Independent Multidisciplinary Science Team (IMST)

State of Oregon

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Dear Mike and Tom,

During the IMST's recent review of Oregon Department of Environmental Quality (ODEQ) draft document titled *Development and Selection of Bedded Sediment Benchmarks in Oregon*, the IMST found that there is still a significant need in Oregon for various monitoring groups to collect standardized data that can be integrated into larger analyses. Because this issue is broader than ODEQ's bedded sediment analyses, the IMST decided to issue a formal recommendation to the Governor's Natural Resource Office and the Oregon Plan Monitoring Team. The recommendation and supporting materials are in Attachment A.

In Attachment A, IMST:

a) states IMST's recommendation,.

b) provides a brief synopsis of previous IMST recommendations regarding monitoring, and

c) provides an explicit example of monitoring and shortcomings regarding physical habitat and biological assemblage data.

As you are aware, IMST recommendations are based on our assessment of the best available science as it pertains to salmonid and watershed recovery and the management of natural resources. Recommendations are directed to one or more agencies or entities that have the ability to implement or to affect changes in management or regulation that are needed for implementation. The IMST considers each recommendation important to accomplishing the mission of the Oregon Plan for Salmon and Watersheds. Under Oregon Revised Statute 541.409, state agencies and entities (e.g., Oregon Plan Core Team) are required to respond to IMST recommendations (see Attachment B for information regarding formal responses).

The IMST is a committed partner in the State's monitoring efforts, and as such, would like to assist you during the process of developing more comprehensive monitoring programs that can facilitate data integration. The Team would be very pleased to discuss this further with you and the Oregon Plan Core and Monitoring Teams, as well as the Natural Resources Cabinet. Please feel free to contact us if you have any questions regarding the attached recommendation or supporting information referenced with it.

Sincerely,

Nancy Molina/

Nancy Molina
IMST Co-Chair

Carl B. Schreck

Carl Schreck
IMST Co-Chair

cc:

Sue Knapp, GNRO
Greg Sieglitz, OWEB
Sen. Jackie Dingfelder, Senate Envir. & Nat. Resour. Comm.
Rep. Brian Clem, House Ag., N.R., & Rural Communities Comm.
Rep. Ben Cannon, House Envir. & Water Comm.
IMST

Attachment A

RECOMMENDATION: IMST recommends that the Governor's Natural Resources Office (GNRO) and the Oregon Plan Monitoring Team (OPMT) work with member agencies, the Pacific Northwest Aquatic Monitoring Partnership, and other entities as appropriate, to ensure that state and federal agency programs for monitoring physical habitat structure and macroinvertebrate and fish assemblages in Oregon use comparable field, laboratory, and analytical methods so that all data, to the maximum degree possible, can be reliably integrated. Should the OPMT agree with this recommendation, some sort of GNRO tracking system might be advisable to ensure consistent monitoring methods.

Synopsis

As part of its statutory obligations to annually review and report on the implementation of the Oregon Plan, among other recommendations, IMST:

- In its 1998 report, recommended that the Oregon Plan Monitoring Team should "Develop and adopt a strategy to ensure integrating and synthesizing of monitoring data collected by the agencies, and relate the output to the goals of the Oregon Plan." It added that "The Salmon Core Team should accomplish greater integration and collaboration between federal and state monitoring efforts."
- In its 1999-2000 report, "recommended that the Monitoring Program should develop and adopt a strategy to ensure integration and synthesis of monitoring data collected by agencies and relate those results to goals of the Oregon Plan."
- In its 2007 report, noted that "Significant technical and analytical issues that require attention during indicator framework development include: Aggregation of data from disparate data sets."
- In its 2009 report, observed that "The potential for future aggregation should be considered in the design of data collection efforts, whether they are broad scale surveys or small research. This would include rigorous documentation of study objectives, assumptions, sampling design, variable definitions, implementation records, and database structure."

Monitoring Shortcoming Example

IMST offers to the OPMT and the GNRO the following explicit example of the need for markedly improved capacity for integrating, aggregating, and synthesizing stream monitoring data in Oregon. At the conclusion of its review of Oregon Department of Environmental Quality's (ODEQ's) Draft *Development and Selection of Bedded Sediment Benchmarks in Oregon*, the IMST noted that, despite having a large data set from which to develop sediment models and benchmarks (criteria), a much larger data set would have been useful. ODEQ agreed and provided the following information:

1. A total of 1665 sites, 3721 visits, and 200 reference sites with comparably collected, processed and analyzed macroinvertebrate assemblage data available for analyses were provided by ODEQ, US Environmental Protection Agency's (USEPA's) Environmental Monitoring and Assessment Program (EMAP) and Regional Environmental and Assessment Program (REMAP), Oregon State

University (OSU), and US Forest Service's PACFISH/INFISH Biological Opinion (PIBO) Effectiveness Monitoring Program.

2. A total of 1665 sites, 761 visits, and 154 reference sites with comparably collected and analyzed vertebrate assemblage data available for analyses were provided by ODEQ, USEPA-EMAP, and REMAP.
3. A total of 909 sites with comparably measured and analyzed physical habitat data (including GIS information and all physical habitat variables needed for modeling) were available for analyses.
4. A total number of 383 sites and 154 reference sites with complete macroinvertebrate, vertebrate, and physical habitat data were available for analyses.

Note that those data sets include data from only two federal agencies and no other Oregon state agency than ODEQ, despite large monitoring programs in Oregon by the US Bureau of Land Management, US Geological Survey, National Marine Fisheries Service, Oregon Department of Fish and Wildlife, Oregon Department of Forestry, Oregon Watershed Enhancement Board, and OSU to name a few. When attempting to make regional assessments or to develop predictive models and regulatory criteria, it is imperative that data sets be as large and robust as possible to ensure that they represent regional and local patterns for discriminating anthropogenic and natural factors. Roper et *al.* (*In Press*) compared data collected by 7 physical habitat monitoring programs from the same 12 Oregon stream reaches and found that some attributes were consistently measured, some lacked high precision, and few were sufficiently comparable for sharing among monitoring programs. However, Hughes & Peck (2008) reported that the USEPA, by aggregating consistently collected data from multiple sources, was able to assess streams at regional and national spatial extents, through use of samples from 1285 and 1536 sites, respectively.

References

Hughes RM, Peck DV (2008) Acquiring data for large aquatic resource surveys: the art of compromise among science, logistics, and reality. *Journal of the North American Benthological Society* 27:837-859.

Roper BB, Buffington JM, Bennett S, Lanigan SH, Archer E, Downie ST, Faustini J, Hillman TW, Hubler S, Jones K, Jordan C, Kaufmann PR, Merritt G, Moyer C, Pleus A (*in press*) A comparison of the performance and compatibility of protocols used by seven monitoring groups to measure stream habitat in the Pacific Northwest. *North American Journal of Fisheries Management*.

Attachment B

Independent Multidisciplinary Science Team (IMST)
Recommendation preamble for use with reports and correspondence
Adopted by the IMST on January 25, 2006

The IMST creates several types of reports[1]. The largest reports are created in response to the IMST's continuing evaluation of the State's science needs necessary to pursue the mission and goals of the Oregon Plan for Salmon and Watersheds (Oregon Plan). These reports are generally topic-oriented and often called "landscape-level reports". An example of this type of report is Technical Report 2002-1, *Recovery of Wild Salmonids in Western Oregon Lowlands*. The landscape-level reports present IMST's independent evaluation of the state of the science regarding the resources being considered and support the evaluations with a comprehensive scientific literature review. These reports also receive extensive peer and technical review[2].

A second type of report the IMST generates is in response to specific requests by the Governor's Office, Legislature, state agency, or other entity to either provide guidance or to review draft reports or proposals involving topics related to the Oregon Plan. An example of this type of report is our 2005 evaluation of the State of Oregon's draft *Viability Criteria and Status Assessment of Oregon Coastal Coho*, the draft *Policy to Evaluate Conservation Efforts (PECE) analysis*, and the draft *Synthesis of Viability Analysis and Evaluation of Conservation Efforts*. A third type of report is called a "letter report" that may be prepared in response to specific questions, such as IMST's 2002 report addressing issues related to instream aggregate (gravel and sand) mining regulated by the Oregon Division of State Lands and how operations may affect salmonid habitat.

In the second and third types of reports, the IMST is often asked whether the scientific approach, analyses, and/or interpretations are credible and consistent with accepted scientific standards, and whether the assumptions and uncertainties are reasonable and accurately characterized. In both of these two types of reports, the IMST generally evaluates the scientific literature being used to support the agency's or State of Oregon's draft report or proposed actions, rather than produce a comprehensive review of available scientific literature.

Depending on the nature of the report being generated (more commonly contained in the landscape-level reports), the IMST may develop a series of scientific questions and answers that help to organize the report and to aid a reader's understanding of the topic. The scientific questions are created by the IMST and are judged to be relevant and useful to understanding the issues, resources or subjects being analyzed. In general, IMST develops and answers each science question, then summarizes its findings and conclusions for each question. Next, the IMST develops recommendations from specific

[1] All three types of reports are an undertaking of the entire Team, although subcommittees often are assigned leading responsibilities; subcommittee composition is based on Team member expertise and interest with topic areas. Minority opinions may be appended or incorporated within any IMST report.
[2] Although technical reports may be subject to technical and peer review, release of draft documents is restricted by the IMST in order to insure accuracy of content prior to release to a wider audience. IMST's policy is stated in the Team's Charter and Operating Guidelines: http://www.fsl.orst.edu/imst/charter.pdf

findings and conclusions or from a synthesis of several findings and conclusions. The recommendations are often grouped into broad subject areas for convenience and the order does not imply priority. The IMST considers each recommendation important to accomplishing the mission and goals of the Oregon Plan.

Recommendations are based on IMST's assessment of the best available science pertaining to salmonid recovery, watershed function and the management of Oregon's natural resources. Recommendations are directed to one or more agencies (or entities) that have the ability to implement, or alter management actions or regulations that are needed for implementation. **The IMST emphasizes that it looks beyond the State's *current* ability to implement the recommendations because current legal, regulatory, or funding situations may need to be modified over time.** The IMST's believes that if an agency (or entity) agrees that a recommendation is technically sound and would aid the recovery of salmonid stocks and watersheds, the agency (or entity) would then determine what impediments might exist to prevent or delay implementation and work toward eliminating those impediments. The IMST also assumes that each agency (or entity) has the knowledge and expertise to determine how best to identify and eliminate impediments to implementation and to determine appropriate time frames and goals needed to meet the intent of the recommendation. The IMST also recognizes that an agency (or entity) may already have ongoing activities that address a particular recommendation; therefore, inclusion of such an "overlapping" recommendation should be seen as reinforcement for the continuation of such actions.

Formal Responses to Recommendations

Oregon Revised Statute (ORS) 541.409, which created the IMST, specifies that agencies are to respond to the recommendations of the IMST, stating "(3) If the Independent Multidisciplinary Science Team submits suggestions to an agency responsible for implementing a portion of the Oregon Plan, the agency shall respond to the Team explaining how the agency intends to implement the suggestion or why the agency does not intend to implement the suggestion". State agencies are expected to formerly respond to IMST recommendations within six months after a report is issued.

Once formal responses are received, the IMST reviews the scientific adequacy of each response and determines if further action or consideration by the agency (or entity) is warranted. Ultimately, each recommendation response is assigned to one of four general categories:

- **Adequate** means that the IMST supports the decision of the agency
- **Intermediate** means that the IMST does not fully support the agency decision because the decision will decrease the likelihood of accomplishing the goals of the Oregon Plan in a timely manner, but not doom it to failure. IMST notes its concerns but stops short of suggesting that the recommendation be reconsidered.
- **Inadequate** means that the IMST feels the decision by the agency will seriously detract from achieving the goals of the Oregon Plan, and the IMST strongly suggests that the decision be reconsidered.

- **Indeterminate** means that IMST cannot tell what the agency decided to do with the recommendation, or lacks sufficient information to fully evaluate the response.

IMST believes that the key characteristics of a good response are:

- It includes a short, clear statement that the agency (or entity) (a) accepts or agrees with the recommendation or (b) that it rejects or disagrees with it. In some cases, an agency (or entity) may be reluctant to agree or accept a recommendation because it sees significant difficulties in implementing it. However, IMST believes if the recommendation is sound, then the agency (or entity) should work towards eliminating the impediments to implementation that it sees.
- It provides short, clear descriptions of what the agency (or entity) intends to do to implement recommendations it accepts (including how it might remove impediments) or, as required by ORS 541.409, that it provides specific reasons why it rejects the recommendations. Discussion betweens agency or legislative staff and Team members at IMST meetings should also help clarify agency (or entity) and IMST perspectives, and most importantly, advance the mission and goals of the Oregon Plan.

Responses that include these characteristics will be more easily characterized by IMST as ***Adequate, Intermediate*** or ***Inadequate***, avoiding the use of ***Indeterminate.***

The IMST evaluations of the responses are then delivered to each responding state agency (or entity) and the agency (or entity) has an opportunity to discuss the IMST evaluations of their responses. Agencies (or entities) are also encouraged to update the IMST their progress on implementing recommendations.

Finally, IMST includes any formal responses to recommendations and IMST's evaluation of the responses in its reports to the Governor and the State Legislature (e.g., Joint Committee on Salmon and Stream Enhancement or other natural resource committees as appropriate).