**Columbia River Basin Fish and Wildlife Program Draft Guidance for a**

**Balanced and Coordinated Approach for Conducting Monitoring and Research Activities**

Prioritization

The Columbia River Basin Fish and Wildlife Program (Program) priorities guide monitoring and research activities for fish and wildlife in the Columbia River Basin. These consist of:

* Program Questions,
* High Level Indicators,
* Council’s Research Plan,
* goals and biological objectives described in the Program and its subbasin plans,
* focal species,
* focal habitats.

When prioritizing and selecting actions to be monitored, and what will be researched a transparent structured decision process should be used[[1]](#footnote-1).

To ensure monitoring activities align with Program priorities clear linkages between Program priorities, project objectives and monitoring tasks must be stated

To ensure alignment with the Program and its Research Plan (e.g., its uncertainties and prioritization guidance), research activities will clearly state their research question and alignment with the Council’s Research Plan and/or how its innovative research will contribute to the Program[[2]](#footnote-2).

Determining the Appropriate Level of Effort

The Council will rely on a preponderance of evidence[[3]](#footnote-3) to base its decisions when the 95 percent level of certainty traditionally applied by scientific investigators is not available.

The intensity of monitoring associated with an action, environmental condition, and/or population characteristic will align with the perceived risk to fish, wildlife and habitat and the level of certainty associated with the impact of the actions, environmental conditions, and population characteristics. This conceptual concept of how risk and uncertainty relates to each other and informs monitoring intensity is illustrated in the risk-uncertainty matrix (Figure 1). The perceived level of risk pertains to the potential undesirable impact of a given action on, or of having an undesirable change in the biological status of, fish, wildlife, and habitat. The uncertainty level pertains to the certainty of outcome associated with a given action or a biological status based on the scientific support as described in the Council document [2000-12](http://www.nwcouncil.org/library/return/2000-12.htm) with number 1 being the highest level of certainty:

1. Thoroughly established, generally accepted, good peer-reviewed empirical evidence in its favor.
2. Strong weight of evidence in support but not fully conclusive.
3. Theoretical support with some evidence from experiments or observations.
4. Speculative, little empirical support.
5. Misleading or demonstrably wrong, based on good evidence to the contrary.

Actions associated as being riskier and less certain in their outcome are assigned a higher level of monitoring (more intense and/or longer in duration). For status and trend monitoring of species and their habitat, an increase in the perceived risk of having an undesirable change in the biological status with decreased certainty of a biological outcome results in a higher level of monitoring.

Lower level

Moderate

Higher level

**Figure 1:** Risk-uncertainty matrix guiding level of monitoring efforts for a given action (e.g., hatchery, hydrosystem, and habitat action), and biological status.

Monitoring Approach

Monitoring activities assessing actions, environmental conditions, and/or population characteristics, need to be clearly aligned with objectives and hypothesis. Findings on progress made and implication for fish and wildlife need to be reported regularly.

The Program funds three types of monitoring that are employed depending on the question posed:

*Implementation and Compliance Monitoring* is used to assess if actions and projects were implemented according to contractual agreement, appropriate design requirements and standards, and when relevant, whether it achieved its assumed functional lifespan. All work funded under the Program must provide this level of monitoring.

To assess status over time of fish, wildlife and habitat that informs Program evaluation and reporting needs, the Program relies on data gathered through *Status and Trend Monitoring*.

To determine, by correlation or causation, if a Program funded action achieved the intended detectable change in environmental conditions or population characteristics the Program relies on *Effectiveness Monitoring*.

Research Approach

The Program support research activities that inform uncertainties and provide innovative tools/approaches that may enhance the success of the Program’s mitigation efforts.

Critical research uncertainties are questions concerning the validity of key assumptions implied or stated in the Program.

Innovative research activities assess new methods and technologies that may enhance the efficiency and effectiveness of the Program’s implementation.

A research activity must be feasible to be accomplished given existing constraints both in terms of cost and logistics.

Research activities should occur within a time span that will allow evaluation of their results and produce findings in time to inform upcoming Program amendment cycles.

1. Implementation of a structured decision process (see ISRP documents 2011-25 and 2008-4; ISAB document 2003-2) provides transparency of the assumptions and information used to refine priorities. [↑](#footnote-ref-1)
2. See the 2011-06 Council recommendation in section one “Reporting and Use of Project and Program results” and in section six “Research Projects in General” for more details (http://www.nwcouncil.org/library/report.asp?docid=286) [↑](#footnote-ref-2)
3. Preponderance of evidence relates to the legal term described as: the greater weight of the evidence required in a civil (non-criminal) lawsuit for the trier of fact (jury or judge without a jury) to decide in favor of one side or the other. This preponderance is based on the more convincing evidence and its probable truth or accuracy, and not on the amount of evidence (Source Law.Com). [↑](#footnote-ref-3)