

John Day Smolt Monitor Facility Primary Dewatering Structure Lights On/Off Test

From 2100 to 0600 on June 17 through June 22, 2004 we alternated one hour of lights on with one hour of lights off at the Primary Dewatering Structure (PDS) at the John Day Dam juvenile bypass. The number of "hits" on the adult fallback counter was recorded hourly.

A t-test showed that the difference in the mean value of the two groups is greater than would be expected by chance; there is a statistically significant difference between the input groups ($P = <0.0001$)
Power of performed test with $\alpha = 0.0500$: 0.9999

We were also concerned about the effect that this test would have on out-migrating smolts. Since it was impossible to physically count them as they crossed over the Fish Debris Separator (FDS) we used the number of PIT tags detected as a subset of all smolts. A Mann-Whitney Rank Sum Test showed the difference in the median values among the two groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference ($P = 0.570$)

To decrease the amount of time that adults may possibly hold in the PDS we suggest we keep the lights out at all times. We plan on running the test again in early September when the species makeup has changed from predominately shad to predominately salmonids. We have gotten the go ahead from the project safety officer providing that inspectors carry a radio and use a hard hat mounted light so that their hands are free should they trip in the dark.