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May 18, 2009

Nancy Leonard, Ph.D.
Northwest Power & Conservation Council
851 SW 6th Avenue, Suite 1100
Portland, Oregon 97204-1348

Dear Dr. Leonard:

The Washington Forum on Monitoring (Forum) appreciates the opportunity to provide comments and recommendations on the Northwest Power and Conservation Council's (NPCC) proposed list of potential high level indicators.

As you know, the Forum is a statutory body mandated to coordinate technical and policy issues and actions related to monitoring salmon recovery and watershed health in Washington State, consistent with the state's Comprehensive Monitoring Strategy and Action Plan. The Forum brings together all of the state's natural resource agencies and seven salmon recovery organizations, as well as invited federal, tribal, local government, and other representatives. A list of Forum member organizations is included as Attachment 1.

As a result of recent legislation, the Forum is also required by law to adopt high level indicators for reporting on salmon recovery and watershed health by December 2009. With that requirement in mind, the Forum appointed a workgroup to develop an initial list of indicators, which it approved at its March 18, 2009 meeting (Attachment 2). Those indicators were drawn from a number of current and historic sources, and we believe they are both pertinent to our mandate and consistent with indicators being proposed or developed by other key agencies and regional organizations (e.g. Oregon's Proposed Indicators for Watershed Health; and the Pacific Northwest Aquatic Monitoring Partnership's recommended indicators developed on behalf of the Northwest Environmental Information Sharing Executive Summit).

In that context, the Forum discussed NPCC's proposed indicators at its recent (May 11) meeting. The comments offered below represent the overall recommendations of the

Forum. These overall comments do not, however, preclude individual agencies from submitting additional comments and recommendations separately.

Comments and Recommendations

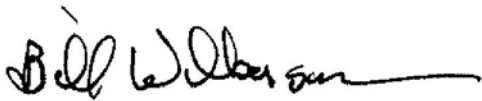
- The Forum notes that the NPCC's work on high level indicators is consistent with the Forum's earlier (3/21/2008) recommendations on the Council's draft Fish and Wildlife Plan
- The Forum shares NPCC's goal of identifying a set of useful high-level indicators to report on overall progress in recovering salmon and improving watershed health across the state and region. Further, we recognize that there is significant benefit in coordinating and aligning indicators with key agencies and organizations across the region. Coming to common agreement on high level indicators (and the metrics and methods that will inform them) will significantly improve our ability to combine and share data, and will reduce the confusion and frustration that results when agencies report conflicting results derived from incompatible data sets , inconsistent metrics, or dissimilar methods and protocols.
- For those reasons, the Forum urges NPCC's continued engagement to further align and coordinate its indicators (and reporting measures) with those identified by the Forum, the Puget Sound Partnership, the Columbia Basin Fish and Wildlife Authority, the Oregon Watershed Enhancement Board, and others. We encourage NPCC's continued direct participation with Forum staff to continue the process of aligning indicators and their underlying metrics and methods.
- We recommend identifying the questions the NPCC would like high level indicators to address. In our experience, confusion over indicators arises when those questions are not identified.
- We note that NPCC's indicators are divided into two main categories: "Biological Indicators" and "Implementation Indicators." "Watershed Health" is undeveloped and appears under the Implementation category. Having a specific third category for "Watershed Health" would create a structure for NPCC's indicators similar to that of the Forum and PNAMP, allowing easier alignment of our indicators for watershed health (the Forum and PNAMP have proposed equivalent indicators for water quality, water quantity, habitat, etc.). NPCC's adoption of a similar structure and indicators for watershed health would represent a significant step forward in achieving the goal of regional alignment of indicators for watershed health.
- Similarly, to better align with Forum indicators and to be more useful to managers generally, we recommend that indicators for salmon abundance be based on

information at the population scale so that it may be reported at other scales (e.g., major population groups, and ESUs).

- We particularly recommend deliberate technical-level coordination between NPCC and Forum staff over the next months to define the specific metrics, data requirements, and protocols needed for successful implementation of a full coordinated set of indicators shared by the Forum, NPCC, and other key agencies and organizations.
- While we share a common goal of identifying pertinent and useful high-level indicators, we recognize that high-level reports may be limited by the type and extent of data and information that is available. Following adoption of high level indicators, NPCC should evaluate current monitoring efforts and support additional monitoring needed to support the indicators. NPCC should consider using NOAA's data gap inventory and other gap analyses to illustrate existing data limitations and needs.

We thank you for the opportunity to present the Forum's comments on the Council's Proposed List of High Level Indicators, and look forward to continuing to work together on this important topic.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Wilkerson", with a long horizontal flourish extending to the right.

Bill Wilkerson, Chair

Washington Forum on Monitoring Salmon Recovery and Watershed Health

Attachment 1:

Washington Forum on Monitoring Salmon Recovery and Watershed Health

Washington Department of Agriculture
City of Bellevue
Washington Conservation Commission
Washington Department of Ecology,
Washington Department of Fish and Wildlife
Governor's Salmon Recovery Office
Washington Department of Health,
Hood Canal Coordinating Council
Lead Entity Advisory Group
Lower Columbia Fish Recovery Board
Washington Department of Natural Resources
National Oceanic and Atmospheric Administration (NOAA) Fisheries
Northwest Indian Fisheries Commission
Northwest Power & Conservation Council
Puget Sound Partnership
Recreation and Conservation Office (RCO)
Salmon Recovery Funding Board
Snake River Salmon Recovery Board
Washington Department of Transportation
Upper Columbia Salmon Recovery Board
U.S. Environmental Protection Agency
U.S. Fish & Wildlife Service
U.S. Forest Service
Washington Coastal Salmon Recovery Board
Yakima Basin Fish & Wildlife Recovery Board

Attachment 2:

Washington Forum on Monitoring Salmon Recovery and Watershed Health *High Level Indicators Workgroup Report: March 18, 2009*

Overview:

1. These are truly **“high-level” indicators**. They would be compiled from more specific measures.
2. We’ve addressed **just 2 indicator subject areas** – Salmon, and Watershed Health. Watershed Health is built from several component indices.
3. These are **responsive to the policy interests of the Forum** and the SOSIW report (salmon recovery, and watershed health). They are more narrow in scope and complementary to broader measures of “ecosystem health” or general biodiversity.
4. They are **consistent with several previous efforts to develop indicators** for this same purpose (e.g. “*Environmental Indicators for the Oregon Plan for Salmon and Watersheds*”), providing credibility and the potential for regional consistency.
5. **Several of these indicators are essentially “ready to go”** with only some additional development and agreement among implementing agencies. However, all would benefit from improving the data management and data transfer steps needed to roll-up the data for statewide reporting. Some measures will require improved sampling designs.

Proposed Indicators:

Fish Abundance (salmon, steelhead, bull trout)

Wild (and hatchery?) fish populations (total abundance)

- For listed species by MPG and ESU
 - Total adult spawners
 - Total adults harvested
 - Total juveniles
- For all species by ESU (not currently compiled)
 - Total adult spawners
 - Total adults harvested
 - Total juveniles

Watershed Health

A “weight of evidence” approach incorporating 6 components of watershed health:

- Water Quality
- Stream Flow
- Sediment Quality
- Habitat Quality (in-stream and riparian)
- Biological Health (in-stream)
- Land Use / Land Cover

Water Quality Index (WQI) by region/province (NPCC province)

- The specific index, and how to deal with monthly vs one-time samples, still needs refinement. A starting point is Ecology's WQI as currently reported in the State of Salmon in Watersheds Report, which aggregates temperature, pH, fecal coliform bacteria, dissolved oxygen, nutrients, and sediments over a 12 month period. A randomized sampling design (e.g. GRTS) applied to a common statewide sampling frame is assumed, but is not currently being implemented.

Sediment Measures

- EMAP sediment measures (e.g. substrate size, embeddedness, etc.)
- Ecology exploring RBS (Relative Bed Stability)

Stream Flow

- % of time minimum instream flows (as established in rule) are met during the salmon critical period (August 1 – September 30).

In-stream Biological Health

- Macro-invertebrates (need to define the specific metrics that would be reported)
- Periphyton?

Habitat Quality Index (In-stream and riparian habitat) –

- Would preferably agree on a Habitat Quality Index, but in lieu of any current widely-accepted index, a starting point is to agree on a short-list of core measures that would include at least the following categories:
 - Stream physical character (e.g. channel morphology, sinuosity, etc.) (still need to agree on the specific metrics to be reported)
 - Riparian vegetation (canopy density, veg type, veg height, etc.) (still need to agree on the specific metrics to be reported)
 - In-stream habitat (e.g. LWD, pool ratio, pool residual depth) (still need to agree on the specific metrics to be reported)

Land Use/ Land Cover

- Remotely sensed (general attributes only: agriculture/forest/urban, % impervious surface)

Parking Lot Ideas

There is interest in additional measures sometime in the future, to be developed later...

- Nearshore/Estuary/Ocean condition measures
- Toxics
- Pollutant Loads (all significant pollutants)
- Fecals
- Implementation Monitoring –
(Check with Carol Smith re: previous work)