
QUANTIFYING TEMPORAL VARIABILITY IN STREAM HABITAT DATA: IMPLICATIONS FOR RESTORATION AND MONITORING

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Quantifying natural and anthropogenic-induced levels of temporal variability is essential for robust trend analyses and for evaluating the effectiveness of restoration activities or changed management actions. Here, we used data collected as part of the Pacfish/Infish Biological Effectiveness Monitoring Project to evaluate the extent of temporal variability in instream habitat collected at the reach scale. We integrated habitat data collected yearly (2001-2009) at 50 sites experiencing a range of management activities into our analyses to better understand the consistency of temporal variability in watersheds with inherently different landscape characteristics and disturbance regimes. We initially decomposed variance estimates to remove site-to-site variability, sampling error, and year effects and use the remaining variance as a measure of site-specific temporal variability. We then relate this temporal variability to landscape, management, and climate attributes at multiple scales to better understand which characteristics result in more or less variability in habitat attributes at specific sites. Our results suggest temporal variability differs significantly across individual sites and attributes within sites, indicating our ability to detect significant changes as a result of management changes and/or restoration efforts are context dependent. The spatial scale of landscape attributes, e.g., stream buffer vs. catchment, related to temporal variability also varied across individual attributes. Our efforts highlight the importance of considering site-specific measures of temporal variability as they relate to specific restoration and management goals.