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Inseason Total Run Tracking

**Table 1.-** Cumulative harvest and passage estimates of sockeye salmon in Upper Cook Inlet (UCI), 2024. All personal use and sport harvest estimates are projections based on recent five-year average harvest rates within each fishery. The Susitna River escapement estimate uses the average harvest rate of this stock in UCI commercial salmon fisheries (42%; 2007 to 2015), the average run timing, and pre-season forecasts. The Crescent River escapement estimate is based on the average commercial sockeye salmon harvest in the western district and average harvest rate of this stock (46.3%) from 2006 to 2021.

Run component	Fishery	Cumulative season total
Commercial Harvest	Central District Drift - State Waters	185,833
	Kasilof Section Set Net Fishery	778
	Kenai Section Set Net Fishery	1,230
	Northern District Set Net Fishery - Eastern Subdistrict	6,881
	Northern District Set Net Fishery - General Subdistrict	3,718
	UCI EEZ	255,055
	Western Subdistrict Set Net Fishery	38,826
	Subtotal	492,321
Escapement	Crescent Escapement	24,699
	Fish Creek Escapement	7,345
	Kasilof River Escapement	470,716
	Kenai River Escapement	374,792
	Susitna Escapement	13,664
	Other	133,682

Run component	Fishery	Cumulative season total
	Subtotal	1,024,898
Personal Use and Sport	Kasilof Personal Use Dipnet	84,526
	Kasilof Personal Use Gillnet	35,266
	Kasilof Sport	33,693
	Kenai Personal Use Dipnet	51,286
	Kenai Sport	54,709
	Subtotal	259,480
Grand Total		1,776,699

## Age Allocation Modeling

A weighted age composition method was used to estimate the contributions of Kenai, Kasilof, Susitna, and Crescent rivers, Fish Creek, and "Other" sockeye salmon stocks to commercial fishery harvests in UCI (see Bernard 1983 and Tobias and Tarbox 1999 for general methods). The method is based on the assumption that specific fisheries exploit each stock equally. The relative contribution of a specific age class in the escapement represents the relative contribution of that age class in the commercial harvest in a specific time and area fished. Sockeye salmon harvests in the various fishery subdistricts were allocated to the stocks entering major rivers that were in closest proximity to the fishery.

**Table 2.-** Cumulative total run estimates to date for primary Upper Cook Inlet sockeye salmon stocks.

Stock	Run component	Total
Crescent	Commercial Harvest	6,344
	Escapement	24,550
	Subtotal	30,895
Fish Creek	Commercial Harvest	2,985
	Escapement	7,345
	Subtotal	10,330
Kasilof	Commercial Harvest	225,608
	Escapement	469,775
	Personal Use and Sport	153,178
	Subtotal	848,561
Kenai	Commercial Harvest	181,022
	Escapement	374,792
	Personal Use and Sport	105,995
	Subtotal	661,809

Stock	Run component	Total
Other	Commercial Harvest	56,909
	Escapement	133,682
	Subtotal	190,591
Susitna	Commercial Harvest	6,103
	Escapement	13,664
	Subtotal	19,767

**Table 3.-** Age composition of returns to the Kenai and Kasilof Rivers in 2024 relative to preseason forecasts.

Stock	Age class	Composition of return	Run to date	Forecasted run	Percent remaining	Total fish remaining
Kasilof	0.2	0.0%	0	0	0.0%	0
	0.3	0.0%	0	0	0.0%	0
	1.2	39.0%	327,916	506,000	35.0%	178,084
	1.3	59.0%	500,614	332,218	-51.0%	0
	1.4	0.0%	0	0	0.0%	0
	2.1	0.0%	0	0	0.0%	0
	2.2	0.0%	0	221,924	100.0%	221,924
	2.3	2.0%	20,030	55,019	64.0%	34,989
	2.4	0.0%	0	0	0.0%	0
Kenai	0.2	0.0%	0	0	0.0%	0
	0.3	0.0%	0	0	0.0%	0
	1.2	16.0%	105,133	515,248	80.0%	410,115
	1.3	80.0%	527,899	2,143,928	75.0%	1,616,029
	1.4	1.0%	9,462	0	-Inf%	0
	2.1	0.0%	0	0	0.0%	0
	2.2	3.0%	19,316	248,800	92.0%	229,484
	2.3	0.0%	0	472,484	100.0%	472,484
	2.4	0.0%	0	0	0.0%	0

# Total Run Projections

An inseason tier-status assessment is annually performed for late-run stock Kenai River sockeye salmon (See Table 4). Historically, the tier status assessment had relied on cumulative catch-per-unit-effort timing curves from the offshore test fish project (OTF) to project the total run to the Kenai River. This method provided unbiased estimates of run timing because performance of this fishery is largely independent of management actions. In 2024, the OTF project was cut due to budget issues which required other methods to be explored for the inseason projection. Inriver run timing curves were assessed using historical total run data and were found to provide reliable total run projection estimates within the scope of run tier designations.

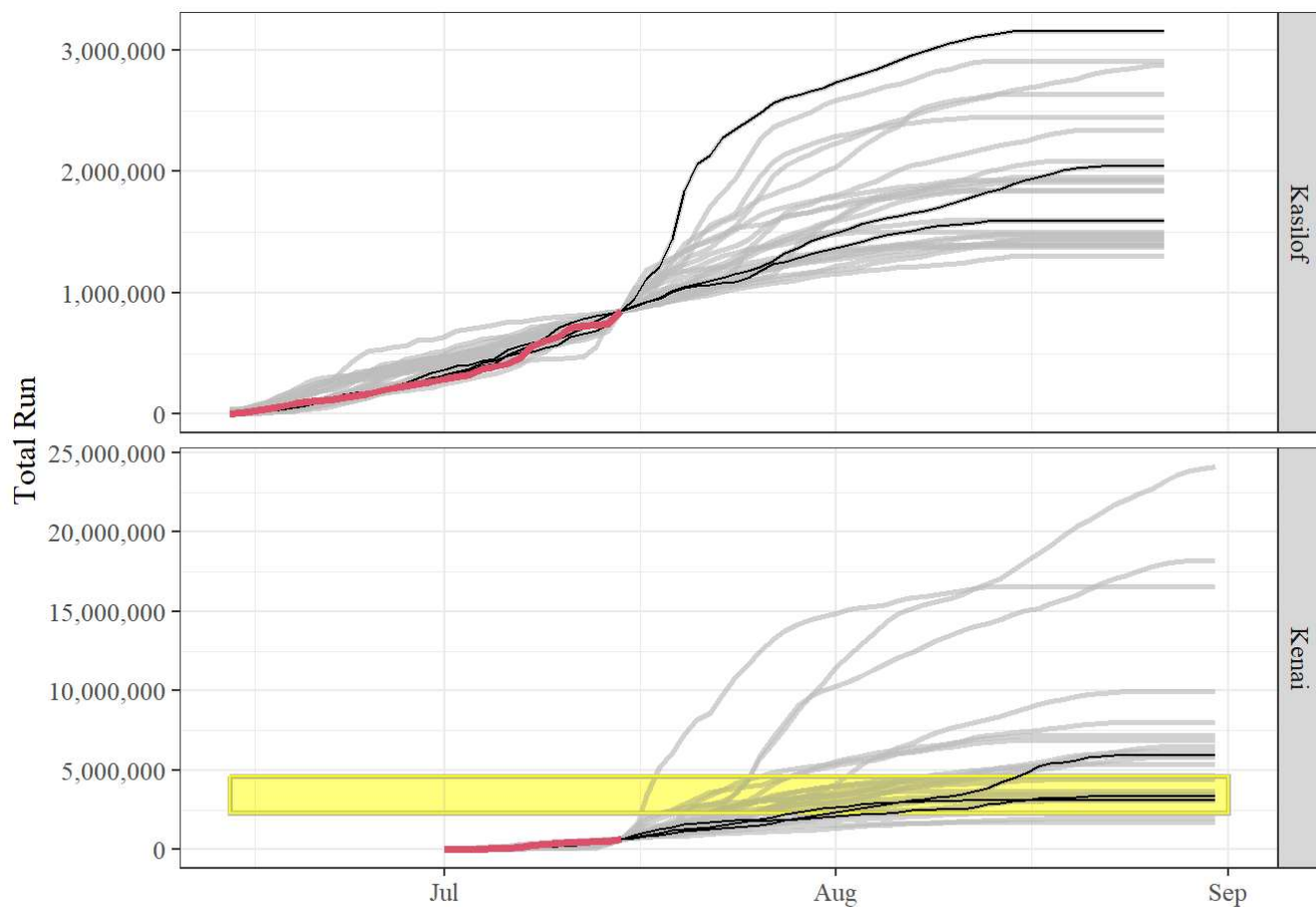
Stock-specific inriver run timing models spanning years 2000 to 2023 were evaluated to project the total run of sockeye salmon to the Kenai and Kasilof Rivers. Projection model performance was assessed using the mean arctangent absolute percent error (MAAPE) between the projected daily total run estimates and actual runs up to the date the projection was run. The top three models with the lowest MAAPE were selected for each stock and a weighted hybrid model approach was applied. Model weighted were assigned based on the running MAAPE of each selected model, with a lower MAAPE receiving a greater weight towards the final projection estimate.

**Table 4.-** Management tiers for the late-run stock Kenai River sockeye salmon.

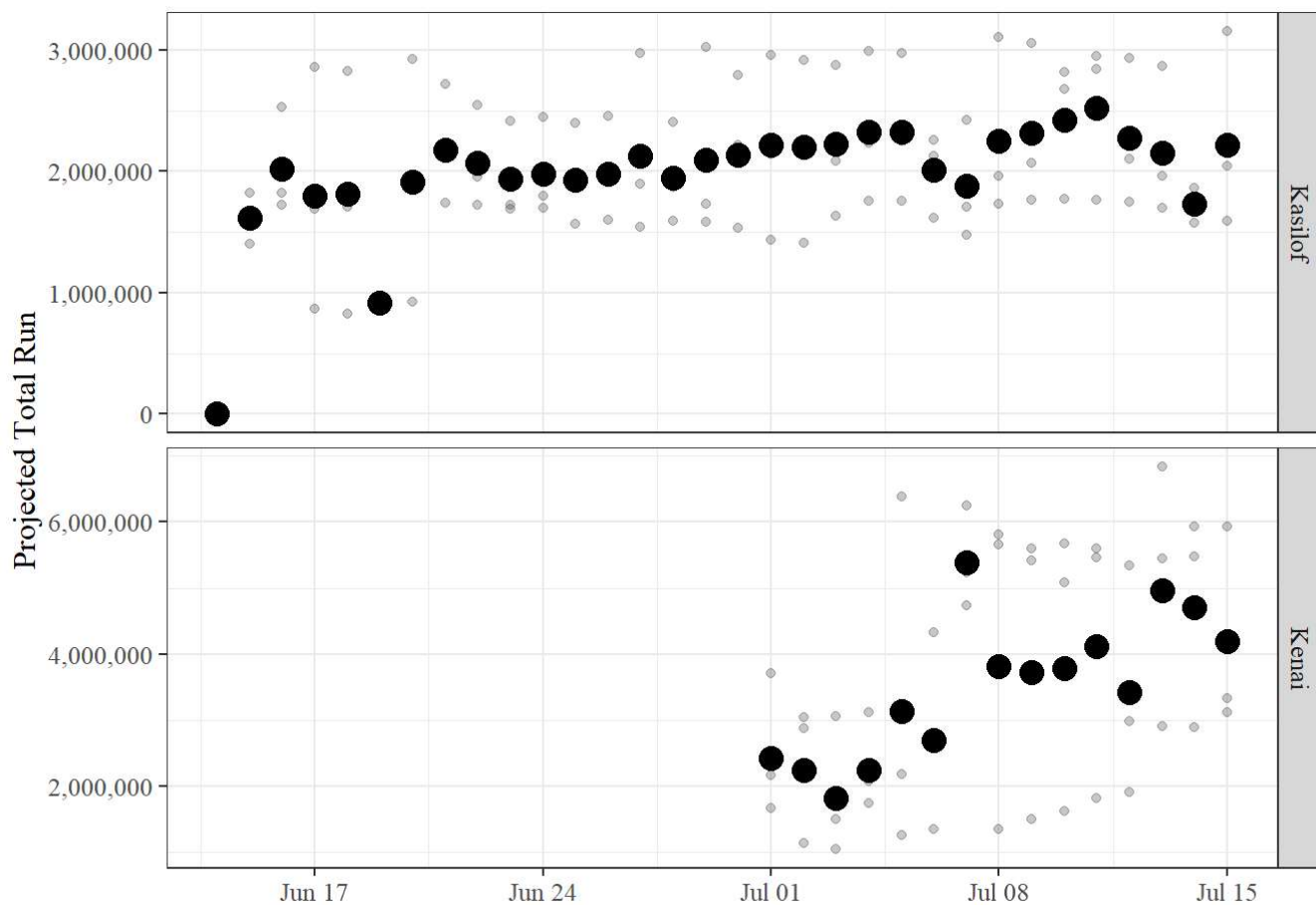
Tier	Total Run Size
Lower	Less than 2,300,000
Middle	2,300,000 to 4,600,000
Upper	Greater than 4,600,000

**Table 5.-** Total run projections by stock.

Stock	Year	Timing	MAAPE	Model Projection	Model Weight	Weighted projection	Total
Kasilof	2009	53.4%	9.40	1,589,782	0.39	622,756.5	<b>2,195,821</b>
	2020	41.5%	11.82	2,045,849	0.31	637,448.2	
	2022	26.9%	12.41	3,153,469	0.30	935,616.3	
Kenai	2020	11.2%	25.97	5,932,521	0.36	2,119,758.2	<b>4,192,559</b>
	2005	19.9%	28.04	3,328,556	0.33	1,101,911.9	
	2009	21.2%	29.78	3,115,415	0.31	970,889.1	



**Figure 1.-** The top three competing models for each stock (black lines) relative to actual daily cumulative total runs (red line). All other competing models are indicated in grey. The middle management tier (2.3 to 4.6 million fish) for late-run stock Kenai River sockeye salmon is indicated in yellow.



**Figure 2.-** Weighted total run estimates (black dots) using the top three selected run timing models by projection date and stock. Grey dots represent individual total run projections for each selected model by date.