

April 26, 2006

## **MEMORANDUM**

**TO:** Oregon Watershed Enhancement Board

**FROM:** Ken Bierly, Deputy Director

**SUBJECT: Agenda Item F: Research Proposal Review process  
May 16-17, 2006 OWEB Board Meeting**

### **I. Introduction**

This report seeks Board approval of a proposed process for the review, evaluation, and funding of grants for watershed research projects. The proposal builds on the Board's research grants for priorities adopted in March of 2002.

### **II. Background**

When the 1999 legislation created the Oregon Watershed Enhancement Board, the Legislature also established a "Restoration and Protection Research Fund." ORS 541.378 states that all interest earned from Ballot Measure 66 Lottery Funds is credited to the Research Fund. The Attorney General has advised OWEB that research funds must be split 35 percent non-capital and 65 percent capital in the same manner as all the Measure 66 dedicated lottery funds and that expenditures of these funds are constrained in the same manner as Measure 66 capital and non-capital funds.

In January 2001, the Board voted to adopt a Research Investment Strategy to guide OWEB funding of research supporting implementation of the Oregon Plan for Salmon and Watersheds. The strategy identified four principles to help structure this process: 1) Identify critical information needs; 2) Fund research projects that address priority needs first; 3) Communicate research results to users; and 4) Evaluate what is learned and determine new priority needs.

In March 2001, the Independent Multidisciplinary Science Team (IMST) issued a report that identified 12 high priority Oregon Plan research needs ranked in relative order of importance. This report responded to independent requests from the 1999 Joint Legislative Committee for Stream Restoration and Species Recovery and OWEB for identification of the highest priority research needed to help ensure salmonid recovery.

After receiving the IMST report, OWEB contracted with For the Sake of the Salmon to use the IMST report as a starting point for expanding the discussion of information needs to a broader constituency of the Oregon Plan. For the Sake of the Salmon worked with OWEB to plan an outreach effort to Oregon's scientific and research community, watershed groups, agencies, tribes, and other stakeholders to comment on and evaluate the IMST's recommendations.

OWEB staff also extended an additional opportunity for comment on the research priorities to representatives of state natural resources agencies.

In general, respondents were in agreement with the priorities identified by the IMST report with some suggested clarifications and improvements. Staff then made changes to the original IMST priority research needs and presented them to the Board in March 2002. (Attachment A) The Board unanimously adopted the priorities and authorized OWEB staff to take the next step to formulate specific proposals.

Over the years, the Legislature has directly appropriated research funds for several projects. More details on past uses of research funds are included in the attached background document from the Legislative Fiscal Office. (Attachment B)

At the current time, there is approximately \$1,646,000 of capital and \$464,000 of non-capital funds available in the Research Fund. The Legislature has not provided the agency with expenditure limitation to use these funds in the 2005-2007 biennium. OWEB would be required to obtain expenditure limitation from the Emergency Board or the Legislature to use the funds.

### **III. Proposed Review Process**

OWEB staff propose the Board approve a formal process for considering research proposals. Staff's proposal establishes clear criteria, utilizes the appropriate scientific expertise for evaluating request, and minimizes impacts on current staff workload. The proposal recommends using the Independent Multidisciplinary Science Team (IMST) to assist in the development of the Request for Proposals (RFP) and identify how peer reviewed proposals match OWEB adopted research priorities. (Attachment C) The RFP will be made available through regular avenues by June 1, 2006. A deadline for submittals will be July 31, 2006.

The IMST has recommended that OWEB use an existing peer review process to review proposals. The review will be conducted by science peers and the proposals will be evaluated based on the study design, methodology, and applicability of the results to OWEB watershed management interests and furtherance of the goals of the Oregon Plan for Salmon and Watersheds. OWEB will attempt to schedule the results of the review with IMST by the January 2007 Board meeting. The research project review process will be used in developing a request for the expenditure of funds from the Restoration and Protection Research Fund in OWEB's 2007-2009 Budget.

OWEB staff will take the peer reviewed proposals and discuss the projects with the appropriate local interests (watershed councils, agencies, soil and water conservation districts, etc.) to determine if the research questions address issues in the (appropriate) local community. The staff will recommend to the Board projects(s) to be funded in priority order at the January 2007 Board meeting, contingent upon legislative appropriation of research funds.

### **V. Recommendation**

Staff recommend the Board take the following actions:

1. Approve the proposed process for the review of research proposals as outlined in this report;

2. Direct staff to update OWEB's Interagency Agreement with the IMST to reflect the commitment to the research review process; and
3. Allocate up to \$5,000 in non-capital funds to address potential peer review costs associated with the research fund review process.

Attachments

- A. OWEB Adopted Research Priorities
- B. LFO Brief on OWEB Restoration and Protection Research Fund
- C. Draft Notice of Research Solicitation

## **Oregon Watershed Enhancement Board Research Priorities – March 2002**

### **I. Highest Priority Information Needs for the Oregon Plan**

- 1. Assess the status of watershed health as indicated by anadromous salmonid stocks (coho, chinook, and chum salmon, sea-run cutthroat trout, and steelhead), and the risk for their extinction by integrating dynamic ocean conditions, habitat availability and quality, and human activities.**

The IMST has identified the importance of adopting a landscape context for the Oregon Plan, and the need for long-term perspectives that incorporate changing conditions in terrestrial, freshwater, and ocean ecosystems. The IMST identified several components needed to support overall research goal. These include:

- Research that helps to understand interactions among basin populations, metapopulations, ocean survival rates, life history stage (survival) trends, and population viability.
- Analysis and integration of information from habitat assessments and salmon spawner or juvenile surveys with models that assess salmon population trends and population dynamics and to conduct sensitivity analysis of models and model parameters.
- Research that compares distribution of spawner abundance relative to spawning habitat of differing quality.
- Evaluation of the ability of current monitoring and research programs to provide data required for life-cycling modeling and to measure the following: 1) recolonization of habitats as stocks recover, 2) straying rates, 3) distribution of spawners across their range, 4) degree of unoccupied habitats, and 5) variable effects of ocean survival rates within and among Gene Conservation Groups.
- Strengthen life-cycle modeling concept, apply to broader range of land use and management questions.
- Research that identifies the relationships between landscape dynamics and aquatic resources and their habitats.

### **II. High Priority Information Needs for the Oregon Plan**

#### **A. Related to Watershed Conditions**

- 1. Determine how changes in land use and land cover, including riparian and upland vegetation, can affect salmonid habitat quality.**

Remote sensing and ground surveys are needed to establish baseline data and to compare to historical records in order to conduct trend assessments of watershed and habitat conditions. Currently, remote sensing has not been used to its fullest potential under the Oregon Plan.

Determine what the accuracy of remotely sensed data and the proper scale at which it should be used.

**2. Determine relationships between population trends of fish and wildlife and land use/land cover changes.**

Research is needed to estimate: 1) the past abundance and distribution of salmon throughout the landscape, 2) the changes in abundance and distribution through time, and 3) the changes in habitat type and availability that have occurred as estuaries, rivers, and streams that have been modified to accommodate a variety of human activities.

**B. Specifically Related to Fishery Management**

**1. Determine the effects of wild-hatchery fish interactions and the impacts of hatchery management programs on wild stocks. Test the assumptions about survival differences between hatchery and wild fish.**

Few studies have tracked the effects of interactions between hatchery and wild fish on the long-term persistence of wild populations. Future research should include both genetic analysis and ecological analysis of the effects of competition.

**2. Determine the origin and the temporal and spatial distribution of wild ocean-caught fish.**

Research is needed to determine which freshwater populations are impacted by ocean harvest, and when, where, and how many fish are encountered. Harvest management decisions and policies will not be effective for protecting critically low populations without this information.

**3. Determine the spawning escapement rate of steelhead.**

There are comparatively few steelhead survival data due to difficulties in monitoring both juvenile migrants and adult returns. Little is known about both freshwater and marine survival of steelhead. There is a need for increased emphasis on the monitoring the spawning escapement of steelhead to obtain better estimates of survival and abundance.

**4. Determine the genetic basis of various life history strategies in salmonids.**

Environmental and genetic controls of life-history paths need to be determined so genetic life history stages can be preserved on both the population and metapopulation levels. The diversity in migration times, spawn times, and unique life history paths (e.g. residual fish and precocial males) should be preserved to maintain a population's resiliency.

### **III. Moderate Priority Information Needs for the Oregon Plan**

#### **1. Determine the impacts of declining wild salmonid populations on ecosystem processes.**

Examples of research needs include, but are not limited to:

- Determining the response of juvenile salmonids and their food webs to carcass abundance and how many spawners are needed to support the next generation of developing salmonids. Experiments are needed to establish this relationship and to determine the processes involved. This is crucial when available carcass numbers are low.
- Determining the effects of hatchery releases on the same and other species. Ecosystem attributes to consider include stream and ocean carrying capacity, biodiversity, life history diversity, the effects of inter and intra-specific competition, diseases, and ocean trends and climate conditions.

#### **2. Determine the effects of predation on salmonid recovery and how predation interacts with other environmental factors.**

A holistic approach is required to evaluate predation in comparison with other causes of population declines and to effectively undertake management actions. The information required for this purpose is not currently available.

### **IV. Priority Information Needs for the Oregon Plan**

#### **1. Determine the impacts of non-indigenous (exotic) aquatic and terrestrial species on salmonid recovery.**

The extent of deleterious effects from introduced species on salmonids and their recovery and the overall effect of introduced species on the health of natural ecosystems in the state are not known.

#### **2. Determine the cause and effects of disease, tumors, and other abnormalities of fish on the population dynamics of the fish and the implications for ecosystem and human health.**

The extent and consequences of an increase in the incidences of diseases, tumors, and physical abnormalities and their epidemiology is not fully known but may have the potential to prevent some salmonid stocks from fully recovering.

# Legislative Fiscal Office

**Ken Rocco**  
Legislative Fiscal Officer



900 Court Street NE  
H-178 State Capitol  
Salem, Oregon 97301  
503-986-1828

## Budget Information Brief / 2005-4

### OWEB's Restoration and Protection Research Fund

The Restoration and Protection Research Fund was created by the 1999 Legislature in HB 3225. The fund is to be used for the purpose of funding research and other activities related to the restoration and protection of native salmonid populations, watersheds, fish and wildlife habitats, and water quality, including but not limited to research, monitoring, evaluation, and assessment related to the Oregon Plan. All interest earnings on the Restoration and Protection Subaccount, the Watershed Improvement Operating Fund (WIOF), and the Watershed Improvement Grant Fund (WIGF) are to be credited to the Restoration and Protection Research Fund. The Attorney General has advised the Oregon Watershed Enhancement Board (OWEB) that expenditures of interest earned on the WIOF and WIGF are constrained in the same manner as expenditures from each of these funds are constrained. This means only interest on the Operation Fund can be used for expenditures not tied to a specific capital project.

#### Past Uses of the Research Fund

With no viable proposals for the use of the Restoration and Protection Research Fund, the 1999 and 2001 Legislatures included expenditure limitation of \$1 Lottery Funds in OWEB's legislatively adopted budgets. In order to spend from the fund, the agency was required to request additional Lottery Funds expenditure limitation from the Emergency Board. During the 2001-03 interim, the Emergency Board provided OWEB a total of \$0.8 million expenditure limitation for a study of fish deformities in the Newberg pool of the Willamette River and for a Department of Forestry study on the effectiveness of state required forest practices. The 2003-05 legislatively adopted budget included about \$0.4 million to complete the study of Willamette River Toxins and continue the Hinkle Creek Paired Watershed study on the effectiveness of Oregon's forest practices regulations. The adopted budget also included \$650,000 for continuation of the Conservation Hatchery Improvement Program and allocated \$1.2 million on a one-time basis directly to the Department of Fish and Wildlife to convert the Fall Creek Hatchery into a Hatchery Research Center. The Hatchery Research Center is designed to provide valuable insight into the interaction of hatchery reared salmonids with wild fish and to investigate methods of raising fish that will mitigate any negative impacts on wild fish populations.

#### 2005-07 Legislatively Adopted Budget

The 2005-07 adopted budget for OWEB includes \$500,000 carry forward expenditure limitation for continuation of the Conservation Hatchery Improvement Program, using unexpended project funds initially provided for expenditure in 2003-05. Expenditure limitation for additional projects could be approved by the Emergency Board during the interim. Approximately \$1.6 million is estimated to be available in the fund by the end of the 2005-07 biennium, for which the Legislature provided no expenditure limitation. The majority of this interest is from the WIGF and therefore limited to on-the-ground capital type expenditures.

Projects can be funded with money from the Restoration and Protection Research Fund through grant applications to OWEB. OWEB staff then review the application and make funding recommendations to the OWEB Board at an upcoming meeting. The Board could, under extraordinary circumstances, consider a grant request at a special meeting. If the Board approves a grant using monies from the Research Fund, OWEB would need to seek expenditure limitation from the Emergency Board for the grant to be paid. If the Emergency Board does not authorize additional expenditure limitation, the grant could not be paid since there is a separate expenditure limitation line in the OWEB budget bill (HB 5172) for expenditures from the Restoration and Protection Research Fund.

During a regular or special legislative session, the Legislature can directly allocate money from the Restoration and Protection Research Fund to specific state agencies for individual projects, as long as the allocation complies with the previously mentioned constraints.

**For additional information, contact: Paul Siebert, 503-986-1843**

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## Request for Research Proposals

Research proposals are accepted and reviewed once a biennium and applicants should anticipate at least a six month review process. Research proposals for the 2007-2009 biennium (July 1, 2007 to June 30, 2009) are now being accepted. The deadline for research proposals is July 31, 2006, with an award date anticipated for January 2007. To discuss potential projects, please contact Ken Bierly at [ken.bierly@state.or.us](mailto:ken.bierly@state.or.us).

## BACKGROUND

The Oregon Watershed Enhancement Board is a state agency that administers a legislatively established fund to support scholarly field research on watershed function that will enhance the implementation of the Oregon Plan for Salmon and Watersheds. The OWEB Board has adopted research priorities to guide proposal development and review. The OWEB Board has authorized the Independent Multidisciplinary Science Team (IMST) to coordinate peer review for the research proposals.

OWEB research funds are derived from interest earned on the funds in the Watershed Improvement Grant Fund and the Watershed Improvement Operating Fund. To date there is approximately \$1,646,000 of "capital" funds and \$464,000 of "operating" funds available. The "capital" funds are limited to expenditures such as permanent research installations, equipment and materials for a specific research project, etc. "Operating" funds are available for salary and other expenditures. Further clarification on the uses of these fund types can be obtained from OWEB.

## ELIGIBILITY

OWEB will support masters, doctoral and post-doctoral researchers, or researchers with equivalent scholarship or commensurate life experience. OWEB welcomes proposals from advanced scholars and professionals of any nationality. Research proposals should demonstrate that they have a strong basis in community concerns about the elements of watershed function in Oregon. The demonstration can be in the form of support letter(s) from watershed council(s) or other local community organization(s).

## GRANTS

OWEB awards funding for research proposals on a competitive basis. Proposals will be peer reviewed for scientific merit and also evaluated by the significance of the research question to OWEB's research priorities and community support for the research proposed.

Proposals are reviewed by the IMST to evaluate their scientific merit and are recommended based on the significance of the scientific issue being addressed. Recommended proposals will be evaluated by OWEB staff and regional representatives knowledgeable of the local community issues and interests. Reviewers will examine a project's potential contribution to scientific

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knowledge, the appropriateness of its research methodology, logistical feasibility and relevance to local questions and the Oregon Plan for Salmon and Watersheds. OWEB support can be used for multiple year research projects.

## **FINAL REPORT**

A detailed written research report will be required at the end of the project. The results will be presented at the next regular OWEB Board meeting that can be scheduled. A presentation of the research findings and management implications will be expected to be made to the OWEB Board at the completion of each project. Peer reviewed research results can be published without OWEB review if acknowledgement of OWEB funding is made.