Fish and Wildlife Service, Office of Subsistence Management with the goal to establish a Biological Escapement Goal (BEG) for the sockeye salmon run on the Buskin River. The BEG is based on a population model which incorporates annual escapement and harvest figures with the age composition of annual returns to estimate the total production of each year of spawning (known as a brood table). Samples of male to female ratios, average length and age classes are collected each year over the course of the run from the escapement. The current escapement goal range is set at 5,000 - 8,000 sockeye salmon and is used for management of the subsistence, sport, and commercial fisheries to ensure a sustained yield from the population. An annual sockeye salmon escapement objective for Catherine and Louise lakes (reported as Lake Louise) has not been established.

Sockeye salmon escapements are annually enumerated through inseason counts of adult fish migrating into the drainage. A salmon counting weir located on Buskin River has been operated by ADF&G for this purpose since 1985. In 2002 through 2021, a second weir was installed on a tributary stream flowing into the Buskin River from Catherine and Louise Lakes. Escapement through the second weir into Lake Louise was sporadic and generally small and was not included in funding for the 2022-2025 project cycle.

2025 PROGRESS REPORT

ESCAPEMENT

The 2025 Buskin sockeye run started fairly slowly but began ramping up in June. This led to a liberalization of the Buskin sockeye sport fishery on June 16th (bag limit increase from two to five fish per day) and again on June 30th (bag limit increase from five to ten per day). Through September 30th, the count of sockeye salmon at the Buskin River was 10,583 fish. This exceeded the escapement goal range of 5,000 to 8,000 fish (Figure 1). The Buskin River weir, located at the

outlet of Buskin Lake, was operational on May 14th and was removed on August 4th. A weir associated with a separate project was installed in the lower portion of the river on August 4th and sockeye salmon continued to be counted through September 30th.

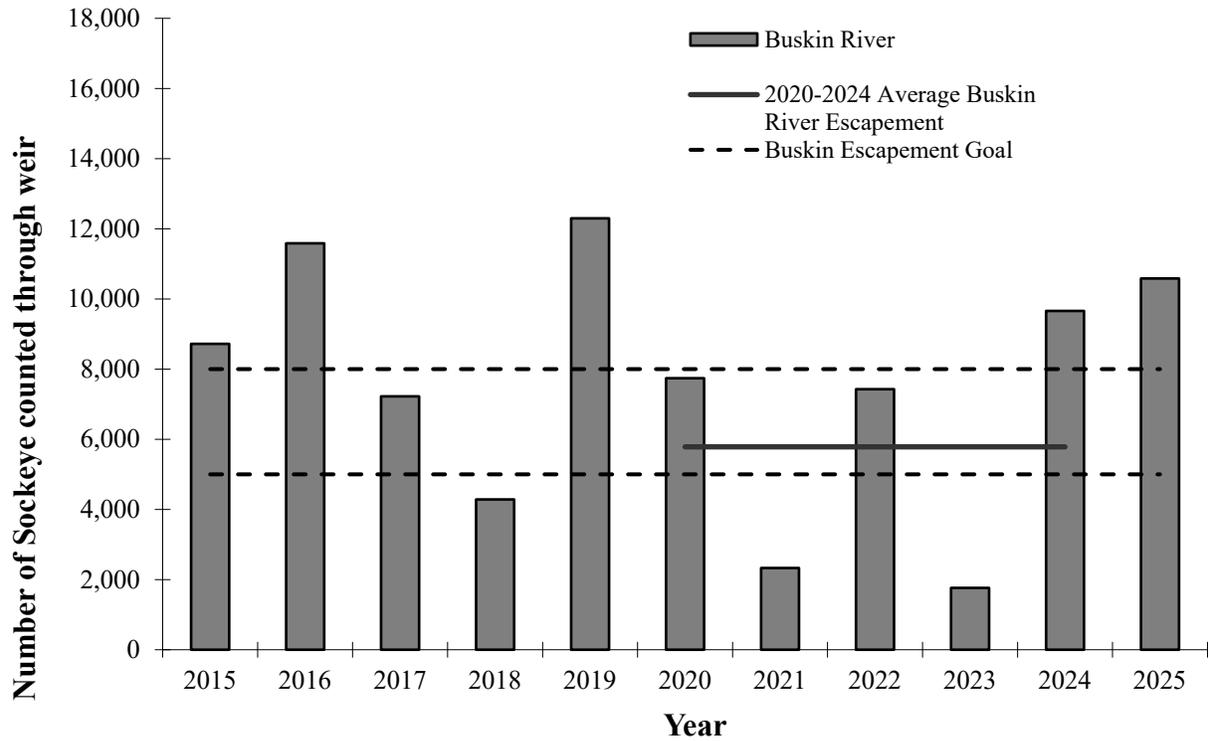


Figure 1.- Buskin River sockeye salmon escapement, 2015-2025.

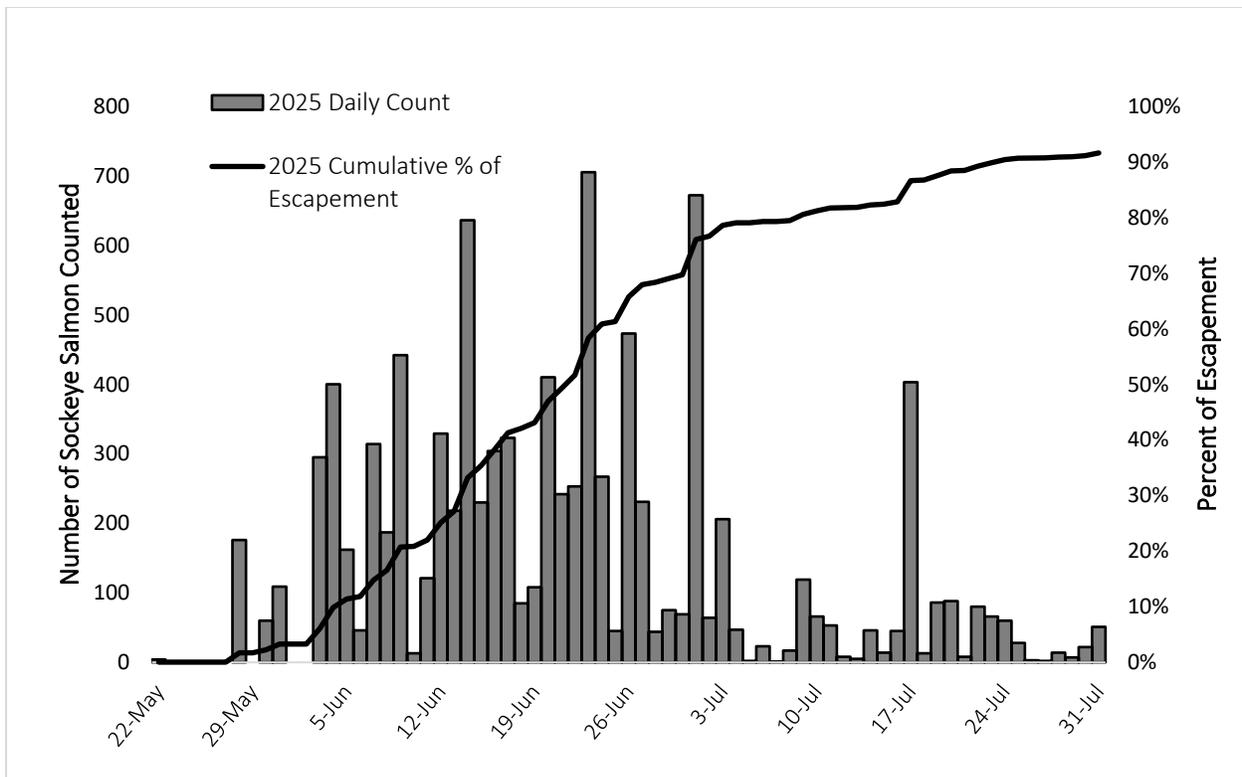


Figure 2.- Daily and cumulative sockeye salmon weir counts into Buskin Lake through July 31, 2025.

STOCK ASSESSMENT- 2025 RESULTS

The Buskin Lake sockeye escapement goal was reviewed in 2022, and details are provided in the final report for the previous budget cycle (Stock Assessment of Sockeye Salmon in the Buskin River, 2018–2021). A spawner-recruit analysis was used to assess the Buskin Lake sockeye salmon BEG using four additional years of data. The analysis indicated that an escapement range of about 4,300 to 8,000 fish would provide for sustained yields within 90% of maximum sustained yields with 90% or greater probability. While the lower end of the escapement goal range was slightly lower than the current 5,000 fish, it was recommended to retain the current BEG of 5,000 to 8,000 fish.

Data was collected for further future stock assessments during 2025. Temporal sample goals were exceeded with a total of 630 fish sampled for age, sex, and length (goal: 320). This data suggests the Buskin River sockeye salmon escapement was primarily composed of age-1.3 fish at 73.2% of the escapement followed by age-1.2 (14.2%), age-1.3 (6.7%), age-2.2 (3.8%), and age-2.3 (4.2%). Female sockeye salmon averaged 504 mm (mid-eye to tail-fork), which was above the 2021-2025 average of 495 mm. Similarly, males on average were 522 mm which was slightly above the recent five-year average size of 513 mm.

SCALE MEASUREMENT

The newer component of this project includes sockeye salmon scale measurement to estimate growth at various life stages and to explore that variability with environmental conditions.

Improvements to forecasting future runs were also explored. Over 20 years of scale measurements have been completed (2004 - 2025) and data exploration and analysis are currently being finalized.

CAPACITY BUILDING

Since 2003, the Buskin River project has been a vehicle for fisheries-based education and development of career interests for young subsistence users through establishment of a high school intern program. During this internship, students gain knowledge of the principles involved in fisheries management and research while obtaining field experience in fisheries data collection methods and techniques. The intern program annually employs two top qualified students who work on the Buskin project under supervision of ADF&G staff between June 8 and August 8. Due to the Alaska state hiring freeze, interns were unable to be hired for the 2025 season. The high school intern program has had outstanding success to the extent that at least nine former interns are currently employed with ADF&G as seasonal Fish and Wildlife Technicians or Fisheries Biologists, and 28 of 40 former interns have returned to work for the Department at some point.

CONCLUSION

The 2025 run timing was comparable to previous years, but fish did return in larger numbers than in the past 5 years. This prompted liberalization of the Buskin River drainage sockeye salmon fishery by emergency order, which involved increasing the daily limit to 5 fish mid-June and increasing to 10 fish per day at the end of June. Overall, sockeye salmon averaged 512 mm, which was slightly above the recent five-year average of 503 mm.

Scale measurement analyses are currently under review and will be published in the final report prior to this summer. Several interesting environmental correlation observations were made as well as the apparent impact that large pink salmon abundance in the ocean has on ocean growth of Buskin River sockeye salmon. Investigation of scale measurements' utility in salmon forecasting yielded significant improvements in modelled accuracy.

It is important to note that the Buskin River sockeye salmon run size has been on a decreasing trend over the past 20 years or so. The causal factors for this decline are unknown, and further investigation will be beneficial.

Annual implementation of the Buskin River sockeye salmon weir project, made possible with funding from the Fisheries Research Monitoring Program, has been essential for inseason management that is necessary to sustain the health of the Buskin River sockeye salmon stock while providing maximum harvest opportunity for subsistence users. Continuation of this project will allow for additional analysis of run productivity to aid in the ongoing assessment of sockeye salmon returns to the Buskin River. It will also aid in refining the BEG concurrent with triennial Board of Fisheries meetings, as in the 2011 cycle when the goal was changed as a direct result of this project.