Genetic Stock Composition Estimates for the Upper Cook Inlet Sockeye Salmon Commercial Fishery, 2021–2023

by

Andrew W. Barclay

February 2024

Alaska Department of Fish and Game



Division of Commercial Fisheries

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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative		all standard mathematical	
deciliter	dL	Code	AAC	signs, symbols and	
gram	g	all commonly accepted		abbreviations	
hectare	ha	abbreviations	e.g., Mr., Mrs.,	alternate hypothesis	H _A
kilogram	kg		AM, PM, etc.	base of natural logarithm	е
kilometer	km	all commonly accepted		catch per unit effort	CPUE
liter	L	professional titles	e.g., Dr., Ph.D.,	coefficient of variation	CV
meter	m		R.N., etc.	common test statistics	(F, t, χ^2 , etc.)
milliliter	mL	at	@	confidence interval	CI
millimeter	mm	compass directions:		correlation coefficient	
		east	E	(multiple)	R
Weights and measures (English)		north	Ν	correlation coefficient	
cubic feet per second	ft ³ /s	south	S	(simple)	r
foot	ft	west	W	covariance	cov
gallon	gal	copyright	©	degree (angular)	0
inch	in	corporate suffixes:		degrees of freedom	df
mile	mi	Company	Co.	expected value	Ε
nautical mile	nmi	Corporation	Corp.	greater than	>
ounce	oz	Incorporated	Inc.	greater than or equal to	≥
pound	lb	Limited	Ltd.	harvest per unit effort	HPUE
quart	qt	District of Columbia	D.C.	less than	<
yard	yd	et alii (and others)	et al.	less than or equal to	\leq
	-	et cetera (and so forth)	etc.	logarithm (natural)	ln
Time and temperature		exempli gratia		logarithm (base 10)	log
day	d	(for example)	e.g.	logarithm (specify base)	log ₂ etc.
degrees Celsius	°C	Federal Information		minute (angular)	,
degrees Fahrenheit	°F	Code	FIC	not significant	NS
degrees kelvin	Κ	id est (that is)	i.e.	null hypothesis	Ho
hour	h	latitude or longitude	lat or long	percent	%
minute	min	monetary symbols		probability	Р
second	s	(U.S.)	\$,¢	probability of a type I error	
		months (tables and		(rejection of the null	
Physics and chemistry		figures): first three		hypothesis when true)	α
all atomic symbols		letters	Jan,,Dec	probability of a type II error	
alternating current	AC	registered trademark	®	(acceptance of the null	
ampere	А	trademark	TM	hypothesis when false)	β
calorie	cal	United States		second (angular)	,,
direct current	DC	(adjective)	U.S.	standard deviation	SD
hertz	Hz	United States of		standard error	SE
horsepower	hp	America (noun)	USA	variance	
hydrogen ion activity	pH	U.S.C.	United States	population	Var
(negative log of)			Code	sample	var
parts per million	ppm	U.S. state	use two-letter	*	
parts per thousand	ppt,		abbreviations		
	‰		(e.g., AK, WA)		
volts	V				
watts	W				

REGIONAL INFORMATION REPORT NO. 5J24-02

GENETIC STOCK COMPOSITION ESTIMATES FOR THE UPPER COOK INLET SOCKEYE SALMON COMMERCIAL FISHERY, 2021–2023

by

Andrew W. Barclay Alaska Department of Fish and Game, Division of Commercial Fisheries, Gene Conservation Laboratory, Anchorage

> Alaska Department of Fish and Game Division of Commercial Fisheries 333 Raspberry Road, Anchorage, AK 99518

> > February 2024

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Andrew W. Barclay Alaska Department of Fish and Game, Division of Commercial Fisheries, Gene Conservation Laboratory, 333 Raspberry Road, Anchorage, AK 99518, USA

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ABSTRACT

Genetic mixed stock analysis has been used to estimate the stock compositions of sockeye salmon Oncorhynchus nerka harvested in commercial fisheries in Upper Cook Inlet (UCI), Alaska, since 2005. This report summarizes the results from the genetic mixed stock analysis of samples representing UCI commercial fishery harvests in 2021–2023. Postseason analyses were performed using a previously reported baseline of 69 populations and 96 single nucleotide polymorphic markers, with the addition of 2 populations in the West reporting group (Harriet Creek and Packers Lake late run). Some composition patterns in the commercial fishery were similar to previous years. Drift gillnet and eastern fisheries captured greater proportions of Kenai and Kasilof rivers fish than western and northern fisheries; western set gillnet fisheries harvested a greater proportion of fish from the west side of Cook Inlet, but the drift gillnet fishery harvested greater numbers of west side fish; and set gillnet fishing areas in the Northern District generally harvested fish from nearby rivers. Estimates of stock-specific harvests for UCI commercial fisheries in 2021–2023 build upon previous years in refining understanding of productivity and the effect of management actions on the stock composition of commercial sockeye salmon harvests.

Keywords: Cook Inlet, sockeye salmon, *Oncorhynchus nerka*, genetic stock identification, mixed stock analysis, MSA, commercial fishery, single nucleotide polymorphism, SNP

INTRODUCTION

The Alaska Department of Fish and Game (ADF&G), Division of Commercial Fisheries, is responsible for managing the commercial fisheries in Upper Cook Inlet (UCI) under the sustained yield principle. Application of the sustained yield principle requires an understanding of the relationship between the number of fish that spawn (escapement) in a drainage (stock) and the number of their offspring that make it to reproductive adulthood (returns) in a brood table. The number of offspring that return for each stock is calculated by adding the number of spawners in the drainage to the number of fish harvested before reaching the spawning grounds for each of the 5 major sockeye salmon-producing drainages in UCI: Crescent River, Susitna River, Fish Creek, Kenai River, and Kasilof River (Figure 1).

ADF&G has used genetic mixed stock analysis (MSA) to estimate stock-specific harvests of sockeye salmon (Oncorhynchus nerka) in the Central and Northern district commercial fisheries of UCI since 2005. The MSA sampling design has remained relatively consistent since 2005; however, the number of samples and strata analyzed has declined over the years due to budget cuts and the redirecting of project funds to answer other fisheries questions. Regardless, the analyzed samples have represented over 90% of the catch since 2006. Spatiotemporal estimates for each fishing season are provided to area managers in the spring following each season. Additionally, overall annual estimates from 2005 to 2016 were published in Barclay (2017) and a compilation of area estimates from 2005 to 2019 with Susitna River reporting groups combined was published in Barclay (2020b). However, only spatiotemporal estimates from 2005 to 2020 have been published in ADF&G reports (Barclay et al. 2010a, 2010b, 2013, 2014, 2017, 2018; Barclay 2019, 2020a; Barclay and Chenoweth 2021).

Upper Cook Inlet MSA reports generally contain an overview of the management strategy and the highlights of each season to help the reader interpret the patterns of stock composition in the fishery harvests. An overview of the 2021–2023 fisheries is not included in this report but can be found in detail in the UCI fishery management reports (Marston and Frothingham 2022; Lipka and Stumpf 2024; Lipka and Stumpf *In prep*).

This report includes stock composition and stock-specific harvest estimates for 2021–2023 Central District set and drift gillnet fisheries and Northern District set gillnet fishery for the following 8 reporting groups: (1) the largest producer of sockeye salmon on the west side of Cook Inlet (Crescent River; Crescent); (2) the remaining West Cook Inlet producers (West); (3) the lakes monitored by weirs in the Susitna/Yentna Rivers (Judd/Chelatna/Larson lakes) with the addition of the Mama and Papa Bear Lakes and Talkeetna Sloughs population (JCL); (4) the remaining producers in the Susitna/Yentna Rivers (SusYen); (5) the only major creek monitored with a weir in the Knik/Turnagain/Northeast Cook Inlet area (Fish Creek; Fish); (6) the remaining Knik/Turnagain/Northeast Cook Inlet producers (KTNE); (7) the composite of all populations within the Kenai River (Kenai); and (8) the composite of all populations within the Kasilof River (Kasilof). See Figure 1 for a map of these reporting groups.

METHODS

Methods for the 2021–2023 season MSAs generally follow those reported in the 2014 report (Barclay et al. 2018), except for the program used to estimate stock compositions.

Since the 2017 fishery analysis, an R (R Core Team 2023) package called *rubias* (Moran and Anderson 2019) has been used to estimate fishery stock compositions. The *rubias* package is a Bayesian approach to the conditional genetic stock identification model based upon computationally efficient C code implemented in R. For each mixture analysis, a single Markov Chain Monte Carlo chain with 25,000 iterations was run. The first 5,000 iterations of the chain were discarded to remove the influence of starting values. The prior parameters for each reporting group were defined to be equal (i.e., a flat prior). Within each reporting group, the population prior parameters were divided equally among the populations within that reporting group. Stock proportion estimates and the 90% credibility intervals for each mixture were calculated by taking the mean and 5% and 95% quantiles of the posterior distribution from the single chain output.

RESULTS

TISSUE SAMPLING

Field Sampling

Tissues suitable for genetic analysis were sampled from a total of 14,227 (2021), 10,896 (2022), and 9,578 (2023) sockeye salmon from commercial catches throughout the UCI Central and Northern districts (Appendix A1–A3).

Subsampling for Analysis

For 2021, 7 mixture samples (strata) were constructed for estimating stock compositions and stock-specific harvests of fishing area (area strata) harvests (Table 1). Mixture sample sizes ranged from 231 to 373 fish.

For 2022, 8 mixture samples were constructed for estimating stock compositions and stock-specific harvests of fishing area harvests (Table 2). Mixture sample sizes ranged from 360 to 371 fish.

For 2023, 8 mixture samples were constructed for estimating stock compositions and stock-specific harvests of fishing area harvests (Table 3). Mixture sample sizes ranged from 367 to 377 fish.

Drift gillnet

For the Central District drift gillnet fishery, mixtures were constructed to represent both districtwide and corridor-only harvests in all three years. Single mixtures were constructed to represent districtwide and corridor-only harvests in 2021 (Table 1; Appendix A1; Appendix B1), 2 temporal district-wide mixtures and 1 corridor-only mixture were constructed to represent harvests in 2022 (Table 2; Appendix A2; Appendix B2), and 5 district-wide temporal mixtures and 1 corridor-only mixture were constructed to represent harvests in 2023 (Table 2; Appendix A2; Appendix B2), and 5 district-wide temporal mixtures and 1 corridor-only mixture were constructed to represent harvests in 2023 (Table 3; Appendix A3; Appendix B3). See Figure 2 for a map of Central District drift gillnet statistical area boundaries.

Set gillnet

For the Upper Subdistrict (Central District) set gillnet fishery, 1 mixture was constructed to represent harvests in 2021 (Table 1; Appendix A1; Appendix B1) and 2 spatiotemporal mixtures were constructed to represent harvests in 2022 (Table 2; Appendix A2; Appendix B2). No mixtures were constructed for the 2023 Upper Subdistrict set gillnet fishery due to the fishery being closed all season.

In 2021, several periods were restricted to within 600 feet of the mean high tide mark in the Upper Subdistrict to minimize the harvest of Kenai River Chinook and sockeye salmon (Marston and Frothingham 2022). Sufficient samples were collected on July 6 to construct mixtures representing the 600-foot restriction period in the Kasilof Section (1 mixture) and North Kalifornsky Beach statistical area (1 mixture) to compare stock compositions between the two areas (Table 4; Appendix A4). Additionally, sufficient samples were collected from Northern Kalifornsky Beach 600-foot restriction periods on July 1, 5, and 6 to construct a single composite mixture to examine the stock composition of the statistical area harvest during those periods. There were other Upper Subdistrict fishing periods restricted to within 600 feet of the mean high tide mark in 2021; however, insufficient samples were collected to construct separate mixtures representing those harvests (Appendix B1). These mixture samples were constructed for examination of stock compositions, not stock-specific harvests, of 600-foot restriction periods and contain some of the samples used in the 2021 Upper Subdistrict mixture (mixture number 21-3; Table 1).

For the Western, Kustatan, and Kalgin Island subdistricts (Central District) set gillnet fisheries, single mixtures were constructed to represent the combined subdistricts harvest each year (Tables 1–3; Appendix A1–A3; Appendix B1–B3).

For the Eastern and General subdistricts (Northern District) set gillnet fisheries, 3 mixtures were constructed to represent the Eastern Subdistrict (1 mixture), and the north (1 mixture) and south (1 mixture) sections of the General Subdistrict harvests in 2021 (Table 1; Appendix A1; Appendix B1), 2 mixtures were constructed to represent Eastern Subdistrict (1 mixture) and General Subdistrict (1 mixture) harvests in 2022 (Table 2; Appendix A2; Appendix B2), and 1 mixture was constructed to represent the Eastern Subdistrict harvest in 2023 (Table 3; Appendix A3; Appendix B3). Insufficient samples were collected to construct a General Subdistrict mixture for 2023.

See Figure 3 for a map of set gillnet subdistrict boundaries.

STOCK COMPOSITION AND STOCK-SPECIFIC HARVEST ESTIMATES

Individual Strata

Stock composition and stock-specific harvest estimates for individual strata (mixtures) for each fishery can be found in 4 appendices:

- (1) Central District drift gillnet; Appendix C
- (2) Central District set gillnet, Upper Subdistrict; Appendix D
- (3) Central District set gillnet, Western, Kustatan, and Kalgin Island subdistricts; Appendix E
- (4) Northern District set gillnet, including Eastern and General subdistricts; Appendix F

Stock composition estimates for Upper Subdistrict periods restricted to within 600 feet the mean high tide mark can be found in Table 5.

Estimates by Area Strata

Annual stock-specific harvest estimates for area strata can be found in Tables 6–8 and Figures 4–6.

All Strata Combined

Annual UCI stock-specific harvest estimates representing all analyzed strata from 2005 to 2023 can be found in Table 9 and Figure 7.

All Strata 2005–2023

A summary of all fishery strata analyzed since 2005, including where the estimates were reported, can be found in Appendix G1.

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 Note: No

TABLES AND FIGURES

Table 1.-Commercial fishery strata (mixtures) for estimating stock compositions and stock-specific harvests for 2021, including mixture number, fishery and fishing area represented, sampling dates, harvest dates represented by each mixture, and number of fish genotyped and used in the mixed-stock analysis.

Mixture			Dates	Dates	Harvest	Number of F	Fish
No.	Fishery	Area	Sampled	Represented	Represented	Genotyped	Used ^a
21-1	Central District Drift	District-wide (excluding corridor-only periods)	6/21-8/12	6/21-8/19	464,365	381	367
21-2		corridor-only periods	7/22 & 8/4	7/20-8/11	358,741	290	273
21-3	Central District Set (East Cook Inlet)	Upper Subdistrict (All sections)	6/22-7/20	6/22-7/20	405,690	1,001 ^b	373
21-4	Central District Set (West Cook Inlet)	Western, Kustatan, & Kalgin Island subdistricts	6/2-8/12	6/2-8/19	78,332	353	342
21-5	Northern District Set	Eastern Subidistrict	7/1-7/26	6/28-8/2	26,861	381	360
21-6		General Subdistrict - north	7/12-8/9	7/5-8/16	7,518	249	231
21-7		General Subdistrict - south	7/5-8/12	6/28-8/19	21,186	378	362

^a Samples missing genotypes for 20% or more loci and duplicate samples were removed prior to analysis.

^b Includes fish genotyped for comparing stock composition of periods restricted to withing 600 feet of the mean high tide mark (Table 4).

Table 2.–Commercial fishery strata (mixtures) for estimating stock compositions and stock-specific harvests for 2022, including mixture number, fishery and fishing area represented, sampling dates, harvest dates represented by each mixture, and number of fish genotyped and used in the mixed-stock analysis.

Mixture				Dates	Harvest	Number of I	Fish
No.	Fishery	Area	Dates Sampled	Represented	Represented	Genotyped	Used ^a
22-1	Central District Drift	District-wide (excluding corridor-only periods)	6/20-7/25	6/20-7/25	663,238	381	369
22-2			8/1-8/15	8/1-8/22	25,288	380	361
22-3		corridor-only periods	7/21, 7/27 & 7/28	7/19-7/31	199,602	380	368
	Central District Set						
22-4	(East Cook Inlet)	Upper Subdistrict - Kasilof Section	6/23-7/14	6/23-7/14	81,591	381	371
~~ -		Upper Subdistrict - Keanai//East Foreland			22.005	200	2.60
22-5		sections	7/7–7/14	7/7–7/14	23,087	380	360
	Central District Set						
22-6	(West Cook Inlet)	Western, Kustatan, & Kalgin Island subdistricts	6/6-8/15	6/1-8/22	75,893	378	365
22-7	Northern District Set	Eastern Subidistrict	7/7-8/15	6/30-8/22	29,411	378	365
22-8		General Subdistrict	7/7-8/11	6/27-8/18	19,901	381	362

^a Samples missing genotypes for 20% or more loci and duplicate samples were removed prior to analysis.

Table 3.-Commercial fishery strata (mixtures) for estimating stock compositions and stock-specific harvests for 2023, including mixture number, fishery and fishing area represented, sampling dates, harvest dates represented by each mixture, and number of fish genotyped and used in the mixed-stock analysis.

Mixture			Dates	Dates	Harvest	Number of	Fish
No.	Fishery	Area	Sampled	Represented	Represented	Genotyped	Used ^a
23-1	Central District Drift	District-wide (excluding corridor-only periods)	6/19-7/10	6/19-7/12	295,773	380	375
23-2			7/13	7/13	200,088	380	375
23-3			7/17	7/17	161,397	380	373
23-4			7/24	7/24	198,523	380	376
23-5			7/31-8/14	7/31-8/21	138,213	380	377
23-6		corridor-only periods	7/20 & 7/27	7/18-8/2	368,493	380	373
	Central District Set						
23-7	(West Cook Inlet)	Western, Kustatan, & Kalgin Island subdistricts	6/5-8/10	6/2-8/17	143,266	380	367
23-8	Northern District Set	Eastern Subdistrict	6/26-8/10	6/26-8/14	26,990	380	375

^a Samples missing genotypes for 20% or more loci and duplicate samples were removed prior to analysis.

Table 4.–Upper Subdistrict mixtures to compare periods when fishing was restricted to within 600 feet of the mean high tide mark in 2021, including section, statistical area, mixture dates, and number of samples selected and used in the analysis.

				Number of F	ìsh
Mixt	are No. Section	Statistical Area(s)	Mixture Dates	Selected	Used
2	1-8 Kasilof	244-21 & 22	7/6	240	227
2	1-9 Kenai	244-32	7/6	236	226
21	-10 Kenai	244-32	7/1, 7/5, & 7/6 ^a	382	373

^a All of the samples from 7/6 were also used in mixture 21-9.

Kasilof Section; Statistical Areas 244-21 & 22					
Date: 7/6	Stock C	composition (n = 227)		
		90% C	I		
Reporting Group	Mean	5%	95%	SD	
Crescent	0.3	0.0	1.7	0.7	
West	11.2	6.1	16.6	3.2	
JCL	0.4	0.0	1.8	0.6	
SusYen	0.5	0.0	2.8	1.1	
Fish	4.6	1.9	7.9	1.9	
KTNE	3.0	0.7	6.3	1.8	
Kenai	12.9	8.5	17.9	2.8	
Kasilof	67.0	60.8	72.8	3.7	
Kenai Section; Statistica	al Area 244-32				
Date: 7/6	Stock C	composition (n = 226)		
		90% C	I		
Reporting Group	Mean	5%	95%	SD	
Crescent	0.1	0.0	0.8	0.3	
West	1.3	0.0	3.3	1.1	
JCL	0.1	0.0	0.3	0.2	
SusYen	0.9	0.0	2.9	1.0	
Fish	0.1	0.0	0.4	0.2	
KTNE	0.1	0.0	0.7	0.3	
Kenai	0.8	0.0	2.7	0.9	
Kasilof	96.6	93.7	98.8	1.6	
Kenai Section; Statistica	al Area 244-32				
Dates: 7/1, 7/5, & 7/6	Stock C	composition (n = 373)		
		90% C	I		
Reporting Group	Mean	5%	95%	SD	
Crescent	0.1	0.0	0.7	0.3	
West	1.1	0.0	3.5	1.1	
JCL	0.0	0.0	0.3	0.1	
SusYen	0.1	0.0	0.4	0.2	
Fish	0.0	0.0	0.3	0.1	
KTNE	0.7	0.0	2.4	0.9	
Kenai	4.1	2.1	6.6	1.4	
Kasilof	93.7	90.9	96.1	1.6	

Table 5.–Upper Subdistrict (Central District) set gillnet fishery for select statistical areas and dates where fishing was restricted to within 600 feet of the mean high tide mark in the Kenai and Kasilof sections, 2021: Stock composition (%) estimates, including mean, 90% credibility interval (CI), sample size (n), and standard deviation (SD).

Note: See Figure 3 for a map of statistical areas.

Table 6.–Stock-specific harvest, standard deviation (SD), and 90% credibility intervals calculated using a stratified estimator for combined strata in the Central District drift gillnet excluding corridor-only periods (1 temporal stratum), drift gillnet corridor-only periods (1 temporal stratum), and Western, Kustatan, and Kalgin Island subdistricts set gillnet (1 temporal stratum), Upper Subdistrict set gillnet (1 temporal stratum), and Northern District set gillnet (3 spatiotemporal strata) fisheries and based on genetic analysis of mixtures of sockeye salmon harvested in Upper Cook Inlet in 2021.

			90% C	I		
Area strata	Reporting Group	Harvest	5%	95%	SD	
Central District drift gillnet (excluding corri		r-only periods)				
	Crescent	627	0	3,553	1,569	
	West	36,057	20,117	52,960	10,033	
	JCL	11,568	5,081	19,812	4,527	
	SusYen	32,023	16,619	50,726	10,434	
	Fish	7,271	1,577	14,827	4,138	
	KTNE	8,589	1,401	22,405	6,659	
	Kenai	332,070	305,725	357,455	15,939	
	Kasilo <u>f</u>	36,159	20,504	51,850	9,521	
	Harvest represented	464,365				
	Harvest unrepresented	767				
	Total Harvest	465,132				
Central Distri	ct drift gillnet (corridor-only peri	ods)				
	Crescent	416	0	2,589	1,078	
	West	27,108	15,575	40,333	7,769	
	JCL	2,197	0	9,474	3,346	
	SusYen	6,418	0	23,046	8,107	
	Fish	585	0	3,210	1,286	
	KTNE	2,102	0	7,191	2,477	
	Kenai	303,157	281,929	320,840	11,796	
	Kasilof	16,759	6,756	28,335	6,594	
	Harvest represented	358,741				
	Harvest unrepresented	28,102				
	Total Harvest	386,843				
		-continued-				

			90% (CI	
Area strata	Reporting Group	Harvest	5%	95%	SD
Central Distric	ct, Upper Subdistrict set gillnet				
	Crescent	830	0	4,696	1,846
	West	4,891	0	17,881	6,318
	JCL	971	0	3,848	1,352
	SusYen	564	0	3,465	1,627
	Fish	3,756	0	9,533	3,135
	KTNE	2,716	0	11,087	3,898
	Kenai	209,234	186,236	232,898	14,179
	Kasilof	182,728	160,862	204,234	13,063
	Harvest represented	405,690			
	Harvest unrepresented ^a	1,317			
	Total Harvest	407,007			
Central Distric	ct, Western, Kustatan, and Kalgi	n Island subdistricts	set gillnet		
	Crescent	21,635	17,650	25,775	2,472
	West	25,750	21,287	30,869	2,844
	JCL	992	78	2,297	693
	SusYen	420	0	2,359	965
	Fish	150	0	788	306
	KTNE	102	0	609	283
	Kenai	20,836	16,643	25,220	2,602
	Kasilof	8,447	5,879	11,135	1,658
	Harvest represented	78,332			
	Harvest unrepresented	2,111			
	Total Harvest	80,443			
Northern Dist	rict, Eastern and General subdist	ricts set gillnet			
	Crescent	219	0	802	284
	West	14,745	13,330	16,231	869
	JCL	4,117	3,160	5,165	608
	SusYen	10,431	8,422	12,453	1,220
	Fish	8,480	7,273	9,651	727
	KTNE	10,565	8,812	12,495	1,109
	Kenai	6,527	4,906	8,243	1,016
	Kasilof	481	2	1,267	423
	Harvest represented	55,565			
	Harvest unrepresented	15,852			
	Total Harvest	71,417			

Table 6.–Page 2 of 2.

^a All of the Upper Subdistrict unrepresented harvest is from the Kasilof River Special Harvest Area (KRSHA; Figure 3).

Table 7.–Stock-specific harvest, standard deviation (SD), and 90% credibility intervals calculated using a stratified estimator for combined strata in the Central District drift gillnet excluding corridor-only periods (2 temporal strata), drift gillnet corridor-only periods (1 stratum), and Western, Kustatan, and Kalgin Island subdistricts set gillnet (1 stratum), Upper Subdistrict set gillnet (2 spatiotemporal strata), and Northern District set gillnet (2 spatiotemporal strata) fisheries and based on genetic analysis of mixtures of sockeye salmon harvested in the Upper Cook Inlet in 2022.

			90% C	CI	
Area strata	Reporting Group	Harvest	5%	95%	SD
Central Distri	et drift gillnet (excluding corric	lor-only periods)			
	Crescent	3,407	0	14,615	5,343
	West	41,210	2,616	83,614	25,283
	JCL	34,612	20,915	50,819	9,206
	SusYen	49,204	7,775	89,354	24,333
	Fish	45,353	25,721	65,944	12,191
	KTNE	14,620	2,419	37,422	10,984
	Kenai	402,533	359,403	442,590	25,339
	Kasilof	97,586	71,576	124,437	16,226
	Harvest represented	688,526			
	Harvest unrepresented	690			
	Total Harvest	689,216			
Central Distri	et drift gillnet (corridor-only pe	eriods)			
	Crescent	2,726	29	6,645	2,048
	West	1,145	0	5,955	2,252
	JCL	5,250	2,591	8,749	1,874
	SusYen	26,046	14,471	38,307	7,213
	Fish	2,451	311	5,243	1,565
	KTNE	3,063	97	7,256	2,367
	Kenai	147,109	133,847	159,875	8,025
	Kasilof	11,811	6,146	18,035	3,627
	Harvest represented	199,602			
	Harvest unrepresented	4,902			
	Total Harvest	204,504			

			90%	% CI	
Area strata	Reporting Group	Harvest	5%	95%	SD
Central Distric	et, Upper Subdistrict set gillnet				
	Crescent	927	1	2,406	810
	West	747	0	3,126	1,089
	JCL	446	12	1,445	472
	SusYen	1,806	575	3,977	1,046
	Fish	1,781	862	3,059	680
	KTNE	764	182	1,865	536
	Kenai	22,939	19,462	26,711	2,196
	Kasilof	75,266	71,356	78,765	2,227
	Harvest represented	104,678			
	Harvest unrepresented	0			
	Total Harvest	104,678			
Central Distric	et, Western, Kustatan, and Kalg	in Island subdistricts se	t gillnet		
	Crescent	17,435	13,946	21,388	2,258
	West	30,557	26,518	34,786	2,522
	JCL	391	0	1,542	552
	SusYen	4,097	0	7,963	2,452
	Fish	1,582	270	3,240	900
	KTNE	788	0	3,477	1,225
	Kenai	13,863	9,882	18,190	2,536
	Kasilof	7,181	4,857	9,825	1,516
	Harvest represented	75,893			
	Harvest unrepresented	123			
	Total Harvest	76,016			
Northern Distr	rict, Eastern and General subdis	tricts set gillnet			
	Crescent	164	0	639	238
	West	5,789	4,198	7,918	1,158
	JCL	6,552	5,370	7,744	725
	SusYen	9,910	7,863	11,954	1,268
	Fish	10,675	8,737	12,642	1,180
	KTNE	13,485	10,764	16,141	1,627
	Kenai	2,359	1,305	3,568	687
	Kasilof	379	0	1,115	377
	Harvest represented	49,312			
	Harvest unrepresented	2,519			
	Total Harvest	51,831			

Table 7.–Page 2 of 2.

Table 8.–Stock-specific harvest, standard deviation (SD), and 90% credibility intervals calculated using a stratified estimator for combined strata in the Central District drift gillnet excluding corridor-only periods (5 temporal strata), drift gillnet corridor-only periods (1 stratum), and Western, Kustatan, and Kalgin Island subdistricts set gillnet (1 stratum), and Northern District set gillnet (1 stratum) fisheries and based on genetic analysis of mixtures of sockeye salmon harvested in the Upper Cook Inlet in 2023.

			90% CI		
Area strata	Reporting Group	Harvest	5%	95%	SD
Central Distri	ct drift gillnet (excluding corr	ridor-only periods)			
	Crescent	31,292	19,840	43,521	7,083
	West	119,424	98,567	142,660	13,480
	JCL	86,285	73,463	99,491	7,971
	SusYen	80,211	58,180	102,819	13,816
	Fish	22,976	15,650	31,232	4,877
	KTNE	33,511	21,184	49,085	8,500
	Kenai	501,362	474,166	528,251	16,613
	Kasilof	118,933	100,025	139,769	11,922
	Harvest represented	993,994			
	Harvest unrepresented	1,352			
	Total Harvest	995,346			
Central Distri	ct drift gillnet (corridor-only	periods)			
	Crescent	1,161	0	6,014	2,223
	West	7,123	0	26,677	9,100
	JCL	22,006	13,136	31,778	5,669
	SusYen	22,586	7,470	42,304	10,511
	Fish	2,536	0	9,168	3,258
	KTNE	6,295	1,072	12,884	3,664
	Kenai	270,840	249,157	290,679	12,994
	Kasilof	35,947	23,929	48,630	7,589
	Harvest represented	368,493			
	Harvest unrepresented	0			
	Total Harvest	368,493			

			90% CI			
Area strata	Reporting Group	Harvest	5%	95%	SD	
Central Distri	ct, Western, Kustatan, and Kalgin	Island subdistricts set g	gillnet			
	Crescent	85,375	78,024	92,928	4,448	
	West	23,338	17,157	29,946	3,936	
	JCL	11,585	7,799	15,909	2,492	
	SusYen	7,646	2,842	13,035	3,154	
	Fish	125	0	734	288	
	KTNE	259	0	1,408	630	
	Kenai	5,958	3,545	9,370	1,846	
	Kasilof	8,981	5,658	12,875	2,228	
	Harvest represented	143,266				
	Harvest unrepresented	5,045				
	Total Harvest	148,311				
Northern Dist	trict, Eastern Subdistrict set gillnet	a				
	Crescent	53	0	306	122	
	West	1,745	712	2,936	693	
	JCL	5,493	4,387	6,623	674	
	SusYen	7,473	5,655	9,316	1,115	
	Fish	4,104	3,045	5,211	658	
	KTNE	4,883	3,361	6,668	1,030	
	Kenai	2,781	1,768	3,872	635	
	Kasilof	458	0	1,195	396	
	Harvest represented	26,990				
	Harvest unrepresented	34,921				
	Total Harvest	61,911				

Table 8.–Page 2 of 2.

^a Northern District estimates are only representative of Eastern Subdistrict harvests.

			90% (CI	
Year	Reporting Group	Mean	5%	95%	SD
2005	Crescent	14,569	107.393412	29,869	8,821
	West	33,352	20,975	49,146	8,750
	JCL	27,178	17,392	38,970	6,613
	SusYen	27,748	15,479	43,405	8,693
	Fish	3,935	90.19403	9,413	2,952
	KTNE	14,820	6,907	25,800	5,914
	Kenai	2,936,487	2,873,151	2,999,297	38,564
	Kasilof	1,019,935	960,285	1,080,028	36,531
	Harvest represented	4,078,024			
	Harvest unrepresented	1,157,465			
	Total Harvest	5,235,489			
2006	Crescent	27 109	25 290	30 394	1 644
2000	West	53 574	45 690	62 233	5 053
	JCL	16 230	12 447	20 392	2 422
	SusYen	28.231	21,890	35,100	4.019
	Fish	333	21,050	1251	507
	KTNE	17.350	12.749	22,525	2.979
	Kenai	577.512	557.738	597.314	12.032
	Kasilof	1,324,611	1,304,965	1,344,149	11,928
	Harvest represented	2,044,951			, ,
	Harvest unrepresented	143,252			
	Total Harvest	2,188,203			
		i			
2007	Crescent	54,041	47,038	62,475	4,757
	West	152,145	128,233	177,461	14,971
	JCL	134,111	112,750	156,726	13,420
	SusYen	104,916	75,880	136,631	18,509
	Fish	8,200	3,943	14,174	3,189
	KTNE	75,059	56,784	95,117	11,663
	Kenai	1,921,009	1,870,874	1,970,414	30,280
	Kasilof	687,179	644,972	730,615	26,028
	Harvest represented	3,136,660			
	Harvest unrepresented	177,662			
	Total Harvest	3,314,322			

Table 9.–Stock-specific harvest, standard deviation (SD), and 90% credibility intervals (CI) calculated using a stratified estimator for combined spatial and temporal strata in all represented fishing area strata and based on genetic analysis of sockeye salmon harvested in the Upper Cook Inlet commercial fishery, 2005–2023. The numbers of fish that contribute to the unrepresented strata are also provided.

Tabl	e	9.	–Pag	e 2	of	7.
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		90% CI			
Year	Reporting Group	Mean	5%	95%	SE
2008	Crescent	25,708	19,187	33,709	4,432
	West	68,049	57,160	81,678	7,538
	JCL	85,191	71,952	99,293	8,302
	SusYen	50,569	36,661	66,366	9,107
	Fish	4,621	1,825	8,184	1,974
	KTNE	63,214	51,049	75,925	7,603
	Kenai	817,164	783,676	851,252	20,457
	Kasilof	1,120,753	1,087,203	1,154,515	20,270
	Harvest represented	2,235,268			
	Harvest unrepresented	142,378			
	Total Harvest	2,377,646			
2009	Crescent	59 630	54 264	68.063	4.25
	West	163.460	147.418	180.982	10.27
	JCL	45.224	35.597	55,723	6.15
	SusYen	57.296	42,919	73.061	9.16
	Fish	37,648	29,187	47,236	5.51
	KTNE	54,198	44.828	64,699	6.05
	Kenai	943,784	913,438	973,810	18,34
	Kasilof	670,243	644,903	695,821	15,58
	Harvest represented	2,031,483	,	,	,
	Harvest unrepresented	9,797			
	Total Harvest	2,041,280			
2010	Crescent	51.025	46.483	56.466	3.05
	West	204.880	187.051	223.389	11.02
	JCL	55,659	46.016	66,127	6.12
	SusYen	58,425	47.281	70.688	7.12
	Fish	93,905	81.945	106,752	7.54
	KTNE	78,996	67,471	91,598	7.36
	Kenai	1.821.553	1,791,995	1.850,794	17.87
	Kasilof	423,296	404.867	442,301	11.36
	Harvest represented	2,787,738	,))- C
	Harvest unrepresented	36,494			
	Total Harvest	2,824.232			
		continued			

Table 9.–Page 3 of	of 7.
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			90%	CI	
Year	Reporting Group	Mean	5%	95%	SE
2011	Crescent	63,232	58,354	69,992	3,619
	West	295,953	263,334	330,593	20,44′
	JCL	92,480	72,683	114,372	12,700
	SusYen	125,039	98,425	154,530	17,04
	Fish	80,172	62,487	100,131	11,47
	KTNE	83,572	64,317	105,406	12,558
	Kenai	3,901,433	3,842,289	3,959,099	35,542
	Kasilof	470,319	437,359	504,904	20,54
	Harvest represented	5,112,200			
	Harvest unrepresented	161,399			
	Total Harvest	5,273,599			
2012	Crescent	31,142	26,317	37,666	3,51
	West	139,175	117,628	163,509	14,00
	JCL	90,128	69,496	113,141	13,28
	SusYen	88,826	65,763	114,882	14,95
	Fish	20,029	11,634	31,000	6,00
	KTNE	42,393	29,607	57,927	8,71
	Kenai	2,513,544	2,465,998	2,559,227	28,34
	Kasilof	158,968	134,147	186,191	15,85
	Harvest represented	3,084,205			
	Harvest unrepresented	5,874			
	Total Harvest	3,090,079			
2013	Crescent	24,942	18,214	35,304	5,42
	West	163,040	134,130	195,124	18,59
	JCL	110,754	85,728	138,956	16,22
	SusYen	76,336	55,914	99,888	13,41
	Fish	4,492	1,667	8,688	2,21
	KTNE	54,522	39,627	72,244	10,00
	Kenai	1,816,297	1,759,888	1,870,877	33,88
	Kasilof	335,839	299,924	374,158	22,54
	Harvest represented	2,586,223			
	Harvest unrepresented	21,792			
	Total Harvest	2,608,015			

			90%	CI	
Year	Reporting Group	Mean	5%	95%	SD
2014	Crescent	32,555	30,045	35,226	1,809
	West	164,220	87,101	236,147	45,058
	JCL	56,109	32,826	82,212	15,068
	SusYen	67,659	34,078	124,917	27,974
	Fish	12,424	1,813	30,557	9,728
	KTNE	53,306	25,842	115,557	27,478
	Kenai	1,406,865	1,329,437	1,483,643	46,966
	Kasilof	327,136	277,631	379,368	31,014
	Harvest represented	2,120,276			
	Harvest unrepresented	223,106			
	Total Harvest	2,343,382			
2015	Croscont	40 194	32 902	52 502	6 102
2013	West	40,194	100,280	178 524	22 551
	i ci	130,819	27 220	57 134	0.188
	JCL SusVan	40,993	111 257	206 679	28 708
	Sus i en Fich	17 283	8 015	200,079	20,790 6 704
	I'ISH KTNIF	36 078	22 002	29,131	10 205
	KINE Kongi	1 658 415	1 503 060	1 723 423	20.618
	Kenui Kasilof	1,030,413	270 252	1,723,423	20.688
	Homeost represented	2 512 010	579,555	470,937	29,088
	Harvest uprepresented	137.058			
	Total Harwart	137,038			
		2,049,077			
2016	Crescent	32,300	26,298	39,348	4,796
	West	31,845	21,633	48,749	8,780
	JCL	47,927	34,022	63,921	9,140
	SusYen	76,635	42,669	122,867	25,155
	Fish	21,481	11,682	34,106	6,962
	KTNE	53,462	35,526	74,593	11,958
	Kenai	1,973,123	1,910,957	2,030,020	36,302
	Kasilof	146,521	108,136	187,852	24,211
	Harvest represented	2,383,292			
	Harvest unrepresented	13,493			
	Total Harvest	2,396,785			

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	Reporting Group		90%	CI	
Year		Mean	5%	95%	SE
2017	Crescent	55,339	38,898	76,144	11,316
	West	201,200	170,122	233,194	19,413
	JCL	37,489	25,064	51,691	8,089
	SusYen	148,646	113,353	187,813	23,061
	Fish	61,785	44,328	81,572	11,329
	KTNE	69,156	48,384	93,114	13,637
	Kenai	906,523	846,051	965,981	36,297
	Kasilof	332,623	290,424	376,533	26,99
	Harvest represented	1,812,761			
	Harvest unrepresented	36,089			
	Total Harvest	1,848,850			
2018	Crescent	36,321	30,811	43,325	4,092
	West	76,940	51,954	105,697	16,84
	JCL	52,596	39,648	66,503	8,12
	SusYen	50,558	29,949	76,528	14,50
	Fish	34,167	24,454	45,202	6,39
	KTNE	35,292	20,341	55,310	10,96
	Kenai	317,200	288,663	346,923	18,20
	Kasilof	204,000	181,477	225,759	13,67
	Harvest represented	807,072			
	Harvest unrepresented	10,724			
	Total Harvest	817,796			
2019	Crescent	76,903	64,972	93,932	9,06
	West	144,818	118,275	179,131	18,51
	JCL	36,979	26,925	48,568	6,76
	SusYen	39.319	21,087	60,689	12,19
	Fish	9,346	3,537	20,248	5,20
	KTNE	38,511	24,334	56,420	10,17
	Kenai	1,248,570	1,201,224	1,293,305	28,14
	Kasilof	120,908	87,445	157,705	21,17
	Harvest represented	1,715,352	,	,	<i>,</i>
	Harvest unrepresented	11,246			
	Total Harriet	1 776 508			

			90% CI		
Year	Reporting Group	Mean	5%	95%	SD
2020	Crescent	29,314	25,482	33,549	2,442
	West	43,116	36,506	50,869	4,401
	JCL	19,455	14,354	25,005	3,299
	SusYen	21,556	14,447	31,051	4,978
	Fish	28,215	21,787	36,041	4,423
	KTNE	16,009	11,097	22,280	3,453
	Kenai	348,634	329,328	368,725	11,879
	Kasilof	151,870	133,726	169,103	10,505
	Harvest represented	658,169			
	Harvest unrepresented	11,246			
	Total Harvest	669,415			
2021	Crescent	23,726	18,723	30,493	3,574
	West	108,551	85,874	133,455	14,563
	JCL	19,846	11,413	30,312	5,858
	SusYen	49,856	30,663	73,939	13,488
	Fish	20,242	12,324	29,980	5,435
	KTNE	24,075	13,673	40,520	8,330
	Kenai	871,824	832,064	912,060	24,171
	Kasilof	244,573	215,328	273,931	17,531
	Harvest represented	1,362,693			
	Harvest unrepresented	8,234			
	Total Harvest	1,370,927			
	a.				
2022	Crescent	24,660	17,429	36,725	6,277
	West	79,449	40,323	122,707	25,531
	JCL	47,252	32,828	63,460	9,546
	SusYen	91,063	49,576	134,020	25,406
	Fish	61,842	42,007	82,293	12,287
	KTNE	32,720	19,345	55,661	11,417
	Kenai	588,802	543,777	631,625	26,642
	Kasilof	192,223	165,223	219,997	16,759
	Harvest represented	1,118,011			
	Harvest unrepresented	8,234			
	Total Harvest	1,126,245			

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			90% CI		
Year	Reporting Group	Mean	5%	95%	SD
2023	Crescent	117,881	104,067	132,762	8,671
	West	151,630	124,899	180,118	16,835
	JCL	125,369	109,169	142,477	10,190
	SusYen	117,915	89,207	147,746	17,960
	Fish	29,741	21,131	40,248	5,910
	KTNE	44,948	31,127	61,215	9,237
	Kenai	780,941	746,541	815,455	21,113
	Kasilof	164,318	141,162	189,672	14,416
	Harvest represented	1,532,743			
	Harvest unrepresented	41,318			
	Total Harvest	1,574,061			

Note: 90% credibility intervals and standard deviations for harvest years prior to 2014 may differ from what was originally reported due to a different rounding procedure used when summarizing the BAYES output for this report. The harvest numbers used in this table were pulled from the fish ticket database when these estimates were originally reported and, therefore, may not match current harvest numbers in the database.

^a Estimates for 2007 differ from what was previously reported in Barclay et al. (2010a, 2010b, 2013, 2014, 2017, 2018) and Barclay (2019, 2020a) due to an error in the Kasilof Section July 16–21, 2007 stock composition estimates that was corrected.

^b Estimates for 2008 differ from what was previously reported in Barclay et al. (2010a, 2010b, 2013, 2014, 2017, 2018) and Barclay (2019, 2020a) because of a correction made to the harvest represented for the Upper Subdistrict.

^c Estimates for 2010 differ from what was previously reported in because Western Subdistrict harvests were not included in that report because the BAYES chains for the Western Subdistrict mixture failed to converge due to a missing baseline population. Harvest for the Western Subdistrict is reported here for 2010 after the mixture was reanalyzed using the updated baseline.

^d Estimates for 2015 and 2016 differ from what was reported in Barclay (2017) due to an error in the fish ticket database that put some districtwide harvests in the wrong statistical area; therefore, those harvests were not included in the represented harvest in that report. The stock-specific harvest estimates in this report have been recalculated using the correct harvest numbers.

^e Estimates for 2016 differ from what was reported in Barclay (2019) due to a correction made to the harvest represented for the Central District drift gillnet (excluding corridor-only periods) fishery.



Figure 1.-Map of Cook Inlet showing reporting group areas for genetic mixed stock analysis of sockeye salmon harvest samples.



Figure 2.–Map of Upper Cook Inlet showing commercial fishing boundaries (statistical areas) for subdistricts and selected sections and subsections within the Northern and Central districts for both set and drift gillnet fisheries.



Figure 3.–Map of Upper Cook Inlet showing commercial fishing boundaries (statistical areas) for subdistricts and selected sections and subsections within the Northern and Central districts for both set and drift gillnet fisheries.

Note: Districts, subdistricts, and sections are defined in Alaska Administrative Code (5 AAC 21.200).

¹ These stat areas are grouped into one stat area (244-60) in Figure 2 and Appendices A and B to represent all Central District drift gillnet areas excluding Chinitna Bay.



Figure 4.–Upper Cook Inlet commercial sockeye salmon harvest estimates and harvest not included in the analysis (unrepresented) by stock (reporting group) fishery, 2021. Black circles indicate the portion of the total harvest from each fishery not included in the analysis (unrepresented). *Note:* The scale on this figure may differ from the scale used for previously reported years.



Figure 5.–Upper Cook Inlet commercial sockeye salmon harvest estimates and harvest not included in the analysis (unrepresented) by stock (reporting group) fishery, 2022. Black circles indicate the portion of the total harvest from each fishery not included in the analysis (unrepresented). *Note*: The scale on this figure may differ from the scale used for previously reported years.


Figure 6.–Upper Cook Inlet commercial sockeye salmon harvest estimates and harvest not included in the analysis (unrepresented) by stock (reporting group) fishery, 2023. Black circles indicate the portion of the total harvest from each fishery not included in the analysis (unrepresented). *Note*: The scale on this figure may differ from the scale used for previously reported years.



Figure 7.–Overall Cook Inlet commercial fishery stratified harvest estimates for sockeye salmon by stock for 2005–2023. Black bars indicate the portion of the total harvest from each year not included in the analysis (unrepresented).

APPENDIX A: SAMPLE COLLECTION INFORMATION, 2021–2023

		N	umber of Fish	Mixture		
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number
		Central Distric	ct-drift gillnet			
244-60	6/21	48	1	1	6/21-8/19	21-1
244-60	6/24	192	1	1	6/21-8/19	21-1
244-60	6/28	384	7	6	6/21-8/19	21-1
244-60	7/1	480	19	19	6/21-8/19	21-1
244-60	7/5	480	8	8	6/21-8/19	21-1
244-60	7/8	480	16	15	6/21-8/19	21-1
244-60	7/12	480	19	18	6/21-8/19	21-1
244-61	7/15	480	55	53	6/21-8/19	21-1
244-62	7/19	456	96	88	6/21-8/19	21-1
244-63	7/26	480	57	56	6/21-8/19	21-1
244-64	8/5	384	78	78	6/21-8/19	21-1
244-65	8/9	192	15	15	6/21-8/19	21-1
244-66	8/12	192	9	9	6/21-8/19	21-1
244-57	7/22	480	126	115	7/20-8/11	21-2
244-57	8/4	192	164	158	7/20-8/11	21-2
	Central	District-Upper	Subdistrict set gi	illnet		
244-21 & 22	6/22	48	10	10	6/22-7/20	21-3
244-21 & 22	6/24	144	13	12	6/22-7/20	21-3
244-21 & 22	6/28	192	31	30	6/22-7/20	21-3
244-21 & 22	7/1	192	12	10	6/22-7/20	21-3
244-21 & 22	7/5	240	22	22	6/22-7/20	21-3
244-21 & 22	7/6	240	240^{a}	5	6/22-7/20	21-3
244-21 & 22	7/8	240	16	16	6/22-7/20	21-3
244-21 & 22	7/12	240	9	9	6/22-7/20	21-3
244-21 & 22	7/15	240	9	9	6/22-7/20	21-3
244-21 & 22	7/19	240	13	13	6/22-7/20	21-3
244-42	7/8	48	3	2	6/22-7/20	21-3
244-42	7/12	48	4	4	6/22-7/20	21-3
244-42	7/15	48	3	3	6/22-7/20	21-3
244-42	7/19	48	14	13	6/22-7/20	21-3
244-42	7/20	216	9	9	6/22-7/20	21-3
244-32	7/1	96	62 ^a	2	6/22-7/20	21-3
244-32	7/5	96	96 ^a	6	6/22-7/20	21-3
244-32	7/6	240	236 ^a	2	6/22-7/20	21-3

Appendix A1.–Statistical area, sampling dates, number of fish sampled and genotyped, and mixture dates and number for mixtures of sockeye salmon harvested in the Upper Cook Inlet commercial fishery in 2021. Mixture numbers correspond to mixture numbers in Table 1. Maps of statistical areas can be found in Figures 2 and 3.

		N	umber of Fish	Mixt	ure	
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number
	Central	District-Upper	Subdistrict set gi	illnet		
244-32	7/8	96	7	7	6/22-7/20	21-3
244-32	7/12	144	6	6	6/22-7/20	21-3
244-32	7/15	144	6	6	6/22-7/20	21-3
244-32	7/19	144	19	19	6/22-7/20	21-3
244-41	7/8	144	7	7	6/22-7/20	21-3
244-41	7/12	144	8	8	6/22-7/20	21-3
244-41	7/15	192	9	9	6/22-7/20	21-3
244-41	7/19	192	54	53	6/22-7/20	21-3
244-41	7/20	216	19	18	6/22-7/20	21-3
244-31	6/22	96	6	6	6/22-7/20	21-3
244-31	6/24	96	5	4	6/22-7/20	21-3
244-31	6/28	96	14	14	6/22-7/20	21-3
244-31	7/1	96	5	5	6/22-7/20	21-3
244-31	7/5	144	10	10	6/22-7/20	21-3
244-31	7/8	144	6	6	6/22-7/20	21-3
244-31	7/12	192	3	3	6/22-7/20	21-3
244-31	7/13	240	1	1	6/22-7/20	21-3
244-31	7/15	192	4	4	6/22-7/20	21-3
244-31	7/19	192	10	10	6/22-7/20	21-3
Central	l District-Westerr	n, Kustatan, an	d Kalgin Island s	ubdistricts	set gillnet	
246-10	6/2	48	3	3	6/2-8/19	21-4
246-10	6/4	48	3	3	6/2-8/19	21-4
246-10	6/9	96	7	7	6/2-8/19	21-4
246-10	6/11	47	10	9	6/2-8/19	21-4
246-10	6/16	48	6	6	6/2-8/19	21-4
246-10	6/18	48	10	10	6/2-8/19	21-4
246-10	6/21	24	10	8	6/2-8/19	21-4
246-10 & 20	6/28	24	15	15	6/2-8/19	21-4
246-10 & 20	7/1	24	4	4	6/2-8/19	21-4
246-10 & 20	7/5	24	8	8	6/2-8/19	21-4
246-10 & 20	7/8	24	7	7	6/2-8/19	21-4
246-10 & 20	7/12	96	13	13	6/2-8/19	21-4
246-10 & 20	7/15	48	7	7	6/2-8/19	21-4
246-10 & 20	7/19	48	7	7	6/2-8/19	21-4
246-10 & 20	7/22	48	25	25	6/2-8/19	21-4
246-10 & 20	8/5	48	44	44	6/2-8/19	21-4
246-10 & 20	8/9	24	24	24	6/2-8/19	21-4

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Number of Fish Mixture							
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number	
Central District-Western, Kustatan, and Kalgin Island subdistricts set gillnet							
246-10 & 20	8/12	24	24	23	6/2-8/19	21-4	
245-30, 50, & 55	6/21	24	13	10	6/2-8/19	21-4	
245-30, 50, & 60	6/28	23	11	10	6/2-8/19	21-4	
245-30, 50, & 60	7/5	48	11	11	6/2-8/19	21-4	
245-30 & 50	7/15	48	9	9	6/2-8/19	21-4	
245-30, 50, & 60	7/19	48	16	15	6/2-8/19	21-4	
245-50 & 60	7/22	48	11	11	6/2-8/19	21-4	
245-30, 50, & 60	7/26	48	16	16	6/2-8/19	21-4	
245-30, 50, 55, & 60	8/5	48	32	31	6/2-8/19	21-4	
245-30, 50, 55, & 60	8/12	48	7	6	6/2-8/19	21-4	
	Northern Dist	rict-Eastern and	d General subdistric	ts set gillnet			
247-70, 80, & 90	7/1	96	20	20	6/28-8/2	21-5	
247-70, 80, & 90	7/5	96	23	20	6/28-8/2	21-5	
247-70, 80, & 90	7/8	96	44	41	6/28-8/2	21-5	
247-70, 80, & 90	7/12	143	24	22	6/28-8/2	21-5	
247-70, 80, & 90	7/15	143	32	29	6/28-8/2	21-5	
247-70, 80, & 90	7/19	143	46	44	6/28-8/2	21-5	
247-70, 80, & 90	7/22	96	96	91	6/28-8/2	21-5	
247-70, 80, & 90	7/26	96	96	93	6/28-8/2	21-5	
247-41, 42, & 43	7/12	24	14	14	7/5-8/16	21-6	
247-41, 42, & 43	7/15	48	15	15	7/5-8/16	21-6	
247-41, 42, & 43	7/19	64	15	15	7/5-8/16	21-6	
247-41, 42, & 43	7/22	80	24	24	7/5-8/16	21-6	
247-41, 42, & 43	7/26	48	46	38	7/5-8/16	21-6	
247-41, 42, & 43	7/29	24	24	23	7/5-8/16	21-6	
247-41, 42, & 43	8/2	24	24	23	7/5-8/16	21-6	
247-41, 42, & 43	8/5	72	72	64	7/5-8/16	21-6	
247-41, 42, & 43	8/9	24	15	15	7/5-8/16	21-6	
247-10, 20, 30	7/5	48	34	32	6/28-8/19	21-7	
247-10, 20, 30	7/8	48	39	38	6/28-8/19	21-7	
247-10, 20, 30	7/12	61	37	36	6/28-8/19	21-7	
247-10, 20, 30	7/15	83	44	39	6/28-8/19	21-7	
247-10, 20, 30	7/19	48	39	39	6/28-8/19	21-7	
247-10, 20, 30	7/22	48	28	28	6/28-8/19	21-7	
247-10, 20, 30	7/26	48	37	36	6/28-8/19	21-7	
247-10, 20, 30	8/5	96	96	90	6/28-8/19	21-7	
247-10, 20, 30	8/9	48	8	8	6/28-8/19	21-7	
247-10, 20, 30	8/12	48	16	16	6/28-8/19	21-7	

Appendix A1.–Page 3 of 3.

^a Includes samples genotyped to compare stock compositions of periods restricted to within 600 feet of the mean high tide mark (Table 4).

Number of Fish Mixture						
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number
	Central	District-dri	ft gillnet			
244-60	6/20	18	1	1	6/20-7/25	22-1
244-60	6/23	126	1	0	6/20-7/25	22-1
244-60	6/27	384	6	6	6/20-7/25	22-1
244-60	7/4	240	23	21	6/20-7/25	22-1
244-60	7/6	48	31	30	6/20-7/25	22-1
244-60	7/7	432	16	16	6/20-7/25	22-1
244-60	7/11	480	43	42	6/20-7/25	22-1
244-60	7/14	480	152	148	6/20-7/25	22-1
244-60	7/18	480	96	93	6/20-7/25	22-1
244-60	7/25	40	12	12	6/20-7/25	22-1
244-60	8/1	384	158	151	8/1-8/22	22-2
244-60	8/4	288	208	199	8/1-8/22	22-2
244-60	8/11	72	11	9	8/1-8/22	22-2
244-60	8/15	65	3	2	8/1-8/22	22-2
244-57	7/21	480	245	238	7/19-7/31	22-3
244-57	7/27	354	79	76	7/19–7/31	22-3
244-57	7/28	576	56	54	7/19–7/31	22-3
	Central District-	Upper Subo	listrict set gill	net		
244-21 & 22	6/23	192	46	44	6/23-7/14	22-4
244-21 & 22	6/27	192	36	36	6/23-7/14	22-4
244-21 & 22	6/30	192	53	52	6/23-7/14	22-4
244-21 & 22	7/7	240	93	89	6/23-7/14	22-4
244-21 & 22	7/11	240	21	21	6/23-7/14	22-4
244-21 & 22	7/14	240	24	24	6/23-7/14	22-4
244-31	6/23	93	16	15	6/23-7/14	22-4
244-31	6/27	96	14	13	6/23-7/14	22-4
244-31	6/30	96	13	13	6/23-7/14	22-4
244-31	7/7	144	42	42	6/23-7/14	22-4
244-31	7/11	192	16	15	6/23-7/14	22-4
244-31	7/14	192	7	7	6/23-7/14	22-4
244-32	7/7	96	48	46	7/7-7/14	22-5
244-32	7/11	144	50	49	7/7-7/14	22-5
244-32	7/14	144	23	20	7/7-7/14	22-5
244-41	7/11	144	142	135	7/7-7/14	22-5
244-41	7/14	192	70	64	7/7-7/14	22-5
244-42	7/11	48	30	29	7/7-7/14	22-5
244-42	7/14	48	17	17	7/7-7/14	22-5

Appendix A2.–Statistical area, sampling dates, number of fish sampled and genotyped, and mixture dates and number for mixtures of sockeye salmon harvested in the Upper Cook Inlet commercial fishery in 2022. Mixture numbers correspond to mixture numbers in Table 2. Maps of statistical areas can be found in Figures 2 and 3.

		N	umber of Fish		Miz	ture
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number
Centra	al District-Wester	n, Kustatan, a	and Kalgin Island	d subdistric	ts set gillnet	
245-55 & 246-10	6/6	48	14	14	6/1-8/22	22-6
245-55 & 246-10	6/10	48	11	10	6/1-8/22	22-6
245-55 & 246-10	6/13	48	3	3	6/1-8/22	22-6
245-55 & 246-10	6/15	48	6	6	6/1-8/22	22-6
245-55 & 246-10	6/17	72	2	2	6/1-8/22	22-6
245-30, 50, & 55 / 246-10	6/20	48	17	16	6/1-8/22	22-6
245-30 & 50 245-30 & 50 / 246-	6/23	48	13	13	6/1-8/22	22-6
10 & 20	6/27	48	16	16	6/1-8/22	22-6
245-30, 50, & 60 / 246-10 & 20	7/4	72	33	28	6/1-8/22	22-6
245-30, 50, & 60 / 246-10 & 20	7/7	72	35	35	6/1-8/22	22-6
245-30, 50, & 60 / 246-10 & 20	7/14	168	55	55	6/1-8/22	22-6
245-30 / 246-10 245-30 50 & 60 /	7/18	96	28	26	6/1-8/22	22-6
246-10 & 20	7/21	96	26	26	6/1-8/22	22-6
245-30, 50, & 60 / 246-10 & 20	7/25	96	22	22	6/1-8/22	22-6
245-30, 50, 55, & 60 / 246-10 & 20	7/28	72	20	18	6/1-8/22	22-6
245-30, 50, 55, & 60 / 246-10 & 20	8/1	48	27	26	6/1-8/22	22-6
245-30, 50, & 60 / 246-10 & 20	8/4	48	22	22	6/1-8/22	22-6
246-10 & 20 245-50 & 60 / 246-	8/13	96	20	20	6/1-8/22	22-6
10 & 20	8/15	48	8	7	6/1-8/22	22-6

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		N	umber of Fish		Mix	ture
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number
	Northern Distri	ct-Eastern and	d General subdi	stricts set g	gillnet	
247-70, 80, & 90	7/7	96	67	65	6/30-8/22	22-7
247-70, 80, & 90	7/11	144	50	47	6/30-8/22	22-7
247-70, 80, & 90	7/14	144	9	9	6/30-8/22	22-7
247-70, 80, & 90	7/18	144	34	34	6/30-8/22	22-7
247-70, 80, & 90	7/21	96	79	76	6/30-8/22	22-7
247-70, 80, & 90	7/25	96	26	26	6/30-8/22	22-7
247-70, 80, & 90	7/28	48	16	15	6/30-8/22	22-7
247-70, 80, & 90	8/1	48	29	28	6/30-8/22	22-7
247-70, 80, & 90	8/4	48	23	22	6/30-8/22	22-7
247-70, 80, & 90	8/8	47	19	19	6/30-8/22	22-7
247-70, 80, & 90	8/11	48	8	8	6/30-8/22	22-7
247-70, 80, & 90	8/15	48	18	16	6/30-8/22	22-7
247-42 & 43	7/7	16	3	3	6/27-8/18	22-8
247-41, 42, & 43	7/11	56	14	14	6/27-8/18	22-8
247-41, 42, & 43	7/14	48	29	29	6/27-8/18	22-8
247-41 & 42	7/21	80	37	34	6/27-8/18	22-8
247-41, 42, & 43	7/28	7	7	4	6/27-8/18	22-8
247-41, 42, & 43	8/1	36	33	32	6/27-8/18	22-8
247-41, 42, & 43	8/4	22	15	12	6/27-8/18	22-8
247-10, 20, & 30	7/4	48	38	36	6/27-8/18	22-8
247-10, 20, & 30	7/14	144	86	82	6/27-8/18	22-8
247-10, 20, & 30	7/21	48	48	47	6/27-8/18	22-8
247-10, 20, & 30	7/28	48	23	21	6/27-8/18	22-8
247-10, 20, & 30	8/1	48	12	12	6/27-8/18	22-8
247-10, 20, & 30	8/4	48	21	21	6/27-8/18	22-8
247-10, 20, & 30	8/11	48	15	15	6/27-8/18	22-8

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		N	umber of Fish		Mixt	ure ^a
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number
		Central Dist	rict-drift gillnet			
244-60	6/19	31	2	2	6/19-7/12	23-1
244-60	6/22	24	4	4	6/19-7/12	23-1
244-60	6/26	124	9	9	6/19-7/12	23-1
244-60	6/29	164	17	16	6/19-7/12	23-1
244-60	7/3	383	53	53	6/19-7/12	23-1
244-60	7/6	385	90	89	6/19-7/12	23-1
244-60	7/10	432	205	202	6/19-7/12	23-1
244-60	7/13	720	380	375	7/13	23-2
244-60	7/17	848	380	373	7/17	23-3
244-60	7/24	859	380	376	7/24	23-4
244-60	7/31	768	182	181	7/31-8/21	23-5
244-60	8/3	576	113	112	7/31-8/21	23-5
244-60	8/7	480	46	45	7/31-8/21	23-5
244-60	8/10	480	26	26	7/31-8/21	23-5
244-60	8/14	163	13	13	7/31-8/21	23-5
244-57	7/20	304	236	229	7/18-8/2	23-6
244-57	7/27	294	144	144	7/18-8/2	23-6
Centra	l District-Wester	rn, Kustatan, a	nd Kalgin Islan	d subdistri	cts set gillnet	
245-55 & 246-10	6/5	48	8	8	6/2-8/17	23-7
245-55 & 246-10	6/7	48	4	4	6/2-8/17	23-7
245-55 & 246-10	6/9	48	8	8	6/2-8/17	23-7
245-55 & 246-10	6/12	48	9	9	6/2-8/17	23-7
245-55 & 246-10	6/14	48	10	9	6/2-8/17	23-7
245-30, 50 & 55 /						
246-10	6/19	48	10	9	6/2-8/17	23-7
245-30 & 50	6/23	48	23	20	6/2-8/17	23-7
245-30, 50, & 60 /						
246-10 & 20	6/26	48	21	21	6/2-8/17	23-7
245-30, 50, & 60 /						
246-10 & 20	6/29	48	17	17	6/2 - 8/17	23-7

Appendix A3.–Statistical area, sampling dates, number of fish sampled and genotyped, and mixture dates and number for mixtures of sockeye salmon harvested in the Upper Cook Inlet commercial fishery in 2023. Mixture numbers correspond to mixture numbers in Table 3. Maps of statistical areas can be found in Figures 2 and 3.

Appendix	A3.	-Page	2	of 2	2.
			_		

		N	umber of Fish	Number of Fish			
Statistical Area(s)	Sample Date	Sampled	Genotyped	Used	Dates	Number	
Centra	l District-Western	n, Kustatan, a	nd Kalgin Islan	d subdistrie	cts set gillnet		
245-30, 50, & 60 /							
246-10 & 20	7/6	48	28	28	6/2-8/17	23-7	
245-30, 50, & 60 /							
246-10 & 20	7/13	192	75	73	6/2-8/17	23-7	
245-30, 50, & 60 /							
246-10 & 20	8/3	153	110	106	6/2-8/17	23-7	
245-50 & 60 / 246-							
10 & 20	8/10	144	57	55	6/2-8/17	23-7	
	Northern Distric	t-Eastern and	d General subdi	stricts set g	illnet		
247-70, 80, 90	6/26	24	7	7	6/26-8/14	23-8	
247-70, 80, 90	7/3	48	4	4	6/26-8/14	23-8	
247-70, 80, 90	7/6	35	4	4	6/26-8/14	23-8	
247-70, 80, 90	7/10	96	12	12	6/26-8/14	23-8	
247-70, 80, 90	7/13	96	7	7	6/26-8/14	23-8	
247-70, 80, 90	7/17	96	25	25	6/26-8/14	23-8	
247-70, 80, 90	7/20	96	34	33	6/26-8/14	23-8	
247-70, 80, 90	7/24	144	32	30	6/26-8/14	23-8	
247-70, 80, 90	7/27	144	95	94	6/26-8/14	23-8	
247-70, 80, 90	7/31	96	69	68	6/26-8/14	23-8	
247-70, 80, 90	8/7	96	27	27	6/26-8/14	23-8	
247-70, 80, 90	8/10	96	64	64	6/26-8/14	23-8	
247-41, 42, 43	7/17	74	0	0	—	_	
247-41, 42, 43	7/20	48	0	0	—	_	
247-41, 42, 43	7/24	24	0	0	_	_	
247-41, 42, 43	7/31	96	0	0	_	_	
247-41, 42, 43	8/3	48	0	0	_	_	
247-41, 42, 43	8/7	37	0	0	_	_	
247-42 & 43	8/14	12	0	0	_	_	
247-10 & 20	6/26	24	0	0	_	_	
247-10 & 20	7/6	144	0	0	_	_	

a

Samples r

Appendix A4Section and statistical area sampled, date when samples were collected, and the number
of samples collected and used for mixtures of sockeye salmon harvested during periods restricted to
within 600 feet of the mean high tide mark in the Kenai and Kasilof sections of the Upper Subdistrict in
2021. Mixture numbers correspond to mixture numbers in Table 4.

			Number of Fish ^a		Mixture
Section	Statistical Area(s)	Sample Date	Sampled	Used	Number
Kasilof	244-21 & 22	7/6	240	227	21-8
Kenai	244-32	7/6	240	226	21-9
Kenai	244-32	7/1	96	60	21-10
Kenai	244-32	7/5	96	94	21-10
Kenai	244-32	7/6	240	222	21-10

Note: all July 6 fish used in mixture 21-10 were also used in mixture 21-9.

^a Samples from a portion of these fish were also used to estimate overall stock compositions and stock-specific harvests for the Upper Subdistrict (mixture number 21-3; Table 1).

APPENDIX B: UPPER COOK INLET COMMERCIAL SOCKEYE SALMON HARVEST BY STATISTICAL AREA AND DATE, 2021–2023

Appendix B1.–Commercial sockeye salmon harvest by area and date in Upper Cook Inlet, 2021.

Key: Represented harvest is shaded in dark gray if sampled and light gray if unsampled. The harvest represented for each genetic mixed stock analysis stratum (mixture; Table 1) is indicated with black outline. The harvest represented for strata where the fishery was restricted to within 600 feet of the mean high tide mark are indicated by bold underlined numbers.

	Central District Drift Gillnet							
			Statistical Area					
Date	244-56	244-57	244-60	244-61	245-10			
6/21/2021	_	—	1,157	—	—			
6/24/2021	—	_	1,624	—	_			
6/26/2021	_	_	-	53	_			
6/28/2021	—	_	8,135	—	_			
7/1/2021	—	—	23,098	—	—			
7/3/2021	—	—		82	—			
7/5/2021	—	—	9,229	—	—			
7/8/2021	_	_	19,878	_	_			
7/12/2021	_	—	23,148	—	—			
7/13/2021	15,114	_	—	_	_			
7/14/2021	12,988	_	—	_	_			
7/15/2021	_	_	67,109	_	_			
7/19/2021	_	_	117,098	_	_			
7/20/2021	-	26,693	—	_	_			
7/21/2021	-	44,628	—	_	_			
7/22/2021	80	52,284	—	_	_			
7/23/2021	-	75	_	—	—			
7/26/2021	-		69,154	—	—			
7/27/2021	-	22,148	—	—	—			
7/28/2021	-	10,406	—	_	_			
7/29/2021	23,359		—	_	_			
8/1/2021	-	63,988	—	_	_			
8/2/2021	-		60,148	_	_			
8/3/2021	-	26,843	—	—	—			
8/4/2021	-	31,067	_	—	—			
8/5/2021	-		34,801	—	—			
8/6/2021	-	18,786	—	_	_			
8/7/2021	-	25,531	—	—	—			
8/8/2021	-	5,792	_	—	—			
8/9/2021	-	—	18,154	—	—			
8/10/2021	-	1,893		—	—			
8/11/2021	_	5,168		—	—			
8/12/2021		_	9,396	_	_			
8/16/2021	_	—	1,704	—	—			
8/19/2021	_	_	397	_	_			

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	Central District Drift Gillnet										
	Statistical Area										
Date	244-56	244-57	244-60	244-61	245-10						
8/20/2021	_	_	_	—	182						
8/23/2021	_	_	375	_	_						
8/24/2021	_	_	—	—	76						
8/27/2021	_	_	—	_	2						
8/30/2021	_	_	86	_	—						
8/31/2021	_	_	_	_	34						
9/3/2021	_	_	—	—	5						
9/6/2021	_	_	7	_	_						

	Central District - Upper Subdistrict Set Gillnet											
			Sta	atistical Area	ı							
Date	244-21	244-22	244-31	244-32	244-41	244-42	244-25					
6/22/2021	6,296	4,461	5,976	-	_	-	_					
6/24/2021	8,254	5,877	5,034	—	—	-	_					
6/26/2021	7,512	4,374	3,998	-	—	-	—					
6/28/2021	9,241	12,153	10,538	_	—	-	—					
7/1/2021	7,367	5,015	4,998	<u>2,162</u>	—	-	—					
7/3/2021	7,481	5,341	4,650	<u>3,072</u>	-	-	—					
7/5/2021	6,488	3,975	4,672	<u>3,110</u>	_	-	_					
7/6/2021	<u>4,387</u>	<u>1,165</u>	<u>951</u>	<u>2,243</u>	_	-	_					
7/7/2021	3,453	4,226	3,881	<u>2,728</u>	_	_	_					
7/8/2021	4,557	4,490	2,815	4,221	7,014	3,374	_					
7/12/2021	2,720	3,288	3,652	4,415	8,361	4,801	_					
7/13/2021	<u>1,848</u>	<u>1,673</u>	<u>1,555</u>	<u>2,289</u>	-	-	_					
7/14/2021	<u>1,546</u>	<u>1,783</u>	<u>1,895</u>	<u>3,216</u>	_	-	_					
7/15/2021	3,416	3,367	2,256	3,381	9,185	2,751	_					
7/18/2021	35	150	_	_	_	—	1,317					
7/19/2021	3,167	7,608	8,896	16,886	57,185	14,497	_					
7/20/2021	<u>1,786</u>	<u>1,491</u>	<u>2,045</u>	<u>3,460</u>	20,016	<u>9,520</u>	_					

	Cent	ral District-V	Vest Side Set	t Gillnet		
			Statistica	ıl Area		
Date	245-30	245-50	245-55	245-60	246-10	246-20
6/2/2021	—	—	465	-	569	-
6/4/2021	_	_	336	-	624	-
6/7/2021	—	_	170	-	680	—
6/9/2021	—	_	521	-	829	—
6/11/2021		_	557	-	2,162	-
6/14/2021	—	-	454	-	728	_
6/16/2021	—	-	_	-	546	—
6/17/2021	420	98	-	-	_	-
6/18/2021	—	_	516	-	2,263	-
6/21/2021	482	80	289	-	1,554	-
6/23/2021	—	—	-	_	764	—
6/24/2021	529	36		_	_	_
6/28/2021	858	324	-	50	2,658	626
7/1/2021	1,037	87		-	739	142
7/5/2021	1,172	97	-	297	1,388	351
7/8/2021	846	146	-	-	901	605
7/12/2021	858	47	-	107	2,412	517
7/15/2021	779	135		-	1,339	328
7/19/2021	2,218	283	-	990	1,051	527
7/22/2021	1,740	136	-	521	1,728	476
7/26/2021	1,275	419	-	755	2,871	517
7/29/2021	984	127	_	97	2,046	29
8/2/2021	2,225	609	152	2,087	990	521
8/5/2021	828	383	48	830	1,161	359
8/7/2021	-	_	_	-	1,256	598
8/9/2021	119	170	17	464	2,661	1,356
8/12/2021	53	134	42	288	3,017	795
8/14/2021	—	—	_	-	2,046	436
8/16/2021	—	107	-	-	2,360	-
8/19/2021	—	69	-	34	858	-
8/23/2021	_	26	_	_	_	_
8/30/2021	—	—	_	—		36

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	Northern District Set Gillnet										
				Sta	atistical Ar	·ea					
Date	247-10	247-20	247-30	247-41	247-42	247-43	247-70	247-80	247-90		
5/31/2021	_	—	—	_	3	4	16	11	44		
6/7/2021	_	2	_	—	11	8	52	32	35		
6/14/2021	9	23	_	4	13	6	220	160	275		
6/21/2021	92	8	_	—	—	8	116	105	324		
6/28/2021	55	51	-	—	2	9	44	58	225		
7/1/2021	30	188	—	_	_	_	351	283	427		
7/5/2021	404	936	251	-	-	31	487	342	767		
7/8/2021	173	1,342	670	2	_	115	864	1,486	790		
7/12/2021	100	1,392	597	87	102	84	410	264	693		
7/13/2021	_	_	—	—	_	_	_	306	_		
7/15/2021	170	1,183	1,090	153	178	118	439	921	932		
7/19/2021	266	884	1,044	187	148	131	635	1,278	1,123		
7/22/2021	299	810	437	269	368	80	944	1,401	874		
7/26/2021	92	595	455	310	572	300	663	911	1,183		
7/29/2021	211	386	346	192	628	114	450	1,029	1,298		
8/2/2021	1,093	2,236	605	1,285	488	154	1,163	1,339	2,481		
8/5/2021	673	526	269	565	320	91	452	1,083	1,860		
8/9/2021	179	232	—	_	78	97	1,030	1,258	1,225		
8/12/2021	126	129	55	—	125	68	312	364	649		
8/16/2021	33	153	—	_	—	78	413	700	1,542		
8/19/2021	348	72	—	_	44	26	191	505	1,030		
8/23/2021	11	20	_	—	—	—	42	181	136		
8/26/2021	_	—	—	—	—	—	147	304	473		
8/30/2021	17	7	—	—	—	—	24	74	85		
9/2/2021	_	—	—	—	—	—	_	13	5		
9/6/2021	6	_	_	_	_	_	4	—	26		
9/13/2021	_	_	_	_	_	_	_	1	_		

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Appendix B2.–Commercial sockeye salmon harvest by area and date in Upper Cook Inlet, 2022.

Key: Represented harvest is shaded in dark gray if sampled and light gray if unsampled. The harvest represented for
each genetic mixed stock analysis stratum (mixture; Table 2) is indicated with black outline.

	Central District Drift Gillnet											
_			Statistical Area									
Date	244-56	244-57	244-60	244-61	245-10							
6/20/2022		—	106	-	_							
6/23/2022	_	—	1,191	-	_							
6/27/2022	_	—	3,189	-	_							
6/30/2022	_	—	7,802	-	_							
7/2/2022	_	—	_	85	_							
7/4/2022	_	—	39,756	_	_							
7/6/2022	_	—	54,704	_	_							
7/7/2022	_	—	27,389	_	_							
7/11/2022	_	—	75,643	_	_							
7/13/2022	4,902	_	_	-	_							
7/14/2022	—	_	152,020	-	_							
7/15/2022	—	_	113,286	-	_							
7/18/2022	-	_	167,131	-	_							
7/19/2022	-	22,493	—	-	_							
7/20/2022	-	48,700	—	-	—							
7/21/2022	-	34,258	—	-	_							
7/22/2022	-	9,908	—	-	—							
7/23/2022	-	13,524	—	_	_							
7/24/2022	-	15,862	_	_	_							
7/25/2022	-		20,936	-	—							
7/26/2022	-	9,318	—	—	_							
7/27/2022	-	16,100	—	_	_							
7/28/2022	-	4,093	—	_	_							
7/29/2022	-	3,911	—	_	_							
7/30/2022	-	10,871	—	_	_							
7/31/2022	-	10,564	—	_	—							
8/1/2022	_	—	10,496	—	_							
8/4/2022		—	13,873	_	_							
8/8/2022	_	—	173	_	_							
8/9/2022	_	—		—	193							
8/11/2022	_	—	552	—	_							
8/12/2022	_	—		—	278							
8/15/2022	_	—	176	—	_							
8/16/2022	_	—	—	_	5							
8/18/2022	—	-	8	—	—							
8/19/2022	_	—		—	21							
8/22/2022	_	_	10	_	_							

	Central District Drift Gillnet									
				Statistical A	rea					
Date		244-56	244-57	244-	-60	244-61	245-10			
8/23/2022	-	—		_	_	-	23			
8/25/2022	-	_			25 -	-	_			
8/26/2022	-	_		_	-	-	59			
8/29/2022	-	_	_		58 -	-	_			
9/1/2022	-	_	_		23 -	-	_			
9/2/2022		_	_	—	_	-	5			
Central District - Upper Subdistrict Set Gillnet										
			S	tatistical Area	ı					
Date	244-21	244-22	244-31	244-32	244-41	244-42	244-25			
6/23/2022	6,375	3,417	3,444	—	—	—	—			
6/27/2022	4,915	2,861	3,001	—	—	—	—			
6/30/2022	6,624	4,803	2,748	_	_	_	_			
7/4/2022	7,256	4,854	5,105	_	_	_	_			
7/7/2022	4,739	3,145	4,019	2,942	_	_	—			
7/11/2022	1,923	2,522	3,344	3,036	8,638	1,822	—			
7/14/2022	2,411	2,656	1,429	1,386	4,232	1,031	—			

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		Central Dis	strict-West S	ide Set Gillne	et		
		245.20	St	atistical Area	245 (0	246.10	246.20
Date	245-10	245-30	245-50	245-55	245-60	246-10	246-20
6/1/2022	-	—	—	241	-	543	-
6/3/2022	-	—	-	339	-	568	—
6/6/2022	-	—	- 1	321	-	779	-
6/8/2022	-	—	-	1,017	-	543	_
6/10/2022	-	-	-	40	-	561	-
6/13/2022	-	—	-	50	-	467	-
6/15/2022	-	—	-	204	-	960	-
6/16/2022	-	93	34	_	-	_	-
6/17/2022	-	_	-	244	-	344	_
6/20/2022	-	823	185	386	-	2,064	_
6/22/2022	-	_	_	209	-	1,048	-
6/23/2022	-	933	192	-	-	—	_
6/24/2022	-	_	_	—	-	261	—
6/27/2022	-	939	90	—	-	362	145
6/30/2022	-	1,103			98	282	145
7/4/2022	-	2,963	178	-	332	2,287	896
7/7/2022	-	2,475	225	-	357	1,229	459
7/9/2022	-	2,325	_	_	_	_	_
7/11/2022	-	2,580	243	_	459	2,212	518
7/14/2022	-	2,582	208	-	83	1,654	442
7/16/2022	-	1,760	-	_	-	_	_
7/18/2022	-	1,901	_	_	-	1,944	_
7/21/2022	-	2,019	118	-	298	1,755	991
7/23/2022	-	2,154	_	_	_	_	_
7/25/2022	-	597	51	-	89	1,432	34
7/28/2022	-	910	448	64	89	2,176	331
7/30/2022	- [1,597	_	_	_	_	_
8/1/2022	-	564	419	50	185	1,887	712
8/4/2022	-	1,225	267	_	98	1,277	427
8/6/2022	-	149	_		_	_	_
8/8/2022	-	_	_	-	_	929	_
8/11/2022	3	_	145	-	_	1,019	660
8/13/2022	-	_	_	-	-	1,627	626
8/15/2022	2	-	133	-	106	786	150
8/18/2022	-		44		_	186	
8/19/2022	3	_	_	_	_	_	_
8/22/2022	_	—	_	-	144	—	_
8/29/2022		_	_	_	70	_	_
9/1/2022	_	_	—	_	45	_	_

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Northern District Set Gillnet										
				Sta	atistical Ar	ea				
Date	247-10	247-20	247-30	247-41	247-42	247-43	247-70	247-80	247-90	
5/30/2022	_	_	_	_	1	1	28	24	37	
6/6/2022	2	3	—	2	5		253	210	194	
6/13/2022	78	5	_	—	3	2	160	31	230	
6/27/2022	79	24	-		4	2	102	25	111	
6/30/2022	19	117	51	—	4		123	77	154	
7/4/2022	160	216	124	51	_	24	365	406	684	
7/7/2022	353	671	153	—	44	46	721	1,477	1,182	
7/11/2022	67	1,889	1,047	193	242	312	2,147	1,195	559	
7/14/2022	41	320	291	239	1,069	207	257	218	251	
7/18/2022	16	330	163	279	287	261	1,075	816	743	
7/21/2022	539	1,414	884	537	568	-	2,530	2,289	1,316	
7/25/2022	72	137	117	-	158	48	953	414	684	
7/28/2022	125	465	291	405	430	110	324	376	546	
8/1/2022	116	359	171	368	301	259	455	577	1,189	
8/4/2022	386	419	289	149	194	59	360	604	825	
8/8/2022	2	3	_	—	—	-	658	395	396	
8/11/2022	23	409	61	86	207	73	86	293	273	
8/15/2022	16	183	41	8	63	31	233	216	239	
8/18/2022	_	38	—	—	56		154	142	196	
8/22/2022	22	39	—	—	7	15	88	105	45	
8/25/2022	3	30	_	_	_	2	86	118	153	
8/29/2022	_	12	_	_	_	_	85	45	72	
9/1/2022	_	_	_	_	—	_	33	44	60	
9/5/2022	1	—	—	—	—	—	1	8	10	
9/12/2022	_	—	—	—	—	—	—	1	—	
9/22/2022	_	_	_	_	_	_	1	_	_	

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Key: Represented harvest is shaded in dark gray if sampled and light gray if unsampled. The harvest represented for each genetic mixed stock analysis stratum (mixture; Table 2) is indicated with black outline.

Appendix B3.–Commercial sockeye salmon harvest by area and date in Upper Cook Inlet, 2023.

Key: Represented harvest is shaded in dark gray if sampled and light gray if unsampled. Harvests with asterisks were sampled but not analyzed. The harvest represented for each genetic mixed stock analysis stratum (mixture; Table 3) is indicated with black outline.

	Central District Drift Gillnet										
		Statistical	l Area								
Date	244-57	244-60	244-62	245-10							
6/19/2023	—	1,402	—	_							
6/22/2023	—	2,730	-	—							
6/24/2023	_	-	164	_							
6/26/2023	—	6,931		—							
6/28/2023	_	_	1,077	—							
6/29/2023	_	11,841	—	_							
7/1/2023	_	12,119	-	—							
7/3/2023	_	28,760	—	_							
7/5/2023	—	31,274	-	—							
7/6/2023	—	38,812	-	—							
7/8/2023	—	69,884	-	—							
7/10/2023	_	90,012	—	—							
7/12/2023	—	_	767	—							
7/13/2023	_	200,088	_	_							
7/17/2023	_	161,397	—	_							
7/18/2023	69,966	—	—	—							
7/19/2023	76,575	—	_	_							
7/20/2023	82,525	_	_	_							
7/24/2023	—	198,523	—	_							
7/27/2023	38,867	—	_	_							
7/29/2023	49,679	—	—	—							
7/30/2023	25,511	—	_	—							
7/31/2023	—	66,238	—	_							
8/1/2023	12,409	—	—	—							
8/2/2023	12,961	—	—	—							
8/3/2023	_	41,078	—	—							
8/7/2023	_	16,570	—	_							
8/10/2023	_	9,455	—	_							
8/11/2023	_	—	—	109							
8/14/2023	-	3,519	_	_							
8/15/2023	-	—	_	79							
8/17/2023	_	697	—	_							
8/18/2023	_	—	—	161							
8/21/2023	—	656	—	_							

	Central District Drift Gillnet										
			Stati	stical Area							
Date		244-57	244-6	50	244-62	245-10					
8/22/2023		_	_	_		727					
8/24/2023		_	19	94 –		_					
8/25/2023		_	—	—		64					
8/28/2023		_	1	- 10		_					
9/8/2023		_	_	_		8					
	2	. 15:		0.11							
	Ce	entral District-	West Side Set	Gillnet							
Data	245.20	245 50	Statistica	al Area	246 10	246.20					
	243-30	243-30	243-33	243-60	240-10	240-20					
6/2/2023	_	_	- 410	_	203	_					
6/3/2023	_	-	419 506	_	2,294	_					
6/ //2023	_	-	500	_	940	_					
6/9/2023	_	-	/01	_	2,198	_					
6/12/2023	_	-	/21	_	2,767	_					
6/14/2023	_	-	570	-	/4/	_					
6/16/2023	_	- 52	504	_	1,865	_					
6/19/2023	636	53	446	-	2,466	_					
6/21/2023	-	-	285	_	1,827	_					
6/22/2023	2892	180	-	-	-	—					
6/23/2023	-	-	/61	-	2,792	-					
6/26/2023	2477	121	-	90	3,532	1,637					
6/29/2023	3365	36	-	303	1,803	841					
7/3/2023	1203	_	-	167	1,350	465					
7/6/2023	3056	53	-	280	3,170	826					
//10/2023	1698	230	-	586	1,405	573					
7/13/2023	1969	357	-	546	1,226	415					
7/15/2023	4441	-	—	—	—	-					
7/17/2023	4425	125	—	996	1,203	226					
7/20/2023	2343	212	—	1,024	1,485	440					
7/22/2023	2456		—	—	—	—					
7/24/2023	2653	760	—	1,362	7,261	1,365					
7/27/2023	3882	1,031	—	2,570	2,264	1,117					
7/29/2023	3048	—	—	—	—	—					
7/31/2023	1655	589	38	599	3,434	1,583					
8/3/2023	576	321	-	881	4,154	621					
8/7/2023	-	136	207	2,348	7,520	1,338					
8/10/2023	-	151	-	1,553	1,146	593					
8/14/2023	—	89	155	1,164	1,368	—					
8/17/2023	_	97	_	1,043	2,103	474					
8/21/2023	—	66	_	1,583	2,500	—					
8/24/2023	—	_	_	569	_	327					

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	Northern District Set Gillnet										
		Statistical Area									
Date	247-10	247-20	247-30	247-41	247-42	247-43	247-70	247-80	247-90		
6/26/2023	68*	45*	_	—	3	—	145	122	239		
7/3/2023		48	16	_	7	_	257	23	4		
7/6/2023	100*	384*	_	_	_	23	76	74	133		
7/10/2023	51	591	_	_	33	117	214	269	384		
7/13/2023	117	369	164	80	149	72	109	142	216		
7/17/2023	206	3,904	398	247*	428*	249*	266	933	575		
7/20/2023	772	1,686	106	586*	238*	376*	1,060	945	436		
7/24/2023	1,817	1,314	508	83*	182*	79*	395	802	1,064		
7/27/2023	1,984	1,428	1,048	334	273	146	1,441	2,362	2,917		
7/31/2023	940	1,914	316	509*	288*	312*	1,285	774	1,201		
8/3/2023	884	1,269	363	68*	197*	123*	87	303	1,233		
8/7/2023	993	1,967	144	104*	179*	89*	464	525	958		
8/10/2023	815	1,222	_	_	34	102	464	541	1,295		
8/14/2023	461	570	_	_	130	99	507	685	1,065		

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APPENDIX C: CENTRAL DISTRICT DRIFT GILLNET STOCK COMPOSITION AND STOCK-SPECIFIC HARVEST BY DATE, 2021–2023

			Exclue	ding co	orridor-only periods			
Dates: 6/21-8/19	Stock Co	omposit	ion (n =	367)		Harvest =	464,365	
		90%	6 CI	_	_	90%	o CI	
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD
Crescent	0.1	0.0	0.8	0.3	627	0	3,553	1,569
West	7.8	4.3	11.4	2.2	36,057	20,117	52,960	10,033
JCL	2.5	1.1	4.3	1.0	11,568	5,081	19,812	4,527
SusYen	6.9	3.6	10.9	2.2	32,023	16,619	50,726	10,434
Fish	1.6	0.3	3.2	0.9	7,271	1,577	14,827	4,138
KTNE	1.8	0.3	4.8	1.4	8,589	1,401	22,405	6,659
Kenai	71.5	65.8	77.0	3.4	332,070	305,725	357,455	15,939
Kasilof	7.8	4.4	11.2	2.1	36,159	20,504	51,850	9,521
			C	Corrido	r-only periods			
Dates: 7/20-8/11	Stock Co	omposit	ion (n =	273)		Harvest =	358,741	
		90%	6 CI	_	_	90%	o CI	
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD
Crescent	0.1	0.0	0.7	0.3	416	0	2,589	1,078
West	7.6	4.3	11.2	2.2	27,108	15,575	40,333	7,769
JCL	0.6	0.0	2.6	0.9	2,197	0	9,474	3,346
SusYen	1.8	0.0	6.4	2.3	6,418	0	23,046	8,107
Fish	0.2	0.0	0.9	0.4	585	0	3,210	1,286
KTNE	0.6	0.0	2.0	0.7	2,102	0	7,191	2,477
Kenai	84.5	78.6	89.4	3.3	303,157	281,929	320,840	11,796
Kasilof	4.7	1.9	7.9	1.8	16,759	6,756	28,335	6,594

Appendix C1.–Central District drift gillnet fishery, 2021: Stock composition (%) and stock-specific harvest estimates, including the final number of samples used in the genetic analysis (n), mean, 90% credibility interval (CI), and standard deviation (SD).

			Excludi	ing cor	ridor-only periods					
Dates: 6/20-7/25	Stock Co	ompositi	on (n =	369)		Harvest	t = 663,238			
	<u>-</u>	90%	5 CI			90	0% CI			
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD		
Crescent	0.5	0.0	2.2	0.8	3,358	0	14,460	5,344		
West	6.1	0.3	12.6	3.8	40,648	2,228	83,285	25,224		
JCL	5.0	3.0	7.4	1.4	33,371	19,689	49,352	9,199		
SusYen	7.0	0.7	13.1	3.7	46,259	4,724	86,742	24,301		
Fish	6.8	3.8	9.9	1.8	44,969	25,284	65,587	12,180		
KTNE	1.9	0.1	5.4	1.7	12,715	375	35,839	10,967		
Kenai	58.3	51.7	64.3	3.8	386,659	343,171	426,599	25,317		
Kasilof	14.4	10.4	18.4	2.4	95,259	69,142	122,020	16,225		
Dates: 8/1-8/22	Stock Co	ompositi	on (n =	361)		Harves	st = 25,288			
		90%	6 CI			90% CI				
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD		
Crescent	0.2	0.0	1.1	0.4	49	0	283	112		
West	2.2	0.0	6.3	2.0	563	1	1,595	501		
JCL	4.9	2.8	7.5	1.5	1,240	699	1,902	368		
SusYen	11.6	5.9	17.8	3.6	2,945	1,501	4,513	911		
Fish	1.5	0.0	3.6	1.2	384	0	913	293		
KTNE	7.5	3.6	11.9	2.5	1,905	912	2,997	628		
Kenai	62.8	56.2	69.5	4.1	15,874	14,205	17,567	1,032		
Kasilof	9.2	5.1	13.2	2.5	2,327	1,299	3,332	623		
			Сс	orridor	-only periods					
Dates: 7/19-7/31	Stock Co	ompositi	on (n =	368)		Harves	t = 199,602			
		90%	6 CI			90	0% CI			
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD		
Crescent	1.4	0.0	3.3	1.0	2,726	29	6,645	2,048		
West	0.6	0.0	3.0	1.1	1,145	0	5,955	2,252		
JCL	2.6	1.3	4.4	0.9	5,250	2,591	8,749	1,874		
SusYen	13.0	7.2	19.2	3.6	26,046	14,471	38,307	7,213		
Fish	1.2	0.2	2.6	0.8	2,451	311	5,243	1,565		
KTNE	1.5	0.0	3.6	1.2	3,063	97	7,256	2,367		
Kenai	73.7	67.1	80.1	4.0	147,109	133,847	159,875	8,025		
Kasilof	5.9	3.1	9.0	1.8	11,811	6,146	18,035	3,627		

Appendix C2.–Central District drift gillnet fishery, 2022: Stock composition (%) and stock-specific harvest estimates, including the final number of samples used in the genetic analysis (n), mean, 90% credibility interval (CI), and standard deviation (SD).

]	Excludi	ng cor	ridor-only periods				
Dates: 6/19-7/12	Stock Co	mpositi	on (n =	375)		Harvest = 295,773			
		90%	5 CI			90	0% CI		
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD	
Crescent	6.3	3.3	9.4	1.9	18,522	9,900	27,931	5,595	
West	14.3	9.2	20.9	3.5	42,176	27,275	61,674	10,370	
JCL	10.0	7.2	13.2	1.8	29,655	21,171	39,094	5,431	
SusYen	9.6	5.0	14.4	3.0	28,482	14,713	42,674	8,741	
Fish	2.3	0.7	4.4	1.1	6,727	1,951	12,884	3,379	
KTNE	4.7	1.9	9.1	2.2	14,035	5,707	26,919	6,599	
Kenai	32.9	26.9	39.3	3.7	97,440	79,449	116,190	11,075	
Kasilof	19.9	14.9	25.0	3.1	58,737	44,213	73,920	9,243	
Dates: 7/13	Stock Co	ompositi	on (n =	375)		Harvest	t = 200,088		
	-	90% CI				9(
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD	
Crescent	5.2	2.4	8.7	1.9	10,382	4,713	17,309	3,787	
West	13.9	10.1	18.1	2.5	27,719	20,298	36,219	4,925	
JCL	10.4	7.4	13.8	1.9	20,874	14,849	27,685	3,854	
SusYen	10.5	5.8	15.3	2.9	20,931	11,629	30,601	5,786	
Fish	3.4	1.6	5.6	1.2	6,876	3,206	11,217	2,431	
KTNE	3.8	1.4	6.6	1.6	7,583	2,740	13,302	3,232	
Kenai	38.7	33.1	44.8	3.7	77,485	66,179	89,717	7,327	
Kasilof	14.1	10.4	17.9	2.2	28,238	20,757	35,804	4,495	
Dates: 7/17	Stock Co	mpositi	on (n =	373)		Harvest	t = 161,397		
	-	90%	6 CI			9(0% CI		
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD	
Crescent	1.1	0.0	3.8	1.3	1,770	0	6,075	2,166	
West	12.5	8.7	17.2	2.6	20,249	13,967	27,793	4,260	
JCL	9.2	6.4	12.5	1.8	14,838	10,329	20,129	2,928	
SusYen	13.8	7.6	20.2	3.8	22,249	12,218	32,666	6,207	
Fish	4.3	2.3	6.5	1.3	6,886	3,637	10,534	2,106	
KTNE	1.3	0.0	4.2	1.4	2,099	0	6,833	2,333	
Kenai	49.0	42.9	55.5	3.9	79,081	69,161	89,561	6,271	
Kasilof	8.8	5.6	12.4	2.1	14,225	9,010	19,990	3,372	

Appendix C3.–Central District drift gillnet fishery, 2023: Stock composition (%) and stock-specific harvest estimates, including the final number of samples used in the genetic analysis (n), mean, 90% credibility interval (CI), and standard deviation (SD).

Dates: 7/24	Stock Composition (n = 376)					Harvest = 198,523			
	_	90%	CI			909	% CI		
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD	
Crescent	0.1	0.0	0.7	0.3	231	0	1,374	595	
West	4.9	2.4	8.1	1.8	9,782	4,776	16,080	3,561	
JCL	2.7	1.3	4.5	1.0	5,421	2,589	8,836	1,937	
SusYen	3.3	0.3	7.1	2.2	6,462	547	14,191	4,325	
Fish	0.3	0.0	1.3	0.5	655	0	2,588	947	
KTNE	2.3	0.7	4.3	1.1	4,500	1,433	8,634	2,254	
Kenai	79.4	74.4	84.2	3.0	157,677	147,638	167,218	5,973	
Kasilof	6.9	4.1	10.0	1.8	13,795	8,112	19,837	3,623	
Dates: 7/31-8/21	Stock Co	mpositio	n (n = 37	77)		Harvest	= 138,213		
		90%	CI			90% CI			
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD	
Crescent	0.3	0.0	1.4	0.5	388	0	1,971	751	
West	14.1	10.1	18.2	2.5	19,498	13,923	25,177	3,419	
JCL	11.2	8.2	14.6	2.0	15,497	11,336	20,204	2,698	
SusYen	1.5	0.0	6.0	2.1	2,087	0	8,283	2,963	
Fish	1.3	0.2	2.8	0.8	1,832	238	3,815	1,099	
KTNE	3.8	0.9	7.1	1.8	5,295	1,229	9,767	2,541	
Kenai	64.9	58.2	71.3	4.0	89,680	80,474	98,544	5,583	
Kasilof	2.8	0.0	6.6	2.1	3,937	0	9,086	2,855	
			Corrido	or-only	periods				
Dates: 7/18-8/2	Stock Co	mpositio	n (n = 37	73)		Harvest	= 368,493		
	_	90%	CI			909	% CI		
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD	
Crescent	0.3	0.0	1.6	0.6	1,161	0	6,014	2,223	
West	1.9	0.0	7.2	2.5	7,123	0	26,677	9,100	
JCL	6.0	3.6	8.6	1.5	22,006	13,136	31,778	5,669	
SusYen	6.1	2.0	11.5	2.9	22,586	7,470	42,304	10,511	
Fish	0.7	0.0	2.5	0.9	2,536	0	9,168	3,258	
KTNE	1.7	0.3	3.5	1.0	6,295	1,072	12,884	3,664	
Kenai	73.5	67.6	78.9	3.5	270,840	249,157	290,679	12,994	
Kasilof	9.8	6.5	13.2	2.1	35,947	23,929	48,630	7,589	

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APPENDIX D: CENTRAL DISTRICT, UPPER SUBDISTRICT SET GILLNET STOCK COMPOSITION AND STOCK-SPECIFIC HARVEST BY DATE, 2021 AND 2022

Dates: 6/22-7/20	Stock Co	mpositio	n(n = 37)	3)		Harvest = 405,690				
	_	90%	CI			90% CI				
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD		
Crescent	0.2	0.0	1.2	0.5	830	0	4,696	1,846		
West	1.2	0.0	4.4	1.6	4,891	0	17,881	6,318		
JCL	0.2	0.0	0.9	0.3	971	0	3,848	1,352		
SusYen	0.1	0.0	0.9	0.4	564	0	3,465	1,627		
Fish	0.9	0.0	2.3	0.8	3,756	0	9,533	3,135		
KTNE	0.7	0.0	2.7	1.0	2,716	0	11,087	3,898		
Kenai	51.6	45.9	57.4	3.5	209,234	186,236	232,898	14,179		
Kasilof	45.0	39.7	50.3	3.2	182,728	160,862	204,234	13,063		

Appendix D1.–Upper Subdistrict (Central District) set gillnet fishery, 2021: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

				Kasilo	of Section						
Dates: 6/23-7/14	Stock Co	ompositi	on (n =	371)		Harvest = 81,591					
		90%	6 CI			90	% CI				
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD			
Crescent	1.1	0.0	2.9	1.0	874	0	2,373	801			
West	0.9	0.0	3.8	1.3	718	0	3,092	1,087			
JCL	0.4	0.0	1.6	0.6	315	0	1,282	452			
SusYen	0.6	0.0	3.0	1.1	473	0	2,462	881			
Fish	0.9	0.0	2.3	0.7	697	0	1,897	606			
KTNE	0.4	0.0	1.6	0.6	308	0	1,270	462			
Kenai	13.3	9.6	17.5	2.5	10,855	7,798	14,298	2,025			
Kasilof	82.5	78.1	86.4	2.5	67,351	63,749	70,534	2,056			
Kenai/East Foreland sections											
Dates: 7/7–7/14	Stock Co	ompositi	on (n =	360)		Harves	t = 23,087				
		90%	6 CI			90	% CI				
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD			
Crescent	0.2	0.0	1.2	0.4	54	0	283	102			
West	0.1	0.0	0.8	0.4	30	0	178	83			
JCL	0.6	0.0	1.8	0.6	131	0	413	136			
SusYen	5.8	2.1	9.8	2.4	1,333	479	2,262	550			
Fish	4.7	2.6	7.2	1.4	1,085	594	1,651	315			
KTNE	2.0	0.5	4.4	1.2	456	115	1,011	280			
Kenai	52.3	46.3	58.7	3.8	12,084	10,678	13,546	882			
Kasilof	34.3	28.3	40.0	3.6	7,915	6,531	9,229	826			

Appendix D2.–Upper Subdistrict (Central District) set gillnet fishery, 2022: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

APPENDIX E: CENTRAL DISTRICT, WESTERN, KUSTATAN, AND KALGIN ISLAND SUBDISTRICTS SET GILLNET STOCK COMPOSTION AND STOCK-SPECIFIC HARVEST BY DATE, 2021–2023

Dates: 6/2-8/19	Stock Co	mpositio	n (n = 34)	42)		Harvest = 78,332				
	-	90%	CI	_		90%				
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD		
Crescent	27.6	22.5	32.9	3.2	21,635	17,650	25,775	2,472		
West	32.9	27.2	39.4	3.6	25,750	21,287	30,869	2,844		
JCL	1.3	0.1	2.9	0.9	992	78	2,297	693		
SusYen	0.5	0.0	3.0	1.2	420	0	2,359	965		
Fish	0.2	0.0	1.0	0.4	150	0	788	306		
KTNE	0.1	0.0	0.8	0.4	102	0	609	283		
Kenai	26.6	21.2	32.2	3.3	20,836	16,643	25,220	2,602		
Kasilof	10.8	7.5	14.2	2.1	8,447	5,879	11,135	1,658		

Appendix E1.–Western, Kustatan, and Kalgin Island subdistricts (Central District) set gillnet fisheries, 2021: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

Note: Stock composition and harvest estimates may not sum to 100% due to rounding error.

Appendix E2.–Western, Kustatan, and Kalgin Island subdistricts (Central District) set gillnet fisheries, 2022: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

Dates: 6/1-8/22	Stock Co	mpositio	n (n = 36	55)		Harvest = 75,893				
	_	90%	CI			90% CI				
Reporting Group	Mean	5%	95%	SD	Mean	n 5%	95%	SD		
Crescent	23.0	18.4	28.2	3.0	17,435	13,946	21,388	2,258		
West	40.3	34.9	45.8	3.3	30,557	26,518	34,786	2,522		
JCL	0.5	0.0	2.0	0.7	391	0	1,542	552		
SusYen	5.4	0.0	10.5	3.2	4,097	0	7,963	2,452		
Fish	2.1	0.4	4.3	1.2	1,582	270	3,240	900		
KTNE	1.0	0.0	4.6	1.6	788	0	3,477	1,225		
Kenai	18.3	13.0	24.0	3.3	13,863	9,882	18,190	2,536		
Kasilo <u>f</u>	9.5	6.4	12.9	2.0	7,181	4,857	9,825	1,516		

Note: The 90% credibility intervals of harvest estimates may not include the point estimate for the very low extrapolated harvest numbers because fewer than 5% of iterations had values above zero.

Appendix	k E3.–Western, Ku	ustatan, and Kalgin	n Island sub	districts (C	entral Disti	rict) set gill	net fisheries,
2023: Stock	composition (%) and stock-speci	fic harvest	estimates,	including	mean, 90%	6 credibility
interval (CI)	, the final number	of samples used in	n the genetic	analysis (1	ı), and stan	dard deviat	ion (SD).

Dates: 6/2-8/17	Stock Co	mpositior	n (n = 36'	7)		Harvest = 143,266				
	_	90%	CI			90% CI				
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD		
Crescent	59.6	54.5	64.9	3.1	85,375	78,024	92,928	4,448		
West	16.3	12.0	20.9	2.7	23,338	17,157	29,946	3,936		
JCL	8.1	5.4	11.1	1.7	11,585	7,799	15,909	2,492		
SusYen	5.3	2.0	9.1	2.2	7,646	2,842	13,035	3,154		
Fish	0.1	0.0	0.5	0.2	125	0	734	288		
KTNE	0.2	0.0	1.0	0.4	259	0	1,408	630		
Kenai	4.2	2.5	6.5	1.3	5,958	3,545	9,370	1,846		
Kasilof	6.3	3.9	9.0	1.6	8,981	5,658	12,875	2,228		

APPENDIX F: NORTHERN DISTRICT SET GILLNET STOCK COMPOSTION AND STOCK-SPECIFIC HARVEST BY DATE, 2021–2023
Eastern Subdistrict														
Dates: 6/28-8/2	Stock Co	ompositi	on (n =	360)		Harvest = 26,861								
		90%	5 CI			9	0% CI							
Reporting Group	Mean	n 5% 95%		SD	Mean	5%	95%	SD						
Crescent	0.4	0.0	2.5	0.9	112	0	674	246						
West	4.2	0.1	7.8	2.1	1,123	27	2,083	573						
JCL	4.1	2.2	6.6	1.3	1,113	598	1,774	359						
SusYen	19.6	13.7	25.7	3.7	5,263	3,684	6,914	996						
Fish	17.4	13.4	21.3	2.4	4,662	3,610	5,729	654						
KTNE	29.7	23.7	36.1	3.8	7,966	6,373	9,710	1,012						
Kenai	23.2	17.5	28.9	3.5	6,221	4,704	7,758	946						
Kasilof	1.5	0.0	4.3	1.5	401	0	1,162	412						
			Gene	odistrict - north										
Dates: 7/5-8/16	Stock Co	ompositi	on (n =	231)	Harvest = 7,518									
		90%	6 CI			90% CI								
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD						
Crescent	0.7	0.0	3.3	1.2	51	0	251	90						
West	1.5	0.0	7.3	2.6	109	0	551	198						
JCL	4.7	2.3	7.5	1.6	351	176	566	120						
SusYen	13.5	5.6	20.9	4.6	1,012	421	1,575	342						
Fish	50.3	43.1	57.3	4.3	3,785	3,237	4,310	327						
KTNE	28.1	19.0	38.1	5.7	2,111	1,429	2,866	429						
Kenai	0.5	0.0	2.9	1.0	40	0	215	78						
Kasilof	0.8	0.0	3.3	1.1	59	0	247	86						
			Gene	ral Sul	odistrict - south									
Dates: 6/28-8/19	Stock Co	ompositi	on (n =	362)		Harve	st = 21,186							
		90%	5 CI			9	0% CI							
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD						
Crescent	0.3	0.0	1.4	0.5	55	0	306	115						
West	63.8	58.7	68.7	3.0	13,513	12,446	14,563	631						
JCL	12.5	8.9	16.4	2.2	2,654	1,894	3,465	475						
SusYen	19.6	14.4	24.9	3.2	4,156	3,042	5,283	676						
Fish	0.2	0.0	0.9	0.3	34	0	182	72						
KTNE	2.3	0.7	4.8	1.3	488	153	1,027	277						
Kenai	1.3	0.0	5.1	1.8	265	0	1,091	388						
Kasilof	0.1	0.0	0.5	0.2	20	0	113	53						

Appendix F1.–Eastern and General subdistricts (Northern District) set gillnet fisheries, 2021: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

Note: The 90% credibility intervals of harvest estimates may not include the point estimate for the very low extrapolated harvest numbers because fewer than 5% of iterations had values above zero.

Note: Stock composition and harvest estimates may not sum to 100% due to rounding error.

Eastern Subdistrict														
Dates: 6/30-8/22	Stock Co	mpositi	on (n =	365)	55) Harvest = 29,411									
	90% CI					90								
Reporting Group	Mean	5% 95%		SD	Mean	5%	95%	SD						
Crescent	0.2	0.0	1.1	0.5	53	0	310	134						
West	5.8	1.9	12.9	3.4	1,715	571	3,799	991						
JCL	8.0	5.4	11.0	1.7	2,362	1,580	3,221	498						
SusYen	16.3	10.7	22.2	3.5	4,794	3,141	6,537	1,043						
Fish	17.1	11.8	22.5	3.2	5,018	3,479	6,613	954						
KTNE	43.5 35.0		51.6	5.1	12,795	10,284	15,166	1,490						
Kenai	7.9	4.3	12.0	2.3	2,321	1,266	3,521	685						
Kasilof	1.2	0.0	3.7	1.3	354	0	1,086	371						
General Subdistrict														
Dates: 6/27-8/18	Stock Co	mpositi	on (n =	362)		Harvest = 19,901								
	-	90%	6 CI			90% CI								
Reporting Group	Mean	5%	95%	SD	Mean	5%	95%	SD						
Crescent	0.6	0.0	2.7	1.0	111	0	541	196						
West	20.5	15.7	25.6	3.0	4,074	3,131	5,086	589						
JCL	21.1	17.0	25.4	2.6	4,191	3,379	5,061	511						
SusYen	25.7	20.0	31.8	3.6	5,116	3,973	6,320	713						
Fish	28.4	22.7	34.0	3.5	5,657	4,514	6,762	692						
KTNE	3.5	0.1	10.4	3.4	690	20	2,065	677						
Kenai	0.2	0.0	1.0	0.4	38	0	196	85						
Kasilof	0.1	0.0	0.7	0.3	24	0	136	58						

Appendix F2.–Eastern and General subdistricts (Northern District) set gillnet fisheries, 2022: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

Note: The 90% credibility intervals of harvest estimates may not include the point estimate for the very low extrapolated harvest numbers because fewer than 5% of iterations had values above zero.

Note: Stock composition and harvest estimates may not sum to 100% due to rounding error.

Eastern Subdistrict														
Dates: 6/26-8/14	Stock Co	ompositi	on (n =	375)		Harvest = 26,990								
		90%	5 CI		<u>-</u>	90	% CI							
Reporting Group	Mean	Mean 5% 95%		SD	Mean	5%	95%	SD						
Crescent	0.2	0.0	1.1	0.5	53	0	306	122						
West	6.5	2.6	10.9	2.6	1,745	712	2,936	693						
JCL	20.4	16.3	24.5	2.5	5,493	4,387	6,623	674						
SusYen	27.7	21.0	34.5	4.1	7,473	5,655	9,316	1,115						
Fish	15.2	11.3	19.3	2.4	4,104	3,045	5,211	658						
KTNE	18.1	12.5	24.7	3.8	4,883	3,361	6,668	1,030						
Kenai	10.3	6.6	14.3	2.4	2,781	1,768	3,872	635						
Kasilof	1.7	0.0	4.4	1.5	458	0	1,195	396						

Appendix F3.–Eastern Subdistrict (Northern District) set gillnet fishery, 2023: Stock composition (%) and stock-specific harvest estimates, including mean, 90% credibility interval (CI), the final number of samples used in the genetic analysis (n), and standard deviation (SD).

Note: The 90% credibility intervals of harvest estimates may not include the point estimate for the very low extrapolated harvest numbers because fewer than 5% of iterations had values above zero.

Note: Stock composition and harvest estimates may not sum to 100% due to rounding error.

APPENDIX G: UPPER COOK INLET COMMERCIAL FISHERY GENETIC MIXED STOCK ANALYSIS STRATA, 2005–2023

Appendix G1.–Genetic mix stock analysis mixture strata analyzed for the Upper Cook Inlet commercial drift and set gillnet fisheries and Offshore Test fishery, 2005–2023: fishery, area name, statistical areas, year reported, and restriction (R) for each mixture stratum. Gray boxes indicate which years were reported for a given stratum; "h" indicates that stock proportions and stock-specific harvests were reported, and "p" indicates that only stock proportions were reported.

			Year												\mathbb{R}^k							
Fisherv	Area	Stat. Area(s)	2005 ^a	2006ª	2007 ^a	2008ª	2009 ^b	2010°	2011 ^d	2012°	2013°	2014 ^f	2015 ^g	2016 ^g	2017 ^g	2018 ^g	2019 ^h	2020 ⁱ	202 l ^j	2022 ^j	2023 ^j	
Central	District-wide	¹ 244-60	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	
District drift	Corridor	244-55		h																		
		244-56							h	h												
		244-57															h			h	h	
		244-56, 57									h	h	h	h	h			h	h			-
Upper Subdistrict	Kasilof River Special	244-26		h																		
set/drift	Harvest Area	244-25, 26		h		h										h						
		244-25		h																		
Upper	Kasilof	244-21, 22, 31	h	h	h	h	h	h	h	h	h	h								h		
Subdistrict	Section	244-21, 22, 31		h			h										h					1
set		244-21, 22, 31											р									2
		244-21, 22, 31											р			h		h				3
		244-21, 22	р	р	р	р	р	р	р	р	р											
		244-21, 22																	р			3
		244-31	р	р	р	р	р	р	р	р	р											
	Kenai/East	244-32, 41, 42	h	h	h	h	h	h	h	h	h	h								h		
	Foreland	244-32	р	р	р	р	р	р	р	р	р											
	sections	244-32														h	h		р			3
		244-41, 42	р	р	р	р	р	р	р	р	р			-	-	-						
	Subdistrict- wide	244-21, 22, 31, 32, 41, 42											h	h	h	h	h	h	h			

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		Year																				
Fishery	Area	Stat. Area(s)	2005 ^a	2006ª	2007ª	2008ª	2009 ^b	2010°	2011 ^d	2012°	2013°	2014 ^f	2015 ^g	2016 ^g	2017 ^g	2018 ^g	2019 ^h	2020 ⁱ	2021 ^j	2022 ^j	2023 ^j	R ^k
Kalgin Island Subdistrict set	Subdistrict- wide	246-10, 20		h	h	h	h	h	h	h	h	h										
Western Subdistrict	Subdistrict- wide ¹	245-20, 30 40, 50		h	h	h	h	h	h	h	h											
Western/ Kustatan subdistricts	Subdistrict- wide ^l	245-20, 30 40, 50, 55, 60										h										
Western/ Kustatan/ Kalgin Island subdistricts	Subdistrict- wide ¹	245-20, 30 40, 55, 60; 246-10, 20											h	h	h	h	h	h	h	h	h	
Eastern Subdistrict set	Subdistrict- wide	247-70, 80, 90		h	h	h	h	h	h	h	h	h								h	h	
General Subdistrict set	Subdistrict- wide	247-10, 20, 30, 41, 42, 43				h			h			h								h		
	South	247-10, 20, 30					h	h			h							h	h			
	North	247-41, 42, 43					h	h		h								h	h			
Eastern/ General Subdistricts set	Subdistrict- wide	247-10, 20, 30, 41, 42, 43,70, 80, 90											h	h	h	h	h					
^a 2005–2008 est ^c 2010 estimates	2005–2008 estimates reported in Barclay et al. (2010a; FMS 10-01). 2010 estimates reported in Barclay et al. (2013; FMS 13-56).											 ^b 2009 estimates reported in Barclay et al. (2010b; FMS 10-93). ^d 2011 estimates reported in Barclay et al. (2014: FDS 14-43). 								;).		

f

2014 estimates reported in Barclay et al. (2018; FDS 18-8).

^h 2019 estimates reported in Barclay (2020; RIR 5J20-01)

^e 2012 and 2013 estimates reported in Barclay et al. (2017; FDS 17-30).

^g 2015–2018 estimates reported in Barclay (2019; RIR 5J19-02).

2020 estimates reported in Barclay and Chenoweth (2021; RIR. 5J21-04) i

^j 2021–2023 estimates are included in this report ^k Distance from the mean high tide mark in which the fishery was restricted: (1) 0.5 miles, (2) 1.5 miles, (3) 600 feet

¹ Central District drift district-wide and Western Subdistrict subdistrict-wide mixtures do not include fish from Chinitna Bay (245-10).