

Northwest Forest Plan Interagency Regional Monitoring 20-Year Report

Status and Trend of Watershed Condition

Aquatic and Riparian Effectiveness Monitoring Program (AREMP)

Objective

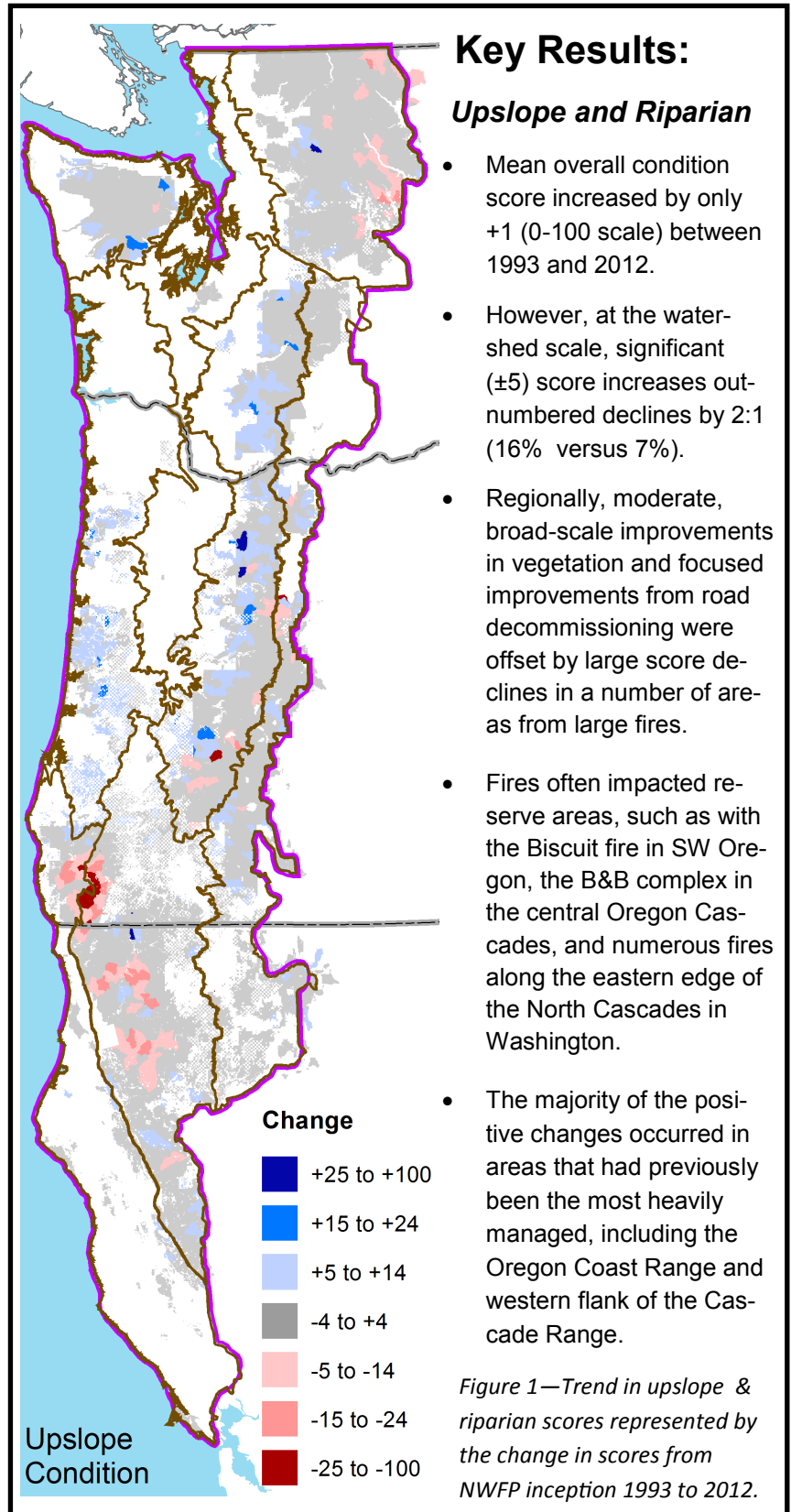
The Aquatic and Riparian Effectiveness Monitoring Program (AREMP) evaluates whether the Northwest Forest Plan (NWFP) aquatic conservation strategy (ACS) is achieving the goal of maintaining and restoring the condition of watersheds.

Methods

AREMP determines the status and trend of inchannel and upslope-riparian watershed condition for sixth-field watersheds within the Northwest Forest Plan (NWFP) area. Upslope and riparian condition was based on mapped data (e.g. road density, vegetation) representing the years 1993 and 2012 for all watersheds with $\geq 5\%$ federal ownership. Stream condition uses inchannel data (e.g. substrate, wood, pools, temperature, and macroinvertebrates) collected yearly under a sampling program that visits watersheds with 25% or more federal ownership in repeating eight year rotations. The first rotation (2002-2009) is complete and this report includes data through 2013, halfway through the second rotation (2010-2017). Watersheds were scored from 0 to 100 for stream condition and upslope/riparian condition, separately. Scores closer to zero signify adverse deviation from expectations; 100 denotes the high end of expectations.

What's new this time?

Models for upslope-riparian and stream condition, were standardized across aquatic provinces for more consistent and comparable assessment. A more empirical approach was used for scoring, based on the distribution of values found in minimally disturbed sites for each vegetation zone and stream site type. Environmental variability was directly incorporated into the models by including information such as geology, landforms, and precipitation.



Management Implications and Next steps

Even though there was little change in the average upslope-riparian score for the NWFP area as a whole, road decommissioning in unstable terrain and riparian areas has had a large positive impact scores related to sediment delivery and fish passage in specific watersheds. A next step is to develop the regional, interagency databases needed to incorporate more detailed road and fish passage improvement work beyond simple decommissioning.

Widespread forest growth (increases in average tree diameter and canopy cover) led to increases in upslope-riparian vegetation scores. These widespread but moderate increases were largely offset by score declines in burned areas. Next steps include understanding how forest thinning and restoration and the effects of fire (both positive and negative) can be better reflected in our models.

Improvements in streambed sediment, macroinvertebrates, and water temperature suggest that improvements in roads and vegetation are having the desired effects in the streams. We will continue to work towards understanding the causal relationships between upslope management actions and stream response at varying spatial scales.

Meeting Management Needs

AREMP is developing capabilities to meet needs presented by the region and the local units:

- We are able to provide scaled down customized reports for local units and districts.
- Our multi-agency reference site database can provide stream indicator benchmarks (wood, sediment, etc.) for any site based on local characteristics.
- Evaluation tools developed by AREMP can be used by any agencies working on NWFP federal lands.
- We continue to explore ways to better integrate regional scale monitoring with management unit planning and national landscape level initiatives.
- AREMP has substantial baseline data, and the tools necessary to assess change for evolving management across the landscape.

For more information see the NWFP monitoring website: <https://reo.gov/monitoring>

Key Results: Stream Condition

- A small positive trend (+2.5/100) in overall physical habitat was detected when measured both on a yearly basis and by grouped rotations (fig. 2).
- Individual components of the physical habitat index varied: substrate showed a positive trend, while in wood and pool tail fines had no significant change.
- Improving trends were detected for both macroinvertebrate diversity (+0.03/1.0) and water temperature (-1.3° C) (fig. 3).

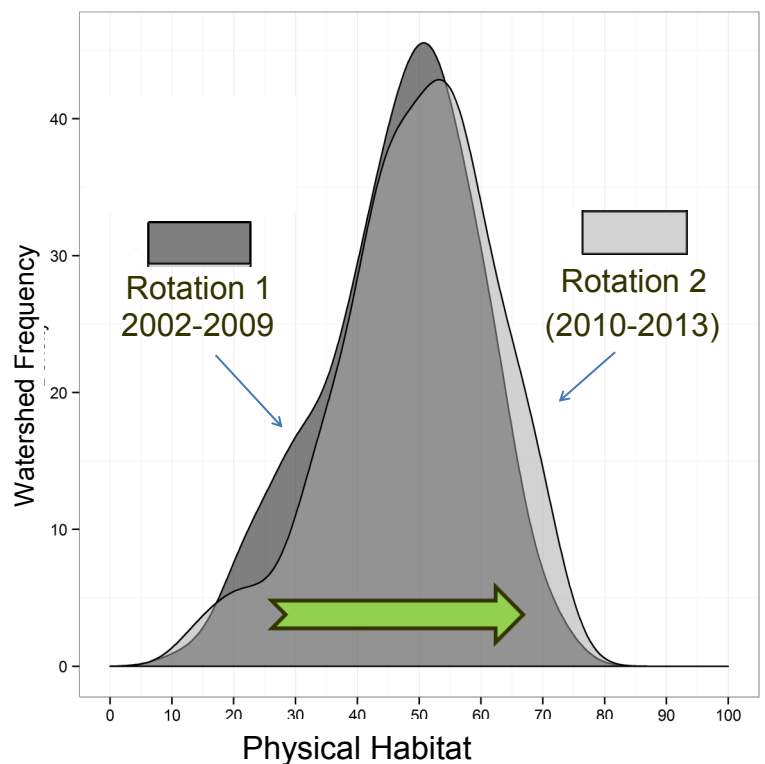


Figure 2—Trend in stream physical habitat index

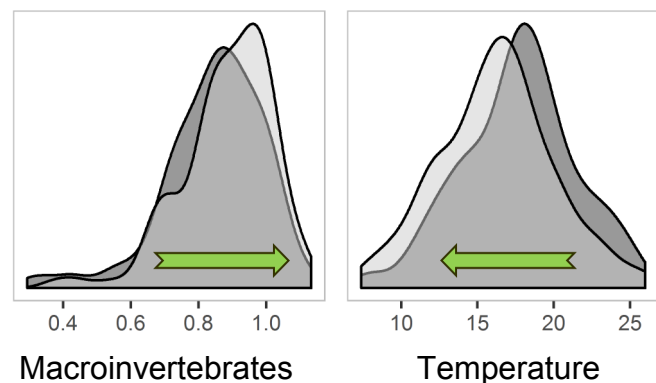


Figure 3—Trend in other stream metrics between rotations.