ABSTRACT

Program RealTime provided monitoring and forecasting of the 2002 inseason outmigrations via the internet for 29 PIT-tagged stocks of wild ESU salmon and steelhead to Lower Granite and/or McNary dams, one 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. Of the 19 stocks of wild yearling chinook salmon captured, PIT-tagged, and released at sites above Lower Granite Dam in 2001, in drainages of the Salmon, Grande Ronde and Clearwater Rivers, and subsequently monitored at Lower Granite Dam in 2002, seven were stocks monitored for the first time in 2002 (Big Creek, West Fork Chamberlain Creek, Clear Creek, Grande Ronde River, Lemhi River, Lolo Creek and Lookingglass Creek). The other twelve release sites (each with more than two years' standing in the project) were in Bear Valley Creek, Catherine Creek, Elk Creek, Imnaha River, Johnson Creek, Lake Creek, Lostine River, Marsh Creek, Minam River, South Fork Salmon River, Secesh River, and Valley Creek. In a continuation from last year, seven wild PIT-tagged runs-at-large of Snake or Upper Columbia River ESU salmon and steelhead were monitored at McNary Dam and two were monitored at Lower Granite Dam. The stock of hatchery-reared PIT-tagged sockeye salmon smolts outmigrating to Lower Granite Dam consisted of fish from Alturas Lake Creek, Redfish Lake Creek Trap and Sawtooth Trap. 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 = 5.2%). The run of wild PIT-tagged Upper Columbia subyearling fall chinook salmon monitored at McNary Dam was predicted very well in 2002 (season-wide MAD = 3.4%). Unusual run-timing characteristics and higher detection rate than expected for wild Snake River subyearling fall chinook salmon monitored at McNary Dam likely contributed to the large first-half MAD of 15.7% and season-wide MAD of 7.2%. The run ended earlier than expected resulting in passagelater than the observed

passage percentages.

The run-at-large of wild PIT-tagged Snake River yearling chinook salmon smolts monitored at McNary Dam was predicted extremely well in 2002, with a season-wide MAD of 0.8% compared to 3.3% in 2001. 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 comparable to last year (MAD = 5.2%). Stocks from release sites that were monitored individually by Program RealTime in 2002 were predicted better than average on the whole, with RealTime performance better than average for 7 out of 12 stocks for which historical averages were available (stocks with at least three years standing in the project). Two of these stocks, Imnaha River and Elk Creek, were much more poorly predicted in 2002 than average, with season-wide MADs of 30.6% and 13.9%, respectively. The likely reason for these poor predictions was the smaller-than-expected number of detections at Lower Granite Dam. Indeed, this was a pattern observed for many of the individually-monitored stocks from release sites above Lower Granite, seen in sixteen of the 19 stocks, though not as extremely as Imnaha River and Elk Creek. As a consequence the project's traditional overall indicator of passage characteristics for these stocks, the RealTime Select composite (a composite of fish from all sites treated as a single stock) was not predicted as well as usual. The actual passage timing was earlier than predicted.

The run of wild PIT-tagged Snake River sockeye salmon monitored and forecasted at McNary Dam was well-predicted in 2002 (season-wide MAD = 5.6% compared to 6.0% last year) but the arrival of PIT-tagged hatchery sockeye from the Redfish Lake area at Lower Granite Dam was, like the yearling chinook salmon runs, earlier than predicted throughout the season producing a large season-wide MAD (18.3%).

RealTime predictions of the run-timing of wild PIT-tagged Snake River steelhead trout to Lower Granite and McNary Dams were comparable to last year with season-wide MADs within 5% and 7%, respectively, of the end-of-season observed run-timing. Upper Columbia River steelhead trout outmigrated to McNary Dam earlier than predicted this year (season-wide MAD was 10.6% compared to 4.9% in 2001).

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 the last half of the outmigrations were predicted to within 2% of the true distribution for all five species (subyearling and yearling chinook, coho and sockeye salmon, and steel-

head trout) at McNary Dam, to within 5% at Rock Island Dam, and to within 6% at John Day Dam. Season-wide MADs were smaller this year than last year without exception.