

Fishery Data Series No. 08-16

Fall Season Cooperative Salmon Drift Gillnet Test Fishing in the Lower Yukon River, 2007

**Annual Report for Project 07-204
USFWS Office of Subsistence Management
Fisheries Information Services Division**

by

Maureen H Horne-Brine

and

Fred J Bue

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL			mid-eye-to-fork	MEF
gram	g	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mid-eye-to-tail-fork	METF
hectare	ha			standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.		
liter	L		@		
meter	m			Mathematics, statistics	
milliliter	mL	at		<i>all standard mathematical signs, symbols and abbreviations</i>	
millimeter	mm	compass directions:			
		east	E	alternate hypothesis	H _A
		north	N	base of natural logarithm	<i>e</i>
		south	S	catch per unit effort	CPUE
		west	W	coefficient of variation	CV
		copyright	©	common test statistics	(F, t, χ^2 , etc.)
		corporate suffixes:		confidence interval	CI
		Company	Co.	correlation coefficient	
		Corporation	Corp.	(multiple)	R
		Incorporated	Inc.	correlation coefficient	
		Limited	Ltd.	(simple)	r
		District of Columbia	D.C.	covariance	cov
		et alii (and others)	et al.	degree (angular)	°
		et cetera (and so forth)	etc.	degrees of freedom	df
		exempli gratia		expected value	<i>E</i>
		(for example)	e.g.	greater than	>
		Federal Information Code	FIC	greater than or equal to	≥
		id est (that is)	i.e.	harvest per unit effort	HPUE
		latitude or longitude	lat. or long.	less than	<
		monetary symbols		less than or equal to	≤
		(U.S.)	\$, ¢	logarithm (natural)	ln
		months (tables and figures): first three letters	Jan, ..., Dec	logarithm (base 10)	log
		registered trademark	®	logarithm (specify base)	log ₂ , etc.
		trademark	™	minute (angular)	'
		United States (adjective)	U.S.	not significant	NS
		United States of America (noun)	USA	null hypothesis	H ₀
		U.S.C.	United States Code	percent	%
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	probability	P
				probability of a type I error (rejection of the null hypothesis when true)	α
				probability of a type II error (acceptance of the null hypothesis when false)	β
				second (angular)	"
				standard deviation	SD
				standard error	SE
				variance	
				population	Var
				sample	var

Weights and measures (English)

cubic feet per second	ft ³ /s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

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**FALL SEASON COOPERATIVE SALMON DRIFT GILLNET TEST
FISHING IN THE LOWER YUKON RIVER, 2007**

by

Maureen H. Horne-Brine

Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage
and

Fred J. Bue

Alaska Department of Fish and Game, Division of Commercial Fisheries, Fairbanks

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518

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*Maureen H. Horne-Brine,
Alaska Department of Fish and Game, Division Commercial Fisheries,
333 Raspberry Road, Anchorage, Alaska 99518, USA*

and

*Fred J. Bue,
Alaska Department of Fish and Game, Division of Commercial Fisheries
1300 College Road, Fairbanks, Alaska 99701 USA*

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ABSTRACT

The Lower Yukon River drift gillnet test fishery project estimates run timing and relative abundance of fall chum salmon *Oncorhynchus keta*, and coho salmon *O. kisutch* entering the Yukon River drainage. Drift test nets were operated from 16 July through 28 August, 2007, on the Lower Yukon River near the village of Emmonak, Alaska. Catch per unit effort (CPUE), and age, sex, and length (ASL) composition were derived from drift gillnet catches from the Big Eddy test fishery operated in Kwikluak Pass (South Mouth) and the Middle Mouth test fishery operated in Kwipak Pass, upstream of the distributaries of Kawanak Pass (Middle Mouth) and Apoon Pass (North Mouth). The test fishery recorded a cumulative CPUE of 996.27 for fall chum salmon with the midpoint occurring on 13 August. Fall chum salmon were predominantly age-0.3 fish, comprising 74.6% of the unweighted age sample. The cumulative CPUE for coho salmon was 404.52 with the midpoint occurring on 13 August. Age-2.1 coho salmon were the most abundant, making up 82.5% of the unweighted age sample. The Pilot Station sonar project recorded the passage of 684,011 fall chum salmon with the midpoint occurring on 10 August, and 173,289 coho salmon with the midpoint observed on 14 August. The Lower Yukon River drift gillnet test fishery project provided critical information that was used to make inseason management decisions regarding escapement, and commercial and subsistence fishing for fall chum and coho salmon in the Lower Yukon River.

KEY WORDS: Yukon River, Chinook, chum and coho salmon, gillnet test fishery, run assessment, catch per unit effort (CPUE).

INTRODUCTION

The Lower Yukon drift gillnet test fishing project is designed to provide an index of run timing and relative abundance of fall chum salmon *Oncorhynchus keta* and coho salmon *O. kisutch* returning to the Yukon River drainage. Test fishery data is used in conjunction with data provided by other projects, including the daily run strength estimates issued by Pilot Station sonar, to ensure sufficient numbers of salmon pass through the Lower Yukon River to provide for escapement, treaty commitments, and subsistence uses.

PROJECT HISTORY

The return of fall chum salmon to the Yukon River has been depressed in the recent past. In 2000, the Pilot Station sonar estimated passage was approximately 248,000 fall chum salmon (McIntosh *In prep*; JTC 2007). In both 2000 and 2001, no harvestable surplus was available and no commercial fishing was conducted on the Yukon River during the fall season (Bue et al. *In prep*). The below average run in 2000 combined with a dramatic increase in the efficiency of some set net sites prompted the Alaska Department of Fish and Game (ADF&G) to reevaluate the use of 6.0-inch mesh set gillnet gear. It was uncertain whether the set gillnets were adequately reflecting the relative abundance of the runs. Additionally, the large catches in the set net test fishery saturated the local subsistence users' needs, making it difficult to distribute the surplus. Selling the surplus was not feasible during years of fishery restrictions. Employing drift gillnets to assess the runs was considered an alternative to reduce the overall fishing time and the incidence of salmon mortality.

With assistance and funding from the U.S. Fish and Wildlife Service, Office of Subsistence Management (OSM), the Lower Yukon drift gillnet test fishing project began operating in 2001 (Newland and Bue 2007). Drift gillnet test fishing stations were established for both the Big Eddy and the Middle Mouth locations. The 6.0-inch mesh set gillnets were replaced by 6.0-inch mesh drift gillnets to target fall chum and coho salmon. Assessment was possible for fall chum and coho salmon transiting the North, Middle, and South mouths of the Yukon River Delta, downstream from major subsistence and commercial fisheries. Moreover, the test fishery provided indications as to when and where salmon were entering the river. This was particularly important due to the sporadic entry patterns of fall chum salmon.

The project originally operated with a summer season component assessing summer chum *O. keta* and Chinook salmon *O. tshawytscha*. The project was expanded to operate for both the summer and fall seasons from 2001 through 2003 with support from OSM under contract FIS 01-122. From 2004 through 2006, the project was operated during the fall season only under FIS 04-229. In 2007, the fall season Lower Yukon drift gillnet test fishing project completed its seventh year of operation with funding from OSM under FIS 07-204, which is scheduled to continue in 2008 and 2009. Additionally, since 2004 the Yukon Delta Fisheries Development Association (YDFDA) has provided technicians to help with test fishing operations.

OBJECTIVES

Project objectives in 2007 were to:

- 1.) Estimate relative abundance of fall chum and coho salmon on a daily basis as they enter the mouth of the Yukon River.
- 2.) Estimate run timing of fall chum and coho salmon as they enter the mouth of the Yukon River.
- 3.) Estimate the age, sex and length composition of the return of fall chum and coho salmon for use in brood year assessment and run forecasting.
- 4.) Build partnerships and capacity by involving local technicians and communities in project operation and information sharing.

METHODS

STUDY SITE

As in previous years, 2 separate test fishing locations were used near Big Eddy and the Middle Mouth of the Yukon River Delta. The locations were chosen for logistical reasons including their close proximity to the ADF&G Lower Yukon Area field office in the village of Emmonak (N 62° 46' 38.82" – W 164° 32' 46.98"), which is situated approximately 24 river miles (38.6 km) upstream of the South Mouth at the head of Kwiguk Pass, and approximately 99 river miles (159.3 km) downstream from the Pilot Station Sonar project (N 61° 57' 1" – W 162° 51' 37") (Figures 1 and 2).

The Big Eddy test fishery was located in the main channel of the South Mouth of the Yukon River Delta, upstream and southeast of the village of Emmonak (Figure 1). Station 1 at Big Eddy was located directly upstream of the tributary of Kwiguk Pass from Kwikluak Pass (South Mouth) along the right bank (N 62° 44' 21.96" – W 164° 24' 17.4"). The starting point of Station 2 was located across from Station 1 along the left bank, approximately 0.25 mile (0.4 km) downstream and southwest from the starting point of Station 1 (N 62° 44' 23.7" – W 164° 26' 4.26"). The Big Eddy drift gillnet fishing locations were primarily chosen to assess salmon transiting via the South Mouth of the Yukon River Delta.

The Middle Mouth test fishery was located upstream from the tributaries of the Kawanak and Apoon passes to assess the number of salmon transiting the Middle and North mouths of the Yukon River Delta (Figure 1). Two drift gillnet stations were utilized in Kwipak Pass,

approximately 7 river miles (11.2 km) upstream of the ADF&G Middle Mouth field camp (N 62° 53' 52.44" – W 164° 5' 49.20"). The Station 1 drift gillnet starting point was along the left bank of the river (N 62° 47' 27.36" – W 164° 03' 27.06"), and Station 2 was located across the river along the right bank (N 62° 48' 12.3" – W 164° 04' 16.8"), approximately 0.75 mile (1.2 km) downstream from the starting point of Station 1.

PROJECT DATE

Project operation dates have varied little over the years. From 2001 to 2007, drift gillnet fishing dates began on 16 July and extended to late August each season. In 2007, operations at both test fishery locations began 16 July and continued through 28 August. Postseason data analysis and report writing are conducted during the winter months, primarily at the ADF&G Anchorage office.

DRIFT TEST FISHING

The test fishery employed gillnets to specifically target fall chum and coho salmon. Gillnets were constructed of 6.0-inch (15.2 cm) mesh, 45 meshes in depth and 50 fathoms (91.4 m) in length with a cork marking at 25 fathoms (45.7 m).

The Big Eddy and Middle Mouth locations were fished using similar methods. All gillnets were fished by drifting from open aluminum skiffs with one end of the net attached to the skiff and the other attached to a buoy. The drift gillnets were fished once per station and twice daily, except during periods of hazardous weather and during commercial periods. The first drift was conducted at Station 1, followed by Station 2.

During normal operations, the net was retrieved after 20 minutes of fishing time or an estimated 30 fish had been captured. In times of high salmon abundance, inclement weather, or excessive debris, the net was shortened to the 25 fathom midpoint to make it more manageable and avoid saturation. The calculation of CPUE compensates for times when only 25 fathoms of gillnet was fished. The species, number caught, number retained, number released, mesh size, station, fishing times and weather observations were recorded. The fish captured were counted and released unharmed, unless injured by the netting activity. Fish injured by gillnets were retained and sampled for age, sex and length (ASL) information. All sampled and remaining fish were distributed locally for subsistence purposes. No fish were sold commercially during the 2007 fall season.

Bottom profiles at the fishing sites were based on depth measurements collected at each of the drift stations periodically throughout the season. Depth readings were obtained using a Hawkeye Handheld Sonar¹ device. Depth readings were taken and recorded for the near shore and offshore buoy while setting the net and additional readings were recorded for the near shore and offshore buoys when the net was being retrieved. The Big Eddy test fishing stations started at a cut bank and ended near a shallow beach, whereas Middle Mouth drift sites tended to follow a fairly consistent bottom profile from the beginning to the end of the drift zones (Appendix A1).

Drift Schedule

In 2007, during normal operations, drifts were conducted at 0800 hours and 2000 hours regardless of tide stage. This drift schedule was occasionally altered. Drifts were adjusted or

¹ Product names used in this report are included for scientific completeness, but do not constitute a product endorsement.

cancelled to avoid test fishing during commercial periods or when inclement weather prohibited drifting effectively and safely.

CPUE Calculations

The deployment, fishing, and retrieval of the drift gillnets were recorded for each sampling event. CPUE was calculated using fish per 100 fathom-hours:

$$CPUE = [((100 \text{ fathom} * 60 \text{ minutes}) * (n))/(L*T)] \quad (1)$$

where:

n = number of fish caught,

L = length of net in fathoms, and

T = the time the net fished.

The time the net fished was calculated using:

$$T = ((\text{set time} + \text{retrieval time})/2) + \text{soak time} \quad (2)$$

The amount of time the gillnet was fished varied. An independent CPUE calculation was made for each drift. This value was summed with CPUE calculations from the same day and gear type and then averaged to obtain a CPUE for the day and gear type:

$$\text{Daily CPUE} = ((\sum CPUE)/n) \quad (3)$$

where:

n =number of sets for the given day and gear type.

(Molyneaux 1999)

Age, Sex and Length Sampling

Age, sex and length (ASL) data were collected from retained fall chum and coho salmon. A maximum of 30 fall chum and 30 coho salmon were sampled each day at the Big Eddy test fishery and at the Middle Mouth test fishery. All salmon lengths were measured as mideye to tail fork (METF) and rounded off to the nearest 5 millimeters. Age was determined by examining scales (Mosher 1968). Scales were collected from the left side of the fish approximately 2 rows above the lateral line in an area crossed by a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (INPFC 1963). Because of the high rate of scale regeneration among coho salmon, 3 scales were collected from each fish. Only 1 scale per fish was collected from chum salmon. Scales were mounted on gummed cards and impressions were made in cellulose acetate (Clutter and Whitesel 1956). European notation (Koo 1962) was used to record ages; numerals preceding the decimal refer to the number of freshwater annuli and numerals following the decimal refer to the number of marine annuli. Total age from time of egg deposition, or brood year, is the sum of these 2 numbers plus 1 to account for incubation time. The sex of each salmon was verified by visual examination of the gonads through a small ventral incision.

RESULTS

FALL CHUM SALMON

In 2007, a total of 1,306 fall chum salmon were caught at the Big Eddy and Middle Mouth drift gillnet test fishery locations, with a corresponding cumulative CPUE of 996.27. The combined

midpoint of the fall chum salmon run at these locations occurred on 13 August (Tables 1 and 2). Females comprised 57.2% of fall chum salmon sampled for sex data ($n=542$; L. DuBois, Commercial Fisheries Biologist, ADF&G, Anchorage; personal communication) as well as age and sex data ($n=519$; Table 3). Age-0.3 fall chum salmon were the predominant age class observed comprising 74.6%, while age-0.4 and -0.5 fish represented 22.0% and 3.5%, respectively, of the unweighted age sample (Table 3; Horne-Brine et al. *In prep*).

At the Big Eddy drift location 871 fall chum salmon were captured with a corresponding cumulative CPUE of 1,328.15. The midpoint of the fall chum salmon run at the Big Eddy location was 13 August (Table 1). The mean fishing time at Big Eddy was 20 minutes per drift, per day (Appendix A2). Females comprised 50.9% of the 336 fall chum salmon sampled for age data. Age-0.3 fall chum predominated comprising 74.1%, with age-0.4 and -0.5 comprising 21.7%, and 4.2% of the unweighted sample, respectively. Mean lengths for males were 586 mm for age-0.3 ($n=126$), 602 mm for age-0.4 ($n=32$), and 599 mm for age-0.5 ($n=7$). Females had mean lengths of 578 mm for age-0.3 ($n=123$), 587 mm for age-0.4 ($n=41$), and 599 mm for age-0.5 ($n=7$) (Tables 3 and 4; Horne-Brine et al. *In prep*).

At the Middle Mouth drift location 435 fall chum were captured with a corresponding cumulative CPUE of 664.39. The midpoint of the run at Middle Mouth was 8 August (Table 1). The mean fishing time at Middle Mouth was 19.8 minutes per drift, per day (Appendix A2). Females comprised 68.9% of the 183 fall chum sampled for age data. Age-0.3 fall chum salmon predominated comprising 75.4%, while age-0.4 and -0.5 fish made up 22.4% and 2.2% of the unweighted age sample, respectively. Mean lengths for male fall chum salmon were 590 mm for age-0.3 ($n=47$) and 611 mm for age-0.4 ($n=10$). Females had mean lengths of 579 mm for age-0.3 ($n=91$), 590 mm for age -0.4 ($n=31$), and 604 mm for age -0.5 ($n=4$) (Tables 3 and 4; Horne-Brine et al. *In prep*).

The preliminary fall chum salmon passage estimate provided by Pilot Station sonar for 2007 was 684,011, with the midpoint occurring on 10 August (Table 5; Carroll and McIntosh *In prep*).

COHO SALMON

Coho salmon were captured during the same drift times as the fall chum salmon, as the 2 species often enter and migrate together, with greater overlaps in abundance later in the season. A combined total of 528 coho were caught at the Big Eddy and Middle Mouth locations with a corresponding cumulative CPUE of 404.52. The midpoint occurred on 13 August (Tables 6 and 7). Females comprised 46.3% of coho salmon sampled for sex data ($n= 296$; L. DuBois, Commercial Fisheries Biologist, ADF&G, Anchorage; personal communication) and 46.5% of coho sampled for age and sex data ($n=269$; Table 8). Coho salmon age-2.1 predominated making up 82.5%, with age-1.1 and -3.1 representing 13.8% and 3.7% of the unweighted age sample, respectively (Table 8; Horne-Brine et al. *In prep*).

There were 267 coho salmon captured at the Big Eddy location with a corresponding cumulative CPUE of 413.71. The midpoint of the run at the Big Eddy drift gillnet location was 13 August (Table 6). The mean fishing time at the Big Eddy location was 20 minutes per drift, per day (Appendix A2). Females comprised approximately 56.7% of the 150 fish sampled for age data. Age-2.1 comprised 84.0%, age-1.1 represented 12.0%, followed by age-3.1 with 4.0%, of the sample, respectively. Mean lengths for males were 585 mm for age-1.1 ($n=9$), 587 mm for age-2.1 ($n=53$), and 595 mm for age-3.1 ($n=3$). Females had mean lengths of 589 mm for

age-1.1 ($n=9$) and 589 mm for age-2.1 ($n=73$), and 590 for age-3.1 ($n=3$) (Tables 8 and 9; Horne-Brine et al. *In prep*).

There were 261 coho salmon captured at the Middle Mouth location with a corresponding cumulative CPUE of 395.32. The midpoint of the run at the Middle Mouth site was 13 August (Table 6). The mean fishing time at Middle Mouth was 19.8 minutes per drift, per day (Appendix A2). Females made up 33.6% of the 119 coho salmon sampled for age data. Age-2.1 comprised 80.7% while age-1.1 and -3.1 fish represented 16.0%, and 3.4% of the unweighted sample, respectively. Males had mean length measurements of 577 mm for age-1.1 ($n=16$), and 581 mm for age-2.1 ($n=63$). Females had mean length measurements of 583 mm for age-1.1 ($n=3$), 591 mm for age-2.1 ($n=33$), and 586 mm for age-3.1 ($n=4$) (Tables 8 and 9; Horne-Brine et al. *In prep*).

The preliminary coho salmon passage estimate provided by Pilot Station sonar for 2007 was 173,289, with the midpoint occurring on 14 August (Table 5; Carroll and McIntosh *In prep*).

DISCUSSION

FALL CHUM SALMON

Based on the 13 August midpoint of the Big Eddy and Middle Mouth sites combined (Table 1), timing of fall chum salmon caught in 2007 was 7 days later than the 2001–2006 average midpoint of 6 August (Table 2; Figure 3). Additionally, the long term average (1980–1993 and 1995–1999) midpoint based on the set gillnet project was 6 August. Test fishing operations were terminated early in 1994 and 2000, and data from these years was not included in the calculation of the long term average midpoint (Stack *Unpublished*). The midpoint of the fall chum salmon run occurred on 10 August at the Pilot Station sonar site (Table 5).

The Lower Yukon test fishery indices provide valuable information used to make inseason management decisions regarding salmon escapement, and subsistence and commercial fishing. As pulses of fall chum salmon migrate upstream from the Lower Yukon test fishery near Emmonak, they are assessed by the Mountain Village drift gillnet test fishing project and the Pilot Station sonar project (Figure 2). Abundance estimates provided by these projects are used to corroborate the run timing and strength estimates generated by the Lower Yukon test fishing project. The passage estimates provided by Pilot Station sonar are particularly useful because they are based on data collected from a large portion of the water column and at frequent intervals over a 24-hour period. On average, pulses of fall chum take approximately 2.8 days to travel between the Lower Yukon test fishery and the Pilot Station sonar project, equating to an average travel speed of 35 miles (56.3 km) per day. The relative timing of the pulses at the Lower Yukon test fishery did appear to track with the passage timing at Pilot Station sonar when using a lag time of 3 days (Figures 4–6).

In 2007, variations in entrance patterns between the different mouths of the river were observed. Typically, fall chum salmon enter the South Mouth of the Yukon River Delta 3 days earlier than the Middle and North mouths. However, in 2007, pulses of fall chum salmon entered the South Mouth a week later than average, whereas pulses entered the Middle and North mouths 1 day earlier than average. The midpoint for the fall chum salmon run occurred on 13 August at the Big Eddy drift gillnet test location and on 8 August at the Middle Mouth location (Table 1; Figures 7 and 8).

For certain applications, such as the development of brood tables, fall chum salmon age data is weighted by the Lower Yukon test fishery CPUE. In 2007, the weighted ages were composed of 75.9 % age-0.3, 21.1% age-0.4 and 3.0% age-0.5, compared to the 1978–2006 average of 4.0% age-0.2, 68.6 % age-0.3, 26.7% age-0.4 and 0.8% age-0.5. Fall chum salmon are also analyzed based on even and odd year cycles, where the odd-numbered years average 1.8%, 77.9%, 19.6% and 0.6% for age-0.2 through age-0.5, respectively. The relatively high percentage of age-0.5 fall chum salmon observed in 2007 was expected based on the exceptional production of the 2001 brood year (B. Borba, Commercial Fisheries Biologist, ADF&G, Fairbanks; personal communication).

ADF&G worked in cooperation with the U. S. Fish and Wildlife Service (USFWS) to distribute the fall chum salmon retained by the drift gillnet test fisheries to residents in the local communities of Emmonak, Alakanuk, and Kotlik for subsistence use. Of the 1,306 fall chum salmon captured in the test fishery, 87 were released unharmed, 1,219 were given away for subsistence uses, and none were sold or discarded (Appendix A3). The Big Eddy test fishery crew released a lower proportion of their catch. When a large school of salmon was encountered, the net was retrieved as quickly as possible to minimize saturation, and very few fish were picked from the net and released unharmed.

COHO SALMON

Based on the 13 August midpoint of the Big Eddy and Middle Mouth sites combined (Table 6), timing of coho salmon caught in the 2007 Lower Yukon River drift gillnet test fishery was earlier than the average of 15 August, based on 2001–2006 operations (Table 7; Figure 9). The long term average (1980–1993 and 1995–1999) midpoint based on the set gillnet project was 18 August. Test fishing operations were terminated early in 1994 and 2000, and data from these years was not included in the calculation of the long term average midpoint (Stack *Unpublished*). The pulses of coho salmon caught in the Big Eddy and Middle Mouth drift gillnet test fisheries followed the trends observed in the Pilot Station sonar estimates (Figures 10–12). The midpoint for the coho run occurred on 13 August at both the Big Eddy and Middle Mouth drift gillnet locations (Table 6). The midpoint of the coho salmon run as estimated by passage at Pilot Station sonar occurred on 14 August (Table 5). On average, coho salmon take approximately 3.3 days to travel between the Lower Yukon test fishery and the Pilot Station sonar project, equating to an average travel speed of 30 miles (48.3 km) per day. The relative timing of the pulses at the Lower Yukon test fishery did appear to track with the passage timing at Pilot Station sonar when using a lag time of 3 days (Figures 10–12).

Of the 528 coho salmon captured in the test fishery, 62 coho salmon were released unharmed, none were sold or discarded, and 466 were distributed to local residents for subsistence uses with the assistance of the USFWS (Appendix A3).

RECOMMENDATIONS

In 2007, the Lower Yukon drift gillnet test fishing project provided useful information concerning the entry of each pulse of fall chum and coho salmon into the river. Moreover, the timing information is utilized to track the pulses as they pass through the various Yukon River fisheries and other assessment projects. The Lower Yukon test fishery project should continue operating for the purpose of fall run assessment in the lowest portion of the river, 3 days prior to

the assessment by the Pilot Station sonar project which is upstream of significant fishing activity. The fall test fishery aids in the management of the fall season commercial and subsistence fisheries in the Lower Yukon River, and provides run strength information to subsistence users for maximizing their fishing efficiency.

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TABLES AND FIGURES

Table 1.—Catch and CPUE data for fall chum salmon in the Lower Yukon drift gillnet test fishery, 2007.

Date	Big Eddy			Middle Mouth			Combined		
	Daily Catch	Daily CPUE	Cum. CPUE	Daily Catch	Daily CPUE	Cum. CPUE	Daily Catch	Daily CPUE	Cum. CPUE
7/16	4	5.37	5.37	2	3.33	3.33	6	4.35	4.35
7/17	5	6.11	11.48	7	11.34	14.67	12	8.73	13.08
7/18	1	1.58	13.06	2	2.96	17.63	3	2.27	15.35
7/19	1	1.58	14.64	0	0.00	17.63	1	0.79	16.14
7/20	2	3.55	18.19	3	3.08	20.71	5	3.32	19.45
7/21	0	0.00	18.19	4	6.04	26.75	4	3.02	22.47
7/22	0	0.00	18.19	0	0.00	26.75	0	0.00	22.47
7/23	0	0.00	18.19	0	0.00	26.75	0	0.00	22.47
7/24	0	0.00	18.19	1	1.46	28.21	1	0.73	23.20
7/25	0	0.00	18.19	0	0.00	28.21	0	0.00	23.20
7/26	0	0.00	18.19	1	1.46	29.68	1	0.73	23.93
7/27	0	0.00	18.19	1	1.54	31.22	1	0.77	24.70
7/28	3	4.47	22.66	2	3.00	34.22	5	3.73	28.44
7/29	0	0.00	22.66	0	0.00	34.22	0	0.00	28.44
7/30	0	0.00	22.66	1	1.54	35.75	1	0.77	29.20
7/31	0	0.00	22.66	0	0.00	35.75	0	0.00	29.20
8/01	0	0.00	22.66	0	0.00	35.75	0	0.00	29.20
8/02	17	21.64	44.30	1	1.54	37.29	18	11.59	40.80
8/03	20	26.28	70.58	0	0.00	37.29	20	13.14	53.94
8/04	0	0.00	70.58	1	1.54	38.83	1	0.77	54.71
8/05	0	0.00	70.58	1	1.46	40.29	1	0.73	55.44
8/06	83	123.61	194.19	78	98.18	138.47	161	110.89	166.33
8/07	107	136.25	330.44	106	138.11	276.59	213	137.18	303.51
8/08	6	8.79	339.23	70	121.16	397.75	76	64.98	368.49
8/09	1	1.54	340.77	3	4.50	402.25	4	3.02	371.51
8/10	2	2.86	343.63	3	3.00	405.25	5	2.93	374.44
8/11	15	18.54	362.16	0	0.00	405.25	15	9.27	383.71
8/12	117	183.91	546.07	1	1.50	406.75	118	92.70	476.41
8/13	169	244.95	791.01	34	54.38	461.13	203	149.66	626.07
8/14	1	3.08	794.09 ^a	20	62.00	523.13 ^a	21	32.54	658.61
8/15	3	4.50	798.59	6	9.73	532.86	9	7.11	665.72
8/16	0	0.00	798.59	11	16.98	549.84	11	8.49	674.22
8/17	1	1.54	800.13	9	13.66	563.50	10	7.60	681.81
8/18	4	5.85	805.98	4	5.90	569.40	8	5.87	687.69
8/19	9	13.17	819.15 ^a	2	2.93	572.32 ^a	11	8.05	695.74
8/20	0	0.00	819.15	2	3.17	575.49	2	1.58	697.32
8/21	0	0.00	819.15	1	1.71	577.20	1	0.86	698.18
8/22	0	0.00	819.15	1	1.46	578.67	1	0.73	698.91
8/23	17	18.89	838.04	1	1.50	580.17	18	10.19	709.10
8/24	122	181.53	1,019.58 ^a	3	4.50	584.67 ^a	125	93.02	802.12
8/25	47	149.62	1,169.20	30	43.94	628.61	77	96.78	898.90
8/26	27	38.64	1,207.84 ^a	12	18.31	646.91 ^a	39	28.48	927.38
8/27	2	3.00	1,210.84	4	6.24	653.16	6	4.62	932.00
8/28	85	117.31	1,328.15	7	11.23	664.39	92	64.27	996.27
Total	871		1,328.15	435		664.39	1,306		996.27

Note: The box within the column indicates the first to the third quartile of the cumulative index. The median date of the cumulative index is indicated in the bold box.

^a Commercial fishing occurred in District Y-1.

Table 2.—Historical CPUE data for fall chum salmon in the Lower Yukon drift gillnet test fishery, 2001–2007.

Date	2001		2002		2003		2004		2005		2006		2007		2001–2006 Average	
	Daily CPUE	Cum. CPUE	Daily CPUE	Cum. CPUE												
7/16	21.28	21.28	0.79	0.79	25.78	25.78	0.00	0.00	11.22	11.22	69.62	69.62	4.35	4.35	21.45	21.45
7/17	149.66	170.94	11.03	11.82	20.68	46.46	0.00	0.00	14.11	25.33	9.65	79.27	8.73	13.08	34.18	55.63
7/18	139.21	310.14	0.00	11.82	1.50	47.96	0.72	0.72	231.72	257.04	3.81	83.08	2.27	15.35	62.82	118.46
7/19	27.38	337.52	3.01	14.82	1.84	49.79	48.07	48.79	99.31	356.35	0.86	83.93	0.79	16.14	30.08	148.53
7/20	1.50	339.02	0.00	14.82	1.58	51.37	15.96	64.74	22.54	378.89	0.00	83.93	3.32	19.45	6.93	155.46
7/21	3.00	342.02	0.73	15.55	24.23	75.60	19.89	84.63	2.24	381.12	11.79	95.72	3.02	22.47	10.31	165.77
7/22	6.31	348.32	0.00	15.55	41.50	117.10	5.28	89.90	0.86	381.98	2.25	97.97	0.00	22.47	9.36	175.13
7/23	50.64	398.96	0.00	15.55	15.10	132.19	1.60	91.50	0.72	382.69	0.75	98.72	0.00	22.47	11.47	186.60
7/24	64.87	463.83	0.00	15.55	9.75	141.94	0.77	92.27	1.40	384.09	2.33	101.05	0.73	23.20	13.19	199.79
7/25	31.44	495.27	54.30	69.85	2.29	144.23	0.75	93.02	0.77	384.86	7.24	108.29	0.00	23.20	16.13	215.92
7/26	4.25	499.52	3.27	73.12	6.61	150.84	5.11	98.13	3.79	388.65	0.00	108.29	0.73	23.93	3.84	219.75
7/27	11.33	510.85	9.29	82.41	84.82	235.66	1.55	99.68	2.22	390.86	77.34	185.63	0.77	24.70	31.09	250.84
7/28	4.62	515.46	35.28	117.69	25.61	261.27	0.00	99.68	5.39	396.25	89.31	274.94	3.73	28.44	26.70	277.54
7/29	0.77	516.23	32.18	149.86	17.68	278.94	0.73	100.41	123.99	520.24	81.91	356.84	0.00	28.44	42.87	320.42
7/30	7.54	523.77	1.54	151.40	1.59	280.53	0.00	100.41	42.22	562.46	87.06	443.90	0.77	29.20	23.32	343.74
7/31	95.32	619.09	0.00	151.40	0.84	281.36	6.89	107.29	473.54	1,036.00	33.20	477.10	0.00	29.20	101.63	445.37
8/01	43.12	662.20	15.57	166.97	4.83	286.19	146.73	254.02	34.74	1,070.73	47.63	524.72	0.00	29.20	48.77	494.14
8/02	114.07	776.27	1.54	168.51	0.75	286.94	74.50	328.52	0.75	1,071.48	18.48	543.20	11.59	40.80	35.01	529.15
8/03	101.86	878.13	5.84	174.35	203.48	490.42	18.10	346.62	2.95	1,074.43	2.39	545.58	13.14	53.94	55.77	584.92
8/04	22.58	900.71	0.77	175.12	179.98	670.40	12.06	358.68	0.75	1,075.18	2.74	548.32	0.77	54.71	36.48	621.40
8/05	7.00	907.70	0.79	175.91	15.99	686.38	2.22	360.89	124.68	1,199.85	11.99	560.31	0.73	55.44	27.11	648.51
8/06	100.73	1,008.43	0.00	175.91	1.54	687.92	3.79	364.68	256.76	1,456.61	28.36	588.66	110.89	166.33	65.19	713.70
8/07	136.78	1,145.20	18.10	194.01	0.00	687.92	2.27	366.95	105.32	1,561.92	12.78	601.44	137.18	303.51	45.87	759.57
8/08	32.57	1,177.77	16.55	210.55	0.00	687.92	59.62	426.57	52.04	1,613.96	9.07	610.51	64.98	368.49	28.31	787.88
8/09	19.44	1,197.21	95.72	306.27	2.85	690.77	51.31	477.88	19.47	1,633.43	3.79	614.30	3.02	371.51	32.10	819.97
8/10	16.23	1,213.43	49.88	356.15	25.26	716.03	16.64	494.52	12.46	1,645.89	0.00	614.30	2.93	374.44	20.08	840.05
8/11	2.91	1,216.34	19.38	375.52	3.09	719.11	1.54	496.06	20.90	1,666.79	1.50	615.80	9.27	383.71	8.22	848.27
8/12	26.21	1,242.55	23.14	398.66	65.33	784.44	0.00	496.06	7.97	1,674.76	185.14	800.93	92.70	476.41	51.30	899.57
8/13	27.06	1,269.61	20.94	419.60	0.00	784.44	2.52	498.58	3.03	1,677.78	31.52	832.45	149.66	626.07	14.18	913.74
8/14	17.26	1,286.87	7.08	426.67	55.12	839.56	24.61	523.19	30.03	1,707.81	7.90	840.34	32.54	658.61	23.66	937.41
8/15	11.23	1,298.10	18.65	445.32	259.41	1,098.97	10.44	533.63	17.94	1,725.75	36.98	877.32	7.11	665.72	59.11	996.51
8/16	3.76	1,301.86	284.72	730.03	48.76	1,147.73	0.00	533.63	6.63	1,732.37	11.03	888.35	8.49	674.22	59.15	1,055.66
8/17	1.56	1,303.42	38.44	768.47	12.61	1,160.34	2.12	535.75	13.04	1,745.41	32.06	920.40	7.60	681.81	16.64	1,072.29

-continued-

Table 2.–Page 2 of 2.

Date	2001		2002		2003		2004		2005		2006		2007		2001–2006 Average	
	Daily CPUE	Cum. CPUE	Daily CPUE	Cum. CPUE												
8/18	2.29	1,305.71	12.06	780.53	4.72	1,165.06	1.47	537.21	71.54	1,816.94	15.14	935.54	5.87	687.69	17.87	1,090.16
8/19	0.00	1,305.71	6.68	787.20	0.00	1,165.06	0.00	537.21	69.99	1,886.93	92.10	1,027.64	8.05	695.74	28.13	1,118.29
8/20	2.33	1,308.04	2.85	790.05	2.33	1,167.39	119.04	656.25	50.03	1,936.95	34.02	1,061.65	1.58	697.32	35.10	1,153.39
8/21	13.83	1,321.87	5.66	795.71	3.92	1,171.31	20.35	676.60	43.27	1,980.22	7.77	1,069.42	0.86	698.18	15.80	1,169.19
8/22	3.75	1,325.62	13.04	808.75	21.23	1,192.53	0.77	677.37	64.93	2,045.15	0.84	1,070.25	0.73	698.91	17.42	1,186.61
8/23	0.00	1,325.62	3.95	812.70	34.13	1,226.66	0.00	677.37	128.61	2,173.75	20.95	1,091.20	10.19	709.10	31.27	1,217.88
8/24	0.77	1,326.39	0.00	812.70	17.16	1,243.82	5.81	683.18	58.17	2,231.92	15.48	1,106.68	93.02	802.12	16.23	1,234.11
8/25	0.00	1,326.39	0.00	812.70	3.00	1,246.82	10.32	693.50	30.22	2,262.14	2.50	1,109.18	96.78	898.90	7.67	1,241.79
8/26	0.00	1,326.39	0.00	812.70	2.33	1,249.15	17.81	711.31	18.25	2,280.39	5.00	1,114.18	28.48	927.38	7.23	1,249.02
8/27	0.00	1,326.39	0.79	813.49	0.00	1,249.15	44.26	755.56	11.45	2,291.84	27.47	1,141.64	4.62	932.00	13.99	1,263.01
8/28	0.00	1,326.39	3.08	816.57	0.00	1,249.15	–	755.56	11.78	2,303.62	8.61	1,150.25	64.27	996.27	4.69	1,266.92
8/29	–	1,326.39	–	816.57	–	1,249.15	–	755.56	33.59	2,337.21	–	1,150.25	–	996.27	33.59	1,272.52
Totals	1,326.39		816.57		1,249.15		755.56		2,337.21		1,150.25		996.27		1,272.52	

Note: The box within the column indicates the first to the third quartile of the cumulative index. The median date of the cumulative index is indicated in the bold box. The historical cumulative CPUE is computed by assuming that 100% of the run was completed on the date of project termination.

Table 3.—Summary of fall chum salmon age and sex data for the Lower Yukon drift gillnet test fishery, 2007.

			2003		2002		2001		Total	
			Age 0.3		Age 0.4		Age 0.5			
			No.	%	No.	%	No.	%	No.	%
Big Eddy										
Sample Size	336	Males	126	37.5	32	9.5	7	2.1	165	49.1
		Females	123	36.6	41	12.2	7	2.1	171	50.9
		Total	249	74.1	73	21.7	14	4.2	336	100.0
Middle Mouth										
Sample Size	183	Males	47	25.7	10	5.5	0	0.0	57	31.1
		Females	91	49.7	31	16.9	4	2.2	126	68.9
		Total	138	75.4	41	22.4	4	2.2	183	100.0
Total										
Season Total	519	Males	173	33.3	42	8.1	7	1.3	222	42.8
		Females	214	41.2	72	13.9	11	2.1	297	57.2
		Total	387	74.6	114	22.0	18	3.5	519	100.0

Table 4.—Summary of fall chum salmon length (mm) by age and sex for the Lower Yukon drift gillnet test fishery, 2007.

			2003		2002		2001	
			Age 0.3		Age 0.4		Age 0.5	
Big Eddy	Mean Length	Males	586		602		599	
	Std. Error		2		5		9	
	Mean Length	Females	578		587		599	
	Std. Error		2		4		9	
Middle Mouth	Mean Length	Males	590		611		-	
	Std. Error		4		8		-	
	Mean Length	Females	579		590		604	
	Std. Error		2		5		5	
Total	Mean Length	Males	587		604		599	
	Std. Error		2		4		9	
	Mean Length	Females	579		588		601	
	Std. Error		1		3		6	

Table 5.—Preliminary Pilot Station fall season sonar passage estimates attributed to fall chum and coho salmon, 2007.

Date	Fall Chum		Coho	
	Daily	Cum.	Daily	Cum.
7/19	19,920	19,920	0	0
7/20	9,056	28,976	0	0
7/21	9,606	38,582	271	271
7/22	4,970	43,552	170	441
7/23	6,239	49,791	189	630
7/24	1,928	51,719	410	1,040
7/25	1,876	53,595	0	1,040
7/26	1,528	55,123	65	1,105
7/27	2,845	57,968	168	1,273
7/28	3,418	61,386	173	1,446
7/29	2,168	63,554	100	1,546
7/30	7,788	71,342	535	2,081
7/31	12,667	84,009	99	2,180
8/01	6,778	90,787	949	3,129
8/02	4,306	95,093	1,673	4,802
8/03	4,880	99,973	1,805	6,607
8/04	10,709	110,682	760	7,367
8/05	8,874	119,556	2,639	10,006
8/06	2,319	121,875	2,541	12,547
8/07	831	122,706	1,729	14,276
8/08	22,437	145,143	2,914	17,190
8/09	123,185	268,328	7,569	24,759
8/10	91,991	360,319	12,158	36,917
8/11	24,758	385,077	19,176	56,093
8/12	6,752	391,829	13,291	69,384
8/13	12,839	404,668	9,452	78,836
8/14	16,880	421,548	8,387	87,223
8/15	85,911	507,459	8,387	95,610
8/16	57,178	564,637	5,793	101,403
8/17	17,573	582,210	17,185	118,588
8/18	5,250	587,460	8,021	126,609
8/19	2,507	589,967	4,405	131,014
8/20	2,710	592,677	4,095	135,109
8/21	1,269	593,946	3,861	138,970
8/22	5,451	599,397	2,831	141,801
8/23	3,856	603,253	2,500	144,301
8/24	1,872	605,125	1,034	145,335
8/25	1,434	606,559	1,573	146,908
8/26	17,659	624,218	1,647	148,555
8/27	21,596	645,814	3,492	152,047
8/28	3,972	649,786	6,487	158,534
8/29	8,292	658,078	3,274	161,808
8/30	11,343	669,421	4,316	166,124
8/31	14,590	684,011	7,165	173,289
Total	684,011		173,289	

Note: The box within the column indicates the first to the third quartile of the cumulative index. The median date of the cumulative index is indicated in the bold box.

Table 6.—Catch and CPUE data for coho salmon in the Lower Yukon drift gillnet test fishery, 2007.

Date	Big Eddy			Middle Mouth			Combined		
	Daily Catch	Daily CPUE	Cum. CPUE	Daily Catch	Daily CPUE	Cum. CPUE	Daily Catch	Daily CPUE	Cum. CPUE
7/16	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
7/17	1	1.33	1.33	0	0.00	0.00	1	0.67	0.67
7/18	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/19	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/20	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/21	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/22	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/23	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/24	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/25	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/26	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/27	0	0.00	1.33	0	0.00	0.00	0	0.00	0.67
7/28	0	0.00	1.33	1	1.50	1.50	1	0.75	1.42
7/29	0	0.00	1.33	0	0.00	1.50	0	0.00	1.42
7/30	2	2.93	4.26	0	0.00	1.50	2	1.46	2.88
7/31	0	0.00	4.26	1	1.54	3.04	1	0.77	3.65
8/01	1	1.50	5.76	0	0.00	3.04	1	0.75	4.40
8/02	18	22.04	27.80	0	0.00	3.04	18	11.02	15.42
8/03	8	10.43	38.23	1	1.46	4.50	9	5.95	21.37
8/04	0	0.00	38.23	2	3.00	7.50	2	1.50	22.87
8/05	0	0.00	38.23	6	8.89	16.39	6	4.45	27.31
8/06	21	32.17	70.40	15	17.68	34.07	36	24.93	52.24
8/07	21	28.02	98.42	44	44.42	78.49	65	36.22	88.45
8/08	0	0.00	98.42	32	55.96	134.45	32	27.98	116.43
8/09	1	1.54	99.96	1	1.50	135.95	2	1.52	117.95
8/10	1	1.40	101.35	0	0.00	135.95	1	0.70	118.65
8/11	13	17.64	118.99	1	1.50	137.45	14	9.57	128.22
8/12	52	80.94	199.94	4	6.00	143.45	56	43.47	171.69
8/13	87	124.30	324.23	58	91.79	235.24	145	108.05	279.74
8/14	4	12.31	336.54 ^a	9	27.00	262.24 ^a	13	19.65	299.39
8/15	0	0.00	336.54	7	11.04	273.28	7	5.52	304.91
8/16	0	0.00	336.54	8	12.39	285.67	8	6.20	311.11
8/17	2	3.08	339.62	7	10.89	296.57	9	6.99	318.09
8/18	2	2.96	342.58	2	3.00	299.57	4	2.98	321.07
8/19	3	4.39	346.97 ^a	3	4.43	303.99 ^a	6	4.41	325.48
8/20	0	0.00	346.97	11	17.32	321.31	11	8.66	334.14
8/21	0	0.00	346.97	4	6.86	328.17	4	3.43	337.57
8/22	0	0.00	346.97	1	1.46	329.63	1	0.73	338.30
8/23	1	1.11	348.08	2	3.00	332.63	3	2.06	340.36
8/24	7	10.29	358.37 ^a	1	1.50	334.13 ^a	8	5.90	346.25
8/25	7	16.25	374.63	14	20.49	354.62	21	18.37	364.62
8/26	4	22.86	397.49 ^a	7	10.65	365.27 ^a	11	16.76	381.38
8/27	1	1.54	399.02	2	3.17	368.44	3	2.35	383.73
8/28	10	14.69	413.71	17	26.88	395.32	27	20.78	404.52
Total	267		413.71	261		395.32	528		404.52

Note: The box within the column indicates the first to the third quartile of the cumulative index. The median date of the cumulative index is indicated in the bold box.

^a Commercial fishing occurred in District Y-1.

Table 7.—Historical CPUE data for coho salmon in the Lower Yukon drift gillnet test fishery, 2001–2007.

Date	2001		2002		2003		2004		2005		2006		2007		2001-2006 Average	
	Daily CPUE	Cum. CPUE	Daily CPUE	Cum. CPUE												
7/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7/17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.67	0.00	0.00
7/18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
7/19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
7/20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
7/21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
7/22	0.00	0.00	0.00	0.00	0.79	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.13	0.13
7/23	1.50	1.50	0.00	0.00	0.84	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.39	0.52
7/24	0.88	2.38	0.00	0.00	0.00	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.15	0.67
7/25	0.00	2.38	0.00	0.00	0.00	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.67
7/26	0.00	2.38	0.00	0.00	0.00	1.63	0.72	0.72	0.00	0.00	0.84	0.84	0.00	0.67	0.26	0.93
7/27	0.75	3.13	0.00	0.00	11.95	13.57	0.00	0.72	0.00	0.00	2.65	3.49	0.00	0.67	2.56	3.48
7/28	0.00	3.13	0.00	0.00	3.08	16.65	0.00	0.72	0.00	0.00	1.50	4.99	0.75	1.42	0.76	4.25
7/29	0.00	3.13	0.00	0.00	5.27	21.91	0.00	0.72	3.64	3.64	6.17	11.16	0.00	1.42	2.51	6.76
7/30	0.75	3.88	0.00	0.00	0.00	21.91	0.00	0.72	3.13	6.76	8.30	19.46	1.46	2.88	2.03	8.79
7/31	3.05	6.93	0.00	0.00	0.79	22.70	0.00	0.72	6.68	13.44	3.98	23.43	0.77	3.65	2.42	11.20
8/01	0.00	6.93	2.04	2.04	2.39	25.09	1.35	2.06	3.11	16.55	3.69	27.12	0.75	4.40	2.09	13.30
8/02	4.86	11.79	0.00	2.04	0.00	25.09	8.00	10.06	0.73	17.28	0.75	27.87	11.02	15.42	2.39	15.69
8/03	13.29	25.07	2.20	4.24	55.61	80.70	6.67	16.73	1.45	18.73	1.03	28.89	5.95	21.37	13.37	29.06
8/04	9.85	34.92	0.00	4.24	67.84	148.54	0.00	16.73	0.00	18.73	0.00	28.89	1.50	22.87	12.95	42.00
8/05	5.70	40.62	0.72	4.95	10.94	159.47	0.77	17.50	2.65	21.38	3.18	32.07	4.45	27.31	3.99	46.00
8/06	18.03	58.65	0.00	4.95	0.00	159.47	0.00	17.50	19.87	41.25	0.00	32.07	24.93	52.24	6.32	52.31
8/07	50.38	109.02	5.53	10.48	0.77	160.24	0.00	17.50	36.04	77.29	1.27	33.34	36.22	88.45	15.66	67.98
8/08	21.82	130.84	5.18	15.66	0.00	160.24	4.68	22.17	16.83	94.11	1.11	34.45	27.98	116.43	8.27	76.24
8/09	14.08	144.92	16.70	32.35	5.15	165.39	19.97	42.14	5.63	99.74	0.67	35.12	1.52	117.95	10.36	86.61
8/10	27.75	172.67	9.56	41.91	12.64	178.03	14.38	56.52	4.41	104.15	1.58	36.70	0.70	118.65	11.72	98.33
8/11	15.41	188.07	26.15	68.06	7.62	185.65	5.39	61.90	4.18	108.33	1.61	38.30	9.57	128.22	10.06	108.38
8/12	28.61	216.68	15.58	83.63	33.53	219.17	1.39	63.29	7.96	116.28	10.21	48.51	43.47	171.69	16.21	124.59
8/13	31.52	248.20	21.92	105.55	3.08	222.25	4.02	67.31	3.85	120.13	3.80	52.31	108.05	279.74	11.36	135.96
8/14	28.23	276.42	5.34	110.89	53.68	275.93	25.69	93.00	10.42	130.55	4.01	56.32	19.65	299.39	21.23	157.18
8/15	34.28	310.70	20.02	130.90	261.64	537.56	5.26	98.25	5.49	136.03	14.16	70.47	5.52	304.91	56.80	213.99
8/16	13.58	324.28	102.86	233.76	41.42	578.98	2.40	100.65	2.99	139.02	3.31	73.78	6.20	311.11	27.76	241.74
8/17	11.14	335.41	45.98	279.74	10.91	589.89	6.61	107.25	8.57	147.59	17.65	91.43	6.99	318.09	16.81	258.55
8/18	9.23	344.64	34.05	313.79	13.87	603.76	9.01	116.26	10.89	158.48	5.97	97.40	2.98	321.07	13.84	272.39
8/19	15.60	360.24	22.75	336.54	2.37	606.13	2.36	118.62	15.29	173.77	35.84	133.24	4.41	325.48	15.70	288.09
8/20	2.35	362.59	10.59	347.12	2.37	608.50	18.72	137.34	8.79	182.56	20.74	153.98	8.66	334.14	10.59	298.68
8/21	11.27	373.86	3.81	350.93	10.14	618.63	58.75	196.09	8.14	190.69	3.92	157.89	3.43	337.57	16.00	314.68

-continued-

Table 7.–Page 2 of 2.

Date	2001		2002		2003		2004		2005		2006		2007		2001-2006 Average	
	Daily CPUE	Cum. CPUE	Daily CPUE	Cum. CPUE												
8/22	14.50	388.36	17.87	368.80	44.84	663.47	1.52	197.61	12.00	202.69	0.00	157.89	0.73	338.30	15.12	329.80
8/23	1.54	389.90	3.04	371.84	24.76	688.23	1.48	199.09	24.81	227.50	2.79	160.68	2.06	340.36	9.74	339.54
8/24	2.29	392.19	3.12	374.96	13.18	701.41	1.50	200.59	27.81	255.31	6.03	166.71	5.90	346.25	8.99	348.53
8/25	0.00	392.19	0.77	375.73	3.79	705.20	11.75	212.33	8.05	263.36	1.69	168.40	18.37	364.62	4.34	352.87
8/26	1.47	393.65	1.03	376.76	3.17	708.36	11.29	223.62	13.02	276.38	11.60	179.99	16.76	381.38	6.93	359.79
8/27	0.00	393.65	0.79	377.55	0.00	708.36	73.83	297.45	4.28	280.66	0.79	180.78	2.35	383.73	13.28	373.07
8/28	0.81	394.46	4.62	382.16	3.16	711.52	–	297.45	2.21	282.87	7.88	188.66	20.78	404.52	3.74	376.19
8/29	–	394.46	–	382.16	–	711.52	–	297.45	17.87	300.73	–	188.66	–	404.52	17.87	379.16
Totals	394.46		382.16		711.52		297.45		300.73		188.66		404.52		379.16	

Note: The box within the column indicates the first to the third quartile of the cumulative index. The median date of the cumulative index is indicated in the bold box. The historical cumulative CPUE is computed by assuming that 100% of the run was completed on the date of project termination.

Table 8.—Summary of coho salmon age and sex data for the Lower Yukon drift gillnet test fishery, 2007.

			Brood Year and Age Class							
			2004		2003		2002		Total	
			Age 1.1		Age 2.1		Age 3.1			
			No.	%	No.	%	No.	%	No.	%
Big Eddy										
Sample Size	150	Males	9	6.0	53	35.3	3	2.0	65	43.3
		Females	9	6.0	73	48.7	3	2.0	85	56.7
		Total	18	12.0	126	84.0	6	4.0	150	100.0
Middle Mouth										
Sample Size	119	Males	16	13.4	63	52.9	0	0.0	79	66.4
		Females	3	2.5	33	27.7	4	3.4	40	33.6
		Total	19	16.0	96	80.7	4	3.4	119	100.0
Total										
Season Total	269	Males	25	9.3	116	43.1	3	1.1	144	53.5
		Females	12	4.5	106	39.4	7	2.6	125	46.5
		Total	37	13.8	222	82.5	10	3.7	269	100.0

Table 9.—Summary of coho salmon length (mm) by age and sex for the Lower Yukon drift gillnet test fishery, 2007.

			Brood Year and Age Class		
			2004	2003	2002
			Age 1.1	Age 2.1	Age 3.1
Big Eddy	Mean Length	Males	585	587	595
	Std. Error		8	4	25
	Mean Length	Females	589	589	590
	Std. Error		7	2	6
Middle Mouth	Mean Length	Males	577	581	-
	Std. Error		9	5	-
	Mean Length	Females	583	591	586
	Std. Error		12	4	11
Total	Mean Length	Males	580	584	595
	Std. Error		6	3	25
	Mean Length	Females	588	590	588
	Std. Error		6	2	6

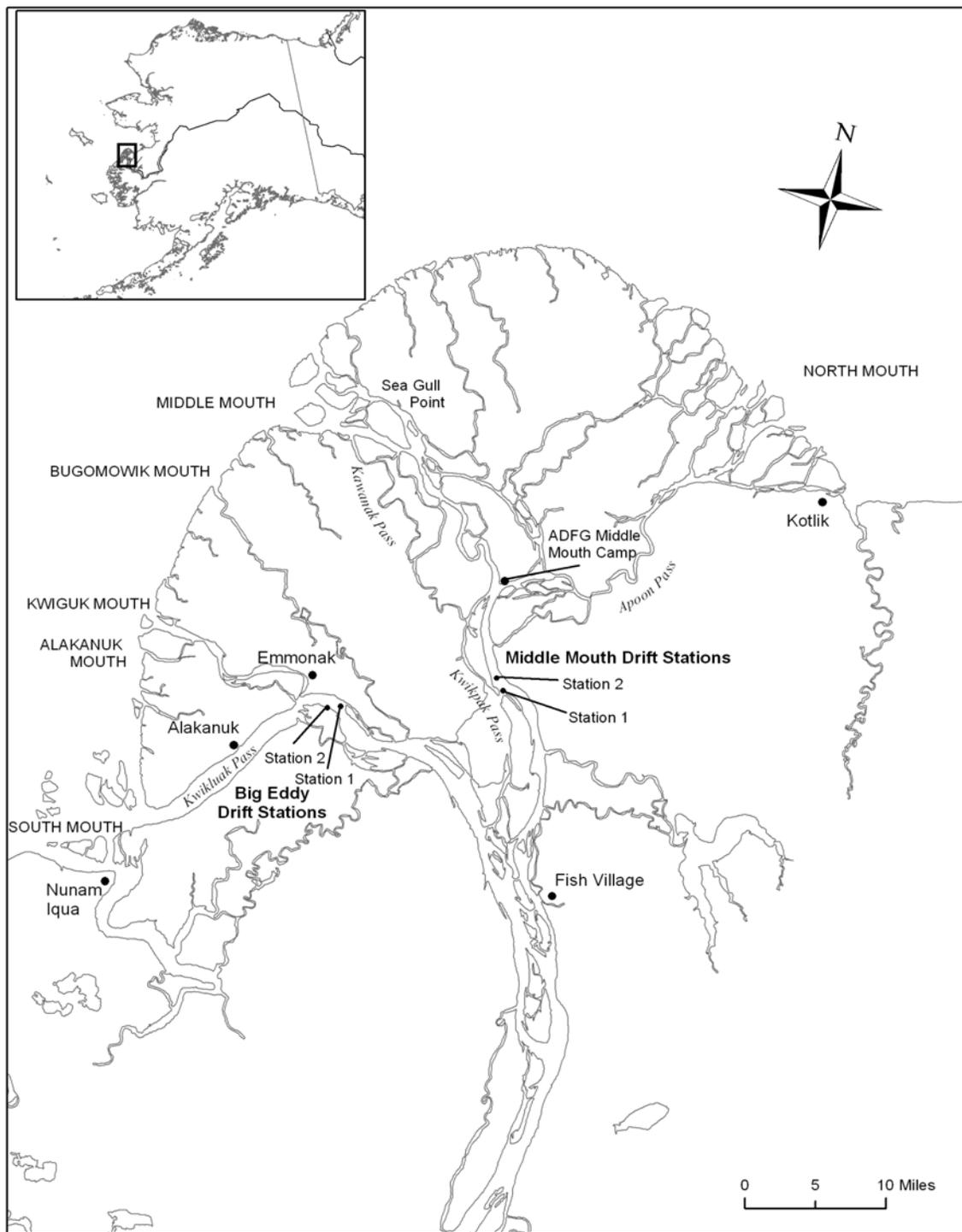


Figure 1.—Drift site locations by station for the cooperative Lower Yukon drift gillnet test fishery, 2007.

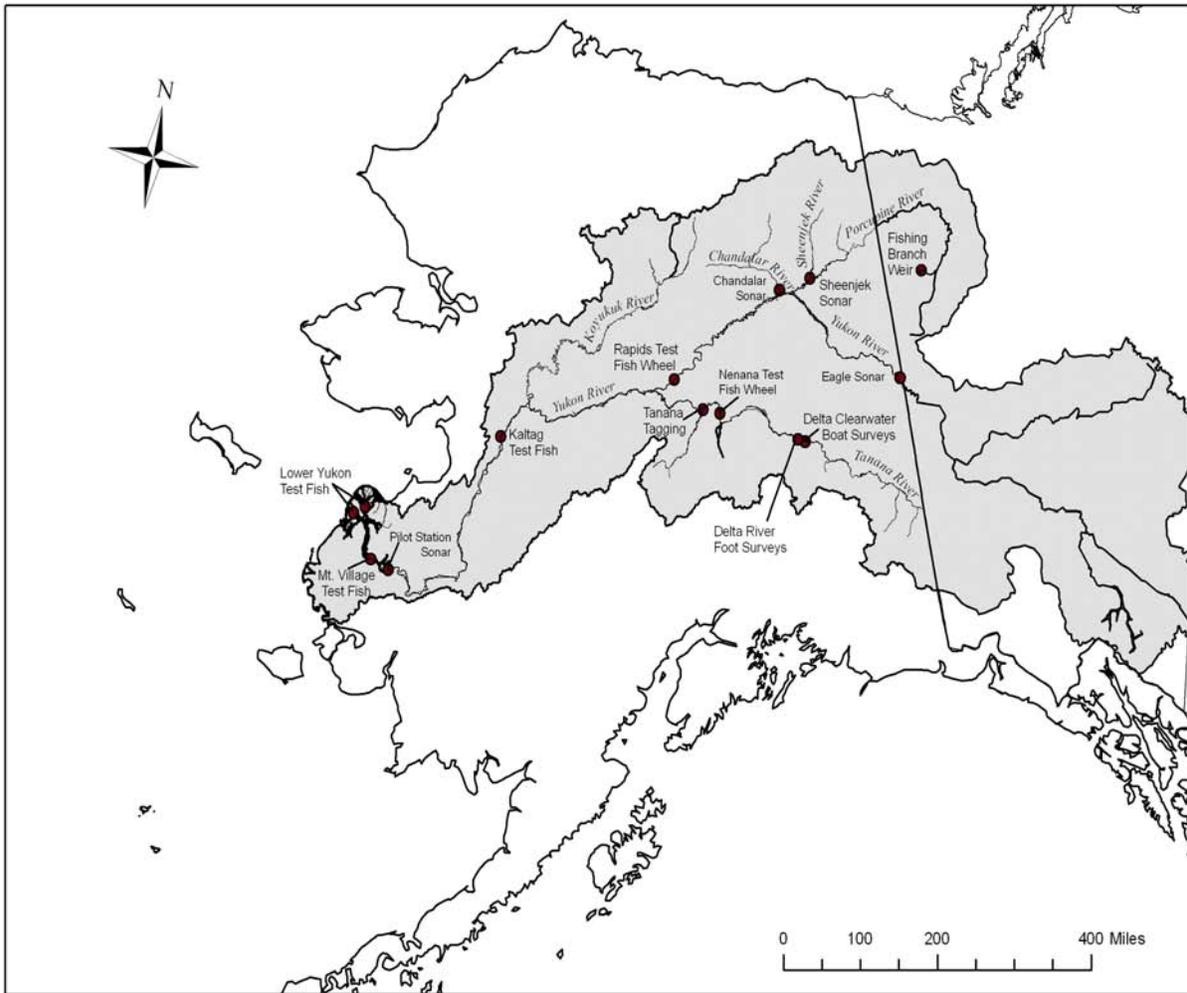


Figure 2.—Project site locations for salmon assessment in the Yukon River drainage, highlighting the Lower Yukon drift gillnet test fishery and Pilot Station Sonar, 2007.

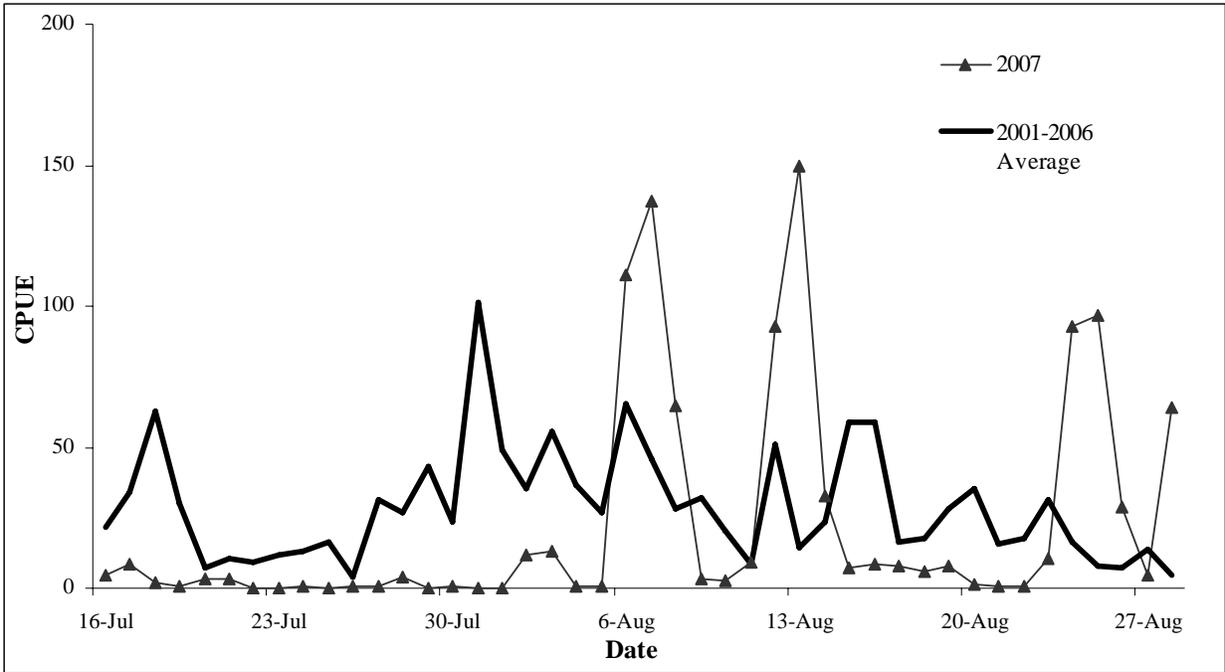


Figure 3.—Daily CPUE for fall chum salmon in the Lower Yukon drift gillnet test fishery, 2007, compared to the 2001–2006 average.

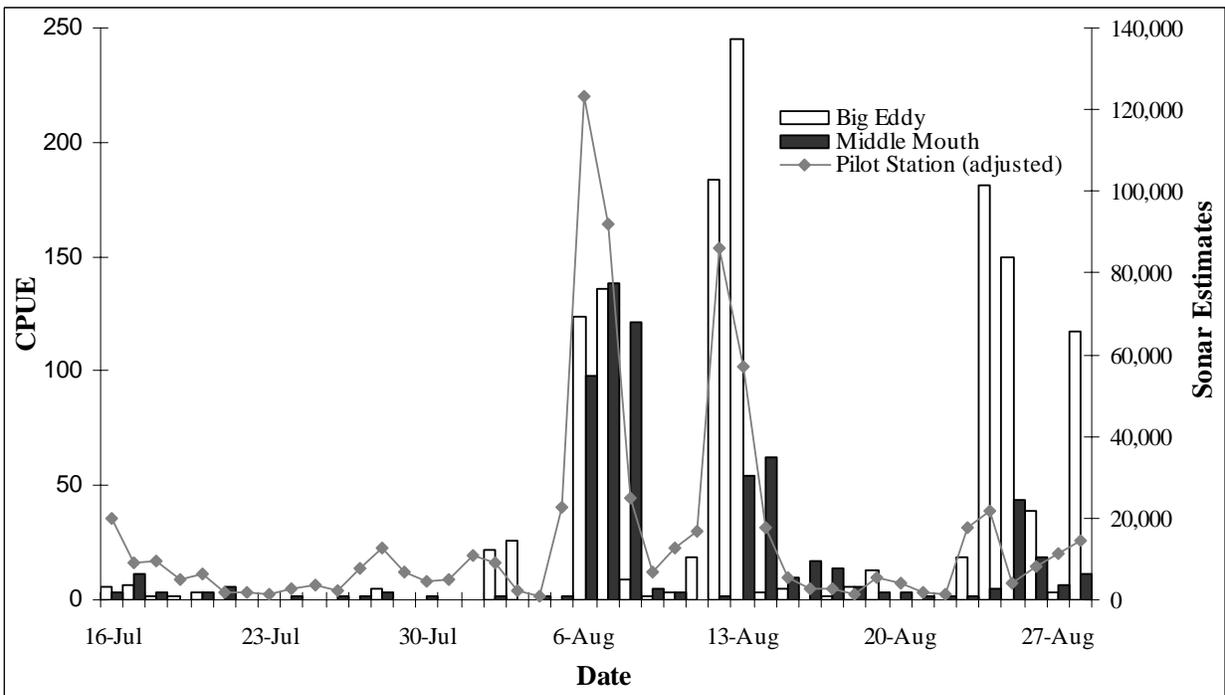


Figure 4.—Daily CPUE for fall chum salmon in the Big Eddy and Middle Mouth drift gillnet test fishery compared to Pilot Station sonar passage estimates, adjusted for transit time, 2007.

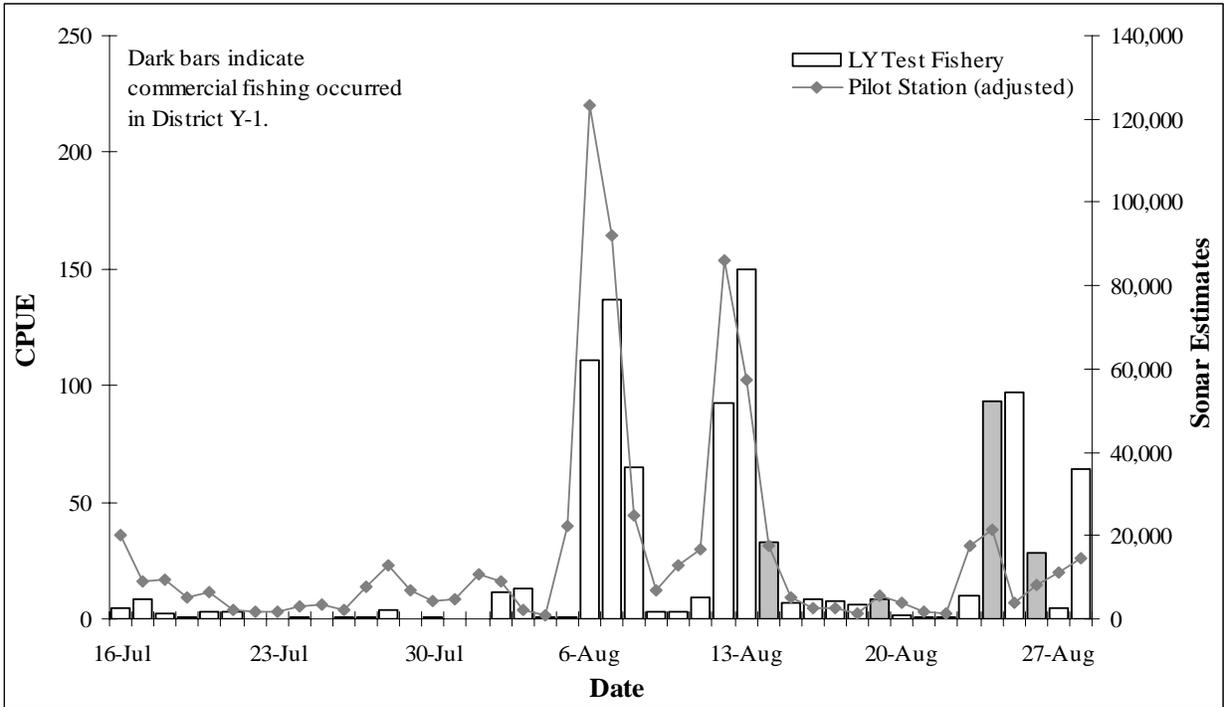


Figure 5.—Daily CPUE for fall chum salmon in the Lower Yukon drift gillnet test fishery compared to Pilot Station sonar passage estimates, adjusted for transit time, 2007.

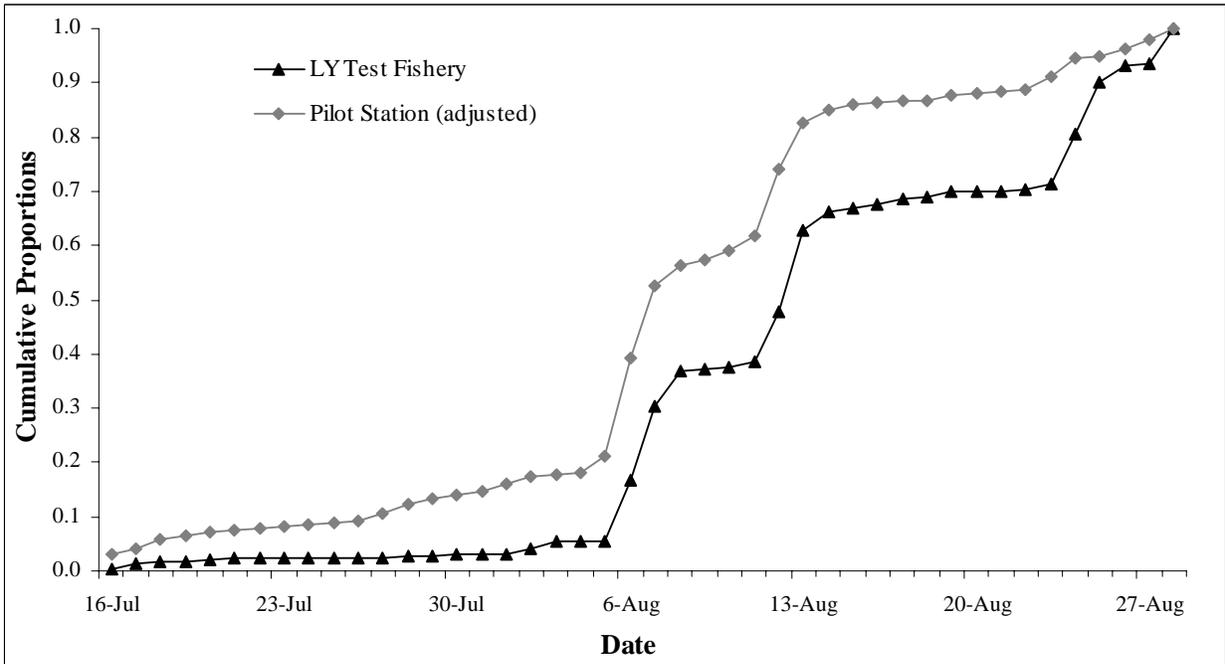


Figure 6.—Cumulative proportions for fall chum salmon from the Lower Yukon drift gillnet test fishery compared to Pilot Station, adjusted for transit time, 2007.

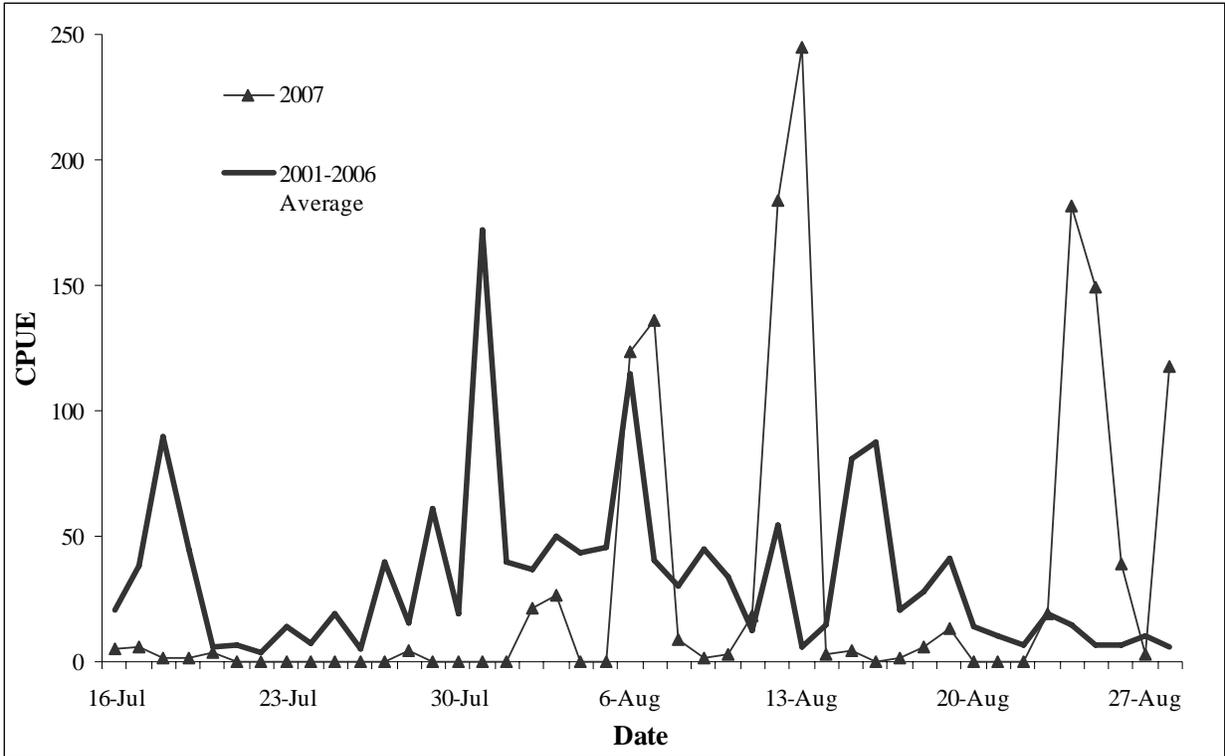


Figure 7.—Daily CPUE for fall chum salmon at Big Eddy, 2007, compared to 2001–2006 average.

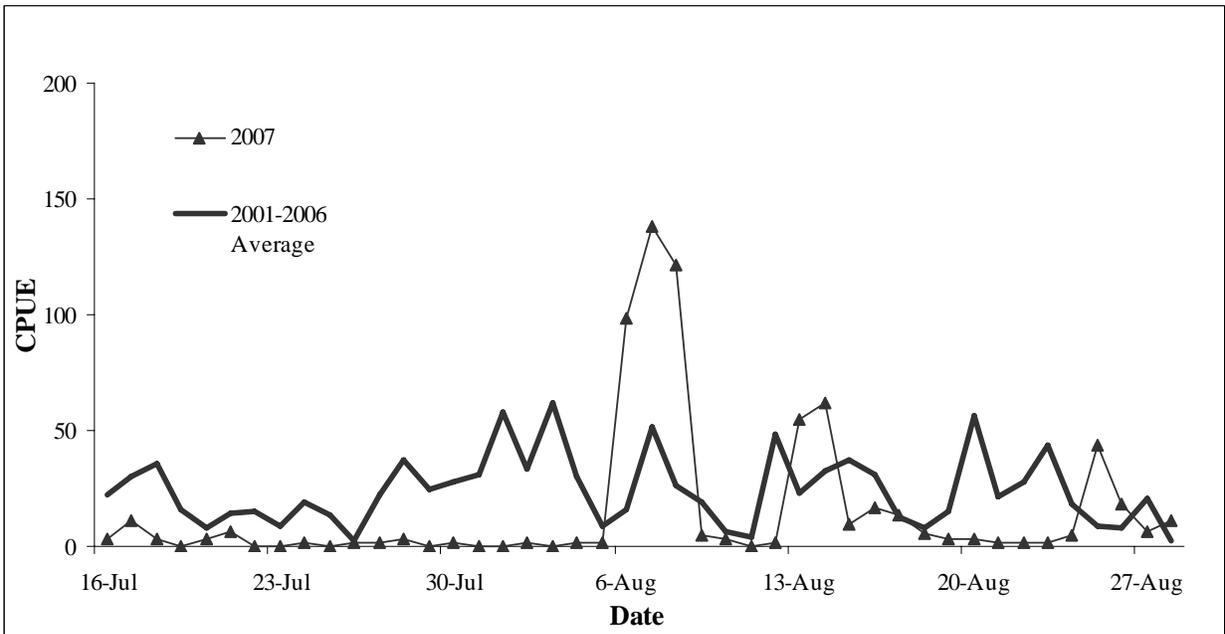


Figure 8.—Daily CPUE for fall chum salmon at Middle Mouth, 2007, compared to the 2001–2006 average.

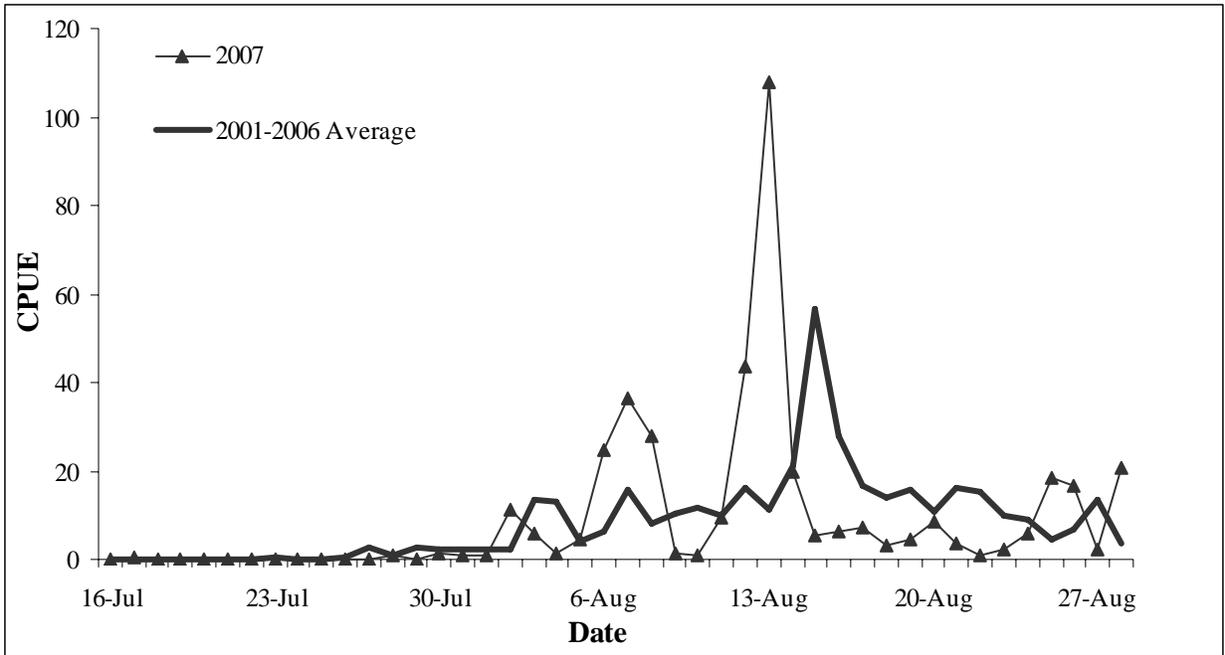


Figure 9.—Daily CPUE for coho salmon in the Lower Yukon drift gillnet test fishery, 2007, compared to the 2001–2006 average.

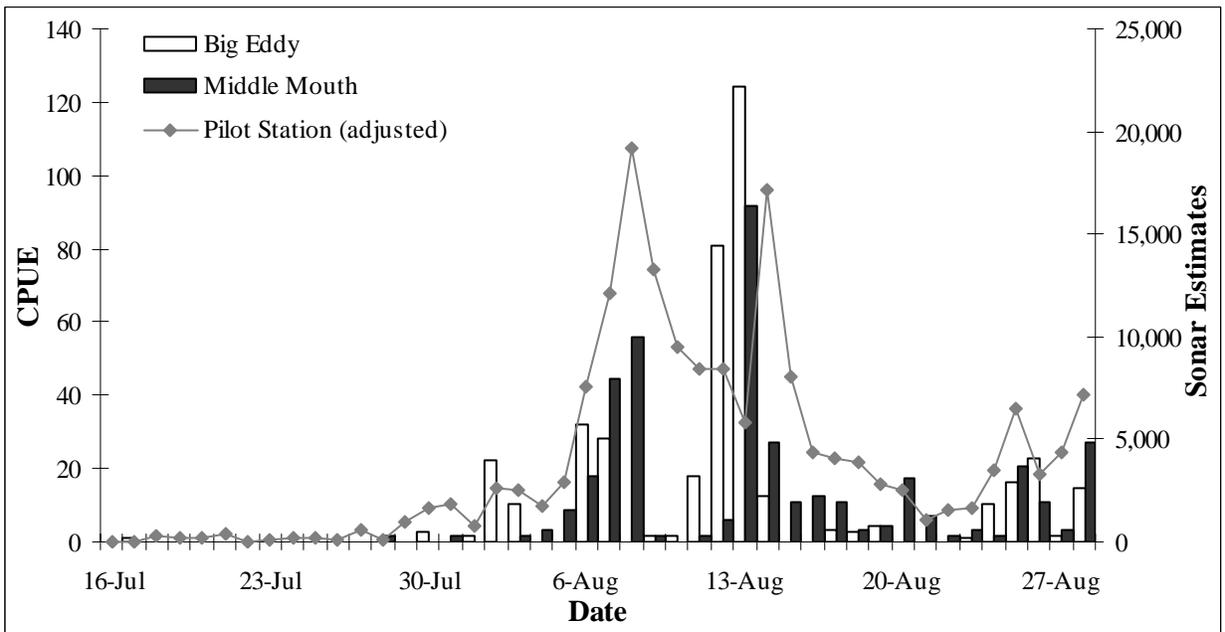


Figure 10.—Daily CPUE for coho salmon from Big Eddy and Middle Mouth drift gillnet test fishery, compared to Pilot Station sonar passage estimates, adjusted for transit time, 2007.

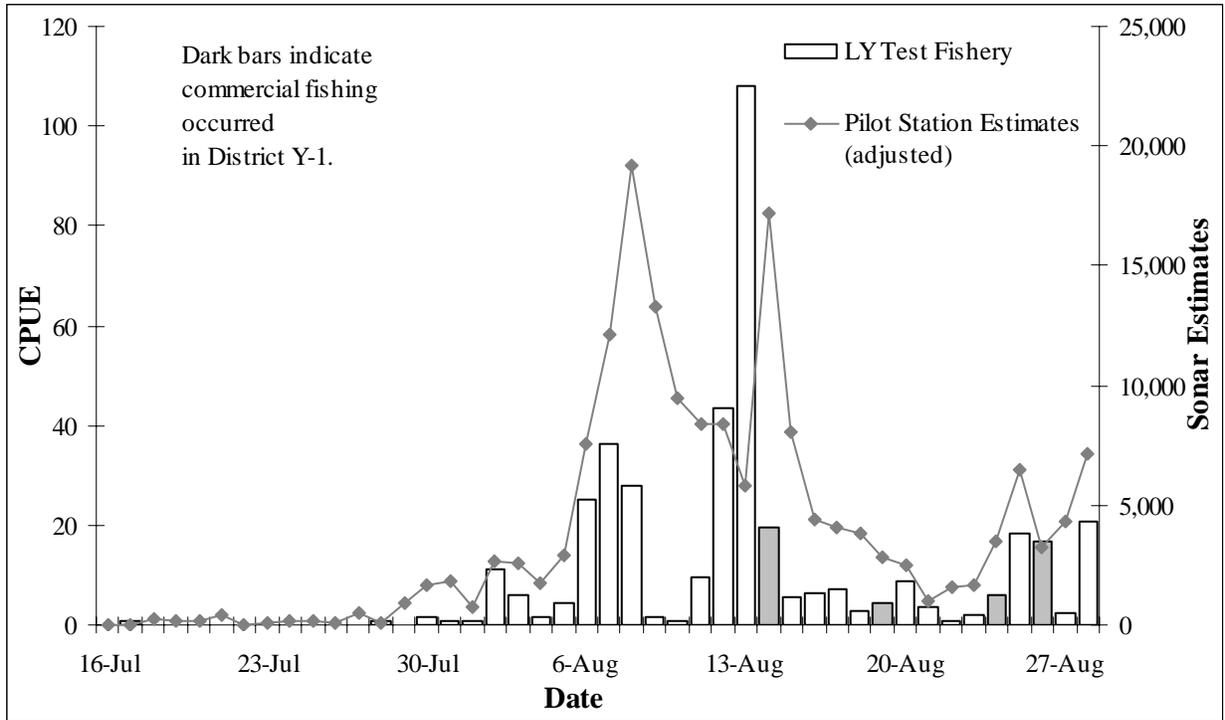


Figure 11.—Daily CPUE for coho salmon from the Lower Yukon drift gillnet test fishery compared to sonar passage estimates from Pilot Station, adjusted for transit time, 2007.

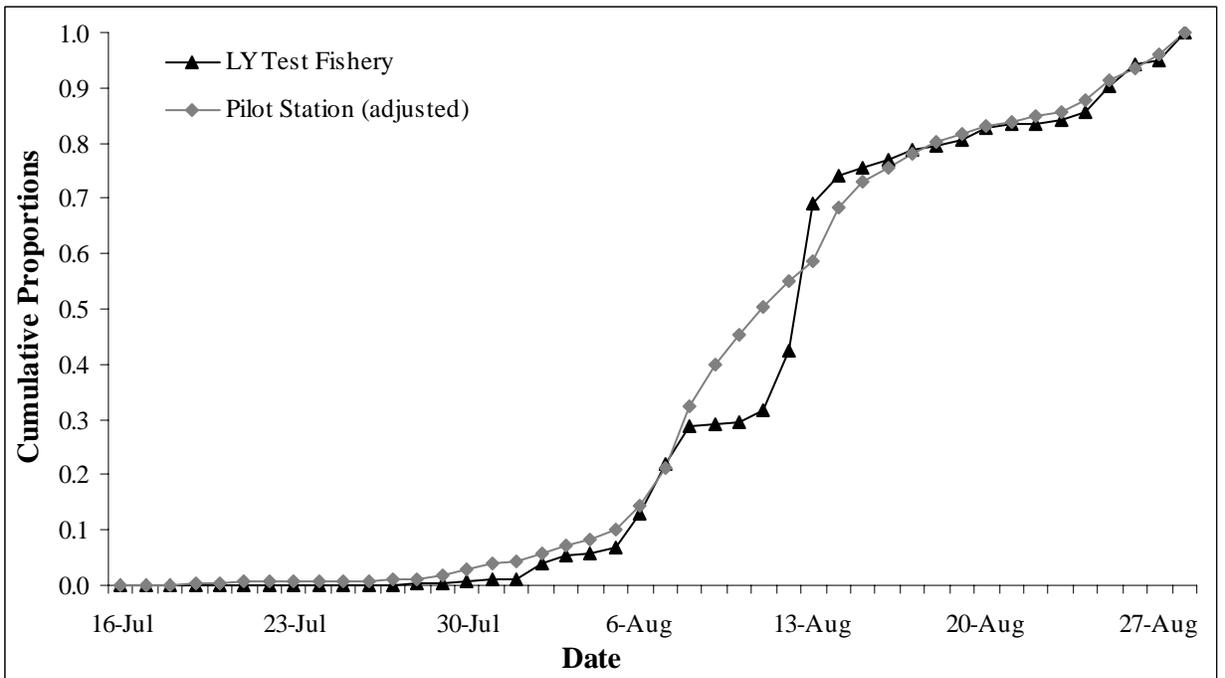


Figure 12.—Cumulative proportions for coho salmon from the Lower Yukon drift gillnet test fishery compared to Pilot Station, adjusted for transit time, 2007.

APPENDIX A

Appendix A1.—Depth measurements for the Lower Yukon drift gillnet test fishery, 2007.

	Big Eddy				Middle Mouth			
	Drift Station 1		Drift Station 2		Drift Station 1		Drift Station 2	
	Inshore depth in feet	Offshore depth in feet						
Start Drift	6-8	22	20-24	25-30	5-6	27	12-15	25
End Drift	4	31	9-13	20	3-4	27	15-20	23-25

Note: Depth measurements are tidally influenced.

Appendix A2.–Mean fishing times for the Lower Yukon drift gillnet test fishery, 2007.

Drift Gillnet Test Fishery Mean Fishing Times (min)																
Date	Big Eddy					Middle Mouth										
	1	2	3	4	Total	Catch			1	2	3	4	Total	Catch		
						Fall	Chum	Coho						Fall	Chum	Coho
7/16	21.5	19.5	24.5	23.5	89.0	4	0	18.0	18.0	18.0	18.0	72.0	2	0		
7/17	22.0	22.5	18.0	28.5	91.0	5	1	21.0	18.0	17.0	18.0	74.0	7	0		
7/18	18.0	18.0	17.5	19.0	72.5	1	0	18.5	20.0	20.5	18.0	77.0	2	0		
7/19	18.5	19.0	17.5	17.5	72.5	1	0	20.0	18.5	19.5	19.5	77.5	0	0		
7/20	19.0	19.0	18.0	18.0	74.0	2	0	20.0	19.5	19.5	18.5	77.5	3	0		
7/21	19.0	17.5	18.0	18.5	73.0	0	0	20.0	20.0	19.5	19.0	78.5	4	0		
7/22	18.0	18.5	18.5	17.5	72.5	0	0	20.5	19.0	19.5	19.5	78.5	0	0		
7/23	19.0	18.5	19.5	24.5	81.5	0	0	20.0	19.0	19.5	19.5	78.0	0	0		
7/24	19.5	19.5	19.5	19.5	78.0	0	0	20.0	20.5	19.5	19.5	79.5	1	0		
7/25	19.5	19.5	19.0	18.5	76.5	0	0	21.5	19.5	19.5	19.5	80.0	0	0		
7/26	22.5	19.5	19.0	19.5	80.5	0	0	19.5	20.5	20.0	20.5	80.5	1	0		
7/27	19.5	19.5	19.5	19.5	78.0	0	0	20.0	19.5	20.5	19.5	79.5	1	0		
7/28	19.5	19.5	20.5	19.5	79.0	3	0	19.5	20.0	20.0	19.5	79.0	2	1		
7/29	23.0	21.0	19.0	19.5	82.5	0	0	19.5	19.5	19.5	20.5	79.0	0	0		
7/30	19.5	19.0	20.5	20.0	79.0	0	2	19.5	20.0	19.5	19.5	78.5	1	0		
7/31	19.0	18.5	20.0	20.0	77.5	0	0	19.5	19.5	20.0	19.5	78.5	0	1		
8/01	19.5	20.0	20.0	20.0	79.5	0	1	19.5	20.5	20.5	21.0	81.5	0	0		
8/02	20.0	21.0	24.5	20.0	85.5	17	18	20.0	21.0	19.5	19.5	80.0	1	0		
8/03	20.0	23.0	20.5	20.0	83.5	20	8	20.0	20.0	20.0	20.5	80.5	0	1		
8/04	20.0	19.5	19.5	20.0	79.0	0	0	19.5	20.0	19.5	20.0	79.0	1	2		
8/05	19.0	19.0	21.5	20.0	79.5	0	0	20.0	20.0	20.0	20.5	80.5	1	6		
8/06	21.0	17.5	20.0	19.5	78.0	83	21	20.0	20.5	26.5	21.5	88.5	78	15		
8/07	19.5	20.0	20.0	25.0	84.5	107	21	31.5	18.0	19.0	19.5	88.0	106	44		
8/08	19.5	21.0	21.5	20.0	82.0	6	0	17.0	18.5	19.5	20.0	75.0	70	32		
8/09	19.5	19.5	19.5	19.5	78.0	1	1	19.5	20.0	20.0	19.5	79.0	3	1		
8/10	20.0	21.5	20.0	20.5	82.0	2	1	20.0	20.0	20.0	20.0	80.0	3	0		
8/11	20.0	24.5	20.0	21.5	86.0	15	13	19.5	20.0	20.0	20.0	79.5	0	1		
8/12	20.0	21.0	19.0	19.0	79.0	117	52	20.0	20.0	20.0	20.0	80.0	1	4		
8/13	21.5	21.0	18.0	20.0	80.5	169	87	19.0	18.0	19.0	18.5	74.5	34	58		
8/14 ^a			20.0	19.5	39.5	1	4			20.0	18.0	38.0	20	9		
8/15	20.0	20.0	19.5	19.5	79.0	3	0	18.5	20.0	20.0	21.0	79.5	6	7		
8/16	20.0	19.5	18.0	20.0	77.5	0	0	19.5	20.0	18.0	20.5	78.0	11	8		
8/17	18.5	19.5	19.0	19.5	76.5	1	2	20.0	20.0	19.0	20.0	79.0	9	7		
8/18	20.0	20.5	19.5	20.5	80.5	4	2	19.5	20.0	20.0	21.0	80.5	4	2		
8/19	20.0	20.5	20.0	20.5	81.0	9	3	20.0	20.0	20.5	20.0	80.5	2	3		
8/20	20.0	20.0	19.5	20.0	79.5	0	0	20.5	19.5	18.0	20.0	78.0	2	11		
8/21	20.0	20.0	20.0	20.0	80.0	0	0	20.0	19.5	17.5	20.0	77.0	1	4		
8/22	20.0	21.0	19.5	20.0	80.5	0	0	20.5	20.0	20.0	20.0	80.5	1	1		
8/23	19.5	20.0	20.5	27.0	87.0	17	1	20.0	20.0	20.0	20.0	80.0	1	2		
8/24	19.5	21.5	19.0	20.0	80.0	122	7	20.0	19.0	20.0	19.5	78.5	3	1		
8/25 ^b	20.5	17.5	20.0	19.0	77.0	47	7	20.5	20.5	20.5	20.0	81.5	30	14		
8/26	20.0	21.0	20.0	21.0	82.0	27	4	19.5	20.0	20.0	19.0	78.5	12	7		
8/27	20.0	20.0	19.5	19.5	79.0	2	1	19.5	20.0	18.0	20.0	77.5	4	2		
8/28	21.0	22.0	17.5	18.0	78.5	85	10	20.0	20.0	18.5	19.5	78.0	7	17		
Daily Average					78.9							78.1				
Drift Average					20.0							19.8				
Total Catch						871	267						435	261		

^a Individual drifts cancelled due to commercial fishing that occurred in District Y-1.

^b A 25 fathom net was used at Big Eddy Site 2 during the morning drift.

Appendix A3.—Distribution of catch by species for the Lower Yukon drift gillnet test fishery, 2007.

Species	Big Eddy		Middle Mouth		Total	
	Fall Chum	Coho	Fall Chum	Coho	Fall Chum	Coho
Fish released unharmed	14	4	73	58	87	62
Test fish sales	0	0	0	0	0	0
Fish discarded	0	0	0	0	0	0
Test fish donated locally	857	263	362	203	1,219	466
Total catch	871	267	435	261	1,306	528