



State of Alaska  
Department of Fish and Game  
Sportfish Division

Nomination Form  
Fish Distribution Database

Region SCN USGS Quad(s) KENAI B-4  
Fish Distribution Database Number of Waterway 244-30-10050

Name of Waterway Kasilof River  USGS Name  Local Name  
 Addition  Deletion  Correction  Backup Information

For Office Use

Nomination # <u>06-118</u>	ADF&G Fisheries Scientist	Date
Revision Year: <u>2008-2009</u>	ADNR OHMP Operations Mgr.	Date <u>5/10/08</u>
Revision to: Atlas <input type="checkbox"/> Catalog <input type="checkbox"/>	FDD Project Biologist	Date
Both <input type="checkbox"/>	Cartographer	Date
Revision Code: <u>F-1</u>		

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
Chinook salmon	1980 - 1990			X	<input checked="" type="checkbox"/>
sockeye salmon	1968, 1970 - 2003			X	<input checked="" type="checkbox"/>
coho salmon	1980, 82, 83, 84, 86, 86, 88, 1989			X	<input checked="" type="checkbox"/>
pink salmon	1980 - 1990			X	<input checked="" type="checkbox"/>
					<input type="checkbox"/>

**IMPORTANT:** Provide all supporting documentation that this water body is important for the spawning, rearing or migration of anadromous fish, including: number of fish and life stages observed; sampling methods, sampling duration and area sampled; copies of field notes; etc. Attach a copy of a map showing location of mouth and observed upper extent of each species, as well as other information such as: specific stream reaches observed as spawning or rearing habitat; locations, types, and heights of any barriers; etc.

Comments:  
Inclusion of Kasilof River (244-30-10050) in AWC supported by historic data  
*ADF&G Fisheries Data Sales # 07-82 documents anadromous fish*  
and numerous historic nominations  
*Additional Data on file through 2007*  
*Chinook Salmon - 2006*  
*Sockeye Salmon - 2004-2007*  
*Coho Salmon - 2006*  
*Pink Salmon - 2006*  
*Sturgeon present - see Jeff Breakfield, Soldotna SF*

Name of Observer (please print): J. Johnson  
Signature: \_\_\_\_\_ Date: 6/25/2007  
Agency: ADF&G  
Address: 333 Raspberry Road  
Anchorage, Ak 99518

This certifies that in my best professional judgment and belief the above information is evidence that this waterbody should be included in or deleted from the Fish Distribution Database.

Signature of Area Biologist: Dave Westerman Date: 4/10/08 Revision 02/05  
Name of Area Biologist (please print): Dave Westerman

ESCAPEMENT SURVEY COUNTS OF ADULT SALMON FOR SYSTEMS WHOSE CONFLUENCES WITH COOK INLET OCCUR BETWEEN POINT POSSESSION AND THE ANCHOR RIVER (EXCLUSIVE OF THE KENAI RIVER - FILE KEN1.xls

FILENAME: KEN1.xls

Revised: 1/92, 5/93, 3/94 (R.Davis); 2/96, 12/96 M.L.Lambdin; 8/29/00 R.Davis; 11/20/01 (Davis)

Location Code/ Stream Name/ USGS Map No.	Year	Date	Chin	Sock	Coho	Chum	Pink	Comments	Data Source
244-30-10050 Kasilof River	Hist							Max. count 89,000 sock. (1968)	ADF&G, CF
	1970			38000				Escapement count (sonar)	ADF&G, CF
	1971			90000				Esc. est., partial survey and sonar counts	
	1972			113000				Escapement count (sonar)	ADF&G, CF
	1973			40000				Escapement count (sonar)	ADF&G, CF
	1974			70000				Escapement count (sonar)	ADF&G, CF
	1975			48000				Escapement count (sonar)	ADF&G, CF
	1976			139000				Escapement count (sonar)	ADF&G, CF
	1977			152000				Escapement count (sonar)	ADF&G, CF
	1978			115700				Escapement count (sonar)	ADF&G, CF
	1979			152179				Escapement count (sonar)	ADF&G, CF
	1980	6/22-8/13	1106	184260	501		1767	Escapement count (sonar)	ADF&G, CF
	1981		1555	256615			1646	Escapement count (sonar)	ADF&G, CF
	1982		361	180239		204	2314	Esc. count (sonar), inc. est. prior too 6/21	ADF&G, CF
	1983		5889	210271	32		2267	Esc. count (sonar), inc. est. prior too 6/22	ADF&G, CF
	1984	6/10-8/01	5088	231685	521		12126	Esc. count (sonar), inc. 1536 fish est. before 6/10 & 6/10 & 13161 fish est. after 7/31	ADF&G, CF
	1985	6/13-8/12	5650	505049	689		8723	Escapement count (sonar)	ADF&G, CF
	1986	6/13-8/01	2784	275963	248		2310	Escapement count (sonar)	ADF&G, CF
	1987	6/12-8/07	9216	249250			1285	Escapement count (sonar)	ADF&G, CF
	1988	6/13-8/08	4088	151856	172		2685	Escapement count (sonar)	ADF&G, CF
	1989	6/15-8/15	7458	158206	369		11276	Escapement count (sonar)	ADF&G, CF
	1990	6/15-8/15	20746	144136			3293	Escapement count (sonar)	ADF&G, CF
	1991	6/15-8/08		238232				Escapement count (sonar)	ADF&G, CF
	1992	6/15-8/02		184172				Escapement count (sonar)	ADF&G, CF
	1993	6/12-8/05		149939				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	1994	6/12-8/11		205117				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	1995	6/15-8/07		204935				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	1996	6/15-8/08		249944				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	1997	6/14-8/12		266025				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	1998	6/15-8/08		273213				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	1999	6/15-8/08		312587				Escapement count (sonar)	ADF&G, CFM&D
	2000	6/15-8/10		256053				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	2001	6/15-8/03		307570				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	2002	6/14-8/11		226682				No apportionment to species. Escapement count (sonar)	ADF&G, CFM&D
	2003	6/15-8/10		359633				Escapement count (sonar)	ADF&G, CFM&D
								No apportionment to species.	

**Fishery Data Series No. 07-82**

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# **Upper Cook Inlet Salmon Escapement Studies, 2006**

by

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and

**T. Mark Willette**

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Alaska Department of Fish and Game

Divisions of Commercial Fish and Sport Fisheries



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## ABSTRACT

Sockeye salmon *Oncorhynchus nerka* escapements into 4 river systems of Upper Cook Inlet, Alaska, were estimated using side-looking (formerly referred to as side-scanning) sonar equipment. Estimated sockeye salmon escapements were 1,499,692 into the Kenai River, 368,092 into the Kasilof River, 92,533 into the Crescent River, and 92,896 into the Yentna River. Species composition of fish wheel catches was used to apportion sonar counts in the Crescent and Yentna rivers during the entire sockeye salmon run and for Kenai and Kasilof rivers late in the sockeye salmon run. Incomplete indices of escapements of other salmonid species were also obtained by sonar for pink *O. gorbuscha* and coho salmon *O. kitsutch* in the Kenai and Kasilof rivers; for pink and chum salmon *O. keta* and Dolly Varden *Salvelinus malama* in the Crescent River; and pink, chum, and coho salmon in the Yentna River. The primary age classes for sockeye salmon in the Kenai River consisted of -1.2 (9.9%), -1.3 (38.7%), and -2.3 (44.0%); for the Kasilof River -1.2 (35.3%), -1.3 (30.5%) and -2.2 (27.4%); for the Crescent River age-1.3 (42.6%), -2.3 (36.2%), and -1.2 (14.3%); and for the Yentna River -1.2 (44.0%) -1.3 (39.3%), and -2.3 (5.8%). Sockeye salmon length and sex ratio data were within normal historical bounds in each river. The majority of fish counts were recorded within the onshore half of the ensonified range. Hourly peak salmon counts were typically recorded during the afternoon and evening hours along both banks in the Kenai River. Peak hourly counts along the north bank of the Kasilof River generally began in the morning hours and did not substantially decline until after midnight, when counts dropped sharply from the daytime and evening highs. Peak counts along the Kasilof south bank were highest in mid morning and lowest for several hours after midnight. Peak hourly counts along both banks of the Crescent River occurred in mid and late morning through the evening and reflected post meridiem high tides. Peak hourly counts along the north bank of the Yentna River occurred during the evening hours, whereas the south bank counts were highest from mid morning through the afternoon and into the evening, often declining substantially late in the evening. High water events were not a problem on any of the rivers except late in the season on the Yentna River. Two independent studies to estimate escapement were conducted on the Kenai and Yentna rivers in 2006. A DIDSON sonar counter was placed on both banks of the Kenai and Yentna rivers and the north bank of the Kasilof River to collect escapement data independent of the Bendix counter. A mark-recapture study was conducted to establish a third estimate of sockeye salmon run strength in both the Kenai and Susitna (including Yentna) rivers. Due to the mark-recapture studies, fish wheels were operated for atypically long periods every day, which may have impacted run timing on the Yentna River but not on the Kenai River. Results of these studies will be published in another report.

Key words: Upper Cook Inlet, sockeye salmon, Kenai River, Kasilof River, Crescent River, Yentna River, Susitna River, age, sex, length, sonar, escapement, fish wheel, substrate less, Bendix, DIDSON.

## INTRODUCTION

The primary objectives of Upper Cook Inlet (UCI) salmon escapement projects in 2006 were to estimate: (1) the daily and cumulative escapement of sockeye *Oncorhynchus nerka* salmon into the Kenai, Kasilof, Crescent, and Yentna rivers and (2) the age, length, and sex composition of those escapements. Meeting these objectives aids fisheries biologists in making day-to-day fisheries management decisions for Upper Cook Inlet to achieve escapement goals.

The Alaska Board of Fisheries has set optimal escapement goals (OEG), (considers both biological and allocative issues) for sockeye salmon in the Kenai and Kasilof rivers. The OEG for late-run sockeye salmon into the Kenai River is between 500,000 and 1,000,000 sockeye salmon and is 150,000 to 300,000 sockeye salmon for the Kasilof River. A sustainable escapement goal (SEG), (an escapement index that provides for sustained yields over a 5–10 year period), was set for the Yentna River at 90,000 to 160,000 sockeye salmon. The Crescent River biological escapement goal (escapement that provides for greatest potential for maximum sustained yield - BEG) is 30,000 to 70,000 sockeye salmon.

Prior to 1968, sockeye salmon escapement estimates in UCI, Alaska (Figure 1) were based on surveys of clear water spawning areas and provided no information about the distribution or