

## **SYSTEM OPERATIONAL REQUEST: #2004-7**

*The following State, Federal, and Tribal Salmon Managers have participated in the preparation and support this SOR: U.S. Fish & Wildlife Service, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, National Marine Fisheries Service and the Columbia River Inter Tribal Fish Commission.*

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**FROM:** David A. Wills, Chairperson, Salmon Managers

**DATE:** May 4, 2004

**SUBJECT:** Flows at Priest Rapids Dam

### **SPECIFICATIONS:**

- Increase flows at Grand Coulee Dam to provide a day average flow of 120 Kcfs by Friday, May 7, 2004 at Priest Rapids Dam.
- Further increase flows at Grand Coulee Dam on May 10, 2004 to provide a weekly average flow of 135 Kcfs at Priest Rapids Dam.
- Weekly average flows at Priest Rapids should be maintained at 135 Kcfs after May 10, 2004 until further notice; the Salmon Managers will review available water supply information on a weekly basis and make flow recommendations for Priest Rapids Dam accordingly.
- Reduce flow fluctuations at Priest Rapids Dam to the greatest extent possible.<sup>1</sup>
- The goal of this operation is to provide relatively steady flows during the month of May and June. If the operators believe that this goal cannot be accomplished a discussion of what flows are likely to be sustainable is requested.

### **JUSTIFICATION:**

Water Supply forecasts at Rock Island Dam have been decreasing throughout the spring period (Table 1). Several different flow-forecasting models are available (STP, ESP, and QADJ), most

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<sup>1</sup> CRITFC and USFWS believe that flows at Priest Rapids should not fluctuate by more than plus or minus 20 kcfs around the requested daily average flow to reduce the stranding potential for Hanford Reach fall chinook.

of which provide varying outlooks on flows in May and June of 2004. After reviewing past timing of steelhead at McNary and Rock Island (following paragraphs) and given the uncertainty of flows in May and June in the mid-Columbia, the Salmon Managers have decided on the operation outlined in the specifications above.

Table 1. Water Supply forecasts at Rock Island Dam; February Final to the May Early-Bird.

	Rock Island WSF (Jan-July) (Kaf)
February Final	66000
February Mid-Month	64300
March Early-Bird	62100
March Final	61200
March Mid-Month	61000
April Early-Bird	58000
April Final	58900
April Mid-Month	58200
May Early-Bird	57600

A review of steelhead timing data at McNary Dam has included comparison of passage timing for run-at-large wild steelhead as well as timing of wild steelhead PIT-tagged at Rock Island Dam (see figures 1 through 4 and tables 2 through 4). While the run-at-large wild fish timing shown in Table 2 had an average 50% passage date of May 10 based on the years 1995 to 1999, the average timing of PIT-tagged fish marked at Rock Island Dam had a 50% passage date of May 17 based on data from 1989 to 2002. Also, 2004 is shaping up to be a relatively low flow year, and comparing the wild steelhead timing during other low flow years suggests that the migration may well be delayed a week or more. For example in 1993, a moderately low flow year (mid-Columbia), the 10% passage date for PIT-tagged fish from Rock Island occurred on May 15, and in another low flow year; 2001, it occurred on May 12. It is likely that McNary timing of wild steelhead will be delayed in 2004 based on low flows to date and low passage indices are consistent with the late migration pattern seen in other low flow years.

Hatchery release timing of steelhead in the Mid-Columbia River in 2004 was compared to releases in the years 1999 to 2003. In general releases this year appear to be a few days ahead of other recent years. However, because releases are volitional it is hard to pinpoint when the bulk of fish leave the acclimation ponds or other facility. But using the middle of release as a guideline, releases in the Methow River appear a week to two weeks earlier than other recent years with the middle of the release date range between April 22 and 29. Similarly, releases in the Wenatchee River appear 4 to 7 days earlier than in other recent years with the mid-release date for two releases occurring on April 24, whereas other recent years the mid-point of releases occurred between April 28 and May 7. On the other hand releases from Ringold Hatchery are the latest in recent years with the middle date of release falling on April 16 in 2004, while releases in other years were a few days to 3 week earlier.

By delaying the start of increased flows at Priest Rapids until May 10<sup>th</sup>, 2004, and then ramping down flows after the end of May, if necessary, we are able to provide higher flows to subyearling chinook in June. Under the present run-off volume forecast this approach adds additional volume

in June. It also provides some assurance of avoiding extremely low flows in June, in the event that flow forecasts are again adjusted downward. Subyearling chinook passage indices at McNary Dam show that nearly 50% of the passage occurs in June, with the average 50% date occurring on July 2 (based on the years 1995 to 2003) Table 5.

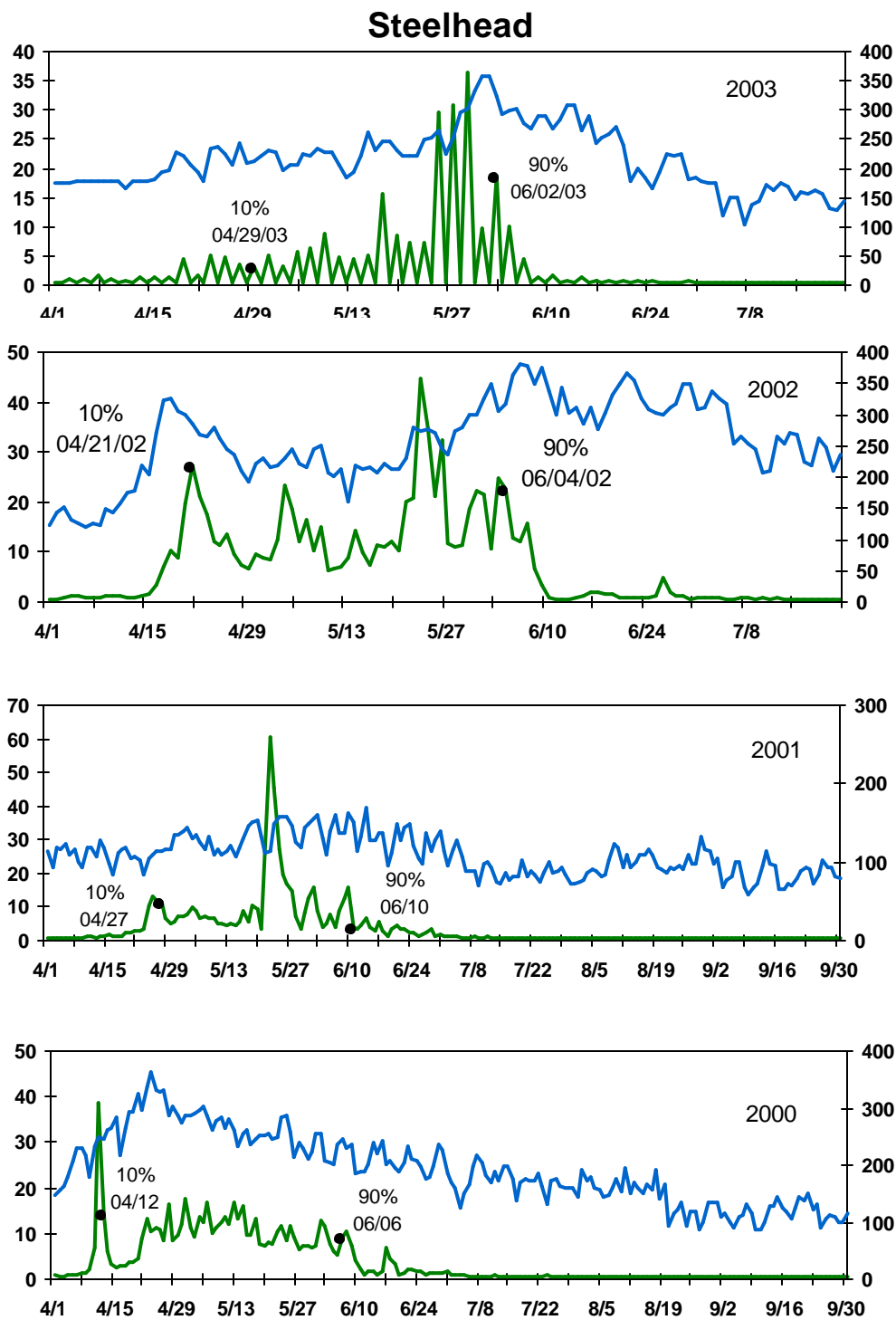


Figure 2. Combined Steelhead Timing at McNary Dam 2000 to 2003.

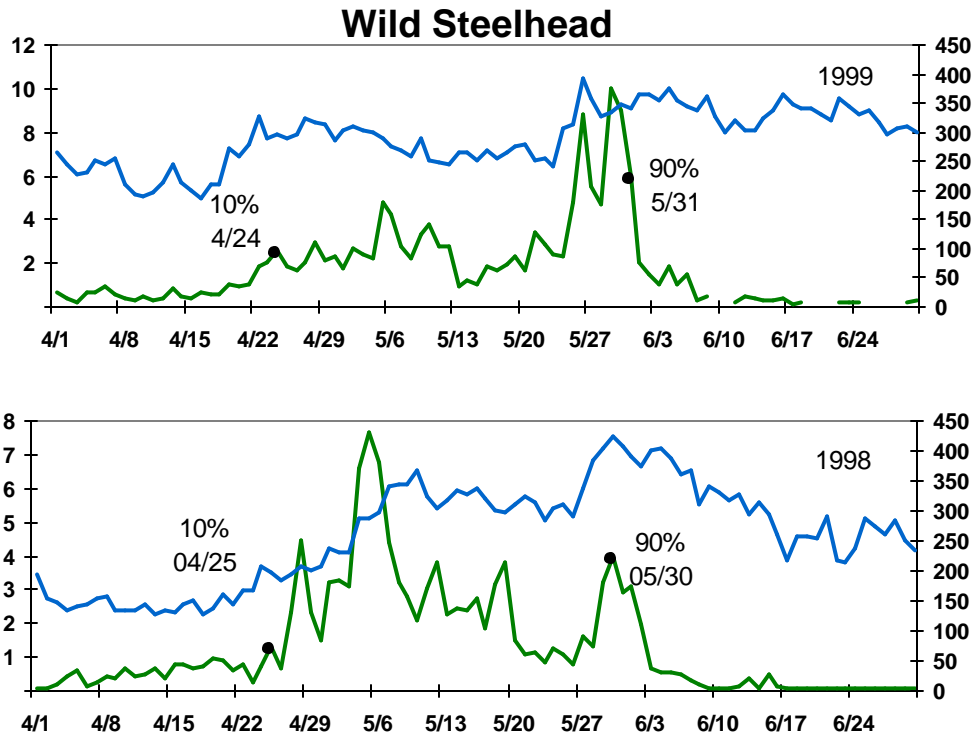


Figure 3. Wild Steelhead Timing at McNary Dam 1998 and 1999.

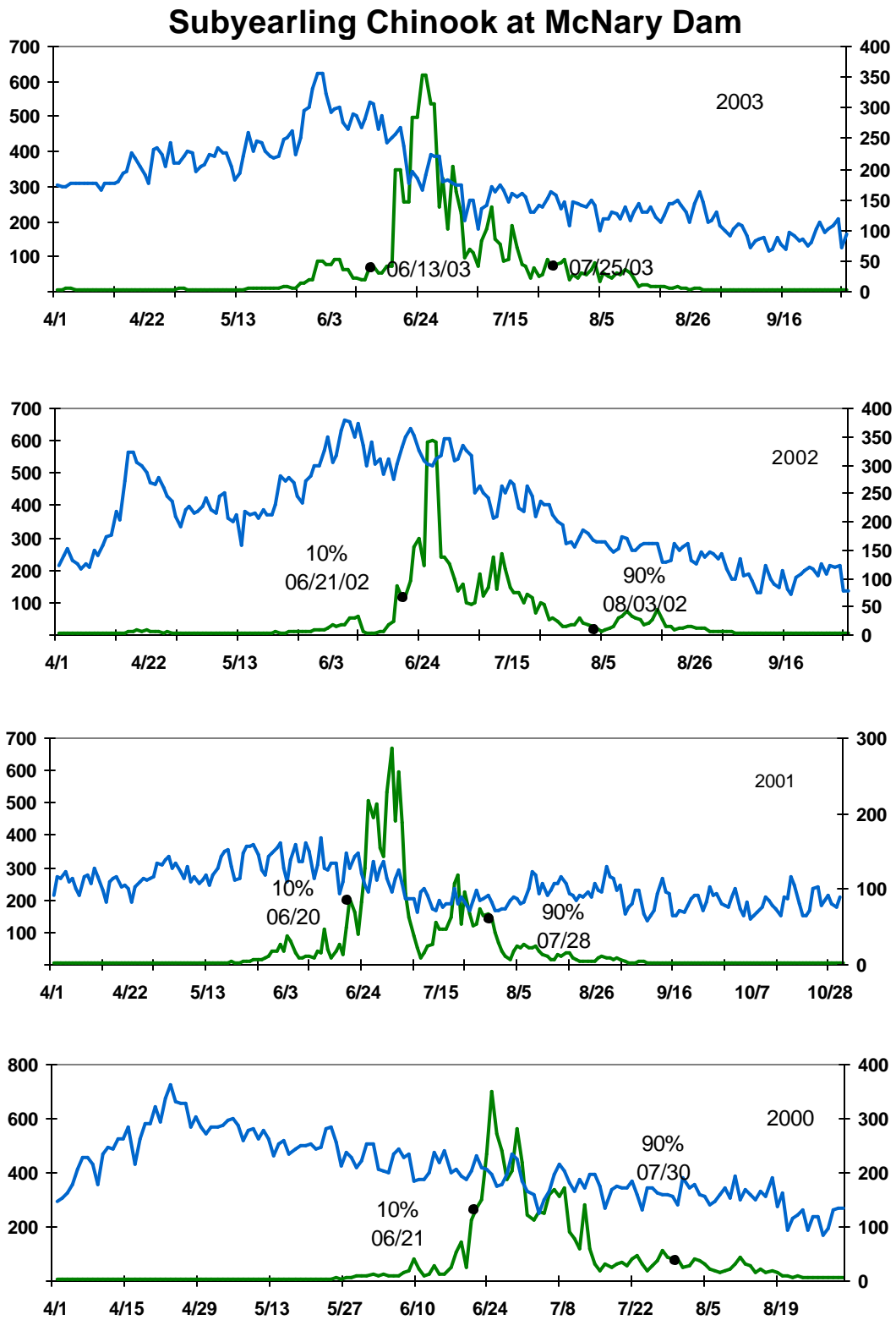


Figure 4. Subyearling Chinook Timing at McNary Dam 2000 to 2003.

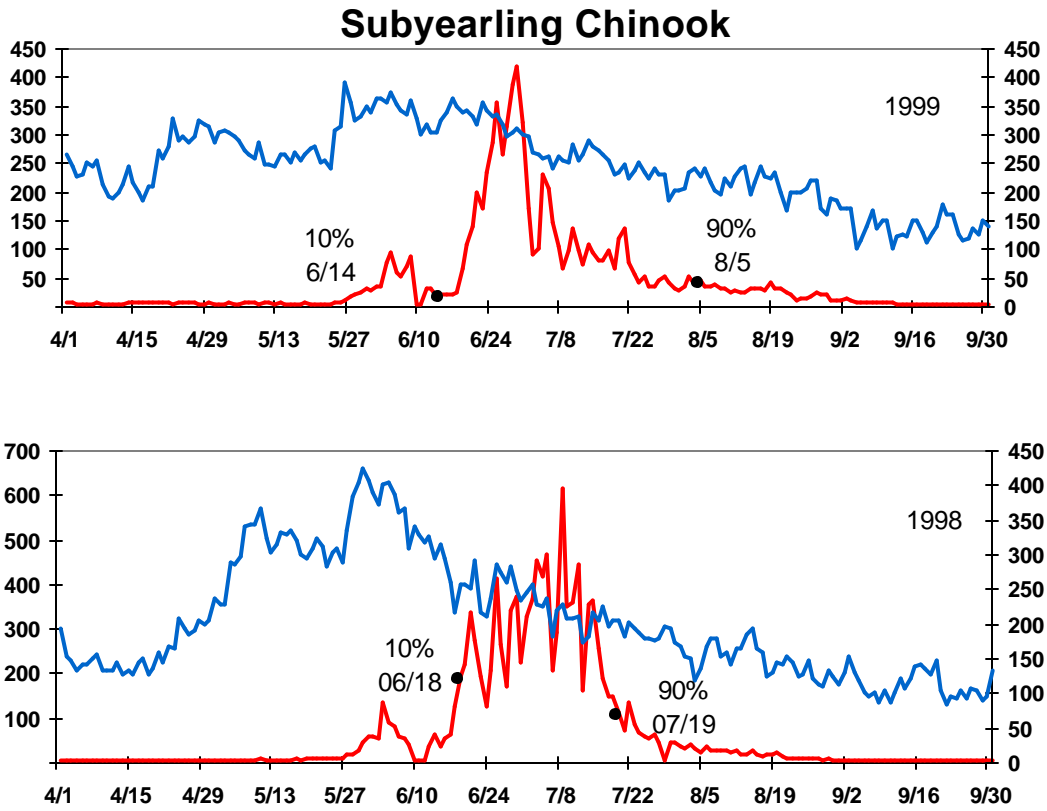


Figure 5. Subyearling Chinook Timing at McNary Dam 1998 and 1999.

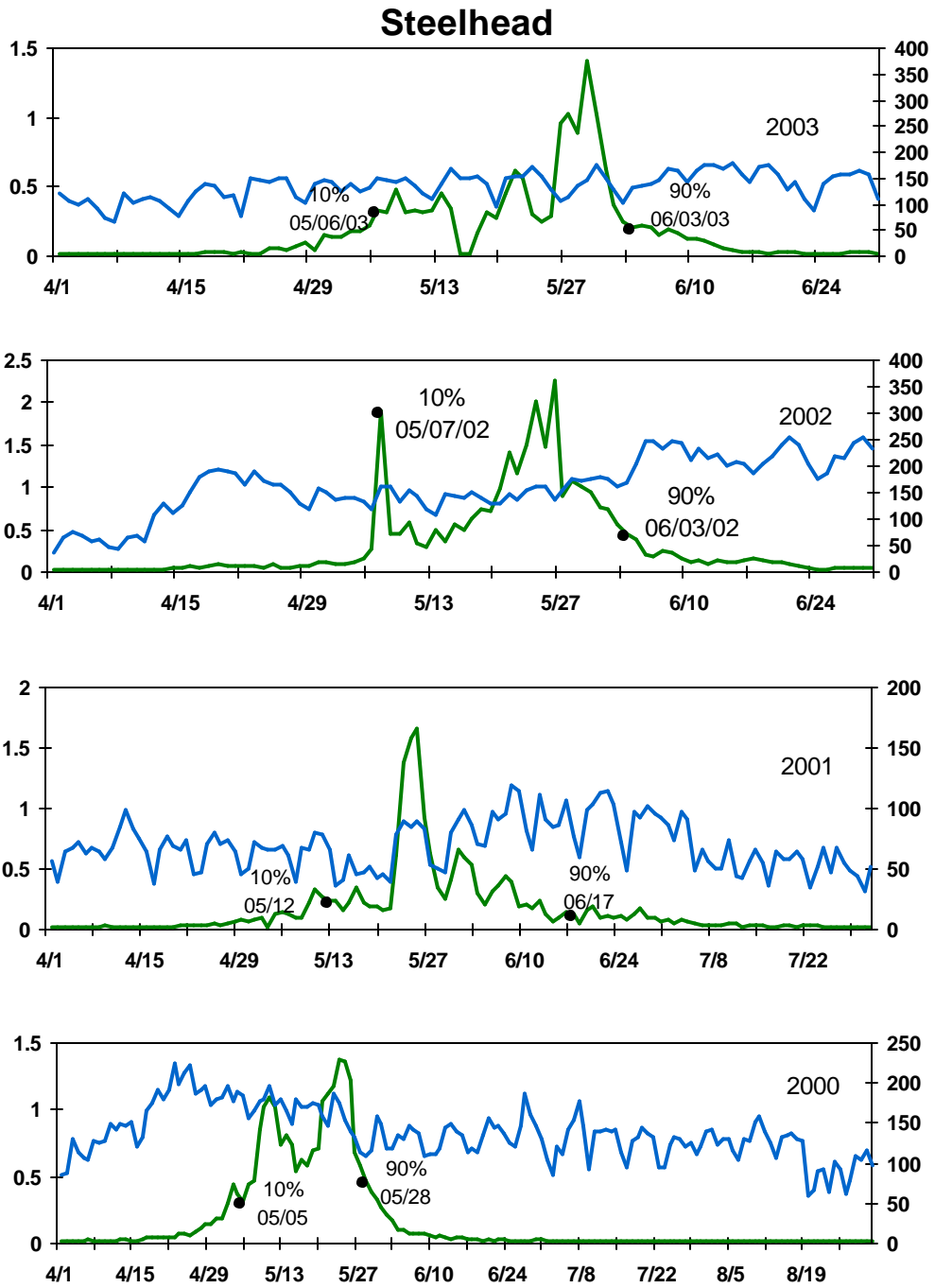


Figure 6. Combined Steelhead Timing at Rock Island Dam 2000 to 2003.



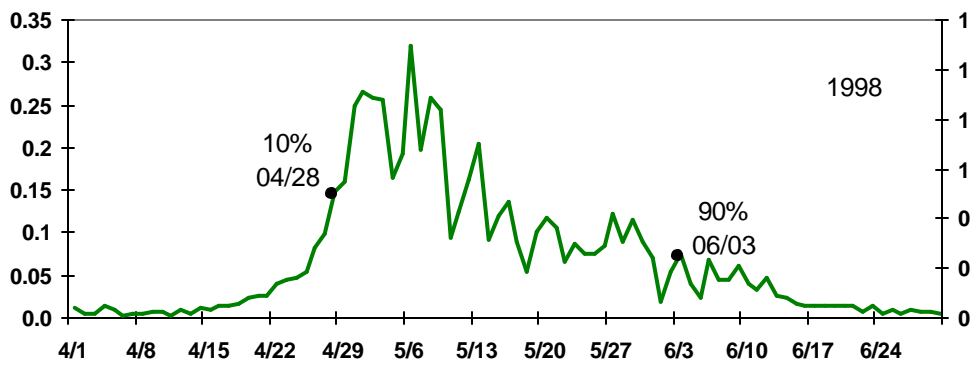
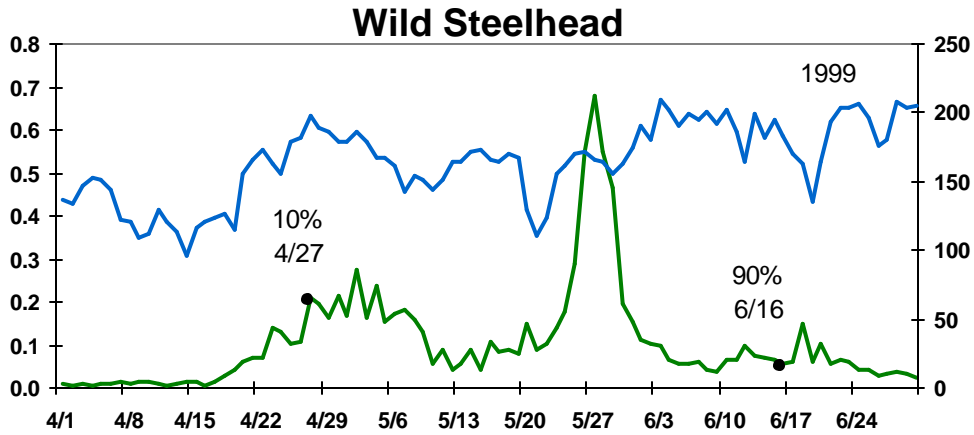


Figure 7. Wild Steelhead Timing at Rock Island Dam 1998 to 1999.

**Table 2. Wild Steelhead Timing at McNary Dam 1995 to 1999.**

Year	5%	50%	95%
1995	04/19	05/14	06/02
1996	04/21	05/05	05/31
1997	04/18	05/07	06/01
1998	04/17	05/08	06/01
1999	04/17	05/19	06/04
Avg	04/18	05/10	06/01

**Table 3. Hatchery Steelhead Timing at McNary Dam 1995 to 1999**

Year	5%	50%	95%
1995	04/24	05/16	06/01
1996	04/22	05/12	06/01
1997	04/23	05/09	06/01
1998	04/20	05/10	06/01
1999	04/01	05/22	06/03
Avg	04/18	05/22	06/03

**Table 4. Combined Steelhead Timing  
At McNary 2000 to 2003**

<b>Year</b>	<b>5%</b>	<b>50%</b>	<b>95%</b>
2000	4/11	5/10	6/12
2001	4/25	5/23	6/19
2002	4/20	5/20	6/7
2003	4/23	5/25	6/4

**Table 5. Subyearling Chinook Timing  
At McNary Dam.**

<b>Year</b>	<b>5%</b>	<b>50%</b>	<b>95%</b>
1995	06/03	07/04	07/25
1996	05/30	07/04	08/18
1997	05/24	07/05	08/18
1998	06/05	07/04	07/29
1999	06/04	06/30	08/18
2000	06/17	06/30	08/11
2001	06/11	07/02	08/08
2002	06/25	06/30	08/16
2003	06/06	07/01	08/07
Average Date 1995 to 2003	06/06	07/02	08/10