

Methods to Compare Multi-Year and Multi-Site Differences in Survival Rates

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Many PIT tag studies have focused on in-river survival of smolts in the hydrosystem, and survival of transported vs. in-river migrants. Studies of survival of PIT-tagged parr down to Lower Granite (in the Snake) or to McNary (in the Yakima) have been less common, but are feasible as more data become available from parr tagged for a variety of reasons (migration timing, survival of wild vs. hatchery fish, etc.) . This talk will show how one can make statistical comparisons among fish released from different sites, across several years, to answer questions like:

- 1) Do some years have higher survival than others? Do covariates like climate or parent spawner abundance play a role in explaining the variation over time?
- 2) Do some sites (e.g., MARSHC vs LEMHIR) have consistently higher survival than others? Do covariates like land use/land cover help explain this, if consistent patterns exist?

The focus will be on methods to explain differences in survival rates, although techniques to calculate the average survival rates will be covered briefly.