**PNAMP Regional Habitat Indicators Project (RHIP)**

**Identifying management questions**

The [Regional Habitat Indicator Project](http://www.pnamp.org/project/3149) (RHIP) is seeking input from the region to understand what management questions are important to organizations throughout the Pacific Northwest in order to focus discussions about indicators, data, and data sharing.

The RHIP aims to identify and recommend a small set of questions, indicators, and objectives for surface water attributes that are of common interest across the Pacific Northwest. This work is focused on information that is currently available to communicate status and trends of aquatic habitats and allow comparisons within and among regions.

Over the last few months, project participants ([see entities](#_Entities_Participating_in)) compiled almost 70 management questions related to stream flow, macroinvertebrates, water temperature, and water quality from existing documents ([see documents](#_Information_Sources_for)); that list has been condensed to 22 by combining redundant questions.

To further focus discussions and work group effort as we enter the next phase of the project ([see timeline](#_Timeline_at_a)), we are now seeking input from the region to identify the 12 questions of greatest common interest using 5 criteria.

The **5 criteria** that are being used by regional stakeholders to evaluate and rank the 22 condensed management questions (MQ) are:

1. Is the MQ *relevant to regionally based issues*? For example is it relevant to issues of concern for the Columbia River Basin, Pacific Northwest states, or across multiple watersheds?
   * Choose one: Yes, Somewhat, No, Not sure
2. Is the MQ *applicable at multiple geographic scales*? For example, is it applicable at a watershed or smaller scale as well as being applicable at a broader scale comprising multiple watersheds?
   * Choose one: Yes, Somewhat, No, Not sure
3. How beneficial/meaningful is the MQ to your organization?
   * Choose one: Essential, Useful, Inconsequential, If reworded (box will be provided for rewording suggestions)
4. Is your organization interested in reporting on this MQ?
   * Choose one: Yes, Somewhat, No, Not sure
5. Can the MQ be answered with available data?
   * Choose one: Yes, Somewhat, No, Not sure

The **22 questions** to be ranked by the region using the above 5 criteria are:

**Stream Flow**

* Are trends in stream flow improving? Are stream flow targets being met?
* Are Best Management Practices (BMPs) having a positive impact on flow?
* Are flows achieving a more natural hydrological pattern that reflects seasonal fluctuations, rate of fluctuations, peaks, etc.?
* Are flows adequate for resident and anadromous adult fish?
* Are flows adequate for juvenile fish?
* Is climate change affecting stream flow needed for sustainable fish populations?

**Macroinvertebrates**

* Are environmental conditions improving? Are environmental condition targets met?
* What are the causes of biological impairments (e.g. sediment, nutrients, temperature)?
* Are Best Management Practices (BMPs) having a positive impact on macroinvertebrate indicator scores?
* How are land use stressors affecting the status and trends of macroinvertebrate indicators?
* What is the macroinvertebrate productivity (diversity and biomass) of the watershed?
* Is climate change affecting water quality needed for sustainable fish populations?

**Water Temperature**

* Are state water temperature standards for salmon, steelhead, or bull trout exceeded? How often and where?
* Are stream temperature conditions generally improving or deteriorating for juvenile and adult fish?
* Are Best Management Practices (BMPs) having a positive impact on stream temperatures?
* Is climate change impacting stream temperature in the Pacific Northwest significantly enough to affect the survival of aquatic species?

**Water Quality**

* Are trends in water quality improving? Are water quality targets being met?
* Are Best Management Practices (BMPs) resulting in compliance and attaining standards?
* Is water quality adequate to support targeted species?
* How does the water quality of streams coming from various land use categories compare? How have the parameter values changed over time?
* Is climate change affecting water quality needed for sustainable fish populations?

### **Entities Participating in the RHIP (active or observing)**

1. Bonneville Power Administration
2. City of Bellingham
3. Columbia River Gorge Commission
4. Columbia River Inter-Tribal Fish Commission
5. Conservation Biology Institute 6 Creative Resources Strategies
6. Idaho Department of Environmental Quality
7. Idaho Fish and Game
8. Lower Columbia Estuary Partnership
9. National Council for Air and Stream Improvement
10. National Fish and Wildlife Foundation
11. Nez Perce Tribe
12. Northwest Power and Conservation Council
13. Oregon Department of Agriculture
14. Oregon Department of Environmental Quality
15. Oregon State University
16. Oregon Water Resources Department
17. Oregon Watershed Enhancement Board
18. Pacific Northwest Aquatic Monitoring Partnership
19. Pacific States Marine Fisheries Commission
20. Puget Sound Partnership
21. Seattle City Light
22. University of Washington
23. Upper Columbia Salmon Recovery Board
24. US Environmental Protection Agency
25. US Forest Service
26. US Geological Survey
27. Washington Department of Fish and Wildlife
28. Washington Department of Natural Resources
29. Washington State Department of Ecology
30. Washington State University
31. Yakama Nation Fisheries

### **Timeline at a glance**

* August 2-15: Survey 1 open for responses
* August 16-23: Work groups reword questions as needed
* August 24: Survey 1 results shared
* August 24-31: Survey 2 open for responses
* September 2: Survey 2 results shared
* September 5-13: Work groups meet to discuss survey results and select 3 questions
* September 15: Workshop agenda and materials distributed
* September 22: First workshop

### **Information Sources for Management Questions**

1. 2013-2014 STREAM Team Report DRAFT
2. Aquatic and Riparian Effectiveness Monitoring Program Annual Report
3. AREMP, Northwest Forest Plan, 20 year report - Miller et al. 2015.
4. Columbia Basin Water Transactions Program (CBWTP)
5. Colville Tribes Okanagan Macroinvertebrate Metric Analysis
6. Colville Tribes Okanogan Subbasin Water Quality and Quantity Report for Anadromous Fish in 2006
7. Environmental Indicators for the Oregon Plan for Salmon and Watersheds
8. EPA National Rivers and Streams Assessment
9. EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards
10. EPA/USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration
11. ESA Biennial report to Congress on ESA Recovery Actions NOAA
12. Federal Columbia River Power System BiOp Annual and Comprehensive (3 yr) Progress Reports
13. Methods for the collection and analysis of benthic macroinvertebrate assemblages in wadeable streams of the Pacific Northwest
14. NOAA Ecological Concerns
15. Northwest Power and Conservation Council - Goals and Objectives
16. Northwest Power and Conservation Council - Program Questions for Indicators (2014)
17. NorWeST Stream Temperature Modeling Procedures
18. Oregon Dept. of Agriculture Landscape Monitoring Reports
19. Oregon Dept. of Agriculture Strategic Initiative Area Reports
20. Oregon Dept. of Environmental Quality technical reports
21. Oregon Plan Biennial Report
22. Oregon Water Quality Index Summary Report Water Years 2005-2014
23. Oregon Watershed Enhancement Board Key Performance Measure Report for Fiscal Year (2014-2015)
24. PACFISH INFISH Biological Opinion Effectiveness Monitoring Program, Annual Summary Report.
25. Pacific Coastal Salmon Recovery Fund Report to Congress (NOAA)
26. State of Salmon in Watersheds 2014
27. State of the Sound 2015 - Report on the Puget Sound Vital Signs
28. The Okanogan Subbasin Water Quality and Quantity Report for Anadromous Fish in 2006
29. The Pacific Northwest stream quality assessment: U.S. Geological Survey Fact Sheet 2015
30. Washington Dept. of Ecology Watershed Health Monitoring
31. Washington State of Salmon in Watersheds 2014 Report