



Oregon

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Oregon Watershed Enhancement Board

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March 6, 2009

MEMORANDUM

TO: Oregon Watershed Enhancement Board

FROM: Greg Sieglitz, Monitoring and Reporting Program Manager
Courtney Shaff, Acting Grant Program Coordinator
Sarah Miller, Acting Effectiveness Monitoring Coordinator

**SUBJECT: Agenda Item J: Effectiveness Monitoring
March 18-19, 2009 OWEB Board Meeting**

I. Introduction

This report provides an update on the effectiveness monitoring components of the Oregon Wetland Monitoring and Assessment Program in the Willamette Valley and requests Board action on funding. This report also provides an update on the effectiveness monitoring of Savage Rapids Dam removal and requests Board action on funding.

II. Background

A. Wetland Effectiveness Monitoring

OWEB, in coordination with the Department of State Lands and The Xerces Society for Invertebrate Conservation secured a \$342,281 grant from the Environmental Protection Agency (EPA) to create the framework for an Oregon Wetland Monitoring and Assessment Program in the Willamette Valley. The project is intended to be an initial step toward developing a comprehensive wetlands strategy by applying the Oregon Rapid Wetland Assessment Protocol (ORWAP) for effectiveness monitoring to assess wetland quality and to evaluate restoration and mitigation success. This project is intended to complement and inform investments that will be made by OWEB under the Willamette Special Investment Partnership.

Following the Board's approval of the delegation of authority for the Director to enter into grant agreements and contracts at the May 2008 meeting, staff conducted a Request for Proposals and selected a wetland contractor to conduct the field work during the next two field seasons. The work under this grant commenced last fall and field work is scheduled to begin this spring.

B. Savage Rapids Dam Removal Effectiveness Monitoring

OWEB began its investment in dam removal effectiveness monitoring in 2007 through funding effectiveness monitoring at Brownsville and Sodom dams on the Calapooia River and Marmot Dam on the Sandy River. This area of effectiveness monitoring is one that the

Board Monitoring and Research Subcommittee recommended OWEB take a lead role. While Brownsville and Marmot dams have been removed and monitoring continues, the removal of Sodom Dam has been delayed.

During the 2007 research solicitation, a proposal to conduct effectiveness monitoring at the Savage Rapids Dam site was submitted to OWEB. At the time, the research proposal was not approved for funding by the Board until the monitoring plan and budget were more fully developed. In May of 2008, the Board reallocated funds from the Sodom Dam removal project to Savage Rapids Dam for effectiveness monitoring in anticipation of its removal in 2009.

III. Discussion

A. Willamette Valley Wetland Monitoring Enhancements

In February of this year, OWEB initiated the field work associated with the EPA grant through a contract (209-905-7170) with Adamus Resource Assessment, Inc. for \$46,787. The EPA grant provides \$63,000 for the field work to complete Oregon Wetland Rapid Assessment Protocol (OWRAP) Level II and III vegetation and soil assessments on 50 wetland sites and Level II OWRAP assessment at approximately seven to 11 Department of State Lands wetland mitigation sites.

There are additional parameters that project partners have identified as being important to include in the field work component of the project this year. (Attachment A) The additional monitoring parameters that were identified include sensitive wildlife species featured in the Oregon Comprehensive Wildlife Conservation Strategy that would add significant value and understanding to the overall wetland evaluation project. Amphibian and bird surveys would also be completed on a sub-set of the wetlands to complement the invertebrate work conducted by The Xerces Society.

Staff recommend the addition of \$30,000 of funds reserved for effectiveness monitoring to provide for the completion of both one year of pre- and post-project monitoring at the OWEB restoration sites under the current contract. The collection of these additional data will improve the ability to evaluate Willamette Valley wetlands and provide an opportunity to collaborate with other wetland monitoring projects occurring in the Willamette Valley.

B. Additional Funding for Savage Rapids Dam Evaluation

After the Board reallocated funds in May of 2008, staff worked with Oregon State University (the grantee evaluating Brownsville, Sodom and Savage Rapids dams) to revise the original project scope of work to include effectiveness monitoring at Savage Rapids Dam. The amendment to the scope of work and the time extension were completed in November of 2008. At that time, the grantee also identified the need for \$34,953 in additional funds to support the scope of work to complete the Savage Rapids Dam monitoring program described in Attachment B. The additional costs of the project include travel, supplies, and staffing due to the distance to and from the site. The fact that Savage Rapids Dam is larger than Sodom Dam also influences the increase in monitoring costs. Staff view these additional needs as legitimate costs to complete the project and recommend that \$34,953 of the effectiveness monitoring reserve be allocated to this project.

IV. Recommendation

Staff recommend the Board allocate:

- A. \$30,000 from the non-capital funds for Effectiveness Monitoring reserved at the September 2008 Board meeting to the Adamus Resource Assessment, Inc. contract 209-905-7170 for the Wetland Monitoring and Assessment Program in the Willamette Valley project consistent with the purposes described in Section III.A. of this report; and
- B. \$34,953 from Research Capital to Oregon State University for the effectiveness monitoring of Savage Rapids Dam consistent with the purposes described in Section III.B. of this report.

Attachments

- A. Wetland Effectiveness Monitoring supplemental budget
- B. Savage Rapids Dam Scope of Work and Budget

Oregon Wetland Monitoring and Assessment Program

Phase II: January 2010 – September 2010

All Contractors must bid on both Phase I and Phase II tasks. Up to \$16,787.00 will be awarded for Phase II of this contract.

- 1) Complete a second year of monitoring on all 50 original sites using both the Level II and III Assessment methods.
- 2) Complete post-implementation monitoring using Level II and III Assessment methods on all sites that were monitored prior to implementation in year 1 of the project.
- 3) Provide copies of all data collected to OWEB for distribution to project partners.
- 4) Coordinate sampling and access to all 50 sites with Xerces, OWEB, and DSL staff.
- 5) Lead data analysis and report writing, in coordination with Xerces for information from the macroinvertebrate and water-quality monitoring.
- 6) Suggest refinements to Level II and III methods.
- 7) The Contractor will be available for 3-4 meetings in Salem and Portland, Oregon.

Phase II Deliverables

September 2010

- Final map of all sites monitored
- Final report on Level II and Level III assessments of Willamette Valley wetlands including results of pre and post-implementation monitoring and wetland mitigation and restoration sites.
- Consultation as requested by OWEB and other project partners during development of guidance for state agencies involved in wetland mitigation and restoration projects

Phase II Timeframe

- A draft of the final report will be due to OWEB by 8/10/2010. The Contractor will provide one hard copy and a CD for review. Comments from OWEB, DSL, and Xerces staff will be submitted to the contractor by 8/27/2010. Three hard copies and one CD of the final report will be due to OWEB by 9/15/2010.

Savage Rapids Dam Removal – Monitoring Scope of Work

Pre-removal: Summary of activities

Pre-removal monitoring will be implemented in two phases. Year -1 (2007-2008) will be used to map the study reaches and geomorphic units, collect sediment and invertebrate samples, and assess habitat conditions. This reconnaissance effort will both establish the baseline condition and be used to perform power analysis to evaluate sampling requirements for statistically valid change detection. The sampling strategy for Year 0 (2008-2009) and beyond will then be modified to meet minimum statistical power.

Specific activities recommended for preliminary instrumentation and pre-removal monitoring include:

- aggregate relevant, existing data from various agencies, especially long-term data
- produce GIS maps of existing monitoring data
- create project website for photos and data dissemination, field data sheets
- articulate and revise field methods and analysis
- establish a GPS control network along the river corridor
- establish photo points
- establish permanent cross sections and survey points, and survey in monuments
- survey of the upstream reservoir and downstream river channel and floodplains
- characterize the bed-material size distribution upstream and downstream of the dam at cross sections and along geomorphically and ecologically significant facies/features
- estimate the volume of sediment stored behind the dam
- estimate the average annual sediment transport of the river
- benthic macroinvertebrate sampling
- assessment of habitat quality

Drawdown and removal monitoring: Summary of activities

Greater intensity monitoring will occur during the drawdown and removal of Savage Rapids Dam.

Proposed activities include:

- continued turbidity and temperature observations should occur during drawdown, through removal
- bathymetric resurvey of reservoir (delta front, channel, longitudinal, terraces) following removal and prior to 2009-2010 water year

All sampling and surveying will occur during the low flow season (summer) and after leaf out for safety and consistency.

Post-removal monitoring : Summary of activities

The post removal monitoring strategy will be used to address questions regarding the outcomes of the Savage Rapids dam removal and to contribute to state of the science for future dam removals in Oregon.

The post removal strategy will complement data collected in the prior two stages of sampling.

Short-term (2 years post removal) - Data collected during this period include:

- continuous turbidity, temperature, and discharge observations and analysis
- annual channel surveys (targeted cross sections, longitudinal profile, bed material)
- annual invertebrate sampling and habitat assessment
- monitoring of photo points
- continuous update of GIS maps and website

Project deliverables

A fundamental outcome of the proposed research is the documentation of physical and biological responses of the Rogue River to dam removal, for which 4 dam removals are at some level of implementation. As a “medium” sized dam removal, the proposed monitoring strategy is critical as this removal represents an important learning opportunity. Our approach will be to inform and engage local stakeholders in an assessment of river recovery while addressing important research questions of interest to the broader science community. Our analyses and documentation will articulate and test procedures for reliability in predicting responses to dam removal, making tools more accessible for future dam removals. Thus, in combination with monitoring activities occurring at the Brownsville dam removal site, this monitoring program will document the outcomes of the a small and medium dam removal, as well as demonstrate, test, and document effectiveness monitoring procedures for future dam removals. This will occur through the release of a public-access website () on effectiveness monitoring for dam removal as a guidance document, including (1) example monitoring plans, study designs, and data analysis approaches or systematic effectiveness monitoring, (2) detailed cost estimates (per-hours/year) and features of various methods for future monitoring planning, and (3) development and documentation of monitoring and prediction methods, such as estimating stored sediment volumes behind dams. Additional deliverables from the combined dam removal program include annual presentation and documentation of findings to OWEB and local stakeholders, a master’s thesis and PhD dissertation, and peer-reviewed publications advancing dam removal science.

Table 1 - Project budget

Item	Annual Rate	Unit	No. of Units	No. of Years	Annual increase	year 1 (2007-2008)	year 2 (2008-2009)	year 3 (2009-2010)	year 4 (2010-2011)	OWEB
PROJECT MANAGEMENT										
Investigator (Tullos)	\$73,000	1	0.04	3	0.04		\$3,037	\$3,158	\$3,285	\$9,480
IN-HOUSE PERSONNEL										
FRA	\$45,000	1	0.5	4	0.04	\$11,250	\$22,500	\$23,400	\$22,500	\$79,650
FRA (Gerth)	\$36,000	1	0.02	4	0.04	\$720	\$749	\$779	\$810	\$3,057
URA	\$20,800	1	0.25	4	0.04	\$5,200	\$5,408	\$5,624	\$5,849	\$22,082
<i>Fringe Benefits</i>										
Investigator (Tullos)	0.47				-		\$1,427	\$1,484	\$1,544	\$4,456
FRA	0.60				-	\$6,750	\$13,500	\$14,040	\$13,500	\$47,790
FRA (Gerth)	0.67				-	\$432	\$482	\$522	\$543	\$1,979
URA	NA									
CONTRACTED SERVICES										
SUPPLIES AND MATERIALS										
Misc. field supplies				4		\$1,500	\$500	\$500	\$500	\$3,000
TRAVEL										
to-from project sites and Salem	\$0.54	mile	1250	4		\$675	\$675	\$675	\$675	\$2,700
to national conference	\$1,000	year		1						\$1,000
FISCAL ADMINISTRATION										
Total direct costs										\$175,194
OWEB	10%				OPE=					\$17,519
Total indirect costs										
other direct costs										
Total Other direct costs										
TOTAL ESTIMATED COSTS										
										\$192,713

Table 2 – Tentative Timeline for Monitoring of Brownsville and Savage Rapids Dam removals

	2007												2008												2009												2010												2011											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Brownsville Dam Year 0 Monitoring																																																												
Brownsville Dam Removal Monitoring																																																												
Brownsville Dam Year 1 Monitoring																																																												
Savage Rapids Year -1 Monitoring																																																												
Savage Rapids Year 0 Monitoring																																																												
Savage Rapids Dam Removal Monitoring																																																												
Brownsville Dam Year 2 Monitoring																																																												
Savage Rapids Dam Year 1 Monitoring																																																												
Savage Rapids Dam Year 2 Monitoring																																																												