Oregon Department of Environmental Quality
Proposals for National Water Quality Initiative Monitoring 319 Grant Funding
10/2014 through 06/2017

The Oregon NPS Water Quality Program requests $25,000 of 2014 319 Grant funds to support the National Water Quality Initiative (NWQI).

The funding will support: Monitoring projects in the Fifteenmile and Willow subbasins from October 2014 to December 2016; sampling costs and analysis for DEQ Laboratory; and sample collection by local partners.

Background: The NWQI was initiated in 2012 by Natural Resources Conservation Service (NRCS) to target small (12 digit) watersheds in all 50 states and Puerto Rico to improve water quality in water bodies that are on the 303d list.

In 2013, Environmental Protection Agency (EPA) and NRCS began a partnership to work toward achieving the goal of NWQI. To support the NWQI effort, EPA committed to requiring the states to reserve part of its 319 funding to conduct water quality monitoring in at least one of the NWQI watersheds.

Goal: In NWQI watersheds, remove streams and other water bodies from 303d list or from contributing to impairments to adequately address Total Maximum Daily Loads (TMDLs).

Objective: Conduct water quality monitoring in at least one of the NWQI watersheds to determine if water quality has improved and can be associated with implementation of NWQI and other conservation systems.

Agency roles in NWQI are as follows.

NRCS: Manages the initiative as part of EQIP program; provides funding for conservation practices in NWQI watersheds; consults with state agencies in watershed selection; provide conservation practice implementation data to Oregon DEQ

EPA: Coordinates and oversees state participation in NWQI via the Section 319 program; provides guidance and support for instream monitoring

Oregon DEQ: Recommends NWQI watersheds for selection; conducts instream monitoring in at least one NWQI watershed

EPA has committed to providing technical assistance to Oregon to help evaluate existing monitoring information and to develop monitoring plans in NWQI basins.

The monitoring plans are in the process of being developed, therefore there is no projected cost for each component of the NWQI Monitoring Grant Funding. The monitoring plans for Fifteenmile and Willow subbasins are expected to be completed in

fall 2014 (EPA's work agreement with the contractor Tetra Tech will expire at the end of 2014). Once the monitoring plans are finalized, full scope of work with detailed tasks will be developed.

Component 1: Fifteenmile NWQI Monitoring Project - $ 25,000

Summary of Project:
The National Water Quality Initiative (NWQI) is a program jointly undertaken by the USDA Natural Resources Conservation Service (NRCS), the U.S. Environmental Protection Agency (EPA), and State agencies with water quality responsibilities. Fifteenmile Creek (Oregon) is one of more than 150 small rural watersheds receiving financial assistance to help implement conservation systems via the NWQI program. In the Fifteenmile Creek watershed, dryland wheat is a primary agricultural activity. As of 2013, approximately 96% of this land has been converted to conservation tillage and much of the riparian areas have been protected through fencing programs. At EPA's direction, DEQ devoted 319 funds *to perform water quality effectiveness monitoring* of these watershed changes.

A number of different types of sediment data have been collected in the watershed, beginning in the mid-1990s. As part of the NWQI program, EPA contracted with Tetra Tech, Inc. to review the existing data and make recommendations about which sediment metric should be used. Based on the review of data, Tetra Tech, Inc. recommended *percent sand and fines <2mm (SAFN or %<2mm)* as the most appropriate sediment indicator to use.

Percent sand and fines was a metric collected during these past studies.

- Wolman Pebble Counts
  - 1994 and 2000 by Mount Hood National Forest and partners
- Relative Bed Stability (RBS)
  - 2005-2006 by ODEQ, ODA, and partners

However, the collection methods and sites were slightly different and data from those methods cannot be compared directly. Both data sets are valuable, and DEQ wants to be able to use both data sets. That necessitates collecting pebble data using both methods at each site.

Tetra Tech, Inc. recommended percent sand and fines only as the metric. However, if we have resources and expertise to collect the full RBS data, we would like to utilize them for their interpretive potential for providing context for percent fines, wood habitat, pool quality metrics, as well as comparison with reference sites.

Scope of Work:
In 2016, field work will commence to collect sediment. These data will represent "post" BMP implementation conditions. These data will be compared to existing "pre" BMP implementation conditions.

In 2016, DEQ will also collect macro-invertebrate assemblage samples. Macro-invertebrate assemblages are correlated with sediment and temperature stressors. These data and data analysis from the PREDATOR and subsequent stressor identification models (*Hubler, Shannon; Huff, David D.; Edwards, Patrick; Pan, Yangdon. The Biological Sediment Tolerance Index: Assessing fine sediments conditions in Oregon streams using macro-invertebrates. Ecological Indicators 67 132-145. 2016.*) will provide a secondary metric to determine the current status of macroinvertebrates and therefore indicate if sediment is a current stressor. We will also compare results to reference conditions. Macro-invertebrate data were also collected in 2009 by Oregon State University. This secondary line of evidence will provide thoroughness to the goal of the NWQI monitoring program, which is to determine in stream water quality improvements due to best management practices. DEQ's Bio-monitoring Program samples statewide in a five year rotation. In 2016, the schedule includes the Fifteenmile Watershed.

In 2016, sites will be chosen, with stakeholders, strategically to represent upstream/downstream and before/after implementation sites. The number of sites will be chosen for statistical significance indicated by Tetra Tech's previous power analysis.

Education and outreach will occur by analyzing these data, and providing a summary of results to stakeholders in written report/summary and/or presentation.

Principal project partners include: CEP Partners (Oregon Watershed Enhancement Board, Oregon Department of Agriculture, NRCS), Local Partners (ODA, Wasco SWCD, NRCS, OSU Extension)

Major tasks for the project:

- DEQ field crew travels to survey sites, collects sediment data and macroinvertebrate samples. Includes all time planning/preparation and/or field work, supplies, travel, lodging, and per diem. After macroinvertebrate results are returned from lab, analyzing macroinvertebrate results through three models and calculating general metrics (e.g. %EPT, species Richness).
- Wasco SWCD field crew travels to survey sites with DEQ field crews, collects sediment data and macroinvertebrate samples. Includes all time planning, preparation, outreach, and/or field work, supplies, travel.
- Send macroinvertebrate samples for analysis at external contract lab such as Rhithron Associates, Inc. The number of samples depends on number of sites and replicates, but we estimate 10 – 20 samples will be sent for analysis.
- Ongoing post field work data analysis, report writing, and presentation by TetraTech or EPA contractor. Provide summary of results to local stakeholder group (SWCD, Watershed Council), local monitoring working group (ODA, USFWS, USFS, OWEB), and NWQI partners (NRCS and EPA).

Time Frame and Budget:

Time frame	SOW	Budget
September 19 – 23, 2016	DEQ field crew survey time and data analysis time	$8000 – $10,000

September 19 – 23, 2016	Wasco SWCD field crew survey time	$2000
September 23 – December 31, 2016	Send out samples to external lab such as Rhithron Associates, Inc. macroinvertebrate identification	$2500 - $5000 ($250/sample)
September 23 – June 30, 2017	Continued data analysis, report and/or presentations support from TetraTech or EPA contractor	$8000 - $10,000

Component 2: Willow NWQI Monitoring Project - $ TBD

Summary of Project: TBD

Scope of Work: TBD

Principal project partners include: CEP Partners (Oregon Watershed Enhancement Board, Oregon Department of Agriculture, NRCS), Local Partners (ODA, Malheur SWCD, NRCS, OSU Extension)

Major tasks for the project: TBD

Time Frame and Budget: TBD

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