Oregon
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March 6, 2009

MEMORANDUM

TO: Oregon Watershed Enhancement Board

FROM: Greg Sieglitz, Monitoring and Reporting Program Manager
Renee Davis-Born, Data Analyst and Information Specialist

SUBJECT: **Agenda Item H: Oregon Plan Products**
March 18-19, 2009 OWEB Board Meeting

I. Introduction

This report seeks Board approval of two specific Oregon Plan Product requests for data integration and web-enabling of the Oregon Department of Fish and Wildlife's (ODFW) Oregon Fish Passage Barrier Inventory Database and equipment replacement and repair for the Oregon Watersheds Research Cooperative.

II. Background

Over the years, OWEB has provided support for the implementation of the Oregon Plan for Salmon and Watersheds by funding interagency efforts that help further State goals and objectives. The Board has reserved funding for Oregon Plan Products in its non-capital spending plan in recent biennia to provide for Oregon Plan needs identified by staff, in consultation with the Oregon Plan Monitoring Team and Core Team that do not fit well into the current suite of grant offerings provided through the regular grant program.

In 2007, the Board delayed funding additional Oregon Plan Products until there was more clarity about the amount of non-capital funding that would be available from the Pacific Coastal Salmon Recovery Fund (PCSRF). Last summer OWEB was awarded $8.2 million in PCSRF funds. In September 2008, the Board reserved $650,000 of those funds for Oregon Plan Products.

At recent Board meetings, staff briefed the Board about several high priority Oregon Plan Products. These products will inform activities such as project planning and implementation by watershed councils and reporting on agency Key Performance Measures by OWEB and other agencies. At the January 2009 Board meeting, staff did not propose funding for any Oregon Plan Products due to uncertainty in the current budget situation.

III. Oregon Plan Products Proposed for Funding

Two of the Oregon Plan Products discussed at the January 2009 meeting are ready for Board consideration. The following sections describe each proposal and the amount of funding recommended by staff.

A. Data Management System for Fish Passage Barriers and Habitat

Fish passage barrier removal projects comprise a significant number of the total on-the-ground accomplishments under the Oregon Plan for Salmon and Watersheds. OWEB awarded well over $28 million in grant funds for 313 fish passage barrier removal projects over the last ten years. Several thousand miles of streams have been re-opened to salmon and other aquatic species in Oregon's waterways as a result of this investment. To date, however, Oregon does not possess a comprehensive list and map of fish passage barriers to guide priority development for future barrier removal and for evaluation of past barrier removal accomplishments.

By the middle of 2009, ODFW anticipates making up-to-date fish habitat distribution data available online for coho salmon, winter and summer steelhead, spring and fall Chinook salmon, and chum salmon. At the same time, ODFW expects to release an initial version of the fish passage barrier database that will represent a compilation of the three largest barriers databases in Oregon (ODFW, Bureau of Land Management, and Oregon Department of Transportation) and comparison of known barriers to restoration projects that have been reported to OWEB's Oregon Watershed Restoration Inventory (OWRI). Inclusion of the most recent OWRI data in the barriers database will ensure that the current status of barriers is correct by denoting where fish passage has already been restored through on-the-ground projects. This database will provide an important first step toward compiling information about all fish passage barriers on all waterways throughout the state.

Since the January Board meeting, OWEB staff have met with staff from ODFW, Oregon Geospatial Enterprise Office, Oregon Department of State Lands, and the Institute for Natural Resources to discuss near-term priorities and future data management needs for fish passage barriers. In the short term, OWEB funding will result in a substantially more comprehensive and useful database of barriers for Oregon that will greatly benefit OWEB, grantees, tribal government, state agencies, federal entities, and the public. Funds will be used for the staff time and costs to build the base of information included in the database and to create tools for quantifying the impact of barriers (i.e., number of miles blocked that would be opened via restoration efforts). Specifically, tasks to be completed with OWEB funding include:

- Add barrier data from U.S. Forest Service.
- Add data from several local barrier inventories conducted by watershed councils and soil and water conservation districts (exact number to be determined depending on resources and priorities).
- Compare OWRI data with aforementioned datasets and update status of restored barriers.
- Develop and implement a semi-automated process to identify and reconcile duplicate records stored in more than one dataset.
- Apply GIS tools to the barrier database for the purpose of quantifying the miles of fish habitat for various species that is blocked by a particular barrier, thus improving the information available to inform funding investments for fish passage restoration.

In the future, OWEB funding could enable the development of a web-accessible data management system for fish passage barriers. Data in this system would be automatically and regularly updated to reflect new inventories of barriers and restoration actions undertaken to address fish passage problems. This web-based system would allow users to depict fish habitat and barriers on maps, assess the level of severity of different barriers, and to use decision-support tools for prioritizing investments in fish passage restoration.

The budget in Attachment A describes each of these tasks and provides low and high cost estimates for completing this work. The total OWEB funds proposed by staff for fish passage data management is $68,470. This funding would support progress on several, high-priority tasks that improve the quality and accessibility of barrier data, and is intended for use in leveraging additional funds.

B. Watersheds Research Monitoring Equipment

OWEB has invested in several research projects over the years and many include the purchase and operation of monitoring equipment. At times, this equipment is subject to damage, loss, and vandalism. While funding of maintenance is not eligible through the restoration grant rules, no such prohibition exists for research or monitoring grants.

The Oregon Watersheds Research Cooperative (WRC) is a public-private consortium comprised of state and federal agencies and private forestry interests. The WRC is implementing watershed-scale research projects in three areas (Trask, Hinkle, and Alsea river basins), in part, with OWEB funding. These research projects are designed to evaluate contemporary forest harvest and develop an understanding of the effect of those practices on physical and ecological processes on the landscape. OWEB has funded capital expenses of these projects through two separate research grants for the WRC in the amount of nearly $650,000. The most recent investment of $400,000 was through a Research Grant awarded in September of 2007.

The WRC approached staff in spring of 2008 with a request for additional funding to cover research equipment repair and replacement costs, estimated at $60,000 per year. The WRC requested that OWEB consider funding to cover 50 percent of these costs, or $30,000 per year. Following Board discussion in September of 2008, the WRC provided supplemental information for discussion at the January 2009 meeting, including reducing its maximum annual request of OWEB to $13,835. (Attachment B) Staff believe the revised request represents a more realistic need for the annual research project equipment maintenance, repair, and replacement. However, the WRC has also requested annual funding through 2017.

Since the January Board meeting, staff have met with WRC and discussed the challenge of requesting annual funding through 2017. (Attachment C) Given that research grants often are highly dependent on functioning equipment to provide useful information, and because there is not an OWEB rule prohibition on funding the maintenance of monitoring and research equipment, staff believe this request to be a reasonable and important one and recommend limiting the current request to a shorter timeframe. Therefore, staff recommend the Board approve funding only for three years, after which time the Hinkle Creek portion of the project will be complete. At $13,835 per year, the total for three years is $41,505.

IV. Recommendation

Staff recommend the Board approve:

A. Up to $68,470 in non-capital funds for an interagency agreement with the Oregon Department of Fish and Wildlife for updates and refinements to the Oregon Fish Passage Barriers Database; and

B. Up to $41,505 in research capital funds for an interagency agreement with the Oregon State University for the Watersheds Research Cooperative for maintenance, repair, and replacement of project equipment.

Attachments

A. Cost estimate for tasks to update the Oregon Fish Passage Barriers Database
B. Oregon Watersheds Research Cooperative Request
C. WRC supplemental information

Attachment A

Fish-Passage Barrier Data Management – Funding Options

Task	Description	Time Est. - Low (months)
1	Incorporate USFS barrier data	1
2	Incorporate local inventories (5-8 inventories)	2.5
3	Reconcile OWRI data with aforementioned datasets	1
4	Identify and reconcile duplicates among datasets	0.75
5	Connect barriers data with National Hydrography Dataset in GIS	1
6	Build geometric network in GIS to use for analysis of stream habitat miles above and below barriers	2.5
7	Compile historical and presumed historical (i.e. intrinsic potential) habitat distribution data for a limited number of species	1.5
	Total	10.25

NOTE: In-Kind Match Not Included **Tasks 1-7,**

Personnel		Rate	Months	Amount
Projected Classifications				
Management NRS-4		$6,250	1	6,250
I.S.S. 6 - GIS Coordinator		$5,562	3.25	18,077
I.S.S. 3 - Fish Passage Barrier GIS Technician		$3,463	7	24,241
	Subtotal			**48,568**
Projected Classifications				-
Management NRS-4		46.52%		2,908
I.S.S. 6 - GIS Coordinator		48.99%		8,856
I.S.S. 3 - Fish Passage Barrier GIS Technician		60.14%		14,579
Fringe Benefits	Subtotal			**26,342**
Total Personnel				**74,909**
Services and Supplies				
Travel				
Office Supplies				
Software misc				
Computer (including monitors, battery backup)				
Telephone				
Utilities (gas, electric, water, janitorial)				
	Subtotal			**0**
Total Direct Cost				**74,909**
Indirect Cost (non-State)		33.55%		
Indirect Cost (State; DAS, OWEB)		10.00%		7,491
Indirect Cost (State; non-ODFW)		32.59%		
Total Cost, StreamNet subproject				**82,400**

NOTE: In-Kind Match Not Included **Tasks 1-6**

Personnel		Rate	Months	Amount
Projected Classifications				
Management NRS-4		$6,250	0.75	6,250
I.S.S. 6 - GIS Coordinator		$5,562	2.5	18,077
I.S.S. 3 - Fish Passage Barrier GIS Technician		$3,463	6.25	24,241
	Subtotal			**40,236**
Projected Classifications				-
Management NRS-4		46.52%		2,181
I.S.S. 6 - GIS Coordinator		48.99%		6,812
I.S.S. 3 - Fish Passage Barrier GIS Technician		60.14%		13,017
Fringe Benefits	Subtotal			**22,009**
Total Personnel				**62,245**
Services and Supplies				
Travel				
Office Supplies				
Software misc				
Computer (including monitors, battery backup)				
Telephone				
Utilities (gas, electric, water, janitorial)				
	Subtotal			**0**
Total Direct Cost				**62,245**
Indirect Cost (non-State)		33.55%		
Indirect Cost (State; DAS, OWEB)		10.00%		6,225
Indirect Cost (State; non-ODFW)		32.59%		
Total Cost, StreamNet subproject				**68,470**

Attachment B

MAINTENANCE/REPAIR BUDGET
ALSEA WATERSHED STUDY

The Watersheds Research Cooperative (http://watershedsresearch.org/) is evaluating the effectiveness of various forest management strategies in protecting and restoring small headwater streams and downstream fish bearing streams. OWEB has invested close to $900,000 in the three watershed studies in two separate grant cycles for capital investments. These studies would not have been possible without these OWEB investments. While long-term studies are needed to address these kinds of effectiveness questions, they also result in annual equipment repair and replacement costs. The purpose of this paper is to provide budget and Oregon Plan context for these watersheds studies and discuss the expected nature of our expected equipment maintenance costs over the life of the studies (through 2017).

Total estimated annual maintenance or replacement costs for three watershed studies: $13,835/year. The actual equipment is itemized in Tables 1, 2 and 3. This estimate does not include batteries that will eventually wear out nor does it include catastrophic damage to any station such as treefall on a weir or gauging house or loss of a flume site during debris flow or storm event. Costs to completely re-establishment a gauging station or flume site would range from $12,000 - $23,000 depending on the site.

Table 1. Estimated annual equipment maintenance costs for the Alsea.

Alsea Items	Cost
Annual replacement of tubing for pump samplers (3 sets)	$250
Annual replacement for DO probe sensor caps (6)	$510
HACH DO Probes (1 per year due to vandalism or weather damage)	$2,425
Precipitation gauges (average of 2 lost per year due to vandalism)	$100
1 TTS station to be vandalized every three years	$2,000
TOTAL ANNUAL	$5,285

Table 2. Estimated annual equipment maintenance costs for the Trask.

Trask Items	Costs
Annual TTS Maintenance	$ 2,685
Annual headwater flume maintenance	$ 2,385
TOTAL ANNUAL	$ 5,070

Table 3. Estimated annual equipment maintenance costs for Hinkle.

Hinkle Items	
Annual Micro Met Maintenance	$ 600
Annual TTS Maintenance	$ 2,880
TOTAL ANNUAL	$ 3,480

TOTAL ANNUAL COSTS FOR 3 STUDIES	$13,835

The three watershed studies- Alsea, Hinkle, and Trask, have been able to leverage OWEB's substantial investment against an even larger operating budget from diverse funding sources. The operating budget for the three studies is approximately $695,000-$1,527,000/year for a total anticipated cost of $10,545,000

when the project is complete. Funding sources include but are not limited to ODF, NCASI, OFRI, BLM, Douglas County, OFIC, Weyco, USGS, OSU, EPA, and other Grant money.

The research and monitoring conducted under the three watershed studies benefits the Oregon Plan. These studies address effectiveness of current forest management (a critical component of the Oregon Plan), across multiple landowner types (State, Private, and Federal), multiple regions, and at a watershed scale. The Alsea, Hinkle, and Trask studies include biological and downstream responses to forest management. No other project currently addresses all of these topics. Furthermore, effectiveness monitoring is currently recognized as a knowledge gap for the Oregon Plan. This research compliments other OWEB research focused on status and trends or restoration. In fact, the Alsea Study will evaluate restoration as well as general forest management.

While long-term studies are needed to address these kinds of effectiveness questions, they also require annual equipment repair and replacement. Thus, we are now faced with repairing and replacing equipment initial purchased with OWEB capital investments. Not maintaining equipment is not an option. It could result in temporally and spatially inconsistent data collection, lower data quality, data gaps, or complete loss of data stations if damaged equipment is not replaced. These types of issues can limit final study conclusions.

We estimate that the WRC can cover some of the maintenance costs. Examples could include batteries or catastrophic damage both of which were not included in the estimate. The WRC funds will come from current funding sources in proportions to their relative investments (i.e. ODF, NCASI, OFRI, BLM, Douglas County, OFIC, Weyco, and USGS). Given our available budget for equipment repair, we estimate the following maintenance grant requests to OWEB through the life of these studies as follows:

13k/year from 2009 - 2011 (Hinkle will be done),
10K/year from 2012-2016 (Trask will finish),
5K in 2017 (Alsea will finish)

Actual maintenance costs may differ from this estimate and may vary from year to year. While large storm events can be particularly devastating to instream equipment, even average storm events cause damage. Some equipment is simply limited in longevity or needs battery upgrades and replacements (e.g. temp probes). Other equipment, by design is subjected to damaging floods (TTS probes and samplers). Therefore it is reasonable to anticipate annual maintenance will be needed. Our estimates are based on knowledge from principle investigators who have experience with other large scale, long term studies (e.g. H.J. Andrews, Hinkle Creek)

We can only estimate what we would purchase based on operation for the last several years. Luminescent DO and temperature probes need to be maintained every year or two. We have had vandalism of cables and theft of instruments over the last couple years. In these damp locations electronic can short out.

We recognize multiple requests for high priority work outweigh available OWEB funds. We appreciate OWEB's past support and investment in this well-designed set of watershed studies. We do not plan to solicit additional funding from OWEB but there could be an unforeseen, compelling development in the future that might warrant a request. Because we have the basic watershed research structure in place these sites become high valuable for "add-on" studies. For example, the question about stormwater runoff and herbicides can be address at these sites in a much tighter experiment and at lower cost than it would elsewhere.

We appreciate your consideration of this request. Any questions should be forward to Chris Jarmer or Liz Dent.

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Attachment C

WRC Response to OWEB Board Questions from January Board Meeting 2/23/09

Why didn't we plan to cover our own maintenance costs?
We did plan for it and are doing so. If OWEB helps support equipment costs, WRC funds can better support operational costs. Also, the original OWEB grant request was for more than was eventually provided. Finally, WRC funding has decreased for some of the studies - highlighting a challenge for the long term nature of this research.

Can we reduce our request and what is our match?
Any amount that OWEB can provide would be extremely valuable. We have absolutely reduced our request as low as possible. For example, we are not asking for funds to cover catastrophic failures. This year we lost a $15,000 gage on Hinkle Creek. Our current OWEB request which we intend to use across all three watershed studies will be covered with other funds. We are meeting the catastrophic failures with other funds that otherwise would cover operational expenses.

How much do we spend on maintenance?
We cover all the maintenance (approximately $20,000-$30,000/year)at this point but that is at the expense of what would be available for operational budgets. Funding sources have been described in previous letters.

Why would they want to contribute to a project they funded through 2009?
Management of Oregon's Forests is one of the most critical components to the recovery of native salmonids. The three watershed studies partnering under the Watershed Research Cooperative are researching effectiveness of Oregon Plan Forest Management measures. While the OWEB funding cycle operates at an annual scale, the strength of a watershed study relies in part on longer term cycles - this one will go until 2017.

The 3 watershed studies provide staggered results. For example, study results evaluating harvest effects on water quality and fish in Hinkle Creek are already being presented. This sequential nature of study results will continue. Hinkle is looking at effects of a second downstream harvest following a completion of harvest in headwaters -a very common forest management activity. Continued support of the WRC brings the other studies into maturity providing harvest effect results from Trask and Alsea. Inference from study results will be more powerful with three studies covering coast and cascades, climatic gradients, and geology in managed and second growth forests. The WRC affords the state of Oregon and OWEB an opportunity to evaluate the effects of a range of forest management practices on aquatic ecosystems, forests, wildlife, and water quality. This work is unique in Oregon, and already proving valuable to the natural resource managers, policy and scientific communities.

Timing Priorities

Any amount of funding that OWEB can provide will be helpful and greatly appreciated. The next few years will present the greatest needs and highest priority as the studies have been underway for several years now and equipment will be in need of attention. While the project runs through 2017, support through 2014 would be extremely valuable.