Ecological Description of Fish Assemblages in the Coast Range Ecoregion of Washington and Oregon

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The Environmental Monitoring and Assessment Program (EMAP) was initiated by EPA to estimate the current status and trends of the nation's ecological resources and to examine associations between ecological condition and natural and anthropogenic influences. This program has been highly successful in developing a collaborative effort with state environmental quality agencies. The ultimate goal of this collaboration is for the states to integrate the EMAP data and protocols into their own water quality monitoring programs.

As an intermediate step to reach this goal, the Office of Environmental Assessment at EPA Region 10 is using portions of this data set in Washington and Oregon to gain a better understanding of the ecological components of the region. The objectives are to maximize the capacity to use these data and to generate useful and relevant information for resource managers. In pursuit of these objectives, we identified the following potential applications for the EMAP fish data set: supporting states in defining beneficial uses, supporting Total Maximum Daily Load problem assessments, and augmenting existing databases. To demonstrate the utility of the EMAP data for these applications, we initiated a project that analyzes field data (fish, physical habitat, and water chemistry) and landscape data using GIS and multivariate statistical techniques. These analyses addressed questions regarding the fish ecology of the Coast Range, specifically: 1) are there distinct fish assemblages present, 2) how are fish distributed in relation to landscape patterns and physical habitat, and 3) can these data be used to define species distributions? Our preliminary results reveal utility of the EMAP data for studies beyond the reporting of stream miles in various conditions. They demonstrate the usefulness of integrating the EMAP field data with landscape scale data to establish relationships of fish distribution to disturbance.

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