



State of Alaska  
Department of Fish and Game  
Habitat and Restoration Division

Nomination of Waters  
Important to Anadromous Fish

Region: Southcentral  
Anadromous Water Catalog Number of Waterway: 244-10-10010-2211  
Name of Waterway: \_\_\_\_\_  
 Addition  Deletion  Correction  Backup Information

USGS Quad: Seldovia D-4 Status: \_\_\_\_\_

USGS Name  Local Name

For Office Use

Arch# 4493

Nomination # <u>01 283</u>	<u>[Signature]</u>	<u>11/20/01</u>
Revision Year: <u>2001</u>	Regional Supervisor	Date
Revision to: Atlas _____ Catalog _____	<u>[Signature]</u>	<u>11/16/01</u>
Both <u>X</u>	AWC Project Biologist	Date
Revision Code: <u>A-2</u>	<u>[Signature]</u>	<u>12/13/01</u>
	Drafted	Date

SITE INFORMATION Date Observed: 9/1/99  
Station: SKP2003A03 Visit: 1 Latitude: 59.804168 Longitude: -151.303088 Legal: NW 1/4 Section 26, T. 4 S., R. 12 W., S.M.  
Substrate Organic (%): Sand (%): Silt/Clay (%): Gravel (%): Cobble (%): Boulder (%): Bedrock (%):  
Water Temp: 7 Strm. Stage: Medium OHW Width (m): 1.8 OHW Thalweg depth (m): 0.43

Station Comments:

SPECIES INFORMATION

Species: Dolly Varden Life Stage: Juvenile Count: 1  
Sampling Method: Portable Electrofisher Area (m2): 10 Effort (s): 17  
Fish passage barrier at site: Unknown Trap in: Trap out:

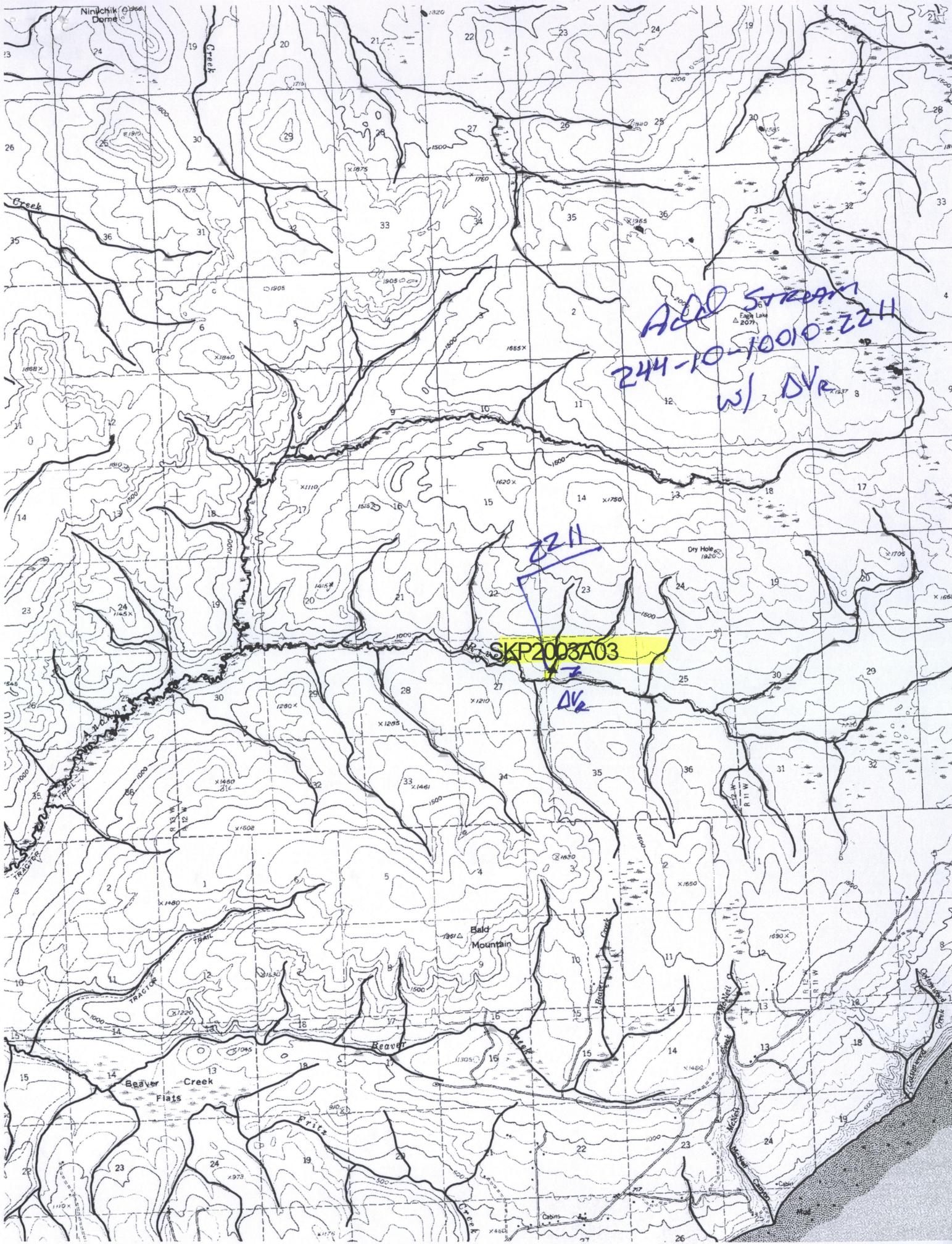
Species: Dolly Varden Life Stage: Juvenile/Adult Count: 2  
Sampling Method: Portable Electrofisher Area (m2): 10 Effort (s): 17  
Fish passage barrier at site: Unknown Trap in: Trap out:

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.

Name of Observer: Michael Wiedmer, Habitat Biologist  
Signature: [Signature] Date: 10/19/01  
Address: Habitat and Restoration Division, Alaska Department of Fish and Game  
333 Raspberry Road  
Anchorage, AK 995181599 USA  
9072672337

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 Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes per AS 16.05.870.

Signature of Area Biologist: \_\_\_\_\_ Revision 9/99



ADD STREAM  
244-10-10010-2211  
w/ DVE

SKP2003A03

2211

DVE

Fishery Data Series No. 98-9

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DSS CK.  
DOLLY  
STREAMS

## Coded Wire Tagging of Coho and Chinook Salmon in the Kenai River and Deep Creek, Alaska, 1996

by

**Bruce E. King**

and

**Jeffery A. Breakfield**

June 1998

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Alaska Department of Fish and Game

Division of Sport Fish



**Table 5.-Daily and cumulative catches of chinook salmon, coho salmon, Dolly Varden, and steelhead smolt using a rotary trap in Deep Creek, 1996.**

Date	Chinook				Coho		Dolly Varden		Steelhead	
	Age-1.		Age-0.		Daily	Cum.	Daily	Cum.	Daily	Cum.
	Daily	Cum.	Daily	Cum.						
5/18	13	13	0	0	7	7	335	335	0	0
5/19 <sup>a</sup>		13		0		7		335		0
5/20	2	15	0	0	7	14	268	603	0	0
5/21	6	21	0	0	12	26	402	1,005	0	0
5/22	14	35	0	0	13	39	341	1,346	1	1
5/23	4	39	0	0	20	59	168	1,514	0	1
5/24	13	52	0	0	20	79	126	1,640	0	1
5/25	5	57	0	0	12	91	86	1,726	0	1
5/26	5	62	0	0	11	102	118	1,844	0	1
5/27	5	67	0	0	11	113	149	1,993	0	1
5/28	0	67	0	0	6	119	91	2,084	0	1
5/29	5	72	0	0	10	129	128	2,212	0	1
5/30	0	72	0	0	23	152	48	2,260	0	1
5/31	2	74	0	0	17	169	31	2,291	0	1
6/01	1	75	0	0	12	181	3	2,294	0	1
6/02	2	77	0	0	19	200	5	2,299	0	1
6/03	2	79	0	0	17	217	3	2,302	0	1
6/04	4	83	0	0	47	264	7	2,309	0	1
6/05	4	87	0	0	75	339	3	2,312	0	1
6/06	8	95	0	0	115	454	3	2,315	0	1
6/07	8	103	0	0	134	588	3	2,318	0	1
6/08	5	108	0	0	127	715	4	2,322	0	1
6/09	17	125	20	20	412	1,127	9	2,331	1	2
6/10	14	139	50	70	575	1,702	6	2,337	2	4
6/11	34	173	100	170	565	2,267	22	2,359	1	5
6/12	27	200	50	220	380	2,647	6	2,365	0	5
6/13	48	248	50	270	225	2,872	2	2,367	1	6
6/14	59	307	50	320	269	3,141	2	2,369	1	7
6/15	47	354	40	360	159	3,300	2	2,371	0	7
6/16	25	379	20	380	136	3,436	0	2,371	0	7
6/17	40	419	10	390	126	3,562	1	2,372	1	8
6/18	44	463	20	410	94	3,656	3	2,375	2	10
6/19	38	501	20	430	126	3,782	1	2,376	0	10
6/20	152	653	20	450	59	3,841	2	2,378	1	11
6/21	75	728	10	460	117	3,958	1	2,379	2	13
6/22	74	802	20	480	118	4,076	3	2,382	1	14
6/23	62	864	0	480	53	4,129	0	2,382	0	14
6/24	43	907	0	480	30	4,159	0	2,382	0	14
6/25	95	1,002	10	490	49	4,208	0	2,382	0	14
6/26	192	1,194	90	580	78	4,286	0	2,382	5	19
6/27	275	1,469	100	680	112	4,398	0	2,382	2	21
6/28	301	1,770	100	780	74	4,472	0	2,382	5	26
6/29	217	1,987	140	920	68	4,540	1	2,383	4	30
6/30	61	2,048	40	960	50	4,590	0	2,383	4	34
7/01	46	2,094	60	1,020	34	4,624	0	2,383	3	37
7/02	38	2,132	30	1,050	21	4,645	0	2,383	1	38

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Table 5.-Page 2 of 2.

Date	Chinook									
	Age-1.		Age-0.		Coho		Dolly Varden		Steelhead	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
7/03	107	2,239	30	1,080	8	4,653	0	2,383	3	41
7/04	118	2,357	70	1,150	14	4,667	0	2,383	3	44
7/05	162	2,519	80	1,230	12	4,679	0	2,383	0	44
7/06	90	2,609	60	1,290	18	4,697	0	2,383	4	48
7/07	150	2,759	110	1,400	19	4,716	0	2,383	7	55
7/08	130	2,889	90	1,490	11	4,727	0	2,383	1	56
7/09	149	3,038	110	1,600	30	4,757	0	2,383	7	63
7/10	112	3,150	170	1,770	25	4,782	0	2,383	2	65
7/11	131	3,281	140	1,910	15	4,797	0	2,383	4	69
7/12	159	3,440	180	2,090	37	4,834	1	2,384	9	78
7/13	107	3,547	130	2,220	31	4,865	0	2,384	2	80
7/14	12	3,559	80	2,300	25	4,890	0	2,384	0	80
7/15	101	3,660	90	2,390	14	4,904	0	2,384	2	82
7/16	63	3,723	50	2,440	16	4,920	1	2,385	1	83
7/17	57	3,780	80	2,520	14	4,934	0	2,385	3	86
7/18	16	3,796	40	2,560	10	4,944	0	2,385	0	86
7/19	21	3,817	40	2,600	6	4,950	0	2,385	0	86
7/20	26	3,843	40	2,640	4	4,954	0	2,385	0	86
7/21	83	3,926	220	2,860	15	4,969	0	2,385	2	88
7/22	98	4,024	150	3,010	12	4,981	0	2,385	0	88
7/23	30	4,054	60	3,070	9	4,990	1	2,386	1	89
7/24	36	4,090	120	3,190	10	5,000	3	2,389	1	90
7/25	24	4,114	160	3,350	8	5,008	0	2,389	1	91
7/26	132	4,246	40	3,390	13	5,021	3	2,392	0	91
7/27	96	4,342	40	3,430	4	5,025	0	2,392	0	91
7/28	40	4,382	80	3,510	7	5,032	0	2,392	2	93
7/29	28	4,410	70	3,580	10	5,042	0	2,392	0	93
7/30	27	4,437	90	3,670	8	5,050	0	2,392	1	94
7/31	27	4,464	70	3,740	7	5,057	0	2,392	1	95
8/01	24	4,488	80	3,820	5	5,062	1	2,393	1	96
8/02	16	4,504	120	3,940	9	5,071	0	2,393	3	99
8/03	19	4,523	110	4,050	8	5,079	0	2,393	2	101
8/04	8	4,531	70	4,120	6	5,085	4	2,397	0	101
8/05	21	4,552	80	4,200	17	5,102	2	2,399	0	101
8/06	7	4,559	70	4,270	15	5,117	2	2,401	1	102
8/07	17	4,576	60	4,330	9	5,126	3	2,404	2	104
8/08	28	4,604	50	4,380	25	5,151	4	2,408	0	104
8/09	14	4,618	80	4,460	15	5,166	6	2,414	2	106
8/10	12	4,630	80	4,540	13	5,179	2	2,416	0	106
8/11	28	4,658	160	4,700	42	5,221	6	2,422	2	108
8/12	6	4,664	60	4,760	11	5,232	4	2,426	1	109
8/13	4	4,668	40	4,800	29	5,261	8	2,434	3	112

<sup>a</sup> Debris and high water conditions resulted in incomplete catch data.

Chinook salmon accounted for the majority of the catch (55%), followed by coho salmon (30%), Dolly Varden (14%), and steelhead (1%). We did not attempt to enumerate or tag chinook salmon less than 55 mm in fork length. The remaining species included sockeye salmon, pink salmon *O. gorbuscha*, threespine stickleback *Gasterosteus aculeatus*, ninespine stickleback *Pungitius pungitius*, slimy sculpin *Cottus cognatus*, eulachon *Thaleichthys pacificus*, and Pacific lamprey *Entosphenus tridentatus*.

Emigration timing of each salmonid species was unique, resulting in the presence of salmonid smolt in Deep Creek throughout most of the open water season (Figure 5). Chinook salmon smolt were caught through essentially the entire dates of operation, with the highest catch of age-1. smolt on 28 June, and age-0. smolt larger than 55 mm on 21 July. Coho salmon smolt were also captured throughout the period of operation, but migrated primarily in June, with a peak catch on 10 June. Dolly Varden smolt left the drainage primarily before the end of May. High catch rates of Dolly Varden from the start of operation indicated that emigration of this species had already begun. Steelhead catches peaked on 12 July, but our small total catch (n = 112) precluded clear definition of migratory timing. Nearly all trap catches of all species occurred between 2300 hours and 0700 hours.

Small numbers of post-emergent chinook salmon fry were captured from the onset of trapping. These age-0. fry were typically less than 50 mm in fork length, and were often impinged on the cleaning screen and passed out of the live box. By late July, fingerling (age-0.) chinook salmon began to resemble age-1. smolt in size and appearance, and were the predominant age class in catches. As age-0. chinook salmon increased in length, they became increasingly difficult to distinguish

from age-1. smolt. However, the overlap in length frequency distribution of the two age classes occurred after the majority of the age-1. emigration.

Chinook salmon presumed to be age 0. smolt ranged from 45 mm to 85 mm in fork length, with a mean fork length of 70 mm (Table 6). Those presumed to be age 1. ranged from 82 to 115 mm, with an average of 96 mm (Figure 6). Mean length increased from 58 mm in mid-June to 75 mm in mid-July for age-0. chinook salmon smolt.

We marked and released a total of 8,967 chinook salmon in Deep Creek during 1996 (Table 7). Approximately half of this total was age-1. migrants from the 1994 brood year and half were age-0. migrants from the 1995 brood year. Short-term tag retention and mortality rates were 100% and 0%. A complete listing of the CWTs applied during this project is presented in Appendix A1.

We also marked and released a total of 4,868 coho salmon smolt in Deep Creek during 1996 (Table 7). Short-term tag retention and mortality rates for coho salmon smolt were 100% and 0%. An additional 340 fingerlings were captured.

### **Estimating Inriver Adult CWT Mark Proportion**

#### **Chinook Salmon**

We sampled 360 adult chinook salmon for a missing adipose fin (Table 4). Twenty-six heads were collected from AFC fish. Twelve of the 26 AFC fish were hatchery-reared fish released in the Ninilchik River. When expanded for unmarked fish, the strays from the Ninilchik River comprised an estimated 51 (SE = 13) or 14.1% (SE = 3.5%) of the 360 chinook salmon sampled in Deep Creek (Table 8). Twelve of the remaining AFC fish were 2-ocean chinook salmon tagged at Deep Creek in 1994 as age-1. smolt (Appendix B2). None of the recovered Deep Creek tags were

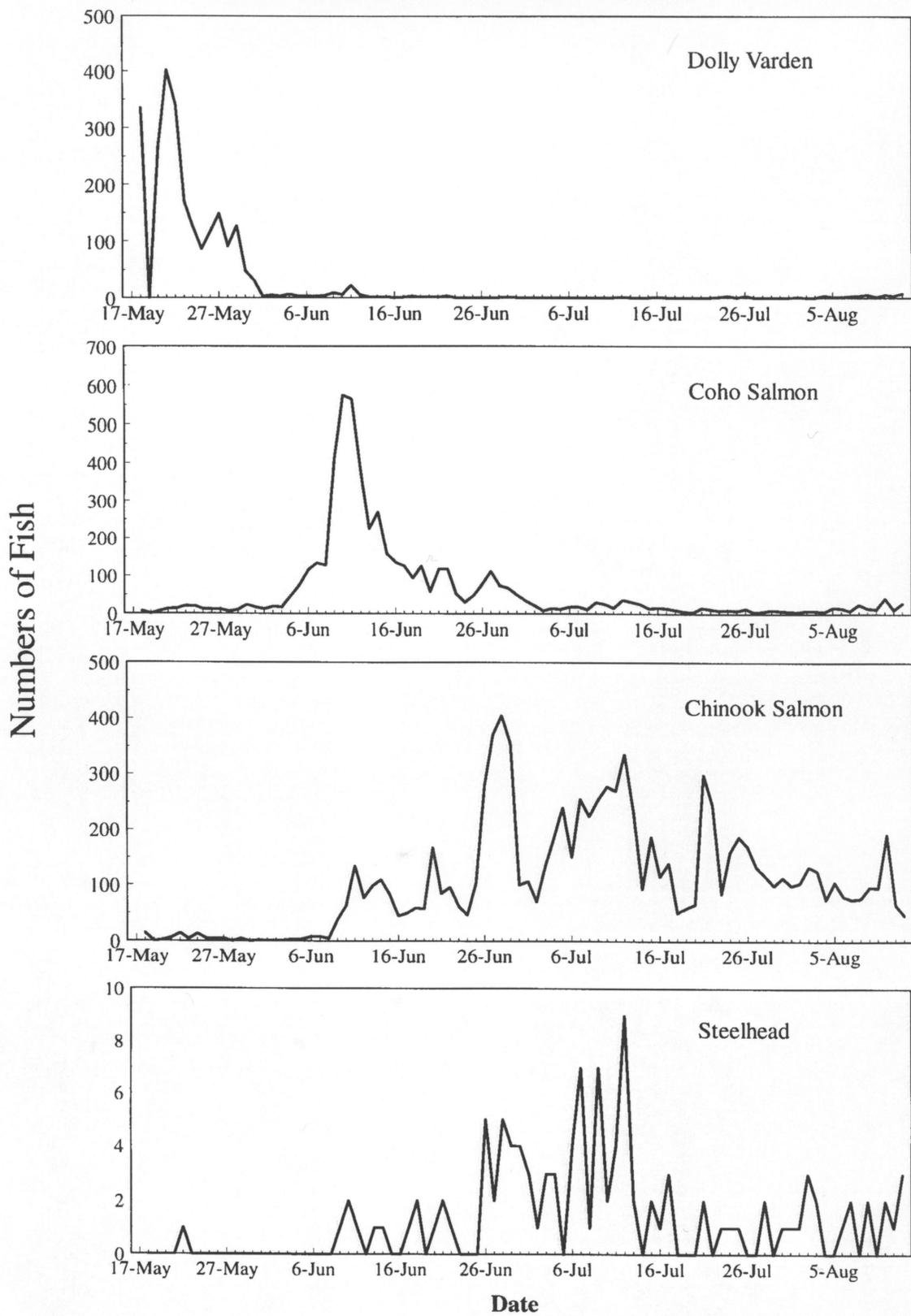


Figure 5.-Emigration timing for salmonid smolt captured in Deep Creek, 1996.

**Fishery Data Series No. 99-11**

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**Chinook and Coho Salmon Coded Wire Tagging  
Studies in the Kenai River and Deep Creek, Alaska,  
1997**

by

**Bruce E. King**

and

**Jeffery A. Breakfield**

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July 1999

Alaska Department of Fish and Game

Division of Sport Fish



**Table 2.-Estimated number of chinook salmon leaving the Kenai and Killey rivers with coded wire tags in 1997.**

Kenai River					
Dates	Coded Wire Tag Codes	Brood Year	Age	No. <sup>a</sup>	
6/09-6/29	31-25-51	1995	1.0	6,018	
6/29-7/26	31-25-50	1995	1.0	5,629	
7/27-8/05	31-25-48	1995	1.0	6,220	
8/06-8/18	31-27-07	1995	1.0	1,518	
Total				19,385	

Killey River					
Dates	Coded Wire Tag Codes	Brood Year	Age	No.	
5/17-6/08	31-25-47	1995	1.0	5,825	
6/08-6/30	31-25-54	1995	1.0	6,255	
7/01-7/24	13-01-03-09-01	1995	1.0	463	
Total				12,543	

<sup>a</sup> The number of tags was adjusted by the estimated tag retention proportion.

Twelve adults tagged in the Kenai River (brood years 1992-1994) were also recovered from a variety of Cook Inlet marine sport and commercial fisheries, and two additional fish were captured in the purse seine fishery based in Kodiak (Appendix B1).

Slikok Creek spawning ground survey crews observed 314 chinook salmon. Scales were collected from 97 of the chinook salmon, and sex could be determined for 181 fish. Scales from 68 fish were readable, of which 2% were age 1.2, 32% were age 1.3, and 66% were age 1.4.

Heads were collected from five AFC fish, all of which were from the Crooked Creek 1993 brood year (Appendix B1). Since this hatchery cohort had a  $\theta$  of approximately 0.20, our estimate of Crooked Creek fish in Slikok Creek at the time of the stream survey was 25 fish out of 102 total 1993 brood year fish or 25 % of the age class.

## DEEP CREEK

### CWT Release

We operated the Deep Creek rotary smolt trap from 13 May through 29 July. Stream discharge and water temperature fluctuated throughout the operation (Figure 11). Water level declined from 99 cm in mid-May to 67 cm by mid-July with interspersed freshets. Water temperature ranged from 3° C to 16° C, with an increasing trend from mid-May through early July. There was a significant ( $P = 0.0001$ ) negative correlation between the two hydrological parameters. Chinook and coho salmon catches tended to increase after discharge increases; however, the highest flows recorded in mid-July were not accompanied by migration of fish.

Seven species of fish were captured in the trap. The catch of the four anadromous salmonid species, Dolly Varden (*Salvelinus malma*), coho salmon, steelhead (*Oncorhynchus mykiss*), and chinook salmon, totaled 22,034 (Table 5). Coho salmon accounted for the majority of the salmonid catch (55%), followed by chinook salmon (36%), Dolly Varden (8%), and steelhead (1%). We did not attempt to enumerate or tag chinook salmon less than 55 mm in fork length.

**Table 5.-Daily and cumulative catches of chinook salmon, coho salmon, Dolly Varden, and steelhead smolt in Deep Creek, 1997.**

Date	Chinook				Coho		Dolly Varden		Steelhead	
	Age-0.0		Age-1.0		Daily	Cum	Daily	Cum	Daily	Cum
	Daily	Cum	Daily	Cum						
13-May	2	2	23	23	10	10	39	39	0	0
14-May	0	2	10	33	10	20	104	143	0	0
15-May	2	4	19	52	4	24	109	252	1	1
16-May	3	7	11	63	9	33	336	588	0	1
17-May	0	7	7	70	1	34	546	1,134	1	2
18-May	0	7	2	72	6	40	21	1,155	1	3
19-May	0	7	18	90	26	66	71	1,226	0	3
20-May	1	8	18	108	44	110	73	1,299	1	4
21-May	0	8	11	119	15	125	84	1,383	0	4
22-May	0	8	4	123	9	134	73	1,456	0	4
23-May	0	8	11	134	6	140	93	1,549	0	4
24-May	0	8	6	140	3	143	19	1,568	0	4
25-May	0	8	4	144	7	150	28	1,596	0	4
26-May	1	9	3	147	2	152	14	1,610	0	4
27-May	1	10	4	151	6	158	28	1,638	0	4
28-May	0	10	7	158	13	171	31	1,669	1	5
29-May	0	10	28	186	80	251	8	1,677	1	6
30-May	0	10	5	191	81	332	1	1,678	0	6
31-May	1	11	6	197	49	381	0	1,678	1	7
1-Jun	0	11	19	216	100	481	5	1,683	0	7
2-Jun	0	11	16	232	95	576	11	1,694	2	9
3-Jun	0	11	26	258	165	741	1	1,695	0	9
4-Jun	0	11	21	279	133	874	2	1,697	0	9
5-Jun	0	11	30	309	238	1,112	5	1,702	0	9
6-Jun	2	13	61	370	249	1,361	1	1,703	2	11
7-Jun	1	14	24	394	160	1,521	2	1,705	1	12
8-Jun	9	23	22	416	352	1,873	0	1,705	1	13
9-Jun	11	34	29	445	425	2,298	0	1,705	0	13
10-Jun	14	48	100	545	1,258	3,556	6	1,711	2	15
11-Jun	23	71	107	652	608	4,164	4	1,715	3	18
12-Jun	11	82	188	840	683	4,847	7	1,722	8	26
13-Jun	10	92	84	924	258	5,105	2	1,724	5	31
14-Jun	26	118	510	1,434	816	5,921	0	1,724	4	35
15-Jun	32	150	341	1,775	427	6,348	0	1,724	3	38
16-Jun	25	175	332	2,107	1,094	7,442	0	1,724	2	40
17-Jun	39	214	301	2,408	835	8,277	2	1,726	24	64
18-Jun	10	224	100	2,508	503	8,780	0	1,726	8	72
19-Jun	0	224	109	2,617	289	9,069	1	1,727	10	82
20-Jun	13	237	183	2,800	266	9,335	0	1,727	21	103
21-Jun	127	364	661	3,461	696	10,031	1	1,728	8	111
22-Jun	19	383	83	3,544	433	10,464	2	1,730	31	142
23-Jun	2	385	42	3,586	124	10,588	0	1,730	4	146
24-Jun	2	387	94	3,680	92	10,680	1	1,731	19	165

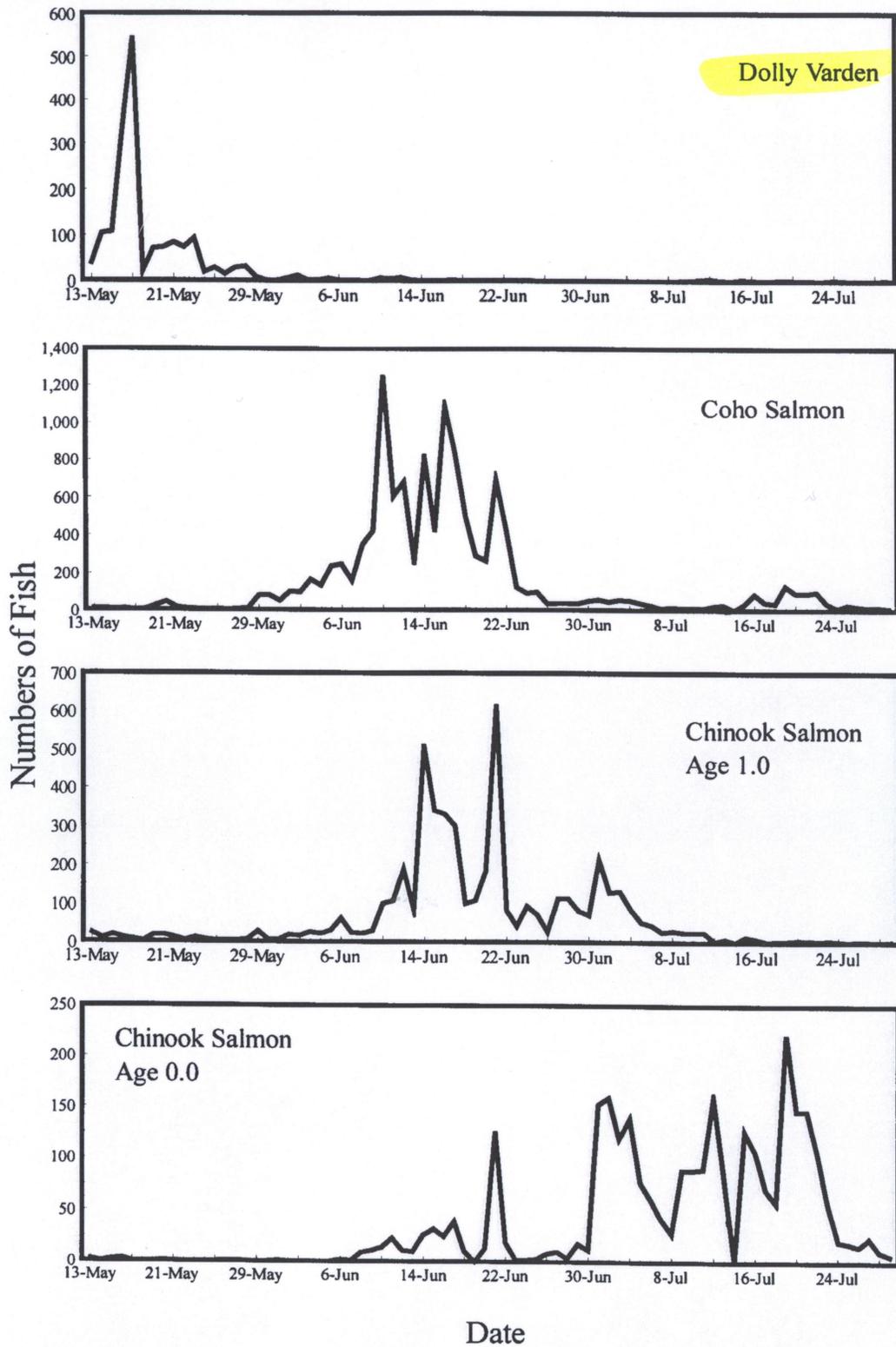
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Table 5.-Page 2 of 2.

Date	Chinook									
	Age-0.0		Age-1.0		Coho		Dolly Varden		Steelhead	
	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
25-Jun	3	390	72	3,752	98	10,778	0	1,731	12	177
26-Jun	8	398	28	3,780	36	10,814	0	1,731	7	184
27-Jun	10	408	114	3,894	38	10,852	0	1,731	5	189
28-Jun	4	412	114	4,008	39	10,891	1	1,732	7	196
29-Jun	18	430	82	4,090	37	10,928	0	1,732	3	199
30-Jun	12	442	70	4,160	49	10,977	0	1,732	8	207
1-Jul	153	595	213	4,373	57	11,034	0	1,732	16	223
2-Jul	160	755	129	4,502	45	11,079	0	1,732	3	226
3-Jul	120	875	132	4,634	54	11,133	0	1,732	5	231
4-Jul	139	1,014	86	4,720	51	11,184	0	1,732	1	232
5-Jul	78	1,092	52	4,772	38	11,222	0	1,732	4	236
6-Jul	61	1,153	44	4,816	27	11,249	0	1,732	2	238
7-Jul	42	1,195	27	4,843	12	11,261	0	1,732	1	239
8-Jul	28	1,223	30	4,873	17	11,278	0	1,732	4	243
9-Jul	89	1,312	26	4,899	12	11,290	0	1,732	0	243
10-Jul	89	1,401	26	4,925	14	11,304	1	1,733	0	243
11-Jul	90	1,491	26	4,951	13	11,317	3	1,736	0	243
12-Jul	160	1,651	2	4,953	23	11,340	4	1,740	0	243
13-Jul	82	1,733	8	4,961	28	11,368	2	1,742	0	243
14-Jul <sup>a</sup>		1,733		4,961		11,368		1,742		243
15-Jul	127	1,860	14	4,975	33	11,401	3	1,745	0	243
16-Jul	107	1,967	9	4,984	87	11,488	2	1,747	2	245
17-Jul	71	2,038	1	4,985	41	11,529	0	1,747	0	245
18-Jul	58	2,096	3	4,988	37	11,566	1	1,748	2	247
19-Jul	222	2,318	4	4,992	131	11,697	3	1,751	2	249
20-Jul	147	2,465	6	4,998	92	11,789	2	1,753	1	250
21-Jul	147	2,612	6	5,004	91	11,880	1	1,754	0	250
22-Jul	106	2,718	3	5,007	100	11,980	0	1,754	0	250
23-Jul	57	2,775	5	5,012	39	12,019	0	1,754	0	250
24-Jul	21	2,796	3	5,015	12	12,031	3	1,757	0	250
25-Jul	19	2,815	1	5,016	28	12,059	1	1,758	0	250
26-Jul	16	2,831	4	5,020	21	12,080	1	1,759	0	250
27-Jul	24	2,855	2	5,022	15	12,095	0	1,759	0	250
28-Jul	11	2,866	1	5,023	17	12,112	0	1,759	0	250
29-Jul <sup>b</sup>	7	2,873	3	5,026	12	12,124	2	1,761	0	250

<sup>a</sup> High water conditions resulted in incomplete catch data.

<sup>b</sup> Total captures of other species include: 310 slimy sculpin (*Cottus cognatus*), 82 three-spine stickleback (*Gasterosteus aculeatus*), and 608 Pacific lamprey (*Lampetra tridentata*).



**Figure 12.-Emigration timing for salmonid smolt captured in Deep Creek, 1997.**