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AN ESTIMATE OF THE 1989 CHIGNIK MANAGEMENT AREA SALMON CATCH AND ESCAPEMENT NUMBERS HAD THERE BEEN A NORMAL FISHERY WITHOUT THE EXXON VALDEZ OIL SPILL

By:

Bruce M. Barrett

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INTRODUCTION

On 24 March 1989 the EXXON VALDEZ ran aground on Bligh Reef in Prince William Sound and spilled about 11 million gallons of Alaska North Slope crude oil. A significant amount of the spillage drifted into the Gulf of Alaska. The pollution extended south along the Alaska Peninsula from Cape Douglas well into the Chignik Management Area (CMA) (Figure 1). As a consequence the 1989 CMA salmon fisheries were restricted to prevent an appreciable likelihood of adultered catch and or gear from oil pollution (Barrett and Monkiewicz 1989; Thompson and Fox 1990). Because of foregone fishing opportunity the CMA salmon runs were not fully utilized.

In late October 1989, the Alaska Department of Fish and Game estimated what the likely 1989 CMA salmon catch and escapement levels, in numbers of fish by species, would have been had there not been the spill. These estimates did not include any interception or non-local fish which would have been harvested in the course of normal CMA salmon fisheries. The methodology used to derive these estimates is the focus of this document.

METHODS

Catch statistics cited in this report were taken from ADF&G, Division of Commercial Fisheries fish ticket summary reports available through late October 1989 at the Kodiak office. Likewise the escapement count data were current to

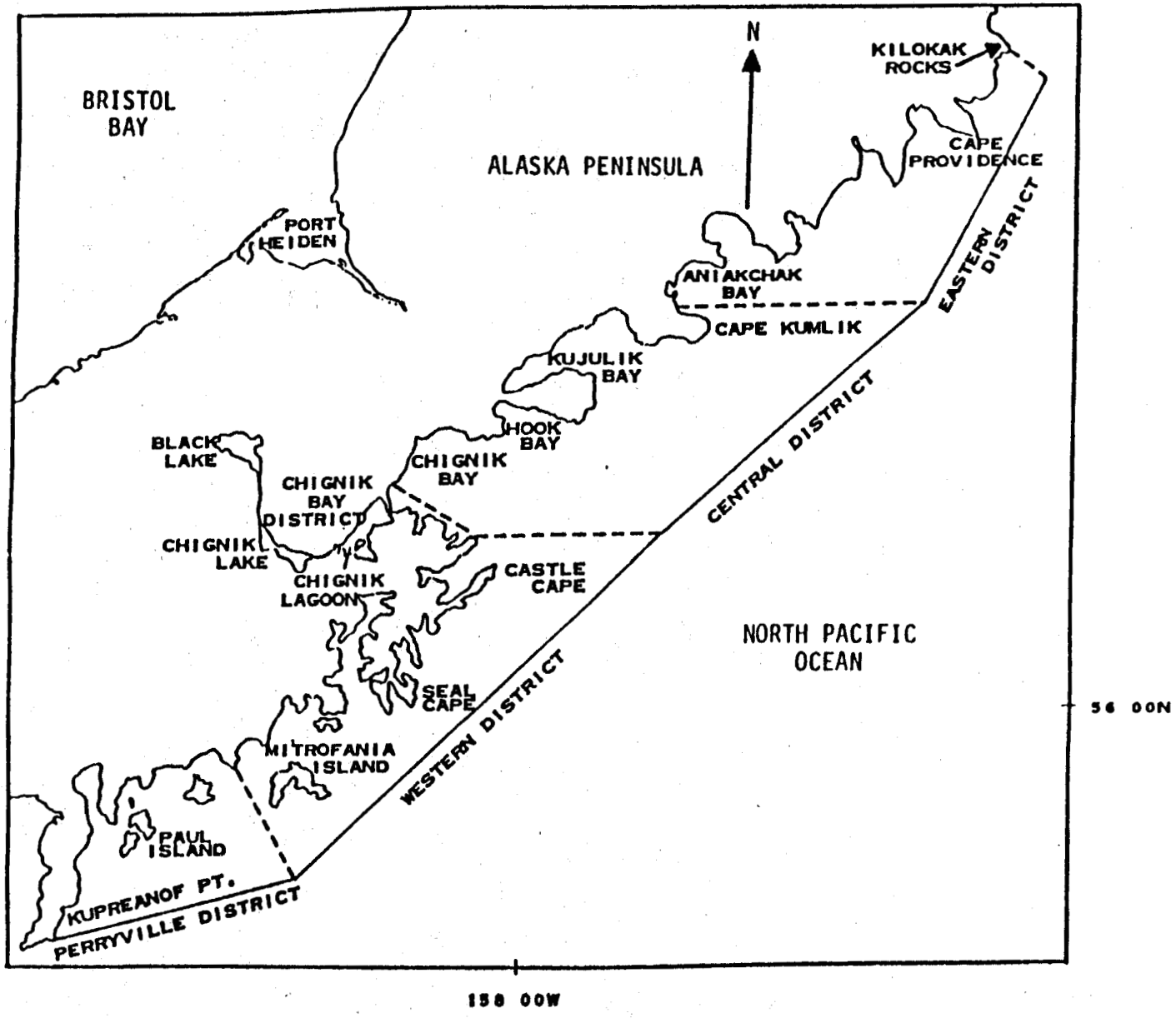

Figure 1. Map of the Chignik Management Area illustrating district boundaries, 1990.

the same time. A copy of the escapement survey data is in Appendix A.

Sockeye Salmon

The 1989 CMA sockeye run was the combined area commercial catch and estimated escapements into the Chignik River system and six other systems. A pile driven weir located about 4 km upstream of Chignik Lagoon was operated on the Chignik River to count escapement. The Chignik River system escapement estimate included the weir counts from 27 May through 8 August and the estimated escapement after 8 August which was when the weir was removed. The post weir escapement number was estimated from a time series model developed using 20 July through 6 August Chignik Bay District catch and Chignik weir escapement count data (F.M. Thompson, Alaska Department of Fish and Game, Chignik, personal communication). Sockeye escapement into six non Chignik River system streams was determined by expanding the peak aerial escapement counts by a factor of 2.0 (Barrett et al. 1985).

The 1989 sockeye catch estimate under a non-spill scenario was based on the assumption that: (1) the Black Lake and Chignik River escapements would equal the respective goals of 400,000 fish and 250,000 fish; (2) any fish surplus to escapement requirements in the Chignik River system runs would be caught; and (3) non-Chignik River system sockeye salmon would be harvested at the same rate as the Chignik River system fish.

Pink and Chum Salmon

Pink and chum escapements into 107 streams were periodically counted by aerial surveys conducted from early July through early September. For each stream a spawner abundance curve was electronically generated reprsenting the number of live fish counted over time by species. Total escapement was then determined from the area under each the curve using an assumed 15.0 d average stream life for both species (Cousens et al. 1982; Johnson and Barrett 1988). The two exceptions were: (1) a peak count was used for the escapement estimate if the peak count exceeded the estimate obtained from the Johnson and Barrett model (1988); and (2) for those streams which were only surveyed once the pink escapement count was expanded by a factor of 1.13, while the chum escapement count was expanded by a factor of 1.24 for an estimate of total escapement. The respective expansion factors were determined by: (1) summing the estimated total escapement numbers for those streams having a peak count which was preceded by and also followed by at least one escapement survey count; and (2) then dividing this sum by the combined peak count for these same streams.

The estimated total run, in number of fish, was obtained by summing the commercial catch and estimated total escapements to 107 streams, respective to species.

The 1989 pink catch under a non-spill scenario was determined by subtracting the CMA escapement goal from the estimate of the 1989 run, while the chum catch was estimated from the regression of the run against the catch for years 1985-88.

Coho Salmon

Migratory and local coho salmon are caught in the CMA. Most of the local coho production is in the Chignik River system. All coho salmon caught in the Eastern, Central, and Chignik Bay Districts and post 14 August in the Western and Perryville Districts are considered local fish (F.M. Thompson, Alaska Department of Fish and Game, Chignik, personal communication).

The 1989 CMA local stock coho catch, under the non-spill scenario, was estimated based upon the average percentage of the total CMA local stock catch taken in the Chignik Bay District for years 1984-88.

Chinook Salmon

The Chignik River system supports the only CMA chinook run. Most of the chinook catch occurs in the Chignik Bay District which is the terminal catch area for fish returning to the Chignik River system. The potential 1989 CMA chinook catch under a non-spill scenario was calculated based on the average percentage of the total CMA catch taken in the Chignik Bay District for years 1984-88.

RESULTS

Sockeye Salmon

The total Chignik River system sockeye escapement was an estimated 941,173 fish which includes the 774,971 cumulative fish count through the Chignik River weir from 27 May through 8 August and a 166,202 fish escapement after the weir was removed. The Chignik Bay District catch was 1,154,372 sockeye salmon. Total sockeye salmon run into the Chignik Bay District was 2,095,545 fish (1,154,372 catch + 941,173 escapement). Outside the Chignik Bay District the sockeye catch was 2,505 fish, while the estimated escapement was 8,516 fish. The total CMA sockeye run was 2,106,566 fish (Chignik Bay District run of 2,095,545 fish + outside catch of 2,505 fish + outside escapement of 8,516 fish; Table 1).

The Chignik River system sockeye escapement goal is 650,000 fish which represents 400,000 Black Lake fish and 250,000 Chignik Lake fish. In 1989 the Chignik River system sockeye escapement would have been about 650,000 fish if: (1) the commercial fleet had been permitted to operate outside Chignik Lagoon thereby avoiding some of the crowded conditions and corresponding gear inefficiencies in the lagoon; (2) Chignik Lagoon fishing had not been restricted to daylight fishing; and (3) fishing had not been cancelled for the lagoon on 27 July, 4 August, 5 August, and 6 August, and there had not been the additional loss of potential fishing time in the lagoon from 7 August to 9 August.

The 1989 Chignik Bay District sockeye run of 2,095,545 fish, less a 650,000 fish

Table 1. Catch and escapement numbers of salmon by species returning to the Chignik Management Area and the estimated catch and escapement distribution of these fish if the Exxon Valdez spill had not occurred, 1989.

	Estimated Distribution If No Spill Had Occurred			Actual		
Species	Escapement	Catch[ab]	Run	Escapement	Catch	Run
Sockeye	653,419	1,453,147	2,106,566	949,689	1,156,877	2,106,566
Pink	700,000	762,510	1,462,510	1,434,798	27,712	1,462,510
Chum	71,934	66,091	138,025	136,405	1,620	138,025
Coho	-	85,621	-	-	66,641	-
Chinook	-	4,550	-	-	3,542	-

[a] The sockeye catch number includes an estimated 4,880 Chignik River sockeye salmon which would have been caught in the Kodiak Cape Igvak fishery pre-July 26.

[b] The catch numbers do not include any interception fish which may have been harvested in the course of normal Chignik Management Area fisheries.

Chignik River system escapement, is 1,445,545 fish which would be the available catch. This catch level represents a run harvest rate of 68.98%. At this harvest rate the 1989 CMA sockeye run of 2,106,566 fish would produce a 1,453,147 fish catch had there not been oil (Table 1; Appendix C.1).

The estimated potential CMA catch of 1,453,147 sockeye salmon under a non-spill scenario includes 4,880 fish that would likely have been caught in the pre-26 July interception fishery at Cape Igvak Section (Kodiak Management Area) had fishing in this area also not been closed due to oil. The pre-July 1989 Cape Igvak Section catch would been about 6,100 fish had the area been opened (Larry Malloy, Alaska Department of Fish and Game, Kodiak, personal communication), and 80% of the catch amounting to 4,880 fish would have been considered Chignik River system sockeye salmon.

Pink Salmon

The 1989 total CMA pink escapement was an estimated 1,434,798 fish into 107 streams (Table 2), while the commercial catch was 27,712 fish (Table 1). The total run was 1,462,510 fish.

The CMA escapement goal is 700,000 pink salmon (Probasco 1987).

The Eastern, Central, Western, and Perryville Districts produced most of the pink salmon in 1989, and these areas were closed due to oil. With an 700,000 fish escapement, the 1989 run would have produced a catch of about 762,510 fish had there not been the oil (Appendix C.2; Table 1).

Table 2. Estimated total sockeye, pink, and chum salmon escapement by district and stream, Chignik Management Area, 1989.

District / Stream	Number of fish: Sockeye	Pink	Chum
Chignik Bay District			
271-100	941,173[a]	0	0
271-101a	0	3,000	1,000
271-101b	0	4,000	2,933
271-102a	0	0	0
271-102b	0	0	19
271-102c	0	0	0
271-103	0	250	0
271-104	0	4,800	5
271-105	0	400	0
271-106	0	1,020	210
subtotal	941,173	13,470	4,167
Central District			
272-201	0	210	0
272-202	0	0	0
272-202a	0	903	90
272-202b	0	200	0
272-204	0	24,460	3,700
272-205	0	5	0
272-206	0	230	0
272-302	100	45,500	17,539
272-501	0	89,499	0
272-502	0	0	2,667
272-502a	0	0	0
272-503	0	0	0
272-504	0	0	0
272-505	0	0	3,600
272-506	0	300	350
272-507	0	0	130
272-508	0	0	600
272-509	0	7,300	400
272-510	0	1,350	3,700
272-511	0	0	25
272-511a	0	500	413
272-511b	0	0	268
272-512	0	0	20
272-514	0	25,497	1,200

-Continued-

Table 2. (page 2 of 4)

District	Number of fish		
Stream	Sockeye	Pink	Chum
272-516	0	19,093	0
272-602	0	2,273	150
272-604	0	226	535
272-605	7,200	5,658	2,000
272-606	0	1,800	0
subtotal	7,300	225,004	37,387
Eastern District			
272-701	0	4,636	667
272-702	60	53,000	4,638
272-703	0	26,983	4,958
272-720	0	0	0
272-721	0	14,000	7,474
272-722	0	0	0
272-723	0	0	0
272-801	0	14,080	5,528
272-802	56	16,018	3,106
272-802a	0	226	124
272-802b	0	848	186
272-803	0	36,000	4,563
272-804	0	10,600	4,100
272-805	0	19,000	6,000
272-821	0	0	0
272-822	0	0	0
272-823	0	0	0
272-842	0	0	0
272-843	0	0	0
272-844	0	0	0
272-845	0	0	0
272-900	0	2,300	0
272-901	0	10,000	0
272-902	0	49,270	0
272-903	0	15,480	2,257
272-903a	0	21,200	3,967
272-903b	0	52,000	933
272-904	0	32,000	11,500
272-905	0	89,000	4,000
272-906	0	20,340	0
272-921	300	3,616	124
272-922	0	8,000	0

-Continued-

Table 2. (page 3 of 4)

District Stream	Number of fish Sockeye	Pink	Chum
272-923	0	9,000	0
272-941	0	0	0
272-961	0	82,592	0
272-961a	800	8,500	0
272-961b	0	202,667	5,861
272-961c	0	58,333	1,583
272-962	0	5	0
272-962a	0	817	0
272-962b	0	0	0
272-963	0	10,500	0
subtotal	1,216	871,011	71,569
Western District			
273-702	0	2,900	2,006
273-720	0	0	0
273-722	0	32,000	939
273-723	0	1,500	662
273-802	0	10,800	600
273-821	0	0	0
273-822	0	2	0
273-823	0	1,700	100
273-842	0	1,200	1,600
273-843	0	1,700	918
273-844	0	0	50
273-845	0	110	100
273-941	0	5,982	400
subtotal	0	57,894	7,375
Perryville District			
275-401	0	4,760	57
275-402	0	9,400	147
275-403	0	0	0
275-404	0	5,813	300
275-405	0	0	0
275-406	0	168,403	7,900
275-408	0	207	0
275-502	0	51,000	571
275-503	0	45	0

-Continued-

Table 2. (page 4 of 4)

District	Number of fish		
Stream	Sockeye	Pink	Chum
275-504	0	3,700	6,600
275-505	0	19,000	0
275-506	0	2,618	0
275-600	0	103	0
275-601	0	2,370	332
subtotal	0	267,419	15,907
Grand total	949,689	1,434,798	136,405

[a] Escapement enumerated at the Chignik River weir from 27 May through 8 August including the post 8 August estimated escapement of 166,202 fish.

Chum Salmon

The 1989 total CMA chum escapement was an estimated 136,405 fish into 107 streams (Table 2;Appendix C.3), while the commercial catch was 1,620 fish (Table 1). Total run which is simply the catch plus the escapement amounted to 138,025 fish.

There is no defined CMA chum escapement goal.

The Eastern, Central, Western, and Perryville Districts produced essentially all the CMA chum salmon in 1989. These districts were closed due to oil. Based on the regression of the run against the catch for 1985-88, the 1989 chum run would have distributed as a 71,934 fish escapement and 66,091 fish catch had there not been oil (Appendix C.3; Table 1).

Coho Salmon

The 1989 CMA coho catch was 66,641 fish with all but two of these caught in the Chignik Bay District (Table 1; Appendix C.4).

For the years 1984-88, the Chignik Bay District has averaged 77.83% of the CMA catch of local stock coho salmon (Appendix B.4). Using this average, the expected CMA 1989 coho catch would have been about 85,621 local stock fish had there not been oil (Table 1).

Chinook Salmon

In 1989, a total of 3,532 chinook salmon were caught in the Chignik Bay District, while another 10 chinook salmon were caught outside the Chignik Bay District (Table 1).

From 1984 through 1988 an average 77.63% of the CMA chinook catch was caught in the Chignik Bay District (Appendix C.5). Based on this average the potential 1989 CMA chinook catch would have been about 4,550 fish had there not been oil (Table 1).

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Appendix A. Salmon escapement aerial surveys for the Chignik Management Area, by district and stream, 1989.

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
CHIGNIK BAY DISTRICT												
271-101a	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
271-101a	8-13	Mike Thompson	E	E	E	0	0	3000	1000	8000P	2000Ch	-
271-101a	8-22	Mike Thompson	F	F	F	0	0	0	0	-	-	-
271-101b	8-13	Mike Thompson	E	E	E	0	0	0	0	-	-	-
271-101b	8-22	Mike Thompson	F	F	F	0	0	4000	2200	-	-	-
271-101b	8-30	Jeff Fox	E	E	E	0	0	500	2200	6000Ch	-	-
271-102a	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
271-102a	8-14	Jeff Fox	E	E	E	0	0	0	0	-	-	-
271-102b	8- 1	Laura Pillifant	G	G	G	0	0	0	10	-	-	-
271-102b	8-14	Jeff Fox	E	E	E	0	0	0	10	-	-	-
271-102c	8- 1	Laura Pillifant	F	F	F	0	0	0	0	-	-	-
271-102c	8-22	Mike Thompson	F	F	F	0	0	0	0	-	-	-
271-103	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
271-103	8-14	Jeff Fox	E	E	E	0	0	250	0	-	-	-
271-104	8- 1	Laura Pillifant	G	G	G	0	0	0	5	-	-	-
271-104	8-14	Laura Pillifant	G	G	G	0	0	400	0	-	-	-
271-104	8-24	Laura Pillifant	F	F	F	0	0	500	0	-	-	Overcast; hard to see
271-104	8-28	Mike Thompson	F	F	F	0	0	4800	0	-	-	-

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Appendix A. (page 2 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
271-105	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
271-105	8-14	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
271-105	8-24	Laura Pillifant	F	F	F	0	0	400	0	-	-	-
271-105	8-28	Mike Thompson	F	F	F	0	0	300	0	-	-	-
271-106	8- 1	Laura Pillifant	G	G	G	0	0	0	0	500Ch	-	-
271-106	8-14	Laura Pillifant	G	G	G	0	0	100	100	-	-	-
271-106	8-24	Laura Pillifant	F	F	F	0	0	100	0	-	-	-
271-106	8-28	Mike Thompson	G	G	G	0	0	1020	210	-	-	-
CENTRAL DISTRICT												
272-201	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-201	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-201	8-14	Laura Pillifant	G	G	G	0	0	100	0	-	-	-
272-201	8-24	Laura Pillifant	F	F	F	0	0	0	0	-	-	-
272-201	8-28	Mike Thompson	G	G	G	0	0	210	0	-	-	-
272-202	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-202a	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-202a	8-14	Laura Pillifant	G	G	G	0	0	500	0	-	-	-
272-202a	8-24	Laura Pillifant	F	F	F	0	0	600	0	-	-	-
272-202a	8-28	Mike Thompson	F	F	F	0	0	450	90	-	-	-

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Appendix A. (page 3 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-202b	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-202b	8-14	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-202b	8-24	Laura Pillifant	F	F	F	0	0	50	0	-	-	Spawning
272-202b	8-28	Mike Thompson	G	G	G	0	0	200	0	-	-	-
Thompson Valley												
272-204	7-18	Jeff Fox	E	E	E	0	0	0	0	400Ch	-	-
272-204	8- 1	Laura Pillifant	G	G	G	0	0	0	50	-	-	-
272-204	8-14	Laura Pillifant	G	G	G	0	0	8500	0	-	-	-
272-204	8-24	Laura Pillifant	F	F	F	0	0	7500	0	-	-	-
272-204	8-28	Mike Thompson	G	G	G	0	0	16600	3700	-	-	-
272-205	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	Jumpers?
272-205	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-205	8-14	Laura Pillifant	G	G	G	0	0	5	0	-	-	-
272-205	8-24	Laura Pillifant	F	F	F	0	0	0	0	-	-	-
272-206	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-206	8- 1	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-206	8-14	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-206	8-24	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
272-206	8-28	Mike Thompson	F	F	F	0	0	230	0	-	-	-

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Appendix A. (page 4 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
Hook Bay												
272-302	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-302	8- 1	Jeff Fox	E	E	E	0	0	480	60	-	-	Fish observed in lower stretches only
272-302	8-13	Mike Thompson	E	E	E	0	0	45500	10200	-	-	-
272-302	8-24	Laura Pillifant	G	G	G	0	0	5000	10000	-	-	Spawning
272-302	8-28	Mike Thompson	P	P	P	0	0	300	2700	-	-	Turbid water conditions; clear near head of creek left fork
272-302	9-11	Jeff Fox	E	E	E	50	0	1600	0	-	-	-
Cape Kumliun												
272-501	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-501	7-24	Mike Thompson	E	E	E	0	0	200	0	-	1700P	-
272-501	8- 1	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-501	8- 2	Jeff Fox	E	E	E	0	0	19200	0	-	20000P	Fox Beach; fish dispersed all the way up to narrow canyon
272-501	8-13	Mike Thompson	G	G	G	0	0	63000	0	-	2500P	-
272-501	8-16	Jeff Bulla	G	G	G	0	0	35000	0	-	-	Minimum count; muddy in lower stretch
272-501	8-24	Laura Pillifant	G	G	G	0	0	50000	0	-	-	Spread out fairly even
272-501	8-26	Jeff Fox	G	G	G	0	0	38000	0	-	-	5000 carcasses left after high water
272-501	9-11	Jeff Fox	E	E	E	0	0	45	0	-	-	-
272-502	8- 1	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-502	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-502	8-24	Laura Pillifant	G	G	G	0	0	0	2000	-	-	-
272-502	9-11	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-502a	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-502a	9-11	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-503	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-503	8- 1	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-503	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-

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Appendix A. (page 5 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-504	7- 8	Mike Thompson	G	G	G	0	0	0	0	-	-	-
272-504	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-504	7-24	Mike Thompson	G	G	G	0	0	0	0	-	-	-
272-504	8- 1	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-504	8-28	Mike Thompson	F	F	F	0	0	0	0	-	-	-
Bear Creek												
272-505	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-505	7-24	Mike Thompson	G	G	G	0	0	0	300	-	-	-
272-505	8- 1	Jeff Fox	E	E	E	0	0	0	3600	-	-	Minimum counts; muddy bottom, could not see fish
272-505	8-14	Laura Pillifant	G	G	G	0	0	0	300	-	-	Spawners washed out at mouth
272-505	8-24	Laura Pillifant	E	E	E	0	0	0	0	-	-	4 bear
272-505	8-28	Mike Thompson	F	F	F	0	0	0	40	-	-	-
272-506	7-18	Jeff Fox	E	E	E	0	0	0	0	400Ch	500Ch	Many jumpers
272-506	7-24	Mike Thompson	G	G	G	0	0	0	350	7000Ch	-	-
272-506	8- 1	Jeff Fox	E	E	E	0	0	0	20	-	-	Minimum counts; muddy bottom, could not see fish
272-506	8-14	Laura Pillifant	G	G	G	0	0	300	0	-	-	-
272-506	8-24	Laura Pillifant	E	E	E	0	0	0	0	-	-	6 bear
272-506	8-29	Mike Thompson	F	F	F	0	0	0	0	-	-	-
272-507	7-18	Jeff Fox	E	E	E	0	0	0	0	200Ch	-	Bear
272-507	7-24	Mike Thompson	G	G	G	0	0	0	0	1800Ch	-	-
272-507	8- 1	Jeff Fox	E	E	E	0	0	0	130	30Ch	-	Minimum counts; muddy bottom, could not see fish
272-507	8-14	Laura Pillifant	G	G	G	0	0	0	40	-	-	-

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Appendix A. (page 6 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-507	8-24	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
272-507	8-29	Mike Thompson	F	F	F	0	0	0	0	-	-	-
272-508	7-18	Jeff Fox	E	E	E	0	0	0	0	100Ch	-	-
272-508	7-24	Mike Thompson	G	G	G	0	0	0	600	-	-	-
272-508	8- 1	Jeff Fox	E	E	E	0	0	0	10	-	-	Minimum counts; muddy bottom, could not see fish
272-508	8-24	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
272-508	8-29	Mike Thompson	F	F	F	0	0	0	0	-	-	-
Rudys Creek												
272-509	7-18	Jeff Fox	E	E	E	0	0	0	100	-	-	-
272-509	7-24	Mike Thompson	G	G	G	0	0	0	400	-	-	-
272-509	8- 1	Jeff Fox	E	E	E	0	0	0	180	-	-	Minimum counts; muddy bottom, could not see fish
272-509	8-24	Laura Pillifant	E	E	E	0	0	2100	0	-	-	-
272-509	8-28	Mike Thompson	F	F	F	0	0	7300	0	-	-	-
272-510	7-18	Jeff Fox	E	E	E	0	0	0	0	50Ch	-	-
272-510	7-24	Mike Thompson	E	E	E	0	0	0	100	-	-	-
272-510	8- 1	Jeff Fox	E	E	E	0	0	0	10	-	-	Minimum counts; muddy bottom, could not see fish
272-510	8-13	Mike Thompson	G	G	G	0	0	0	3700	-	-	-
272-510	8-24	Laura Pillifant	E	E	E	0	0	200	0	-	-	-
272-510	8-28	Mike Thompson	F	F	F	0	0	1350	0	-	-	-
272-511	8- 1	Jeff Fox	E	E	E	0	0	0	20	-	-	Minimum counts; muddy bottom, could not see fish
272-511a	7- 8	Mike Thompson	G	G	G	0	0	0	0	-	8000Ch	-

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Appendix A. (page 7 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-511a	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	272-511a and b
272-511a	7-24	Mike Thompson	G	G	G	0	0	0	0	-	-	Mouth dry
272-511a	8-13	Mike Thompson	G	G	G	0	0	0	400	-	-	-
272-511a	8-24	Laura Pillifant	G	G	G	0	0	500	0	-	-	-
272-511a	8-28	Mike Thompson	F	F	F	0	0	0	0	-	-	-
272-511b	7-24	Mike Thompson	G	G	G	0	0	0	0	-	-	-
272-511b	8-13	Mike Thompson	G	G	G	0	0	0	230	-	-	-
272-511b	8-28	Mike Thompson	F	F	F	0	0	0	0	-	-	-
272-512	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-512	7-24	Mike Thompson	G	G	G	0	0	0	20	-	-	-
272-512	8- 1	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-512	8-13	Mike Thompson	G	G	G	0	0	0	0	-	-	-
272-512	8-24	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
272-512	8-28	Mike Thompson	F	F	F	0	0	0	0	-	-	-
North Fork												
272-514	7-18	Jeff Fox	E	E	E	0	0	0	0	200Ch	500Ch	-
272-514	7-24	Mike Thompson	E	E	E	0	0	0	1200	6000Ch	-	-
272-514	8- 1	Jeff Fox	F	F	F	0	0	800	180	-	-	-
272-514	8-13	Mike Thompson	F	F	F	0	0	23000	0	3000P	-	-
272-514	8-24	Laura Pillifant	E	E	E	0	0	3600	0	-	-	Most in middle fork; high
272-514	8-28	Mike Thompson	F	F	F	0	0	7400	300	-	-	-
272-514	9-15	Jeff Bulla	E	E	E	0	0	80	0	-	-	-
272-514	9-16	Jeff Bulla	E	E	E	0	0	100	0	-	-	Helicopter survey

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Appendix A. (page 8 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-516	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-516	7-24	Mike Thompson	G	G	G	0	0	0	0	-	-	-
272-516	8-13	Mike Thompson	F	F	F	0	0	3400	0	-	-	-
272-516	8-24	Laura Pillifant	E	E	E	0	0	7000	0	-	-	Water clear; spawning
272-516	8-28	Mike Thompson	G	G	G	0	0	19000	0	-	-	-
EASTERN DISTRICT												
272-602	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-602	7-24	Mike Thompson	F	F	F	0	0	0	150	-	-	-
272-602	8- 1	Jeff Fox	P	P	P	0	0	0	0	-	-	Poor survey visibility
272-602	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-602	8-13	Mike Thompson	G	G	G	0	0	700	0	-	-	-
272-602	8-24	Laura Pillifant	E	E	E	0	0	1700	0	-	-	-
272-602	8-28	Mike Thompson	P	P	P	0	0	1700	0	-	-	Poor visibility
272-604	7-18	Jeff Fox	E	E	E	0	0	0	500	200Ch	300Ch	-
272-604	7-24	Mike Thompson	P	P	P	0	0	0	50	-	-	-
272-604	8- 1	Jeff Fox	P	P	P	0	0	0	80	-	-	Poor survey visibility
272-604	8- 2	Jeff Fox	E	E	E	0	0	0	0	800P	-	Many jumpers; bay too windy
272-604	8-13	Mike Thompson	F	F	F	0	0	0	40	8000P	-	-
272-604	8-24	Laura Pillifant	P	P	P	0	0	200	0	-	-	-
272-604	8-28	Mike Thompson	F	F	F	0	0	40	0	-	-	-

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Appendix A. (page 9 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
Aniakchak River												
272-605	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	Muddy
272-605	7-24	Mike Thompson	E	E	E	0	0	0	470	-	-	-
272-605	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-605	8-14	Laura Pillifant	G	G	G	0	0	5000	2000	-	-	Mystery Creek
272-605	8-14	Laura Pillifant	G	G	G	3500	0	0	0	-	-	Suprise Lake
272-605	8-14	Laura Pillifant	G	G	G	100	0	0	2500	-	-	Albert Johnson
272-605	8-21	Jeff Fox	E	E	E	0	0	4300	600	-	-	-
272-605	8-28	Mike Thompson	F	F	F	0	0	1400	0	-	-	Mystery Creek
Cape Agutka												
272-606	7-18	Jeff Fox	E	E	E	0	0	0	0	200Ch	100Ch	-
272-606	7-24	Mike Thompson	E	E	E	0	0	0	0	-	2200Ch	-
272-606	8- 2	Jeff Fox	E	E	E	0	0	30	0	-	-	-
272-606	8-13	Mike Thompson	F	F	F	0	0	1800	0	-	-	-
272-606	8-21	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-606	8-28	Mike Thompson	P	P	P	0	0	0	0	-	-	Poor visibility
272-701	7-18	Jeff Fox	E	E	E	0	0	0	500	-	-	-
272-701	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-
272-701	8- 2	Jeff Fox	E	E	E	0	0	300	0	-	-	-
272-701	8-13	Mike Thompson	G	G	G	0	0	3200	500	-	-	-
272-701	8-21	Jeff Fox	E	E	E	0	0	2800	0	-	-	-
272-701	8-28	Mike Thompson	F	F	F	0	0	1700	0	-	-	-
272-701	9-11	Jeff Fox	P	P	P	0	0	0	0	-	-	No survey due to poor visibility

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Appendix A. (page 10 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
Main Creek												
272-702	7-18	Jeff Fox	E	E	E	0	0	0	0	-	200Ch	2 planes
272-702	7-24	Mike Thompson	E	E	E	0	0	300	2050	-	-	-
272-702	8- 2	Jeff Fox	E	E	E	0	0	2200	200	-	-	-
272-702	8-13	Mike Thompson	G	G	G	0	0	53000	3200	3000P	-	-
272-702	8-21	Jeff Fox	E	E	E	30	0	10600	2800	-	-	-
272-702	8-28	Mike Thompson	F	F	F	0	0	4300	200	-	-	-
272-702	9- 6	Jeff Bulla	P	P	P	0	0	400	0	-	-	Helicopter survey; poor visibility
272-702	9-11	Jeff Fox	P	P	P	0	0	0	0	-	-	No survey due to poor visibility
Northeast Creek												
272-703	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-703	7-24	Mike Thompson	E	E	E	0	0	0	1150	300Ch	-	-
272-703	8- 2	Jeff Fox	E	E	E	0	0	2000	300	-	-	-
272-703	8-13	Mike Thompson	F	F	F	0	0	12000	4000	2000P	-	-
272-703	8-21	Jeff Fox	E	E	E	0	0	11800	3300	-	-	-
272-703	8-28	Mike Thompson	F	F	F	0	0	17000	0	-	-	-
272-703	9-11	Jeff Fox	E	E	E	0	0	500	0	-	-	-
272-720	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
Yantarni Creek												
272-721	7-18	Jeff Fox	F	F	F	0	0	0	0	-	-	-
272-721	7-24	Mike Thompson	G	G	G	0	0	0	2220	50Ch	1000P	-
272-721	8- 2	Jeff Fox	P	P	P	0	0	100	800	-	-	-
272-721	8-13	Mike Thompson	F	F	F	0	0	10500	3400	2000P	-	-
272-721	8-21	Jeff Fox	F	F	F	0	0	6300	3100	-	-	-
272-721	8-28	Mike Thompson	P	P	P	0	0	10900	800	-	-	-
272-722	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-

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Appendix A. (page 11 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-723	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
Ocean Beach												
272-801	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-801	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-
272-801	8- 2	Jeff Fox	E	E	E	0	0	100	750	-	-	-
272-801	8-13	Mike Thompson	E	E	E	0	0	0	4800	-	-	-
272-801	8-21	Jeff Fox	E	E	E	0	150	10900	450	-	-	-
272-801	8-28	Mike Thompson	F	F	F	0	0	10800	2300	-	-	-
272-801	9-13	Jeff Bulla	E	E	E	0	0	500	0	-	-	Helicopter survey; fast, poor visibility
272-802	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	1 plane
272-802	7-24	Mike Thompson	E	E	E	0	0	0	150	-	-	-
272-802	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-802	8- 2	Jeff Fox	E	E	E	20	0	100	250	-	-	-
272-802	8-13	Mike Thompson	E	E	E	0	0	9000	2100	-	-	-
272-802	8-21	Jeff Fox	E	E	E	28	0	8350	2100	-	-	-
272-802	8-28	Mike Thompson	F	F	F	0	0	8300	1100	-	-	-
272-802a	8- 2	Jeff Fox	E	E	E	0	0	200	100	-	-	-
272-802b	8- 2	Jeff Fox	E	E	E	0	0	750	150	-	-	-
272-803	7-18	Jeff Fox	F	F	F	0	0	0	0	-	-	Muddy
272-803	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-
272-803	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-803	8-13	Mike Thompson	E	E	E	0	0	0	2400	-	-	-
272-803	8-21	Jeff Fox	E	E	E	0	0	610	30	-	-	-
272-803	8-28	Mike Thompson	F	F	F	0	0	36000	3200	-	-	-

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
Nakalilok River												
272-804	7-18	Jeff Fox	F	F	F	0	0	0	0	-	-	-
272-804	7-24	Mike Thompson	E	E	E	0	0	0	0	-	250Ch	-
272-804	8- 2	Jeff Fox	E	E	E	0	0	50	75	100P 400Ch	-	-
272-804	8-13	Mike Thompson	E	E	E	0	0	0	4100	24000P	-	-
272-804	8-21	Jeff Fox	E	E	E	0	0	10600	0	10000P	-	-
272-804	8-28	Mike Thompson	F	F	F	0	0	6000	0	-	-	-
272-805	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-805	7-24	Mike Thompson	E	E	E	0	0	0	0	100Ch	-	-
272-805	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-805	8-13	Mike Thompson	E	E	E	0	0	1500	6000	14000P	5000P	-
272-805	8-21	Jeff Fox	E	E	E	0	0	2200	0	2000P	-	-
272-805	8-28	Mike Thompson	G	G	G	0	0	19000	0	-	-	-
272-821	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-822	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-823	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-842	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	Survey conditions were poor in the bay
272-843	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-844	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-845	7-27	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-900	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-900	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-

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Appendix A. (page 13 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-900	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-900	8-13	Mike Thompson	E	E	E	0	0	0	0	5000P	-	-
272-900	8-21	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-900	8-28	Mike Thompson	G	G	G	0	0	2300	0	-	-	-
272-901	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-901	7-24	Mike Thompson	E	E	E	0	0	0	0	-	50P	-
272-901	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-901	8-13	Mike Thompson	E	E	E	0	0	1500	0	2000P	-	-
272-901	8-21	Jeff Fox	E	E	E	0	0	1300	0	-	-	-
272-901	8-28	Mike Thompson	G	G	G	0	0	10000	0	-	-	-
Chiginagak												
272-902	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-902	7-24	Mike Thompson	E	E	E	0	0	150	0	450P	300P	-
272-902	8- 2	Jeff Fox	E	E	E	0	0	400	0	200P	-	-
272-902	8-13	Mike Thompson	E	E	E	0	0	19200	0	-	-	-
272-902	8-21	Jeff Fox	E	E	E	0	0	14000	0	-	-	-
272-902	8-28	Mike Thompson	G	G	G	0	0	22000	0	-	-	-
Chiginagak River												
272-903	8- 2	Jeff Fox	E	E	E	0	0	400	300	250Ch	2400Ch	-
272-903	8-21	Jeff Fox	E	E	E	0	0	11800	1400	8000P 4000Ch	-	-
272-903a	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	272-903a and b
272-903a	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-
272-903a	8-13	Mike Thompson	F	F	F	0	0	1200	3400	-	9000P	-
272-903a	8-28	Mike Thompson	G	G	G	0	0	18400	0	-	-	-

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Appendix A. (page 14 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-903b	7-24	Mike Thompson	E	E	E	0	0	0	0	-	1200Ch	-
272-903b	8-13	Mike Thompson	F	F	F	0	0	0	800	-	33000P	-
272-903b	8-28	Mike Thompson	G	G	G	0	0	52000	0	-	-	-
Chiginagak												
272-904	7-18	Jeff Fox	E	E	E	0	0	0	0	300Ch	500Ch	Off Cape
272-904	7-24	Mike Thompson	E	E	E	0	0	0	0	150Ch	200Ch	-
272-904	8- 2	Jeff Fox	E	E	E	0	0	100	0	1000P	200Ch	-
272-904	8-13	Mike Thompson	E	E	E	0	0	1500	11500	5000P	-	-
272-904	8-21	Jeff Fox	E	E	E	0	0	3600	150	1000P	-	-
272-904	8-28	Mike Thompson	F	F	F	0	0	32000	0	-	-	-
272-904	9-12	Jeff Bulla	G	G	G	0	0	2000	0	-	-	-
272-904	9-13	Jeff Bulla	E	E	E	0	0	2260	0	-	-	Foot survey;
Chiginagak												
272-905	7-18	Jeff Fox	E	E	E	0	0	0	0	-	200Ch	-
272-905	7-24	Mike Thompson	E	E	E	0	0	0	250	750P	-	-
272-905	8- 2	Jeff Fox	E	E	E	0	0	0	0	-	6000Ch	-
272-905	8-13	Mike Thompson	E	E	E	0	0	10000	4000	15000P 6000Ch	40000P	-
272-905	8-21	Jeff Fox	E	E	E	0	0	21000	0	11000P	-	-
272-905	8-28	Mike Thompson	G	G	G	0	0	89000	0	-	-	-
272-905	8-30	Jeff Bulla	E	E	E	0	0	50000	0	-	-	Helicopter survey
272-906	8-28	Mike Thompson	G	G	G	0	0	18000	0	-	-	-
272-921	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	Muddy
272-921	7-24	Mike Thompson	P	P	P	0	0	0	0	-	-	Poor Survey conditions
272-921	8- 2	Jeff Fox	P	P	P	0	0	0	0	-	-	Jumpers in bay; poor visibility

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-921	8-13	Mike Thompson	P	P	P	0	0	0	0	-	-	Poor survey visibility; cloudy water
272-921	8-21	Jeff Fox	E	E	E	150	0	3200	100	-	-	-
272-921	8-28	Mike Thompson	P	P	P	0	0	0	0	-	-	Turbid water; poor visibility
272-922	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-922	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-
272-922	8- 2	Jeff Fox	E	E	E	0	0	0	0	200P	-	-
272-922	8-21	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-922	8-28	Mike Thompson	G	G	G	0	0	8000	0	-	-	-
272-923	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-923	7-24	Mike Thompson	E	E	E	0	0	50	0	-	-	-
272-923	8- 2	Jeff Fox	E	E	E	0	0	0	0	500P	-	-
272-923	8-21	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-923	8-28	Mike Thompson	G	G	G	0	0	9000	0	-	-	-
272-941	8- 1	Laura Pillifant	G	G	G	0	0	0	0	2000P	-	-
Agripina River												
272-961	7-24	Mike Thompson	F	F	F	0	0	0	0	-	-	-
272-961	8- 2	Jeff Fox	E	E	E	0	0	1200	0	32000P	30000P	1st 1/2 mile only
272-961	8-21	Jeff Fox	E	E	E	0	0	53000	0	113000P	-	3000 pinks in the lagoon
272-961	9-12	Jeff Bulla	E	E	E	0	0	10000	0	-	-	Helicopter survey; post flood, high clear water
272-961a	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-961a	8- 2	Jeff Fox	E	E	E	0	0	2000	0	-	-	Flashing deep in lake
272-961a	8-13	Mike Thompson	G	G	G	0	0	8500	0	-	-	Most in lake
272-961a	8-21	Jeff Fox	P	P	P	400	0	500	0	-	-	-
272-961a	8-28	Mike Thompson	P	P	P	0	0	500	0	-	-	-

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-961b	7-18	Jeff Fox	F	F	F	0	0	0	40	400Ch	-	272-961b and c
272-961b	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	-
272-961b	8-13	Mike Thompson	E	E	E	0	0	29000	5000	145000P	-	-
272-961b	8-28	Mike Thompson	G	G	G	0	0	135000	0	11000P	-	-
272-961c	7-24	Mike Thompson	E	E	E	0	0	0	950	9500P	-	-
272-961c	8-28	Mike Thompson	G	G	G	0	0	25000	0	-	-	-
Glacier Creek												
272-962	8- 2	Jeff Fox	P	P	P	0	0	0	0	-	-	Poor visibility; fish off mouth in mud
272-962	8-21	Jeff Fox	E	E	E	0	0	4	0	-	-	-
272-962a	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	Muddy
272-962a	7-24	Mike Thompson	G	G	G	0	0	0	0	600P	-	-
272-962a	8-13	Mike Thompson	P	P	P	0	0	0	75	-	-	-
272-962a	8-28	Mike Thompson	F	F	F	0	0	350	0	-	-	-
272-962b	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	Muddy
272-962b	8-13	Mike Thompson	F	F	F	0	0	0	0	1500P	-	Cloudy water
272-962b	8-28	Mike Thompson	P	P	P	0	0	0	0	-	-	Turbid water; poor light in lake
Kilokak												
272-963	7-18	Jeff Fox	E	E	E	0	0	0	0	-	-	-
272-963	7-24	Mike Thompson	E	E	E	0	0	0	0	-	-	Mouth dry
272-963	8- 2	Jeff Fox	E	E	E	0	0	500	0	100P	-	-
272-963	8-13	Mike Thompson	E	E	E	0	0	400	0	3000P	-	-
272-963	8-21	Jeff Fox	E	E	E	0	0	1250	0	3000P	-	-

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
272-963	8-26	Prokopowich				0	0	4000	0	3000P	-	-
272-963	8-28	Mike Thompson	E	E	E	0	0	10500	0	-	-	-
WESTERN DISTRICT												
Coal Cape												
273-702	7-18	Laura Pillifant	E	E	E	0	0	0	1500	-	-	No chum up further than first fork
273-702	7-28	Jeff Fox	E	E	E	0	0	0	370	-	-	Muddy
273-702	8- 3	Laura Pillifant	G	G	G	0	0	0	800	-	-	-
273-702	8-14	Jeff Fox	E	E	E	0	0	2900	150	-	-	-
273-702	8-24	Mike Thompson	P	P	P	0	0	200	0	-	-	Poor survey visibility
273-702	8-30	Jeff Fox	E	E	E	0	0	300	0	-	-	-
273-702	9- 5	Mike Thompson	G	G	G	0	0	920	0	-	-	-
273-702	9-11	Jeff Fox	G	G	G	0	0	0	0	-	-	Muddy below fork
273-720	7-18	Laura Pillifant	P	P	P	0	0	0	0	-	-	Silty; poor survey visibility
273-720	7-28	Jeff Fox	P	P	P	0	0	0	0	-	-	Muddy, poor survey conditions
273-720	8- 3	Laura Pillifant	P	P	P	0	0	0	0	-	-	Poor visibility
273-720	8-14	Jeff Fox	E	E	E	0	0	0	0	-	-	-
Ivan River												
273-722	7-18	Laura Pillifant	E	E	E	0	0	0	150	-	-	-
273-722	7-28	Jeff Fox	E	E	E	0	0	0	800	-	100Ch	-
273-722	8- 3	Laura Pillifant	G	G	G	0	0	3000	200	-	-	-
273-722	8-14	Jeff Fox	E	E	E	0	0	12200	400	-	-	-
273-722	8-22	Mike Thompson	F	F	F	0	0	23500	0	-	-	Windy; incomplete survey
273-722	8-24	Mike Thompson	F	F	F	0	0	32000	0	-	-	13000 2nd right tributary; 3000 1st right tributary
273-722	8-30	Jeff Fox	F	F	F	0	0	6300	0	-	-	Not many carcasses

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
273-722	9- 5	Mike Thompson	G	G	G	0	0	600	120	-	-	-
273-722	9-11	Jeff Bulla	P	P	P	0	0	3700	0	-	-	Helicopter survey; poor survey conditions, flood
273-723	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	2 sharks, dark
273-723	7-28	Jeff Fox	E	E	E	0	0	0	1	-	150Ch	-
273-723	8- 3	Laura Pillifant	G	G	G	0	0	1500	300	3000P	-	Lots of sharks
273-723	8-13	Mike Thompson	P	P	P	0	0	0	0	-	-	Poor visibility
273-723	8-22	Mike Thompson	F	F	F	0	0	0	0	-	-	-
273-723	8-30	Jeff Fox	E	E	E	0	0	200	300	100P	-	-
Foot Bay												
273-802	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
273-802	7-28	Jeff Fox	E	E	E	0	0	0	20	-	-	-
273-802	8- 3	Laura Pillifant	G	G	G	0	0	100	0	200P	5000P	-
273-802	8-13	Mike Thompson	E	E	E	0	0	1800	600	4000P	-	-
273-802	8-22	Mike Thompson	G	G	G	0	0	10800	0	-	-	-
273-802	8-30	Jeff Fox	E	E	E	0	0	1800	0	-	-	-
273-802	9-10	Jeff Bulla	E	E	E	0	0	1798	0	-	-	Helicopter survey
273-802	9-10	Jeff Fox				0	0	2120	0	-	-	Foot survey of stream
273-821	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
273-821	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
273-821	8- 3	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
273-821	8-13	Mike Thompson	E	E	E	0	0	0	0	-	-	-
273-821	8-22	Mike Thompson	G	G	G	0	0	0	0	-	-	-
273-821	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	-

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Appendix A. (page 19 of 24)

Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
273-822	7-18	Laura Pillifant	P	P	P	0	0	0	0	-	-	Turbulent
273-822	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
273-822	8- 3	Laura Pillifant	P	P	P	0	0	0	0	-	-	Too windy, unable to survey
273-822	8-13	Mike Thompson	E	E	E	0	0	0	0	-	-	-
273-822	8-22	Mike Thompson	G	G	G	0	0	0	0	-	-	-
273-822	8-30	Jeff Fox	E	E	E	0	0	2	0	-	-	-
Spoon Creek												
273-823	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
273-823	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
273-823	8- 3	Laura Pillifant	G	G	G	0	0	100	100	-	-	-
273-823	8-13	Mike Thompson	E	E	E	0	0	30	0	350P	-	-
273-823	8-22	Mike Thompson	G	G	G	0	0	1700	0	-	-	-
273-823	8-30	Jeff Fox	E	E	E	0	0	10	5	-	-	-
273-823	9- 5	Mike Thompson	F	F	F	0	0	0	0	-	-	-
273-823	9-11	Jeff Fox	F	F	F	0	0	0	0	-	-	-
Portage												
273-842	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	2000Ch	Dave Henley saw these fish; I saw 300-500
273-842	7-28	Jeff Fox	E	E	E	0	0	0	25	65Ch	1800Ch	-
273-842	8- 3	Laura Pillifant	G	G	G	0	0	0	300	500Ch	-	-
273-842	8-13	Mike Thompson	E	E	E	0	0	0	500	800Ch	6000Ch	-
273-842	8-22	Mike Thompson	F	F	F	0	0	0	1600	4000P	-	Poor light at the mouth
273-842	8-25	Jeff Bulla	E	E	E	0	0	292	0	-	-	Foot survey
273-842	8-30	Jeff Fox	E	E	E	0	0	1200	500	850Ch	-	-

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
273-842	9- 5	Mike Thompson	E	E	E	0	0	300	40	300Ch	-	-
273-842	9-11	Jeff Fox	G	F	F	0	0	25	300	-	-	-
Seal Bay												
273-843	7-28	Jeff Fox	E	E	E	0	0	0	0	-	210Ch	Between stream 842-843
273-843	8- 3	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
273-843	8-13	Mike Thompson	E	E	E	0	0	0	30	20Ch	-	-
273-843	8-22	Mike Thompson	G	G	G	0	0	0	400	250Ch	-	-
273-843	8-30	Jeff Fox	E	E	E	0	0	1700	800	-	-	-
273-844	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
273-844	8- 3	Laura Pillifant	G	G	G	0	0	0	50	-	-	-
273-844	8-13	Mike Thompson	E	E	E	0	0	0	0	250Ch	-	-
273-844	8-22	Mike Thompson	G	G	G	0	0	0	0	-	-	-
273-844	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	-
273-845	7-28	Jeff Fox	E	E	E	0	0	0	0	35Ch	-	-
273-845	8- 3	Laura Pillifant	G	G	G	0	0	0	0	-	-	-
273-845	8-13	Mike Thompson	E	E	E	0	0	0	100	250Ch	-	-
273-845	8-22	Mike Thompson	G	G	G	0	0	0	0	-	-	-
273-845	8-30	Jeff Fox	E	E	E	0	0	110	40	-	-	-
273-941	8-13	Mike Thompson	E	E	E	0	0	4500	0	6500P	-	-
273-941	8-22	Mike Thompson	G	G	G	0	0	3800	0	-	-	-
273-941	8-30	Jeff Fox	E	E	E	0	0	700	400	-	-	An additional 1500 fish in mouth, too deep to

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
												determine species
PERRYVILLE DISTRICT												
Kupreanof												
275-401	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-401	8-14	Jeff Fox	E	E	E	0	0	4200	50	-	-	-
275-401	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	No survey
Smokey Hollow												
275-402	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
275-402	7-28	Jeff Fox	E	E	E	0	0	0	120	-	-	-
275-402	8- 3	Laura Pillifant	G	G	G	0	0	200	0	-	-	-
275-402	8-14	Jeff Fox	E	E	E	0	0	1710	0	13000P	-	-
275-402	8-24	Mike Thompson	F	F	F	0	0	9400	100	-	-	-
275-402	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	Did not survey stream
275-403	8-14	Jeff Fox	E	E	E	0	0	0	0	-	-	-
Wasco's Creek												
275-404	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
275-404	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	Jumpers; couldn't see
275-404	8- 3	Laura Pillifant	G	G	G	0	0	0	300	-	-	Windy
275-404	8-14	Jeff Fox	E	E	E	0	0	3500	80	-	-	-
275-404	8-24	Mike Thompson	P	P	P	0	0	0	0	-	-	-
275-404	8-30	Jeff Fox	E	E	E	0	0	3800	0	-	-	-
275-405	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	Dried up
275-405	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-405	8-14	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-405	8-24	Mike Thompson	P	P	P	0	0	0	0	-	-	Mouth dry
275-405	8-30	Jeff Fox	E	E	E	0	0	0	0	100Ch	-	Creek still dry

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
Ivanof River												
275-406	7-18	Laura Pillifant	E	E	E	0	0	0	2000	-	-	4 bears
275-406	7-28	Jeff Fox	E	E	E	0	0	0	2100	4000P	60000Ch	Off flats
275-406	8- 3	Laura Pillifant	G	G	G	0	0	5000	900	4500P	500P	Lots of jumpers; fish located in first mile of stream
275-406	8-14	Jeff Fox	E	E	E	0	0	17200	1300	96800P	4000Ch	Fish spread all the way up to the creek
275-406	8-24	Mike Thompson	F	F	F	0	0	161000	300	3000P	-	-
275-406	8-26	Jeff Bulla	E	E	E	0	0	70000	0	-	-	Helicopter survey
275-406	8-30	Jeff Fox	F	F	F	0	0	55500	4000	13000P 800Ch	-	Low tide, maybe more fish
275-406	9- 5	Mike Thompson	E	E	E	0	0	63100	3200	170Co	-	Right upstream fork
275-406	9- 5	Mike Thompson	E	E	E	0	0	4800	0	-	-	Small creek between village and Ivanof River
275-406	9- 5	Mike Thompson	E	E	E	0	0	13000	0	450Ch	-	Left upstream fork
275-406	9-11	Jeff Fox	E	P	P	0	0	4300	150	-	-	Fish only visible in clear small tributaries; the rest too muddy, flooded; many carcasses in trees and grass; minimum count
275-408	8-14	Jeff Fox	E	E	E	0	0	200	0	-	-	-
275-408	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	-
Humpback Creek												
275-502	7-18	Laura Pillifant	E	E	E	0	0	0	500	1000P	1000Ch	Looked like oil in the bay/beach
275-502	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-502	8- 3	Laura Pillifant	G	G	G	0	0	15000	0	2000Ch	-	-
275-502	8-14	Jeff Fox	E	E	E	0	0	13800	220	-	-	Just moved in
275-502	8-24	Mike Thompson	F	F	F	0	0	51000	0	-	-	-
275-502	8-26	Jeff Bulla	E	E	E	0	0	6300	0	-	-	Helicopter survey
275-502	8-30	Jeff Fox	E	E	E	0	0	4400	0	-	-	-
275-502	9- 5	Mike Thompson	E	E	E	0	0	4800	0	-	-	-
275-502	9-11	Jeff Fox	P	P	P	0	0	20	0	-	-	Poor survey visibility

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
275-503	9-11	Jeff Fox	G	G	G	0	0	40	0	-	-	-
275-504	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
275-504	7-28	Jeff Fox	E	E	E	0	0	0	6600	4000Ch	20000Ch	-
275-504	8- 3	Laura Pillifant	G	G	G	0	0	0	0	1000P	-	-
275-504	8-14	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-504	8-24	Mike Thompson	F	F	F	0	0	3700	0	-	-	-
275-504	8-30	Jeff Fox	E	E	E	0	0	1080	0	-	-	More under brush
275-504	9-11	Jeff Fox	E	E	E	0	0	100	0	-	-	-
275-505	7-18	Laura Pillifant	E	E	E	0	0	0	0	-	-	-
275-505	7-28	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-505	8- 3	Laura Pillifant	G	G	G	0	0	200	0	-	-	-
275-505	8-14	Jeff Fox	E	E	E	0	0	650	0	-	-	-
275-505	8-24	Mike Thompson	F	F	F	0	0	19000	0	-	-	-
275-505	8-30	Jeff Fox	E	E	E	0	0	2300	0	-	-	-
275-505	9-11	Jeff Fox	E	E	E	0	0	375	0	-	-	-
275-506	7-28	Jeff Fox	E	E	E	0	0	0	0	100Ch	-	-
275-506	8-14	Jeff Fox	E	E	E	0	0	2380	0	-	-	-
275-506	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-600	7-18	Laura Pillifant	P	P	P	0	0	0	0	-	-	Too silty for accurate survey
275-600	7-28	Jeff Fox	P	P	P	0	0	0	0	-	-	Muddy, poor survey conditions
275-600	8- 3	Laura Pillifant	P	P	P	0	0	0	0	-	-	Poor visibility; muddy
275-600	8-14	Jeff Fox	E	E	E	0	0	100	0	-	-	-
275-600	8-24	Mike Thompson	P	P	P	0	0	2	0	-	-	-
275-600	8-30	Jeff Fox	E	E	E	0	0	0	0	-	-	-
275-600	9-11	Jeff Fox	P	P	P	0	0	0	0	-	-	Poor survey visibility

-Continued-

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Stream	Date MM-DD	Observer	Visibility Str	Visibility Mou	Visibility Bay	Fish in Stream Reds	Fish in Stream Coho	Fish in Stream Pink	Fish in Stream Chum	Build Up Fish Mouth	Build Up Fish Bay	Observer Remarks
275-601	7-18	Laura Pillifant	G	G	G	0	0	0	0	-	-	Lots of people on creek
275-601	7-28	Jeff Fox	P	P	P	0	0	0	0	-	-	Muddy, poor survey conditions
275-601	8- 3	Laura Pillifant	P	P	P	0	0	0	200	-	-	Porr visibility; may have been more fish
275-601	8-14	Jeff Fox	P	P	P	0	0	1100	200	-	-	-
275-601	8-24	Mike Thompson	P	P	P	0	0	1200	0	-	-	Fish located in clear water side channel
275-601	8-30	Jeff Fox	E	E	E	0	0	1600	20	-	-	-
275-601	9-11	Jeff Fox	P	P	P	0	0	0	0	-	-	Poor survey visibility

Appendix B.1. Peak salmon escapement counts for the Chignik Management Area by district, stream, and species, 1989.

District	Number of fish			
Stream	Sockeye	Pink	Chum	Coho
Chignik Bay District				
271-100	941,173	0	0	0
271-101a	0	3,000	1,000	0
271-101b	0	4,000	2,200	0
271-102a	0	0	0	0
271-102b	0	0	10	0
271-102c	0	0	0	0
271-103	0	250	0	0
271-104	0	4,800	5	0
271-105	0	400	0	0
271-106	0	1,020	210	0
subtotal	941,173	13,470	3,425	0
Central District				
272-201	0	210	0	0
272-202	0	0	0	0
272-202a	0	600	90	0
272-202b	0	200	0	0
272-204	0	16,600	3,700	0
272-205	0	5	0	0
272-206	0	230	0	0
272-302	50	45,500	10,200	0
272-501	0	63,000	0	0
272-502	0	0	2,000	0
272-502a	0	0	0	0
272-503	0	0	0	0
272-504	0	0	0	0
272-505	0	0	3,600	0
272-506	0	300	350	0
272-507	0	0	130	0
272-508	0	0	600	0
272-509	0	7,300	400	0
272-510	0	1,350	3,700	0
272-511	0	0	20	0
272-511a	0	500	400	0
272-511b	0	0	230	0
272-512	0	0	20	0
272-514	0	23,000	1,200	0

-Continued-

Appendix B.1. (page 2 of 4)

District	Number of fish			
Stream	Sockeye	Pink	Chum	Coho
272-516	0	19,000	0	0
272-602	0	1,700	150	0
272-604	0	200	500	0
272-605	3,600	5,000	2,500	0
272-606	0	1,800	0	0
subtotal	3,650	186,495	29,790	0
Eastern District				
272-701	0	3,200	500	0
272-702	30	53,000	3,200	0
272-703	0	17,000	4,000	0
272-720	0	0	0	0
272-721	0	10,900	3,400	0
272-722	0	0	0	0
272-723	0	0	0	0
272-801	0	10,900	4,800	150
272-802	28	9,000	2,100	0
272-802a	0	200	100	0
272-802b	0	750	150	0
272-803	0	36,000	3,200	0
272-804	0	10,600	4,100	0
272-805	0	19,000	6,000	0
272-821	0	0	0	0
272-822	0	0	0	0
272-823	0	0	0	0
272-842	0	0	0	0
272-843	0	0	0	0
272-844	0	0	0	0
272-845	0	0	0	0
272-900	0	2,300	0	0
272-901	0	10,000	0	0
272-902	0	22,000	0	0
272-903	0	11,800	1,400	0
272-903a	0	18,400	3,400	0
272-903b	0	52,000	800	0
272-904	0	32,000	11,500	0
272-905	0	89,000	4,000	0
272-906	0	18,000	0	0
272-921	150	3,200	100	0
272-922	0	8,000	0	0

-Continued-

Appendix B.1. (page 3 of 4)

District	Number of fish			
Stream	Sockeye	Pink	Chum	Coho
272-923	0	9,000	0	0
272-941	0	0	0	0
272-961	0	53,000	0	0
272-961a	400	8,500	0	0
272-961b	0	135,000	5,000	0
272-961c	0	25,000	950	0
272-962	0	4	0	0
272-962a	0	350	75	0
272-962b	0	0	0	0
272-963	0	10,500	0	0
subtotal	608	678,604	58,775	150
Western District				
273-702	0	2,900	1,500	0
273-720	0	0	0	0
273-722	0	32,000	800	0
273-723	0	1,500	300	0
273-802	0	10,800	600	0
273-821	0	0	0	0
273-822	0	2	0	0
273-823	0	1,700	100	0
273-842	0	1,200	1,600	0
273-843	0	1,700	800	0
273-844	0	0	50	0
273-845	0	110	100	0
273-941	0	4,500	400	0
subtotal	0	56,412	6,250	0
Perryville District				
275-401	0	4,200	50	0
275-402	0	9,400	120	0
275-403	0	0	0	0
275-404	0	3,800	300	0
275-405	0	0	0	0
275-406	0	161,000	4,000	0
275-408	0	200	0	0
275-502	0	51,000	500	0

-Continued-

Appendix B.1. (page 4 of 4)

District	Number of fish			
Stream	Sockeye	Pink	Chum	Coho
275-503	0	40	0	0
275-504	0	3,700	6,600	0
275-505	0	19,000	0	0
275-506	0	2,380	0	0
275-600	0	100	0	0
275-601	0	1,600	200	0
subtotal	0	256,420	11,770	0
Grand total	945,431	1,191,401	110,010	150

Appendix B.2. Pink salmon peak escapement counts and total estimated escapement for streams having a peak count which was preceded by and followed by at least one survey count, Chignik Management Area, 1989.

Stream Number	Number of Fish Peak Count	Est. Escap.	Est. Escap/Peak Count
271-101A	3,000	3,000	1.00
271-101B	4,000	4,000	1.00
271-105	400	400	1.00
271-202A	600	903	1.51
271-205	5	5	1.00
271-302	45,500	45,500	1.00
271-501	63,000	89,499	1.42
271-506	300	300	1.00
272-511A	500	500	1.00
272-514	23,000	25,497	1.11
272-605	5,000	5,658	1.13
272-606	1,800	1,800	1.00
272-701	3,200	4,636	1.45
272-702	53,000	53,000	1.00
272-703	17,000	26,983	1.59
272-721	10,500	14,000	1.33
272-801	10,900	14,080	1.29
272-802	9,000	16,018	1.78
272-804	10,600	10,600	1.00
272-904	32,000	32,000	1.00
272-905	89,000	89,000	1.00
272-961	53,000	82,592	1.56
272-961A	8,500	8,500	1.00
273-702	2,900	2,900	1.00
273-722	32,000	32,000	1.00
273-723	1,500	1,500	1.00
273-802	10,800	10,800	1.00
273-823	1,700	1,700	1.00
273-842	1,200	1,200	1.00
275-406	161,000	168,403	1.05
275-502	51,000	51,000	1.00
275-504	3,700	3,700	1.00
275-505	19,000	19,000	1.00
275-506	2,380	2,618	1.10
275-601	1,600	2,370	1.48
Totals	732,585	825,662	1.13[a]

[a]Total Est. Escapement/Total Peak Count.

Appendix B.3. Chum salmon peak escapement counts and estimated escapement for streams having a peak count which was preceded by and followed by at least one survey count, Chignik Management Area, 1989.

Stream Number	Number of Fish		Est. Escap/Peak Count
	Peak Count	Est. Escap.	
271-101A	1,000	1,000	1.00
271-101B	2,200	2,933	1.33
272-302	10,200	17,539	1.72
272-502	2,000	2,667	1.33
272-505	3,600	3,600	1.00
272-506	350	350	1.00
272-507	130	130	1.00
272-508	600	600	1.00
272-509	400	400	1.00
272-510	3,700	3,700	1.00
272-511a	400	413	1.03
272-511b	230	268	1.17
272-512	20	20	1.00
272-514	1,200	1,200	1.00
272-602	150	150	1.00
272-605	2,000	2,000	1.00
272-701	500	667	1.33
272-702	3,200	4,638	1.45
272-703	4,000	4,958	1.24
272-721	3,400	7,474	2.20
272-801	4,800	5,528	1.15
272-802	2,100	3,106	1.48
272-804	4,100	4,100	1.00
272-805	6,000	6,000	1.00
272-903a	3,400	3,967	1.17
272-903b	800	933	1.17
272-904	11,500	11,500	1.00
272-905	4,000	4,000	1.00
272-961b	5,000	5,861	1.17
273-722	800	939	1.17
273-802	600	600	1.00
273-823	100	100	1.00
273-842	1,600	1,600	1.00
273-844	50	50	1.00
273-845	100	100	1.00
273-802	600	600	1.00
275-402	120	147	1.23
275-404	300	300	1.00

-Continued-

Appendix B.3. (page 2 of 2)

Stream Number	Number of Fish		Est. Escap/Peak Count
	Peak Count	Est. Escap.	
275-406	4,000	7,900	1.98
275-504	6,600	6,600	1.00
275-601	200	332	1.66
Totals	96,050	118,970	1.24[a]

[a]Total Est. Escapement/Total Peak Count.

Appendix C.1. Work sheet for estimating the Chignik Management Area sockeye salmon catch had there been a normal fishery in 1989.

Year	Escap.	Catch	Run
1989	653,419	1,453,147	2,106,566

Note: The actual escapement was about 8,516 fish outside Chignik Lagoon, while the Chignik River system escapement was 941,173 fish which together total 949,689 fish. The estimated harvest rate on the outside local stock would have been in the range of 69.0% which is the estimated harvest rate on the 1989 Chignik River runs inside the Chignik Bay District with an escapement goal of 650,000 fish.

The Igvak fishery if operated in 1989 would reduce the total Chignik Management Area catch by about 4,880 fish. Total Igvak harvest is estimated at 6,100 sockeye salmon (80% Chignik fish).

1,154,372	Catch in lagoon
941,173	Escapement in lagoon
2,095,545	Total run inside lagoon
0.5509	Actual percentage harvested of Chignik Lagoon run
8,516	Escapement outside lagoon (2.0 X 4,258 peak count sum)
2,095,545	Run inside lagoon
2,104,061	Total which does not include outside catch of 2,505 fish
2,505	Outside catch
2,106,566	Total RUN
1,445,545	Potential catch in lagoon without oil and escapement goal of 650,000 fish
0.6898	Harvest rate in lagoon if no oil
7,602	Estimated total outside available catch
1,453,147	Estimated catch for entire management area without oil

Appendix C.2. Work sheet for estimating the Chignik Management Area pink salmon catch had there been a normal fishery in 1989.

Year	Escap.	Catch	Run
1989	700,000	762,510	1,462,510

Note: The estimated actual escapement is 1,434,798 fish using the Johnson and Barrett (1988) model with a stream life value of 15.0 days.

The actual 1989 escapement is 1,434,798 fish and the actual Chignik Management Area catch was 27,712 fish which added together is the total run. The escapement goal for the Chignik Management Area is 700,000 fish (Probasco 1987).

Appendix C.3. Work sheet for estimating the Chignik Management Area chum salmon catch had there been a normal fishery in 1989.

Year	Escap.	Catch	Run		Harvest Rate
1985	62,013	26,146	88,159		0.297
1986	52,121	176,640	228,761		0.772
1987	85,391	127,261	212,652		0.598
1988	361,738	267,126	628,864		0.425
				avg.	0.523
Estimated 1989	71,934	66,091	138,025		0.479

Note: The 1989 catch number is based on the regression of the run against the catch for 1985-1988. Total run estimates are not availble for pre 1985 years.

The 1989 actual escap. was about 136,405 fish, while the actual catch was 1,620 fish. The sum of these numbers is the run. The 1989 escapement number shown is the estimated escapement had there been a normal fishery.

66,091 = Estimate of 1989 chum catch
Regression Output:

Constant		35736.834748
Std Err of Y Est		49340.55401
R Squared		0.8392177202
No. of Observations		4
Degrees of Freedom		2
Degrees of Freedom		2
X Coefficient(s)	0.392102508	
Std Err of Coef.	0.1213574356	
Std Err of Coef.	0.0428909922	

Appendix C.4. Work sheet for estimating the coho salmon catch for the Chignik Mangement Area had there been a normal fishery in 1989.

Year	Chignik Bay District	Local non-Chig. Bay	Total local	Local non-Chignik Bay catch / Total catch	
84	72,722	19,401	92,123	0.2106	
85	163,915	26,109	190,024	0.1374	
86	60,197	9,918	70,115	0.1415	
87	77,333	23,955	101,288	0.2365	
88	94,292	58,392	152,684	0.3824	
actual 89	66,639	2	66,641	0.2217	avg. (84-88)
estimated 89	66,639	18,982	85,621	0.2217	

Note: Local non-Chignik Bay catch includes the total catch in the Eastern and Central Districts plus the post 14 August catch in the Western and Perryville Districts.

Appendix C.5. Work sheet for estimating the chinook salmon catch for the Chignik Management Area had there been a normal fishery in 1989.

Year	Chinook Catch Numbers: Total	Non-lagoon	Lagoon		Total/Lagoon	Non-Lag./ Lagoon
1984	4,318	622	3,696		1.1683	0.1683
1985	1,919	80	1,839		1.0435	0.0435
1986	3,037	445	2,592		1.1717	0.1717
1987	2,651	720	1,931		1.3729	0.3729
1988	7,296	2,965	4,331		1.6846	0.6846
				avg.	1.2882	0.2882
Estimated 1989	4,550	1,018	3,532		1.2882	0.2882

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