

ABSTRACT

Program RealTime provided monitoring and forecasting of the 2003 inseason outmigrations via the internet for 33 PIT-tagged stocks of wild ESU chinook salmon and steelhead to Lower Granite and/or McNary dams, two PIT-tagged hatchery-reared ESU of sockeye salmon to Lower Granite Dam, and 15 passage-indexed runs-at-large, five each to Rock Island, McNary, and John Day Dams. All of the 23 stocks of wild yearling chinook salmon which were captured, PIT-tagged, and released at sites above Lower Granite Dam in 2002, have been monitored at least once before the 2003 migration. These stocks originate in drainages of the Salmon, Grande Ronde and Clearwater Rivers, all tributaries to the Snake River, and are subsequently detected to the tag identification and monitored at Lower Granite Dam. In a continuation from the previous two years, seven wild PIT-tagged runs-at-large of Snake or Upper Columbia River ESU salmon and steelhead were monitored at McNary Dam. Two wild PIT-tagged runs-at-large were monitored at Lower Granite Dam, the yearling and subyearling chinook salmon and the steelhead trout runs. The hatchery-reared PIT-tagged sockeye salmon stocks outmigrating to Lower Granite Dam consisted of a stock from Alturas Lake and one from Redfish Lake. The passage-indexed stocks (stocks monitored by FPC passage indices) included combined wild and hatchery runs-at-large of subyearling and yearling chinook, coho, and sockeye salmon, and steelhead trout forecasted to Rock Island, McNary, and John Day Dams.

Program RealTime performance is evaluated using MADs (*mean absolute differences*, the average, over all days, of the absolute difference between predicted and true passage percentiles), calculated for the first half of the outmigration, for the last half and for the season-wide outmigration. The forecasting of wild PIT-tagged Snake River subyearling fall chinook passage at Lower Granite Dam was comparable to previous years (season-wide MAD = 8.6%). The run of wild PIT-tagged Upper Columbia subyearling fall chinook salmon monitored at McNary Dam was predicted very well in 2003 (season-wide MAD = 3.3%). The run of wild PIT-tagged Snake River subyearling fall chinook salmon monitored at McNary Dam was also predicted very well (MAD = 2.9%)

The run-at-large of wild PIT-tagged Snake River yearling chinook salmon smolts monitored at McNary Dam was predicted extremely well in 2003, with a season-wide MAD of 2.5%. Program RealTime predictions for the run-at-large of wild PIT-tagged yearling chinook salmon from the

Snake River drainage outmigrating to Lower Granite Dam were somewhat poor compared to previous years (MAD = 11.1%). Detection rates for this run were far above average in 2003. Stocks of yearling chinook salmon from specific release sites in the Salmon, Grande Ronde and Clearwater River drainages were predicted well on average (mean MAD over all stocks for the entire season was 10.1%, up from 8.1% in 2002) and the composite of all such stocks was well-predicted (season-wide MAD = 4.4%). Some individual stocks were poorly predicted, with 7 of 23 stocks having season-wide MADs larger than 10%. These larger prediction errors are likely due to the unusually small detection rates of PIT-tagged smolts from these stocks in 2003. Smaller-than-average detection rates observed for 20 out of 23 of these stocks.

The run of wild PIT-tagged Snake River sockeye salmon monitored and forecasted at McNary Dam was fairly well-predicted in 2003 (season-wide MAD = 9.6% compared to 5.6% last year). This stock saw record detections at McNary Dam (688 compared to an average of 214). The season-wide MAD for PIT-tagged hatchery sockeye salmon from the Redfish Lake was 5.7% but for the Alturas Lake stock, the season-wide MAD was extremely large, 77.2%. The poor predictions were traceable to the fact that only 4 fish were detected at Lower Granite Dam. There were 1481 of these smolts tagged and released in 2002.

RealTime predictions of the run-timing of wild PIT-tagged Snake River steelhead trout to Lower Granite and McNary Dams were poorer than last year (season-wide MADs were larger than 10% at both dams). These larger errors may also be attributable to larger-than-expected counts at both dams. The season-wide MAD for Upper Columbia River steelhead trout outmigrating to McNary Dam was 5.5%. This run was very large in 2003.

The results of program RealTime in forecasting run-timing and passage percentiles of FPC passage-indexed runs-at-large to Rock Island, McNary, and John Day Dams were excellent this year. In particular, 2 of 15 stocks had season-wide MADs near 7%, 13 of the remaining had MADs less than 4%, 9 less than 3%, and 5 had season-wide MADs within 2% of the true end-of-season distribution.