

Lessons from Long-Term Monitoring of Aquatic Ecosystems

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I summarize results and lessons learned from three long-term monitoring efforts, 6-16 years in duration, in western Oregon. The efforts involved the monitoring of a major restoration effort (Fish Creek), the annual variability in the distribution of fish and habitat (Elk River), and variability in smolt production from several watersheds (Upper Clackamas River). Primary lessons were: (1) the effects of restoration work may not necessarily be seen in an increase in the number of fish in or leaving a basin but may be expressed at the size of the fish; (2) it is unlikely that every species or age-class will respond the same way; (3) there is a lot of variability in both physical and biological conditions within and among watersheds over time; and (4) in-channel work is a catalyst to recovery and should be accompanied by concurrent restoration of key ecological processes that create and maintain habitat over time. Monitoring for extended time periods (i.e., 15-20 years) in some selected situations is crucial to adequately assessing the impacts of restoration and recovery efforts.