



# FISH PASSAGE CENTER

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August 16, 2006

Mr. Bob Semple  
 U.S. Fish and Wildlife Service  
 P.O. Box 18  
 4147 Ahsahka Rd.  
 Ahsahka, ID 83520-0018

Dear Bob:

The Fish Passage Center has been marking fish from the Dworshak Hatchery facility over the last several years as part of the Smolt Monitoring Program (SMP) and the Comparative Survival Study (CSS). For purposes of these studies data are collected on either juvenile life stage, or both the juvenile and adult life stages. The SMP provides information for in-season management of the hydrosystem and post-season analyses to the federal, state, and tribal fishery agencies. The CSS is a multi-year program that estimates survival rates over different life stages for spring and summer Chinook produced in major hatcheries. We would like to share with you some of the information we developed under these studies for the fish used from the Dworshak Hatchery facility.

Under the Smolt Monitoring Program, information is collected on the timing and migration speed from the hatchery to Lower Granite Dam. In addition, as part of the CSS study, juvenile survival estimates are developed for the hydrosystem between Lower Granite and Bonneville Dams, and for the adulthood of different passage histories.

## Dworshak Spring Chinook Travel Times

Release Date	Migration Year	Travel Time (Days)			Confidence Limits 95%		Lower Granite	
		Min	Med	Max	Lower	Upper	Flow (kcfs)	Temp (F)
7-Apr	1997	3.2	31.9	97.6	31	32.8	156.6	52.3
3/23-3/26	1998	2.8	28.1	78.2	27.8	28.1	60.2	49.7
4/7-4/8	1999	4.6	27.7	133.7	27.4	28.2	97.4	44.7
3/23, 4/5-4/6	2000	3.9	27.3	86.8	27.2	27.3	74.8	48.8
28-Mar	2001	3.9	30.4	151.1	30.3	30.4	33.5	46.9
3/27-3/28	2002	3.4	38.1	77.6	38.1	38.2	27.4	
3/19-3/20	2003	6	49.4	121.4	49	49.7	28.4	
3/31-4/1	2004	6.2	32.2	74.9	32	32.4	23.4	
4/4-4/6	2005	5.6	30.2	76	30.2	30.2		
3/27-3/29	2006	2.7	35.6	78.7	35.4	35.9	43.3	

### Dworshak Steelhead Travel Times

Release Date	Migration Year	Travel Time (Days)			Confidence Limits 95%		Lower Granite	
		Min	Med	Max	Lower	Upper	Flow (kcs)	Temp (F)
28-Apr	1997	1.3	2.8	28.6	2.4	3.6	160.6	50.6
2-May	1997	1.9	6.7	30.5	5.1	11.2	156.6	52.3
29-Apr	1997	1.2	1.8	30.1	1.7	1.8	160.6	50.6
1-May	1997	1.5	6.9	64.8	5.5	8.8	150.9	52.3
4/27-4/30	1998	2.3	4.7	48.8	4.5	5	90.6	53.5
4/26-4/30	1999	1.5	6.2	60.1	5.8	6.5	115.4	50.8
5/3-5/5	2000	1.6	3.5	66.6	3.5	3.5	95.2	53.2
4/23-4/26	2001	2.5	6.8	110	6.7	7	46.6	44.9
4/22-4/25	2002	2.4	5.7	47.4	5.5	6.4	22.5	
4/24	2003	0.6	7.1	54.8	6.6	7.7	18	
4/29-4/22	2004	2.9	8.8	34	8.4	9.3	21.8	
4/18-4/22	2005	3.4	11.2	60.8	10.4	11.6		
4/17-4/21	2006	1	10.5	52.7	8.1	12.6	47.5	

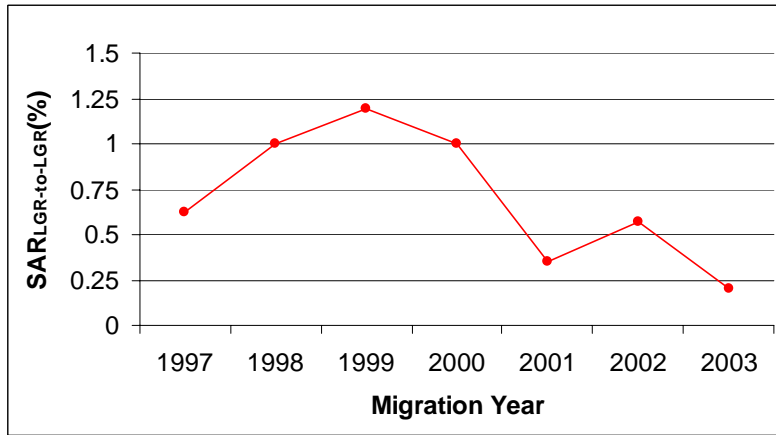
The above tables describe the median travel times from each release site to Lower Granite Dam along with the minimum and maximum travel time estimates for both spring Chinook and steelhead. They also provide the 95% confidence limits around the estimated median travel time.

The table below contains estimates calculated in the CSS study of juvenile survival in the hydrosystem between Lower Granite and Bonneville Dams and the survival to adult of spring Chinook in several categories. Those categories are SAR(T), SAR(C<sub>0</sub>), and Weighted SAR<sub>LGR-10-LGR</sub>, where SAR(T) represents smolts transported from Lower Granite, Little Goose, or Lower Monumental Dam, SAR(C<sub>0</sub>) represents smolts migrating in river, and SAR<sub>LGR-10-LGR</sub> is a weighted estimate that is obtained by taking the proportion of the total population of smolts (tagged and untagged) at Lower Granite Dam in each study category and multiplying by the respective study category's SAR<sub>LGR-10-LGR</sub>

### Dworshak Spring Chinook Survival

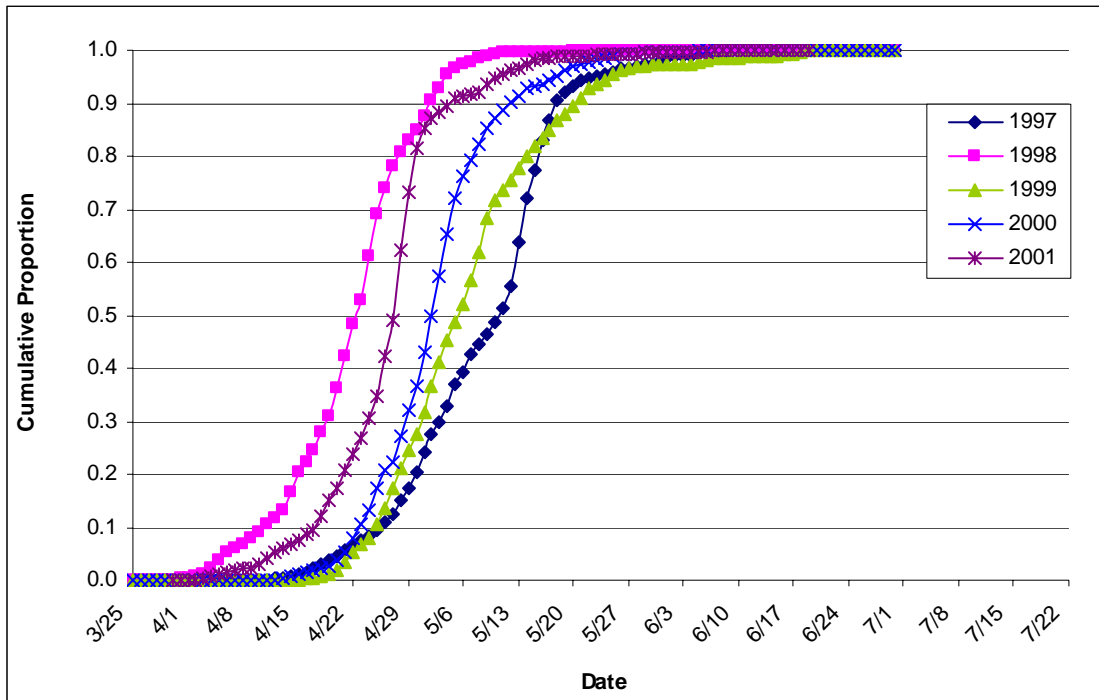
Release Date	Migration Year	Juvenile Survival			T/C Ratio	Adult Survival		
		LGR-BON	Proportion Transported			SAR(T)	SAR(C <sub>0</sub> ) %	Weighted SAR <sub>LGR-10-LGR</sub>
7-Apr	1997	0.49	0.48	1.75	0.83	0.47	0.62	
3/23-3/26	1998	0.51	0.71	0.72	0.9	1.25	1	
4/7-4/8	1999	0.54	0.74	0.99	1.18	1.2	1.19	
3/23, 4/5-4/6	2000	0.48	0.66	0.99	1	1.01	1	
28-Mar	2001	0.24	0.98	8.76	0.36	0.04	0.35	
3/27-3/28	2002	0.62	0.57	1.24	0.62	0.5	0.57	
3/19-3/20	2003	0.68	0.54	1.18	0.22	0.19	0.2	

The following graph shows a time series of the Weighted SAR<sub>LGR-10-LGR</sub> over the seven years of available data.

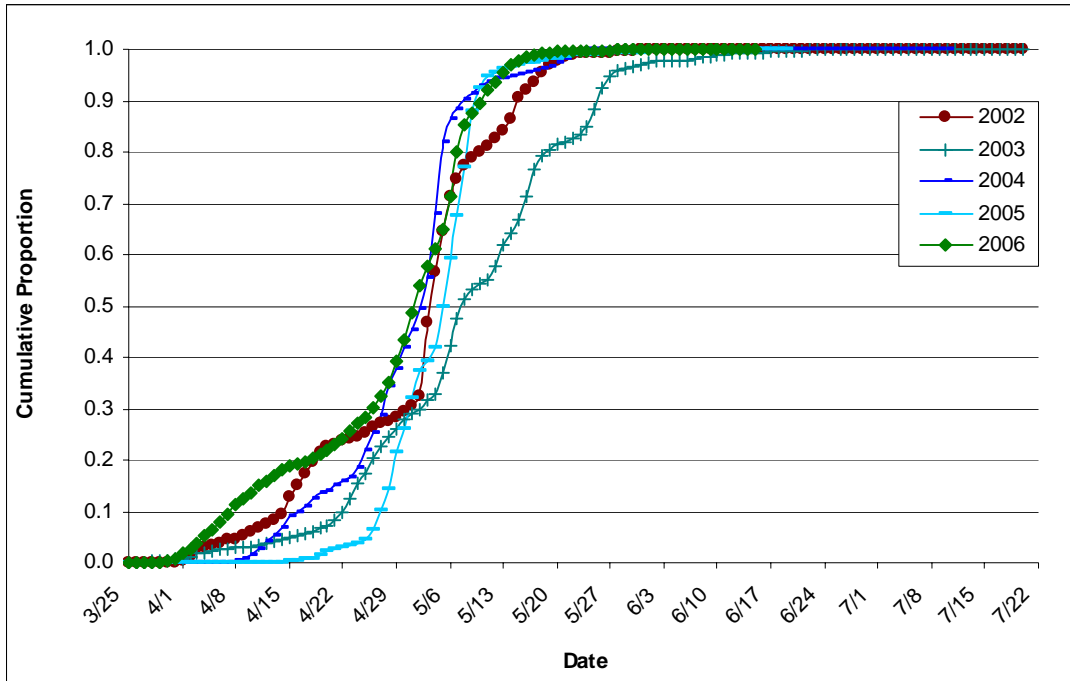


Finally, we are providing the following graphs which show passage timing of the hatchery releases to Lower Granite Dam for the past nine to ten years. To better facilitate comparison, we have broken the years into two separate graphs. Please note the different scales on the x-axis for the steelhead passage timing.

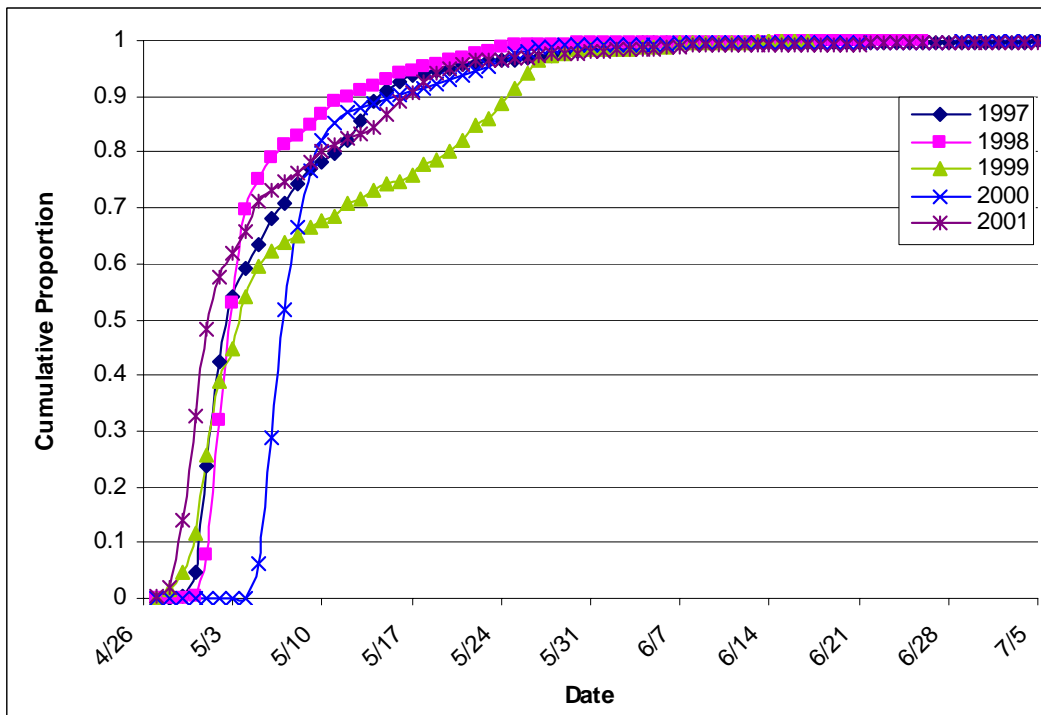
**Dworshak Hatchery – Spring Chinook (1997-2001)  
Passage Timing to Lower Granite Dam**



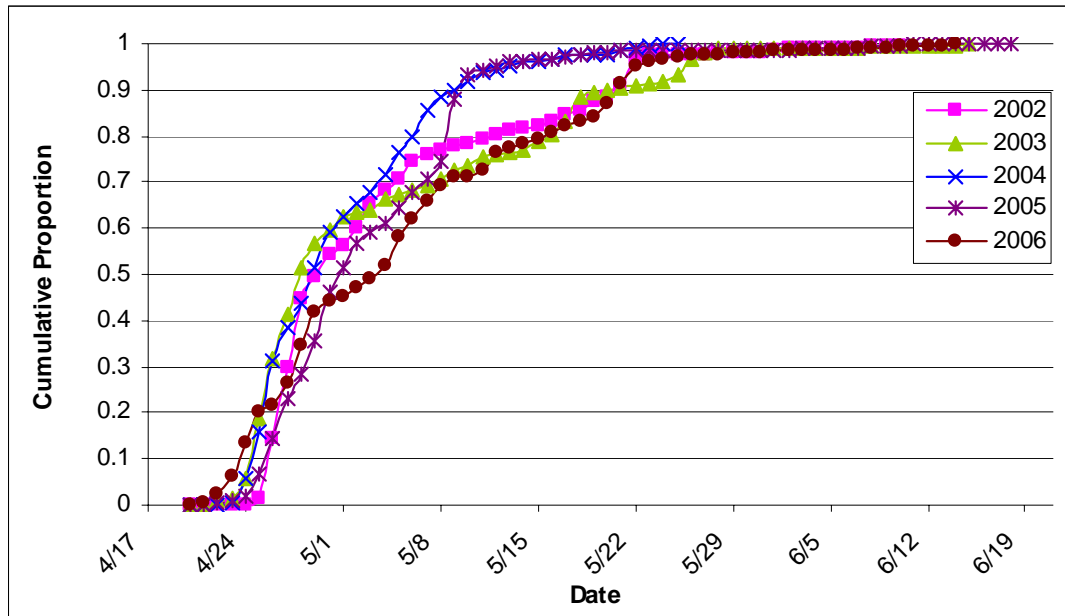
**Dworshak Hatchery – Spring Chinook (2002-2006)  
Passage Timing to Lower Granite Dam**



**Dworshak Hatchery – Steelhead (1997-2001)  
Passage Timing to Lower Granite Dam**



**Dworshak Hatchery – Steelhead (2002-2006)  
Passage Timing to Lower Granite Dam**



We hope that the information we have provided regarding the use and application of information from the groups that have been marked at the hatchery over the last several years is of some use to you. If you would like any additional information regarding these releases please feel free to contact us.

Sincerely,

Michele DeHart  
Fish Passage Center Manager

Cc: Charlie Petrosky, IDF&G  
Doug DeHart, USFWS  
FPAC