Oregon
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MEMORANDUM

TO: Oregon Watershed Enhancement Board

FROM: Greg Sieglitz, Monitoring and Reporting Program Manager

SUBJECT: **Agenda Item F: Effectiveness Monitoring Program Update and Funding Request**
January 27-28, 2015 OWEB Board Meeting

I. Introduction

This report: 1) requests Board input on the development of materials for the Board pertaining to current Partnership Investments and future Focused Investment Partnerships, and 2) requests funding to assist in implementation of the Oregon Department of Environmental Quality (DEQ)'s Volunteer Monitoring Program.

II. Background

Two of the seven priority work areas identified following completion and adoption of the Framework and Direction for OWEB's Long-Term Investment Strategy (LTIS) relate to effectiveness monitoring. This report focuses on the Board's direction to "Design effectiveness monitoring for focused investments," which links to Goal 1 of the Board's Strategic Plan by creating a mechanism for the Board and public to understand and evaluate the extent of progress made under each focused investment toward its respective goals.

Within the context of the Strategic Plan and LTIS, the OWEB effectiveness monitoring program has four primary objectives:

1. Continue programmatic evaluation of significant investments in groupings of past restoration actions;
2. Proactively establish unique effectiveness monitoring approaches for each of the existing partnership investments, as well as within the future Focused Investment Partnerships;
3. Develop a strategy for the Board to make discrete investments in effectiveness monitoring through open solicitation;
4. Over time, establish effectiveness monitoring within Operating Capacity Investments.

The focus of the balance of this report is on Objective 2 above.

III. Effectiveness Monitoring of Current Partnership Investments and future Focused Investment Partnerships

Over the last six months, staff have been working internally and also closely with Willamette and Deschutes SIP partners to learn more about the existing goals, strategies, activities and accomplishments of their programs to begin creating a mechanism for the Board to understand and describe the extent of progress made for these partnerships based on investment to date. The result of this work is a draft outline for effectiveness monitoring products for the Willamette (Attachment A) and Deschutes (Attachment B) SIPs. The current outlines were developed in coordination with OWEB staff and SIP partners.

This work is also informing staff's development of processes and components for effectiveness monitoring of future Focused Investment Partnerships (FIPs). In both cases, the focus is on capturing programmatic lessons learned, overall investment and accomplishment information, and developing a high-level common platform for measuring progress as the Board designs its funding approach for FIPs.

Staff are seeking guidance and input from the Board to help refine what information would be most useful to better understand the investments in the SIPs and accomplishments to date and for establishing the content and direction of effectiveness monitoring of future FIPs.

IV. Equipment for DEQ's Volunteer Water Quality Monitoring Program

A core principle of the Oregon Plan for Salmon and Watersheds is the encouragement that natural resource agencies share expertise and resources. One way that DEQ and OWEB have practiced this principle revolves around water quality monitoring. Water-quality monitoring is the OWEB's second-largest monitoring investment area. Water quality is one of the most common goals embedded within restoration projects funded by OWEB and others.

Through the DEQ Volunteer Water Quality Monitoring Program (Volunteer Monitoring Program), the agency provides equipment, training, database support, quality-assurance development assistance and analytical assistance for locally-based groups such as watershed councils, soil and water conservation districts and others. OWEB relies on the services and expertise of this and other programs within DEQ to ensure that high-quality study designs, monitoring practices, appropriate tools, and sound data are embedded within monitoring grants the Board funds.

To ensure adequate resources are made available for this work, the OWEB Board has periodically supplemented funding for the Volunteer Monitoring Program. Over time, as equipment wears out, the Board has funded the purchase of equipment used by groups involved in the Volunteer Monitoring Program. This equipment enables local groups to expand the state's water-quality monitoring network, informing both local watershed and larger Oregon Plan needs. More than 50 groups from around the state have participated in this program to date. This level of participation has generated data from over 1,000 locations.

The monitoring conducted by watershed councils also is considered by DEQ to be an important contributor towards assessing the effectiveness of the State's Total Maximum Daily Load program, by allowing evaluation to occur at the local scale. This scale of evaluation cannot be achieved through statewide monitoring programs.

Funding Request

Additional funding in the amount of $47,495 is required to maintain this service that DEQ provides to partner organizations. The current equipment needs identified by DEQ and associated costs are found in Attachment C. Additional information about the various categories of monitoring equipment is found in Attachment D.

V. Staff Recommendation

Staff recommend the Board provide $47,495 in support of new and replacement equipment for the DEQ Volunteer Water Quality Monitoring Program, to be provided to locally-based groups in support of their monitoring projects and programs.

Attachments

A. Outline of Willamette SIP Effectiveness Monitoring story
B. Outline of Deschutes SIP Effectiveness Monitoring story
C. DEQ Volunteer Water-Quality Monitoring Program equipment budget
D. DEQ Volunteer Water-Quality Monitoring Program -- Additional equipment detail

Draft Outline-Willamette SIP Board Backgrounder

I. General Willamette SIP Introductory Context Statements (3-5 sentences)

The Willamette Special Investment Partnership (WSIP) is comprised of two separate, but related programs: the Mainstem Willamette and the Model Watershed (tributary) programs. The goal of the WSIP Mainstem Program is to establish a network of key habitats within the historic 100-year floodplain of the Willamette through: a) Increasing channel complexity and length, b) improving the connectivity of the river to its floodplain, and c) expanding and improving the health of floodplain forests. The Model Watershed Program's goal is to increase ecological resiliency within 13 of the mid and upper Willamette Basin tributary sub-watersheds. This goal would be obtained through enhancing riparian corridors and floodplains, increasing instream habitat values, and improving flows and water quality.

II. Composition of the Partnership

This SIP is structurally composed of agreements reached between a primary set of funding partners including OWEB, the Meyer Memorial Trust, the Bonneville Power Administration, and Bonneville Environmental Foundation. The funding is provided by and through the member organizations listed above to enable implementing practitioners (e.g., watershed councils, Soil and Water Conservation Districts, The Nature Conservancy, McKenzie River Trust, Greenbelt Land Trust, University of Oregon, Oregon State University, etc.) to carry-out projects on-the-ground thereby creating the second tier of the partnership. The third tier of this partnership consists of other implementing organizations and individuals (e.g., Oregon Department of Fish and Wildlife, Army Corps of Engineers, landowners, Aquatic Invasive Network, etc.) that leverage the investments and actions of the first two tiers creating a multiplier affect toward attaining the ecological goals listed above.

III. Inputs-Summary of Financial Contributions

- Table of funding provided
- OWEB funding
- Other funding
- Trends and fluctuations

IV. Outputs-Implementation Accomplishments

- Activities (projects) initiated/underway
- Table of projects
- Trends or areas of emphasis incl. Mainstem/tributaries
- Acquisition story
- Geographic distribution and diversity (and perhaps map, SLICES?)
- Priorities/Strategic approaches (acquisition/restoration balance)

Preliminary/Outcomes to Date

V. <u>Ecological Benefits</u>

- Willamette Confluence-TNC
- Willamette Retrospective Analysis of Riparian Plantings
- State of Willamette

<u>Example of Success stories:</u>

- Calapooia-Santiam high density plantings
- Benton WSCD efforts for invasives in Corvallis to Albany reach
- Willamette Confluence project with TNC
- Luckiamute multiphase riparian plantings and PE

VI. <u>Societal (Community) Benefits</u>

- Representation and identity given to Mainstem
- Experiential field learning (short-term)
- Strides in Landowner recruitment, relations
- 61% of grantees have increased staffing and capacity levels
- Landowner queue
- Socio-economic studies to apply to the Willamette SIP-nursery data from MMT

VII. <u>Reflections (lessons learned)</u>

- <u>Funders perspective</u>
  - Area of impact=align with funding needs
  - Balance of funding to other investment needs; more money may not translate 1:1 to accomplishment
  - Adaptive management yields results - riparian planting
  - Challenges - joint funders but loose knit practitioners, consistent reporting requirements

- <u>Practitioner's perspective</u>
  - Funding certainty for plant material orders
  - Investment in capacity and restoration platform (acquisition) needed in mainstem prior to increases in complexity and scale of restoration
  - New landowner in-roads takes time
  - Challenges to land trusts working on large scale acquisition projects
  - Need to share organizational resources

Draft Outline-Deschutes SIP Board Backgrounder

I. General Deschutes SIP Introductory Context Statements (3-5 sentences)

The goal of the Deschutes Special Investment Partnership (DSIP) is to restore the physical and biological conditions necessary to support self-sustaining populations of wild salmon and steelhead in the reintroduction areas of the Metolius River, Whychus Creek and the lower Crooked River within the Deschutes River basin. The specific implementation strategies used to attain the goal focus on ensuring improved streamflow, improving water quality, reducing fish entrainment while improving migration opportunities, and increasing and improving stream and floodplain habitats. Very specific objectives are established for each of the three geographic areas of focus. Some actions are unique to individual geographies while others occur in more than one of the basin focus areas.

II. Composition of the Partnership

This SIP is structurally composed on an agreement between OWEB, the primary funder, and the Implementation Partners consisting of the Upper Deschutes Watershed Council, Crooked River Watershed Council, Deschutes Land Trust, and the Deschutes River Conservancy. The implementation partners also have an agreement between themselves which informs the nature of the relationships and the mechanics of, within SIP, project funding prioritization and timing. The second tier of this SIP includes the use of funding from other partners including the Bonneville Environmental Foundation, Pelton General Fund, Pelton Water Fund, and the National Fish and Wildlife Foundation. The third tier of the partnership includes companion work conducted in parallel through other implementing organizations such as Oregon Department of Fish and Wildlife, Confederated Tribes of the Warm Springs, Portland General Electric, etc.

III. Inputs-Summary of Financial Contributions

- Table of funding provided
- OWEB funding
- Other funding
- Trends and fluctuations
- Limitations to contributions (geographic or otherwise that provides additional context)

IV. Outputs-Implementation Accomplishments

- Activities (projects) initiated/underway
- Table of projects
- Any trends or areas of emphasis
- Geographic distribution and diversity(and perhaps map)
- Priorities/Strategic approaches

Preliminary/Outcomes to Date

V. <u>Ecological Benefits</u>

- Water temperature
- Instream flows
- Macro-invertebrates
- Fish reintroductions
- Habitat improvements
- Re-connected habitats
- Thresholds and trends

VI. <u>Community and Economic Benefits</u>

- Exposure and Recognition in Communities (e.g., Camp Sherman, Sisters, Bend, Prineville, Redmond?)
- Creation of new and expansion of partnership with municipalities and others (e.g., Tribes, private business, NGOs)
- Examples: native plant nursery in Redmond, irrigation district investment in staff and equipment, reliable employment, Improvement in City of Prineville relationship leading to new revenue, Sisters voluntary riparian management guide, new restoration niche for contractors
- Calibration of investments and U of O economic study

VII. <u>Reflections (lessons learned)</u>

- Practitioner's perspective
- Organizational benefits
- Administrative efficiencies and benefits
- Accelerated Implementation
- Leveraged benefits
- Programmatic architectural observations and needs for future

Department of Environmental Quality-Volunteer Monitoring Program Equipment Needs

December 2014

Parameter	Item	Quantity	Unit Cost	Total Cost	
Continuous Temperature Data Loggers					
	HOBO® Pro v2 Water Temperature Data Logger	30	$125.00	$3,750.00	
	HOBO® Pro v2 Water Temperature Data Logger-Replace	40	$80.00	$3,200.00	
	HOBO® Pro v2 Water Temperature Data Logger Base	3	$125.00	$375.00	
				subtotal=	**$7,325.00**
Continuous Dissolved Oxygen Data Loggers					
	DO/Temp Datalogger	10	$1,250.00	$12,500.00	
	HOBOware® Pro for Windows	2	$100.00	$200.00	
	HOBO® Logger Base	2	$125.00	$250.00	
				subtotal=	**$12,950.00**
Fecal Bacteria Testing Equipment					
	Idexx Quanti-Tray Sealer and insert	1	$4,000.00	$4,000.00	
	Incubator BINDER Microbiological Incubators, BD 53	1	$1,500.00	$1,500.00	
	UV lamp WL160,6 WATT FLUOR LAMP	1	$150.00	$150.00	
	WCM10 UV VIEWING CABINET	1	$220.00	$220.00	
				subtotal=	**$5,870.00**
Water Quality Meter- Measures DO, Cond/Salinity, Temp, pH					
	In-Situ smarTROLL MP handheld water quality meter bundle, 5 ft. cable	3	$3,000.00	$9,000.00	
	In-Situ smarTROLL MP handheld water quality meter bundle, 100 ft. cable	2	$3,350.00	$6,700.00	
	In-Situ smarTROLL Mobile Device (blue tooth meter interface, data logging)	5	$500.00	$2,500.00	
				subtotal=	**$18,200.00**
Turbidity meter					
	HACH Turbidimeter 2100Q	3	$1,050.00	$3,150.00	
				subtotal=	**$3,150.00**
			Grand Total =	**$47,495.00**	

Further Description: Department of Environmental Quality-Volunteer Monitoring Program Equipment Needs

- **Continuous temperature** data loggers continue to be in demand by organizations prioritizing and tracking watershed restoration programs. The temperature data loggers generally have a 5 year lifespan due to battery limitations and mechanical breakdown of the logger body. The funding for 70 loggers (30 new and 40 replacing old loggers eligible for discounted replacement) would replace loggers purchased in 2008 and 2009 by the DEQ volunteer program, following the last approval of funding form the OWEB Board. Funding for additional logger base stations for downloading and programming loggers is also requested to satisfy an existing need so that it would no longer be necessary for local groups to rely entirely on DEQ staff to downloading and programming the loggers.

- **Continuous dissolved oxygen** data loggers allow for unattended continuous monitoring of this diurnally fluctuating parameter. Local watershed-based groups have been limited in their ability to define dissolved oxygen impairments due to logistical limitations with traditional grab samples but recent improvements in DO sensor technology make continuous monitoring more practical. Groups across the state have expressed an interest in doing this monitoring and DEQ also needs this data for TMDL development and implementation activities.

- **Fecal bacteria** monitoring continues to be a highly successful element of the volunteer monitoring program. The Idexx equipment used in this type of monitoring is relatively expensive but has proven to be reliable method and provides valuable information to partner organizations and DEQ. These funds requested will expand existing capacity allowing for monitoring in new areas of the state.

- **Water quality meters** measure basic water quality parameters of temperature, conductivity, salinity, dissolved oxygen and pH. Historically, DEQ has purchased separate meters for each of the parameters and supported a modification of the Winkler wet chemical analysis for dissolved oxygen provided by Hach. More recently however, issues of data quality have been proven when using this method. And, in cases where more intense monitoring is conducted, the small, per-sample cost savings is not sufficient justification to continuing the use of the method. Using new optical dissolved oxygen sensors improves data quality and reliability, as well as, providing significant time savings in the field. The meters listed in the budget will assist in the transition of the DEQ program from using the Hach DO method to the optical DO method. The result will be collection of high quality data and additional support for some new and expanding monitoring programs.

- **Turbidity meters** funds will be used to replace meters that were purchased more than ten years ago that have started to fail.