

Johnson, J D (DFG)

From: Parker, Fronty (DFG)
Sent: Thursday, May 05, 2011 7:29 AM
To: Johnson, J D (DFG)
Subject: AWC nomination: Christie Spring (334-40-11000-2490-3416-4014)
Attachments: Christie Spring 04-14-2011.xls; Christie Spring.doc; AWC number system for DCR.xlsx

Christie Spring is one of 21 tributaries into the Delta Clearwater River that has aerial coho salmon survey data. This is a new AWC nomination and the sequence for Christie Spring is shown in the spreadsheet "AWC number system for DCR.XLSX". Descriptive information and aerial coho salmon survey data for Christie Spring is added to this nomination.
-Fronty

Christie Spring (local name, no USGS name)

04/14/2011

Anadromous stream catalog number 334-40-11000-2490-3416-4014

Description: Christie Spring is a spring tributary on the North side of the Delta Clearwater River at mile 9.1 (Figure 1). Spawning coho salmon have been observed and counted in all five years aerial surveys in Dubois Spring were conducted. The mouth of Christie Spring joins with Caleb Spring, for counting purposes and large numbers of fish encountered here; it was easier to separate the two springs.

The Delta Clearwater River (DCR) is entirely spring fed. A report written in 1991 (Parker, J. F. 1991. Status of Coho Salmon in the Delta Clearwater River of Interior Alaska. Alaska Department of Fish and Game, Fishery Data Series 91-4, Anchorage.) gives a summary of coho life history and data collected on the DCR. The report documents the DCR being only 20 miles in length, as having the largest spawning concentration in the Yukon River drainage, the largest coho sport fishery in the Tanana River drainage, and an extensive record of coho escapement index counts. Adult coho salmon distribute throughout the DCR to spawn. Coho salmon eggs hatch in February and March and coho salmon fry emerge from the gravel in May, approximately 6 months after spawning. The springs provide consistent flows, little change in water temperature, highly productive aquatic communities, and favorable over-wintering habitat for rearing coho salmon. The majority of the juvenile coho salmon rear in the DCR for 1 - 3 years before smolting, and spend 1 year in the ocean before returning (Parker 1991).

Christie Spring is a small spring tributary of the Delta Clearwater River (Figure 1). Christie Spring does not appear on the USGS map and is hand drawn in for AWC purposes (Figure 2). Water upwells at the headwater of Christie Spring (N64° 03.321', W145° 25.195') and flows a total of 0.20 mile to the downstream confluence of Caleb Spring then a short distance to the confluence of the Delta Clearwater River (N64° 03.218', W145° 25.335').

DF&G conducts an annual coho salmon survey to assess the coho salmon escapement goal of 5,200–17,000. Annual coho counts since 1972 to the present are found in Table 1 (Parker, J. F. 2009. Fishery management report for sport fisheries in the Upper Tanana River drainage in 2008. Alaska Department of Fish and Game, Fishery Management Report No. 09-47, Anchorage.) From 1994-1998, aerial coho surveys were conducted to determine numbers of spawning coho salmon in non-boatable portions of the DCR. A significant portion of coho salmon are found spawning in non-navigatable portions of the river in short spring tributaries contributing to the DCR. Aerial counts for coho salmon in areas not counted by boat, were 21.9%, 23.8%, 19.0%, 17.1%, and 20.0% (averaging 20.36%) of the escapement, respectively (Table 1). The average proportion is then applied to the mainstem DCR count and the resultant estimate for the non-navigatable component is added to the mainstem count to obtain an estimate of total escapement. From 1994-1998, the helicopter count for Christie Spring is presented in Table 2.

Anadromous species present: Coho salmon (spawning and rearing).

Other Species; round whitefish, Arctic grayling, long nose suckers, and slimy sculpins.

Anadromous species data collection:

This nomination is to provide a description for this water and provide aerial coho survey data.

Figure 1. Christie and Caleb Springs, Google Earth picture of Christie Spring joining with the confluence of Caleb Spring. The watered area of Christie Spring is outlined in Blue.



Figure 2. USGS map with several spring tributaries of the Delta Clearwater River including Christie Spring.

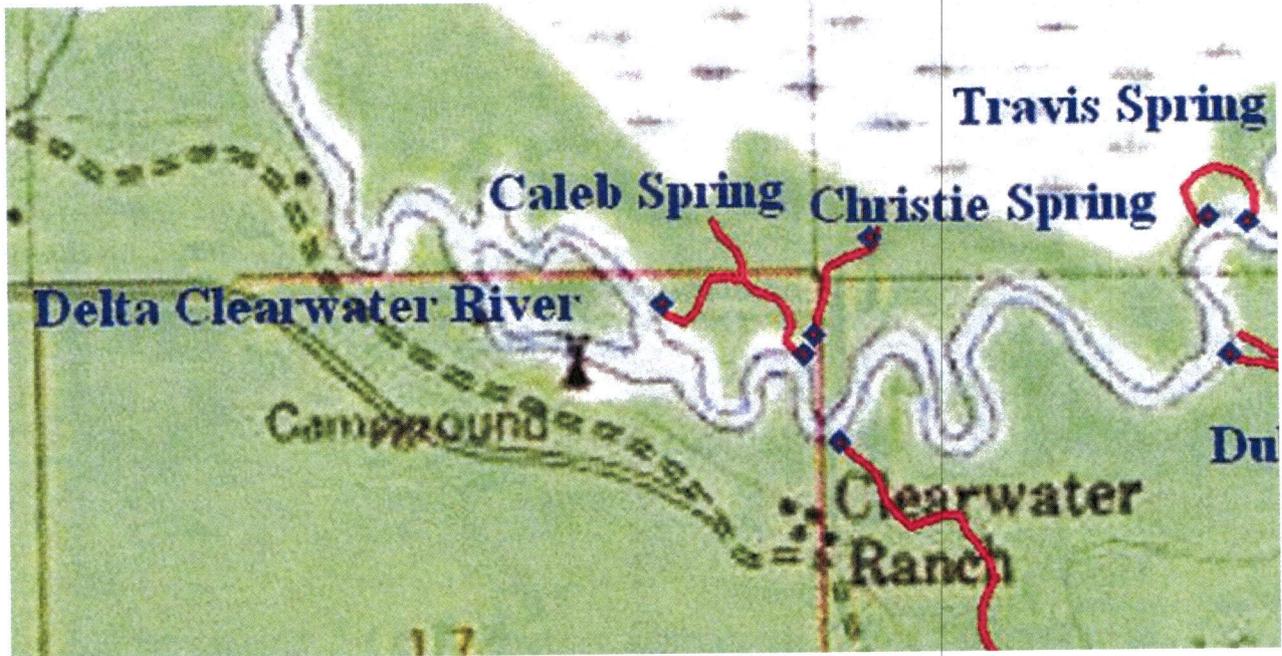


Table 1. Delta Clearwater River coho counts by boat and aerial counts from 1994-1998, expanded to include non-navigatable portions of the river in years when aerial surveys were not done.

Year	Mainstem DCR Escapement	Counts in Lower River Mile 0-8	Counts in Upper River Mile 8-18	Only Tributaries	Coho's % in Tributaries	Expanded Count to include Tributaries.
1972	632					803
1973	3,322					4,220
1974	3,954					5,023
1975	5,100					6,479
1976	1,920					2,439
1977	4,793					6,089
1978	4,798					6,095
1979	8,970					11,395
1980	3,946					5,013
1981	8,563					10,878
1982	8,365					10,627
1983	8,019					10,187
1984	11,061					14,052
1985	5,358					6,807
1986	10,857					13,793
1987	22,300					28,330
1988	21,600					27,441
1989	12,600					16,007
1990	8,325					10,576
1991	23,900					30,362
1992	3,963					5,035
1993	10,875					13,816
1994	62,675			17,565	21.9%	80,240
1995	20,100			6,283	23.8%	26,383
1996	14,070			3,300	19.0%	17,370
1997	11,525			2,375	17.1%	13,900
1998	11,100			2,775	20.0%	13,875
1999	10,975			2,967	21.3%	13,942
2000	9,225	4,200	5,025	2,494	21.3%	11,719
2001	46,875	19,375	27,500	12,013	21.3%	59,547
2002	38,625	17,700	20,925	10,441	21.3%	49,067
2003	102,800	41,575	61,225	27,791	21.3%	130,591
2004	37,550	16,775	20,775	10,551	21.3%	47,701
2005	31,175	13,825	17,350	8,428	21.3%	39,603
2006	15,950	10,100	5,850	4,312	21.3%	20,262
2007	14,650	7,325	7,325	3,961	21.3%	18,611
2008	7,500	2,475	5,025	1,917	21.3%	9,417
2009	16,850	9,425	7,425	4,307	21.3%	21,157
2010	5,867	1,961	3,906	1,586	21.3%	7,453

Table 2.- Helicopter Aerial Coho surveys of Christie Spring from 1994-1998.

Year	Christie Spring Tributary
1994	25
1995	225
1996	150
1997	125
1998	75