

2016 Biomonitoring Accomplishments



State of Oregon
Department of
Environmental
Quality

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Overview

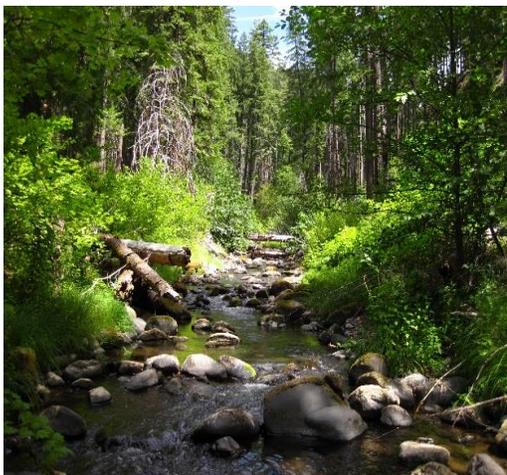
The biomonitoring program collects aquatic insects and other aquatic invertebrates to assess watershed health. These organisms are sensitive to changes in water quality conditions and provide important insights into where water quality restoration efforts need to be focused. Oregon has well established assessment tools for analyzing biological conditions and some of the potential causes of biological impairments.

2016 Activities

During the 2016 season (June 16 – Sept. 28), DEQ's Biomonitoring Program sampled a total of 52 sites with fieldwork contributions from a total of 9 DEQ personnel and assistance from other agencies. These sites encompassed three projects: 1) long term trend sites; 2) probabilistic sites; and 3) effectiveness monitoring.

Trend Sites

In 2015, DEQ Lab staff established a network of 12 reference sites throughout Oregon, locations identified as having minimal human disturbance, for long term monitoring of biological conditions and water quality over time. This network establishes a baseline for comparison to rivers and streams across the state allowing DEQ staff to evaluate the effectiveness of management efforts. Each site in the trend network is sampled annually for water quality, riparian habitat, macroinvertebrate and periphyton community data.



Fish Lake Creek in Douglas County, a trend site.

In 2016, all 12 reference sites were sampled. In addition, Beaver Creek in Troutdale was added to the trend site network. This site is not minimally disturbed, but is being tracked to better understand the effects of ongoing streamside vegetation restoration efforts on macroinvertebrates. This Beaver Creek site will be used as our pre-season training location and sampled annually to monitor trends across time in response to restoration.

Probabilistic Sites

2016 marked the first season of the Statewide Biomonitoring Program's probabilistic sampling efforts. This project incorporated a rotating basin design to estimate the biological condition of Oregon's watersheds over a 5-10 year period.



A probabilistic site on Ward Creek in Wasco County.

This year's sampling focused on the Hood River and Deschutes River basins. Twenty-four sites were sampled between the two basins. DEQ staff recorded water quality, habitat, macroinvertebrate and periphyton community data. Results from this sampling will be compared to the baseline established using the long term trend network. This comparison will help DEQ staff determine the condition of the sampled streams and inform decisions on whether any restoration effort is necessary. This condition information can also be used to

interpret the success of current or ongoing management efforts.

Fifteenmile Creek Effectiveness Monitoring

The Fifteenmile Creek watershed, located in northern Wasco County, is part of a conservation program implemented by the National Water Quality Initiative, which aims to improve water quality while maintaining agricultural productivity. Since 2013, a number of conservation efforts, such as riparian fencing and alternative tillage methods, have been put in place along Fifteenmile Creek to achieve these objectives. At the EPA's direction, the DEQ Biomonitoring Program designed a project to assess the effectiveness of these conservation efforts.

The Biomonitoring Program developed the sampling plan with insight from the DEQ Basin Coordinator and the Soil and Water Conservation District Coordinator for Wasco County. Surveys were conducted upstream and downstream of conservation efforts. Surveys were comprised of two sediment assessment protocols and a valuation of macroinvertebrate community to determine if the conservation

efforts are attaining the goals of the NWQI program.

Next Steps

The monitoring of the reference trend network will continue with the addition of a 13th site. The site, on Beaver Creek in Troutdale, has been used as a training site in previous years and has undergone numerous restoration efforts which provides an opportunity to monitor trends in response to restoration.

In addition, the Biomonitoring Program, as a part of the EPA's National Lakes Assessment, will partner with DEQ's Toxics Monitoring Program to sample lakes across the state. This will allow DEQ to sample in an efficient and cost-effective manner.

Alternative Formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

