

## TMDL Success Stories: Use of Interagency Modeling, BURP and PIBO Bioassessments, and Field Inspections to Review Effectiveness of Watershed Restoration in the North Fork Coeur d'Alene River Subbasin

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Extensive watershed-scale restoration was completed by the U.S. Forest Service (USFS) and partners in the North Fork Coeur d'Alene River Subbasin of northern Idaho over the past 25 years. The subbasin has a history of wildfire, intensive timber harvest, splash dams and flumes, road-building, mining, and other development. Idaho Department of Environmental Quality (DEQ) identified water quality impairments in the early 1990s and sediment total maximum daily loads (TMDLs) were completed in 2001. TMDL implementation by the USFS has improved over 1,000 miles of road and 30 miles of streams through restoration and implementation of water quality best management practices (BMPs). Staff from DEQ, USFS, and EPA collaborated with support from the North Fork Coeur d'Alene River Watershed Advisory Group to evaluate progress toward attaining full support of cold water aquatic life. A Geographic Information Systems (GIS)-based analysis and model was used in subwatersheds with extensive restoration. Results indicated substantial sediment load reductions with several watersheds likely attaining TMDL goals. Surveys of road and crossing sites in restored watersheds found design criteria and BMPs were effective at stabilizing stream channels, reducing surface erosion, and nearly eliminating chronic sediment contributions from these sites. Stream bioassessments followed DEQ's Beneficial Use Reconnaissance Program (BURP) and USFS' Pacific and Inland Fisheries Biological Opinion (PIBO) effectiveness monitoring protocols. Fisheries, macroinvertebrates, and physical habitat data from all sites indicated full support of cold water aquatic life. Four stream assessment units are proposed for "delisting" in the draft 2012 Integrated Report with sediment removed as cause of impairment. In addition, the PIBO effectiveness monitoring program was evaluated to determine how data could be used to determine water quality support of cold water aquatic life. The PIBO program data could be used for water quality assessments and expand datasets available for evaluations throughout the state.