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**To:** Northwest Power Planning Council  
Independent Scientific Review Panel (ISRP)

**Subject:** Project Sponsor's Responses to ISRP review

**Project Identification Number: 199607000**

**McKenzie River Focus Watershed Program Coordination and Habitat Restoration**

**Sponsor: McKenzie Watershed Council (MWC)**

**Province: Lower Columbia**

**Subbasin: Willamette**

**Short Description:** Continue McKenzie River Focus Watershed Program Coordination. Develop, coordinate, plan, design, implement and monitor habitat protection, restoration and water quality projects: improve resource stewardship through public outreach and education.

**ISRP Comments:** The description of monitoring and evaluation lacks specifics; for example, how will project implementation and effectiveness be monitored? Effectiveness monitoring – riparian planting (implementation, and how well are plants surviving) – does not seem to have fish monitoring but should. For the response, the proponents are referred to the programmatic section of this report, specifically on monitoring and evaluation.

**Budget changes for 199607000? No Budgets changes are being requested.**

Please note the requested FY03 funds cover multiple levels of monitoring and evaluation (2 and 3 below). Specifically, funding is for the Council to continue to be the central coordinator for within watershed M&E efforts. It is through bringing together watershed interests to share monitoring and evaluation programs where efficiencies and improvements are made in M&E implementation. FY03 funding herein also covers project specific M&E where the Council will be implementing restoration projects beginning in FY03. Please also note that many agencies already conduct monitoring in the watershed, with the Council providing some overall coordination (see 1 below).

The McKenzie Watershed Council currently conducts, and through the FY03 proposal, plans to continue watershed wide monitoring and evaluation (M&E) of watershed conditions. M&E is carried out a 3 different spatial scales: 1) within the Willamette Subbasin, 2) within the McKenzie Watershed, and 3) at the project level.

**1) Subbasin Level, MWC contribution to M&E for the Willamette Subbasin.** Many of the McKenzie Watershed Council's Partner organizations are already involved with recovery, management and monitoring efforts of terrestrial and aquatic processes and species. For example, the BLM, USFWS, ACE, ODFW already conduct M&E that is included in the Final Basinwide Salmon Recovery Strategy, Basinwide Bull trout recovery strategy, Oregon Chub recovery plan, terrestrial vegetation processes under the Northwest Forest Plan, Willamette Basin Western Pond Turtle Working Group's Conservation Strategy; Spotted Frog Conservation Plan for the Willamette Basin, Northern Spotted Owls and Great Gray Owls programs under the Northwest Forest Plan, and TMDL efforts for the Willamette Basin, to name a few. All of these efforts have some sort of hierarchical sequence to them, which includes implementation and effectiveness monitoring of individual projects, to large-scale statistical studies and research experiments.

**2) Watershed Level, MWC contribution to M&E within the McKenzie Watershed.** A major purpose of the McKenzie Watershed Council is to be a link and/or a conduit for coordination of monitoring protection and restoration projects within the watershed. A major strength of the Council is to bring together the various interests within the watershed to collectively design and implement monitoring and evaluation activities. It is through this coordination within the watershed that parallels or ties to the subbasin M&E efforts are linked.

For example, Objective 1 and Task a. of the M&E portion of the MWC FY03 proposal goes toward coordinating and acquiring baseline and trend data at the watershed scale. This efforts also tiers to M&E efforts of assessing water quality in the subbasin.

The Council, through its partnership with DEQ, USFS, BLM, Eugene Water and Electric Board, Springfield Utility Board, and the Army Corps. of Engineers has established an ambient water quality monitoring program on the mainstem McKenzie River, including the confluence areas with major tributaries. Data has been collected for the past 6 years at 10 fixed stations. This information has provided the Council with a very good characterization, both baseline and trend information, of the quality of McKenzie water. Please see the DEQ report on the Council's web site for the latest results of water quality monitoring ([www.mckenziewaterhedcouncil.org](http://www.mckenziewaterhedcouncil.org)).

For the terrestrial component of monitoring and evaluation at the watershed scale, the Council will implement a reanalysis of the amount and configuration of various habitat types in the watershed. Almost 10 years ago, the Council assessed the quantity of 8 different habitat types in the watershed and this served as the baseline for future, repeatable analyses, of updated information. Recently, new aerial-photo coverage of the watershed was acquired. This new information will be computed and compared to 10 years ago to quantitatively assess the temporal and spatial nature of habitat throughout the watershed. This analysis will provide a tool for tracking progress on gaining certain types (e.g., riparian habitat in rural residential areas) of terrestrial habitat and to evaluate effectiveness of education efforts promoting the need to maintain this habitat for fish, wildlife and water quality functions.

Requested FY03 BPA funds will be used by the Council for continued coordination of these important M&E effort for the watershed and the subbasin. This effort also provides enough resolution so as to determine geographic areas of concerns that may warrant further investigation. For example, the ambient data in Objective 1 lead to the development of Objective 2; where the areas of concerns are being further investigated.

Objective 2. Subwatershed quality data collected based on ambient results. Task a. Where appropriate, implement subwatershed water quality monitoring program. Over the years, the ambient program above has revealed water quality concerns in the Mohawk, Cedar and Camp Creek subwatersheds. The concerns include possible exceedences (DEQ standards) in temperature, turbidity, and baceteria. Currently, loosely organized data collection efforts are occurring in these watersheds to hopefully provide more specifics on the magnitude of the concerns and where specifically, the concern areas are located.

The McKenzie Watershed Council recognizes that a more concerted/organized data acquisition effort is needed in these area; the requested BPA funds will go toward this end. Already in place in each of these areas is the people power to make the monitoring a success, this includes local subwatershed groups along with local school kids and teachers. The Council will coordinate with the DEQ to provide training and equipment so data collected is of the highest quality and useable. The information will go toward establishing more accurate baseline and hopefully trend characteristics for these subwatersheds. These same areas were also identified in the Council's Watershed Assessment and Conservation Strategy as high

priority protection and restoration subwatersheds. Collection of the water quality data will help provide an evaluation of pre and post restoration project efforts.

### **3) Project Level; Project Level Monitoring and Evaluation**

At the Project Level, the McKenzie Watershed Council attempts to address the following M&E questions/activities: 1) Were restoration measures designed and implemented properly; 2) Are the restoration treatments meeting their objectives, 3) Do we have new insights into ecosystem structure and function; 4) Have we clearly articulated goals and objectives of the Project and M&E; and 5) Do our monitoring objectives have direct ties to project objectives.

For Monitoring and Evaluation, the McKenzie Watershed Council's Monitoring Working Group has selected some general guiding principles for M&E.

- Select monitoring objectives that are the best indicators of change and measure them in areas that are responsive to change. Should be noted that monitoring may not necessarily show cause and effect. Rather, monitoring and evaluation, replicated on appropriate temporal and spatial scale, can provide compelling evidence for general conclusions.
- Complex restoration objectives that involve large-scale processes and/or complex actions may need to be divided into smaller component parts in order to be practical.
- Monitoring plans that are full of objectives requiring large amounts of fiscal resources and personnel are probably unrealistic. Pick a set of key objectives that will provide the maximum amount of resource information, but can be accomplished within the current management constraints.
- The types of monitoring that are probably most relevant at the project scale are baseline, trend, implementation, and effectiveness monitoring.

The Council's Monitoring Working Group believes that the following types of Monitoring and Evaluation are most appropriate for the Council's protection and restoration work.

**Baseline Monitoring.** Baseline monitoring is designed to characterize existing or undisturbed conditions for comparison with other monitoring activities. This type of monitoring can be useful as a starting point for other monitoring efforts (e.g., trend). Sites for baseline monitoring must be carefully selected to insure they are representative of the conditions with which they will be compared. For example, upstream monitoring is often used to set the baseline for temperature changes observed downstream. However, because many factors influence temperature through a reach, before and after monitoring, or temporal baseline monitoring, can greatly strengthen interpretation of results.

**Trend Monitoring.** This monitoring type requires development of a record over time (usually five years or more). Sites must be established which are "stable" and not impacted by ancillary factors. For example, if the purpose for monitoring is to determine the long term trend in stream temperature with recovery of riparian shade following habitat alteration, then monitoring sites would need to be located downstream of the site. But monitoring sites would also need to be positioned where changing influences, like a new upstream reservoir, can be avoided or accounted for in the monitoring plan. Measurement methods must also be repeatable over the monitoring period.

**Implementation Monitoring.** This type of monitoring assesses whether activities were carried out as planned. The most common example of this monitoring is an assessment of Best Management Practices

(BMP). Implementation monitoring of stream temperature response might focus on determining whether the BMPs for shade retention are being met.

**Effectiveness Monitoring.** Effectiveness monitoring is used to determine whether properly implemented control practices work. An example of the effectiveness monitoring is the stream temperature monitoring to determine the effectiveness of forest buffers in minimizing increases in stream temperature following logging.

**Project Monitoring, subobjective of Effectiveness Monitoring.** This looks at the effectiveness of a particular project and the combination of measures used to protect water quality or some other project goal. Effectiveness monitoring requires that the conditions influencing performance be assessed and that control measures be properly implemented.

The McKenzie Watershed Council's FY03 proposal includes projects that are proposed in Water, Riparian, and Upland Habitats (see C&I portion of proposal). Monitoring of these project areas will attempt to include both Pre- and Post- treatment monitoring. The frequency and duration of the monitoring will vary depending on the site situation, project goals and available resources. Below are some of the specific monitoring features that projects will have, albeit depending on the type of project. FY03 M&E Objective 3, Tasks a and b include project monitoring.

**Project Monitoring - Physical Measures Pre and Post implementation:**

Instream habitat – e.g., channel morphology, substrate, woody debris, and other variables

Riparian habitat – e.g., survival of trees by species, area, site, growth (e.g., height) of trees; evaluation of tree survival and growth by competition encountered

Upland habitat – grass, herbs, forbs survival and growth

Stream Flow – quantity various times of year

**Project Monitoring - Biological Measures Pre and Post implementation:**

adult fish sampling,

juvenile fish sampling,

macroinvertebrate sampling, (Note: the Council has an annual sampling effort for macroinvertebrates stratified by ecoregions throughout the watershed. This effort is in partnership with the Xercies Society and Council Partner organizations. Please see the Council's website for the most recent report of the 4 year effort; [www.mckenziewaterhedcouncil.org](http://www.mckenziewaterhedcouncil.org).)

terrestrial and amphibious species sampling (pond turtles, spotted frogs, red-legged frogs, etc)

**Project Monitoring - Baseline Water Quality Measures, Pre and Post implementation:**

temperature, suspended sediment, dissolved oxygen, chemistry, fecal coliform

**Project Monitoring - Other Measures Pre and Post implementation:** includes fish passage effectiveness, slope stability, project inspection

**Monitoring Protocols.** Implementation of monitoring and evaluation will largely follow the *Monitoring Guidebook* for the Oregon Plan for Salmon and Watersheds. This Guidebook describes strategies and sampling protocols for different types of restoration projects (as described above) and overall water quality monitoring. Many aspects of the Guidelines follow Oregon Department of Environmental Quality's monitoring guidelines and the Natural Resource Conservation Services project effectiveness guidelines. In addition, aquatic habitat monitoring may use the protocol outlined by Johnson et al. (2001). Again, the overall objective of Projects monitoring by the McKenzie Watershed Council is to be able to provide

monitoring that can be replicated over time and space and can provide compelling evidence for general conclusions.

Contrastingly, where feasible, the Council will utilize the services of scientists affiliated with H.J. Andrews Experimental Forest, located in the McKenzie Watershed. Use of their services will be to look for project situations where projects can include objectives of attempting to establish mechanistic links between management actions and salmon or other fish and wildlife population response. The science and watershed council partnership will try in effect to conduct some project level response monitoring. For example, project objectives could evaluate the effectiveness of various land restoration techniques with a species of interest or species' life stage response.

### **Getting the Monitoring and Evaluation Accomplished.**

Through the requested FY03 funds, McKenzie Watershed Council Staff, which will include a Projects Manager hired using BPA funds, and an Education Coordinator, continuing to be employed using local match funds, and utilizing project level contractors, will coordinate the necessary logistics in accomplishing the pre and post monitoring aspects of projects. The Projects Manager will be the overall coordinator of the McKenzie Watershed Council Monitoring Program. As part of initial project development, the McKenzie Watershed Council IDT will provide guidance on what specific project variables should be monitored (pre and post) along with the frequency and duration of monitoring. The IDT will also periodically review the monitoring results and suggest modifications to the monitoring or implementation of future projects. The Projects Manager will coordinate the IDT.

Currently, the Council accomplishes monitoring and evaluation in a number ways. One way is through the annual commitment of natural resources staff from with Council Partner organizations, like the USFS, BLM and ODFW, who provide personnel to collect monitoring data. Some of the most useful data comes from their personnel sampling (electroshocking/snorkeling) fish species, vegetation grids, or conducting terrestrial species surveys. Another way monitoring data is collect occurs through the Council's cadre of volunteer organizations. Folks involved in monitoring go through training and quality control procedures to assure accuracy of data collection. Much of this training information is described in the Oregon Plan for Salmon and Watersheds and DEQ Monitoring Manuals.

The cadre of folks includes subwatershed and friends groups located throughout the McKenzie Watershed. Organizations such as the McKenzie River Guides, McKenzie Flyfishers, Oregon Trout, ODFW STEP volunteers, and Northwest Steelheaders also assist in collecting monitoring data. It is anticipated that the volunteer monitoring program of the Council will continue to grow and utilize these dedicated group of folks.

The Council also has an excellent partnership with the local schools helping to collect monitoring data. Many of the middle and high school biology classes collect information for already implemented projects. The local utilities fund the WET-WELL program in the local school district. This program provides students with additional hands-on experience in the world of biology. The Council works closely with the programs providers to link them to places in the watershed to conduct and to analyze data with the help of experienced personnel.

The McKenzie Watershed Council program is based on cooperation, so all monitoring efforts need to maintain good will with affected landowners, interested people and Council Partners. Creating agreements with landowners about how the data is collected on his/her property and how the data will be used and reported is also important. The Council provides landowners with previews of information collected. Landowners often have insights about the data and are usually interested in using the data to adjust their management decisions.

