Wildlife Monitoring Implementation Strategy

The Wildlife Implementation Strategy builds from the Monitoring, Evaluation, Research and Reporting Plan (MERR) and provides more specific guidance for what and how RME and reporting will be conducted for wildlife and their habitat. These strategies are to be collaboratively developed with the region’s experts and managers, and are to be appended to the MERR Plan. The strategies should assure adequate coordination at the subbasin and basin-wide level to facilitate aggregation of data for assessing and reporting Program progress, including an assessment of the needs of other processes relevant to the Program such as assessments for biological opinions.

The Wildlife Advisory Committee will develop the first draft of the Wildlife Monitoring Implementation Strategy (WMIS) with the broadest participation possible. Once the MERR document has been adopted by the Council, Council staff will take a more prominent lead in facilitating its completion.

To ensure consistency and compatibility, each Implementation Strategies will consist of the following six components:

1. Management Questions and Indicators[[1]](#footnote-2)
2. Objectives and Performance Standards[[2]](#footnote-3)
3. Prioritization Criteria
4. Research Needs
* Priorities
* Standards for Data Quality, including precision and accuracy
* Preferred Performance Measure[[3]](#footnote-4) and Protocols
* Preferred Study Designs and Statistical Analysis
1. Monitoring Needs
* Priorities
* Standards for Data Quality, including precision and accuracy
* Preferred Performance Measure and Protocols
* Preferred Study Designs and Statistical Analysis
1. Data Management, Data Sharing and Reporting

**MERR Executive Summary**

This Monitoring, Evaluation, Research and Reporting Plan (MERR Plan) ensures the Council’s Columbia River Basin Fish and Wildlife Program (Program) goals, objectives, and actions are monitored, evaluated, and reported in a manner that allows assessment and reporting of Program progress. To facilitate Program assessment and reporting, the MERR Plan consists of a Strategic Plan, Implementation Framework, and Implementation Strategies for anadromous fish, resident fish, and wildlife.

The Strategic Plan focuses on the Council’s research, monitoring, evaluation (RME) and reporting needs at the policy level. The Strategic Plan sets forth the purpose and expectations for RME and reporting implemented through the Program.

The Implementation Framework contains existing, modified and new processes for prioritizing and implementing RME and reporting in the Program. The Implementation Framework describes how the various components of RME can be used to adaptively manage the Program and guides the development of standardized Implementation Strategies.

The three Implementation Strategies, attached as separate appendices, provides additional guidance in prioritizing and implementing RME actions and reporting. The Implementation Strategies will be developed with regional partners, and will consider integration of regional products.

Upon adoption by the Council, the MERR Plan will provide expectations for, and guidance on, how RME and reporting are conducted under the Program. This guidance will assist the Council and other partners in the Basin with:

* Prioritizing implementation of the Program’s RME actions and projects;
* Reducing duplication of RME efforts by facilitating communication and coordination among project proponents and funding agencies within the Basin;
* Adaptively managing the Program;
* Reporting on Program progress for accountability purposes; and
* Providing guidance for the Independent Science Review Panel’s review of projects and of the Program.

The MERR Plan is intended to adapt over time in concert with the evolving Program.

**Management Questions:**

The Council has identified nine basin wide management questions that are intended to direct monitoring and research activities under the Program. Appendix 3 of MERR also provides High Level Indicators for wildlife and their habitat that are associated with the management questions. Five of the management questions, and associated high level indicators, relate to the Wildlife portion of the Program:

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| --- |
| 1. ***Are Columbia River Basin fish and wildlife abundant, diverse, productive, spatially distributed, and sustainable?***

**High Level Indicator** Abundance of Fish and Wildlife **Fish and Wildlife Program Indicators** Wildlife species abundance and diversity in the Columbia River Basin.ESA listed or non-listed status and trend of fish and wildlife in the Columbia River Basin.1. ***Are Columbia River Basin ecosystems healthy?***

**High Level Indicator** Ecosystem Health**Fish and Wildlife Program Indicators** Watershed Health for fish and wildlife.Non-native species distribution.1. ***Is climate change affecting fish and wildlife in the Columbia River Basin?***

**High Level Indicator** Ecosystem Health**Fish and Wildlife Program Indicators** Climate Change (to be developed).1. ***Are the actions implemented by the Council Fish and Wildlife Program having the expected biological effect on fish and wildlife and their habitat?***

**High Level Indicator** Abundance of Fish and Wildlife **Fish and Wildlife Program Indicators** *(No current indicators relevant to wildlife – comment by Tom Iverson)* |

1. ***Are Council program actions coordinated within the program and with other programs?***

**High Level Indicator**

Council Action

**Fish and Wildlife Program Indicators**

Wildlife habitat units acquired relative to loss by dam.

Amount of land protected for fish and wildlife.

Amount of land receiving actions aimed at improving habitat for fish and wildlife.

Define indicator for progress in implementing action to address subbasin plan objectives and needs (limiting factors, priority reaches, etc).

Coordination of Council Fish and Wildlife Program with other fish and wildlife entities, activities, and programs in the Basin.

**Biological Objectives (Appendix 1):**

The Program contains numerous biological objectives requiring research to resolve uncertainties and monitoring to assess action effectiveness and the status and trend of the Basin’s fish, wildlife, and habitat characteristics. As a start, the Council has identified a subset of these biological objectives as higher priorities (Appendix 1 of MERR). The priority biological objectives in the MERR relative to wildlife include:

Higher Priority – All Fish, Wildlife, and Habitat:

* Expand the complexity and range of habitats to allow for greater life history and species diversity.
* Maintain and restore healthy ecosystems and watersheds that preserve functional links among ecosystem elements to ensure the continued persistence, health, and diversity of all species including game fish species, non-game fish species, and other organisms.
* Protect and enhance ecological connectivity between aquatic areas, riparian zones, floodplains, and uplands. Enhance the connections between rivers and their floodplains, side channels, and riparian zones.
* Manage mainstem riparian areas to protect aquatic conditions and form a transition to floodplain terrestrial areas and side channels.
* Identify, protect, enhance, and restore the functions of alluvial river reaches.
* Decrease the disparity between water temperatures and the naturally occurring regimes of temperatures throughout the Basin.
* Where feasible, reconnect protected and enhanced tributary habitats to protected and enhanced habitats, especially in areas with productive populations.
* Allow for biological diversity to increase among and within populations and species to increase ecological resilience to environmental variability.
* Where feasible, support patterns of water flow that more closely approximate natural hydrographic patterns in terms of quantity, quality, and fluctuation. Ensure that any changes in water management are premised upon and proportionate to scientifically demonstrated fish and wildlife benefits.
* Identify, protect, enhance, restore, and connect ecosystem functions in the Columbia River estuary and near-shore ocean discharge plume as affected by actions within the Columbia River mainstem.
* Habitat restoration work to reconnect ecosystem functions such as removal or lowering of dikes and levees that block access to habitat or installation of fish-friendly tide gates, protection or restoration of riparian areas and off-channel habitat, and removal of pile dikes.

Higher Priority – Wildlife

* Complete mitigation to address the assessed losses caused by construction of the hydrosystem facilities and the resulting inundation of land. Where appropriate prioritization exists and agreements exist on the methodology, complete wildlife loss assessments for losses caused by operation of the hydropower projects.
* Maintain the values and characteristics of existing, restored and created habitat.

Non-Prioritized - Wildlife

* Develop and implement habitat acquisition and enhancement projects to fully mitigate for identified losses.
* Coordinate habitat restoration and acquisition activities throughout the Basin with fish mitigation and restoration efforts to promote terrestrial and aquatic area connectivity.

**Performance Standards:**

Assessing progress towards answering management questions and meeting biological objectives requires clear and realistic performance standards. Performance standards should:[[4]](#footnote-5)

* Be based on the best available science;
* Be capable of being measured, in a reasonable timeframe, for a reasonable level of effort;
* Relate directly to the biological change intended; and
* Be linked to the Program’s biological objectives.

**Prioritization Criteria:**

There are limited resources available for implementing RME actions. This limitation necessitates the Council prioritize RME actions and reduce duplication of effort in the Basin. The Council has adopted broad criteria, subdivided into four tiers, to provide guidance for implementation of Program RME actions. Each of these criteria is important; however, preference will be given to actions meeting multiple criteria. If actions meet only one criterion, then actions meeting a first or second tier criterion will be preferred over actions meeting a criterion from the third or fourth tiers.

The four tiers of criteria are as follows:[[5]](#footnote-6)

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| --- |
| **First Tier Criteria - Contribution to Program Progress***Informs Policy and Management Decisions –* RMEactions evaluating the Program’s progress in answering Council management questions, meeting basinwide biological objectives, and contributing to performance standards, as well as contributing to the Council’s reporting requirements.*Addresses a Critical Research Uncertainty –* RMEactions addressing or contributing to resolving uncertainties that are prioritized by the Council as most critical to achieving the Program goal, biological objectives and performance standards.*Has Broad Application –* RMEactionsthat have broad applications such as extrapolating results to similar ecosystems, species, or populations in the Basin.**Second Tier Criteria - Feasibility**  *Reasonable Timeframe to Produce Results –* RMEactions that are likely to produce useful results within a reasonable timeframe, such as five- to 10-years or a few salmonid generations. *Feasible –* RMEactions that have a high likelihood of success.*Causes No Harm –* RMEactions posing no appreciable risk to biological diversity.**Third Tier Criteria - Efficiency***Coordinated Monitoring Effort –* RMEdata collection is coordinated among similar or complementary RMEactions, and collected data are shared.*Related to Other Research* – RMEactions that take into consideration on-going RME actions in the watershed, depend on other RME actions, build on ongoing related work, and does not negatively impact the other actions.**Fourth Tier Criteria - Cost Savings***Cost share –* cost share is not required, but is a consideration when assessing projects implementing RME actions.*Cost –* when comparing RME actions that intend to produce about the same information, cost will be a consideration.  |

Types of monitoring:

For purposes of this Implementation Framework, monitoring is grouped into three types that are further described and defined in the subsections below:

1. Compliance, Implementation and Performance Monitoring;
2. Status and Trend Monitoring; and,
3. Action Effectiveness Monitoring.

| **Monitoring Type**  | **Purpose** | **Level**  |
| --- | --- | --- |
| Compliance, Implementation, and Project Performance | Are contractual obligations fulfilled and the project performing as intended? | * Conducted at project level.
* Low monitoring intensity level in terms of data collection effort and cost.
 |
| Status and Trend | How are species and habitats faring in the Basin? | * Conducted at subbasin level or other highest level of relevance, e.g., ESU and watershed.
* Moderate monitoring intensity level terms of data collection effort and cost.
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| Action Effectiveness | Are Program actions having desired biological and environmental impacts? | * Conducted through model watersheds, intensively monitored watershed, and coordinated reach level projects.
* High monitoring intensity level terms of data collection effort and cost.
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1. An indicator is defined, in the MERR Plan, as a surrogate for variables informing status and condition and trend of a resource representing ecological processes; or as a measured or derived variable defined at different hierarchical scales based on metric(s) collected in the field, from remote sensing, models or other raw data sources. The term “indicator” may be synonymous with the term “derived variable”. [↑](#footnote-ref-2)
2. In the MERR Plan, objectives identify the strategies or implementation steps to attain an identified goal. Objectives are specific and measureable. They include implementation, biological and environmental objectives.

Performance standard consists of the target value or condition against which progress or achievements may be compared such as progress in meeting a particular objective. Performance standard may also be synonymous with the following terms: benchmark, reference point, targets and threshold. [↑](#footnote-ref-3)
3. For the 2009 Program and the MERR Plan, performance measures are defined as metrics that are monitored and evaluated relative to performance standards (benchmarks) and performance targets (longer-term goals) to assess progress of actions and inform future decisions. Metrics are typically associated with specific data collection and/or analysis protocols and define data in standard units of measurement. Metrics differ from indicators in the sense that they are directly measured and used in deriving the HLIs. [↑](#footnote-ref-4)
4. The guidelines provided for performance standards in this section are newly developed for the Implementation Framework. In the MERR Plan, a “performance standard” is defined as the target value or condition against which progress or achievements may be compared such as progress in meeting a particular objective. The term “performance standard” may also be synonymous with the following terms: benchmark, reference point, targets and threshold. [↑](#footnote-ref-5)
5. The four criteria tiers and their criteria are newly developed for the Implementation Framework. [↑](#footnote-ref-6)