Northwest **Power** and **Conservation** Council

December 6, 2022

MEMORANDUM

TO: **Committee Members**

FROM: **Leslie Bach**

SUBJECT: **Briefing on the Columbia Basin Habitat Research, Monitoring and Evaluation Strategy**

BACKGROUND:

Presenter: Jody Lando, Bonneville Power Administration and Leslie Bach, Northwest Power and Conservation Council

Summary: Jody and Leslie will provide an overview of the recent efforts to produce a research, monitoring and evaluation strategy for tributary habitat mitigation actions in the Columbia River Basin. They will provide a summary of the strategy development process, describe the intent and approach, and summarize the components of the strategy. They will also provide background on the Council's long-standing interest in and efforts on developing a regional habitat Research, Monitoring and Evaluation (RM&E) strategy.

Relevance: This work focuses on implementing Council conditions and recommendations from 2013 for ensuring a cost-effective approach to tributary habitat monitoring and evaluation, as defined in Programmatic Issue #2 (i.e., Habitat effectiveness monitoring and evaluation) from the 2010-11 review of RME and AP Category of projects.

Workplan: Fish and Wildlife Division Workplan 2022; Program Performance:B.1, Continue to engage in and pursue regional habitat RM&E strategy development.

Background: For close to two decades the Council has been calling for a systematic, coordinated approach to habitat monitoring and evaluation across the Columbia Basin. In 2013 the Council requested that Bonneville Power Administration (BPA) provide a framework for habitat research and monitoring to support evaluation of the effectiveness of habitat projects. Although some products and updates were provided over the years, the analytical framework was never completed. In 2017 and 2018 staff reviewed existing tributary habitat RM&E efforts and held a series of webinars and workshops with regional fish and wildlife managers. Based on those meetings and discussions, Council staff developed a preliminary RM&E strategy.

As a follow-up to that initial effort, BPA, NOAA-Fisheries and the Council agreed to work together on developing an integrated habitat Research, Monitoring and Evaluation strategy to meet multiple basin needs. An initial draft was developed and sent to regional fish and wildlife managers, and a series of meetings were held around the region to further revise and refine the strategy. During that time, a number of entities suggested a revised process that included policy discussions as well as a reformulated technical team to develop the strategy.

During 2021 and 2022, a team consisting of technical experts from federal, state and tribal entities and the Council met approximately every two weeks to develop the Habitat RM&E strategy. The strategy is designed to provide guidance on tributary habitat monitoring and evaluation for restoration projects focused on salmon and steelhead. It describes a process for documenting the type and extent of habitat actions implemented, and an approach for monitoring and evaluating the information needed to detect and quantify the habitat change and biological response to those actions. The completed strategy is part of the action agencies' obligations under the 2020 Columbia River System Biological Opinion.

More Info: Link to the Strategy

Columbia Basin Tributary Habitat Research, Monitoring and Evaluation Strategy

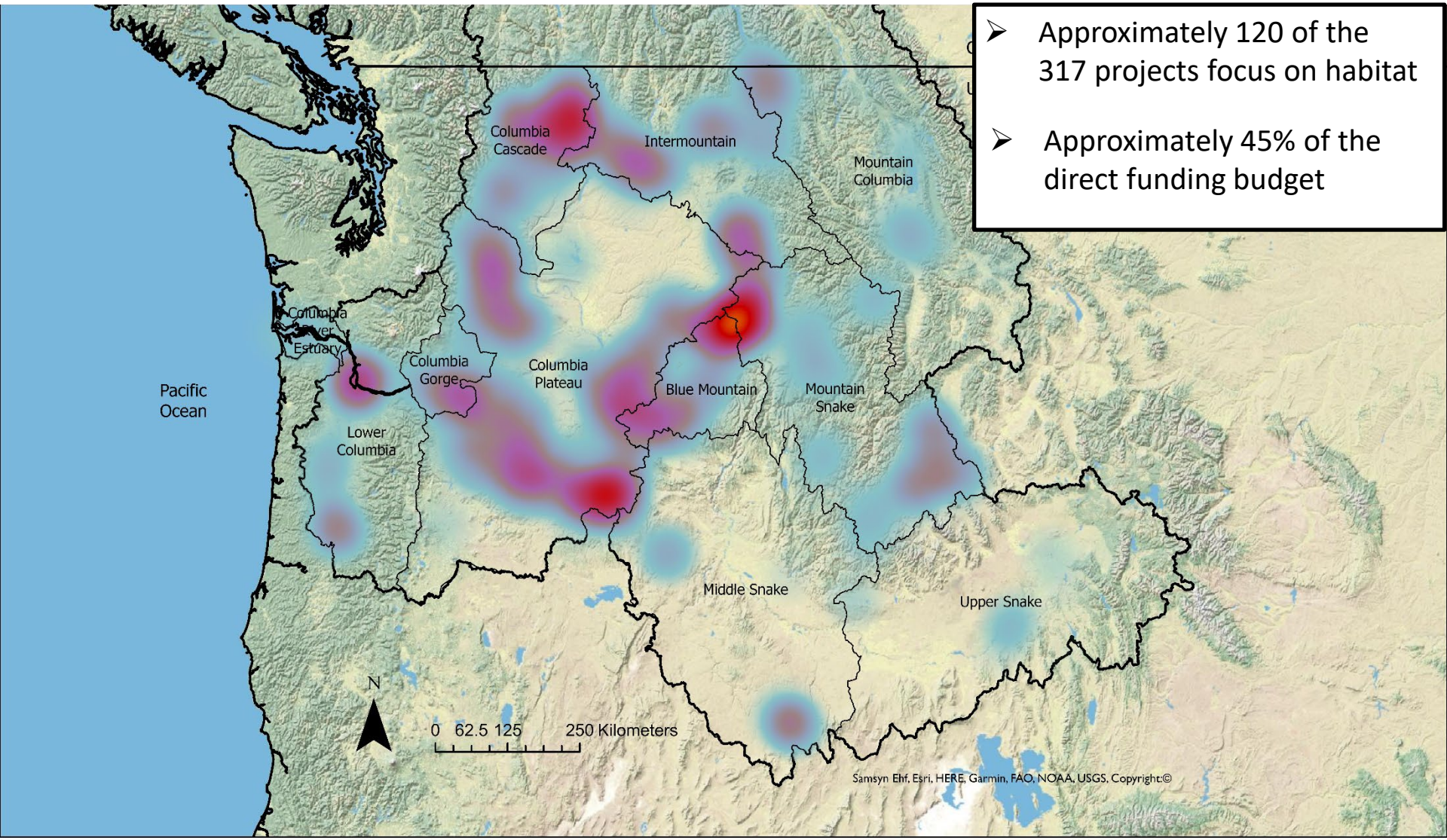
Leslie Bach, senior program manager

December 13, 2022

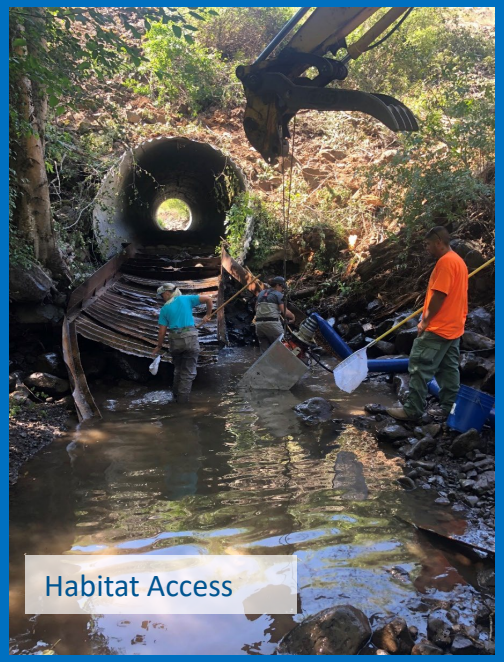
Background

- Tributary habitat improvement actions are a major component of the Fish and Wildlife Program and the region's mitigation efforts
- It is critical that we adequately monitor and evaluate the benefits of tributary habitat actions
- Due to the size of the Columbia Basin and diversity of habitats and habitat actions, there are a variety of different approaches to habitat monitoring and evaluation
- For close to two decades the Council has been calling for a systematic, coordinated approach to habitat monitoring and evaluation across the basin
- Bonneville has significantly invested in developing a comprehensive and coordinated strategy
- Fish and Wildlife managers have actively engaged in the habitat RM&E strategy development process

Significance to the Fish and Wildlife Program



- Approximately 120 of the 317 projects focus on habitat
- Approximately 45% of the direct funding budget



Source: Protect and Restore NE OR and SE WA Watershed Habitat – Presentation to ISRP, 2021

Source: Upper Columbia Habitat Restoration – Presentation to ISRP, 2021

Source: Tucannon Basin Fish Habitat Enhancement Project – Presentation to ISRP, 2021

Source: Grande Ronde Basin Watershed Restoration Project – Presentation to ISRP, 2021

Response to Habitat Restoration Actions often takes time – need to account for spatial and temporal scales.

Source: Trout Creek Habitat Improvement Project - Presentation to ISRP, 2021

Strategy Overview

COLUMBIA BASIN TRIBUTARY HABITAT RESEARCH, MONITORING AND EVALUATION STRATEGY

Principles and Purpose of Strategy

- Provide for collaborative, inclusive process
- Develop a cost-effective, consistent and systematic approach to tributary habitat RM&E for anadromous fish
- Provide guidance for practitioners implementing anadromous fish habitat RM&E efforts
- Address the RM&E needs of the FWP and the BiOps
- Generate accessible and transferable data to support documentation and reporting
- Provide data and information to inform ongoing and future habitat programs and adaptive management

Strategy Technical Team

- Bonneville Power Administration
- Bureau of Reclamation
- NW Power and Conservation Council
- NOAA-Fisheries
- Columbia River Inter-Tribal Fish Commission
- Confederated Tribes and Bands of the Yakama Nation
- Confederated Tribes of the Umatilla Indian Reservation
- Confederated Tribes of the Colville Reservation
- Nez Perce Tribe
- Confederated Tribes of the Warm Springs
- Shoshone-Bannock Tribes
- Idaho Department of Fish and Game
- Washington Department of Fish and Wildlife
- Oregon Department of Fish and Wildlife

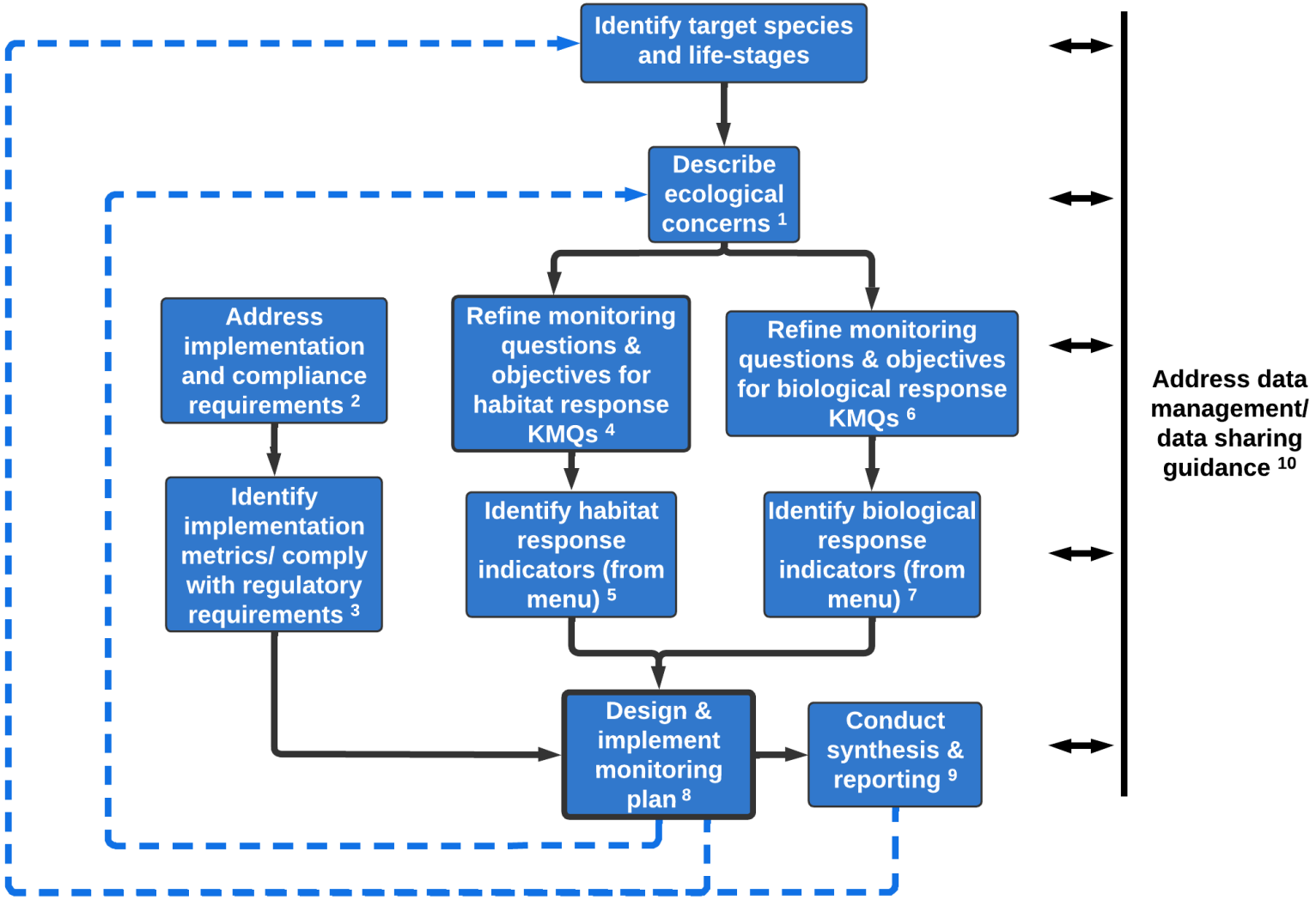
General Approach

- Key Management Questions (KMQs)

  Specific KMQs for each type of monitoring (implementation/compliance; habitat response; biological response)

- Linkages Among KMQs, Ecological Concerns/Limiting Factors, and Monitoring Indicators
- Data Resources and Data Management
- Synthesis and Reporting

Strategy Logic Path



Key Management Questions

KMQ 1: Based on best available information, what are the priority ecological concerns for focal species that tributary habitat actions are intended to address?

KMQ 2: Are tributary habitat projects meeting implementation and environmental compliance requirements?

KMQ 3: Do the tributary habitat monitoring activities comply with regulatory requirements?

KMQ 4: Are tributary habitat actions improving quantity and/or quality of fish habitat limiting the focal species?

KMQ 5: What are the benefits to focal fish populations from tributary habitat restoration?

KMQ 1: Ecological Concerns

List of Ecological Concern/Limiting Factor
Water quantity
Water quality
Habitat quantity
Food production and availability
Injury and mortality (from entrainment screening)
Connectivity (lateral and longitudinal)
Floodplain/wetland condition
Sediment condition
Channel structure and form
Riparian Condition

KMQs 2, 4: Implementation/Compliance and Habitat Response

Ecological Concern/ Limiting Factor	Action Category
Channel Structure and Form	Stream Complexity
Floodplain/wetland condition and connectivity	Floodplain/Wetland Improvement
Food production and availability	Food Web Improvement
Habitat quantity/connectivity	Habitat Access
Injury and mortality (from entrainment screening)	Entrainment Screening
Riparian Condition	Riparian Habitat Improvement
Sediment Condition	Fine Sediment Improvement
Water Quality	Water Quality Improvement
Water Quantity	Flow Enhancement/Protection

2016 → 2020

Northwest **Power** and **Conservation** Council

Source: Grande Ronde Basin Watershed Restoration Project – Presentation to ISRP, 2021

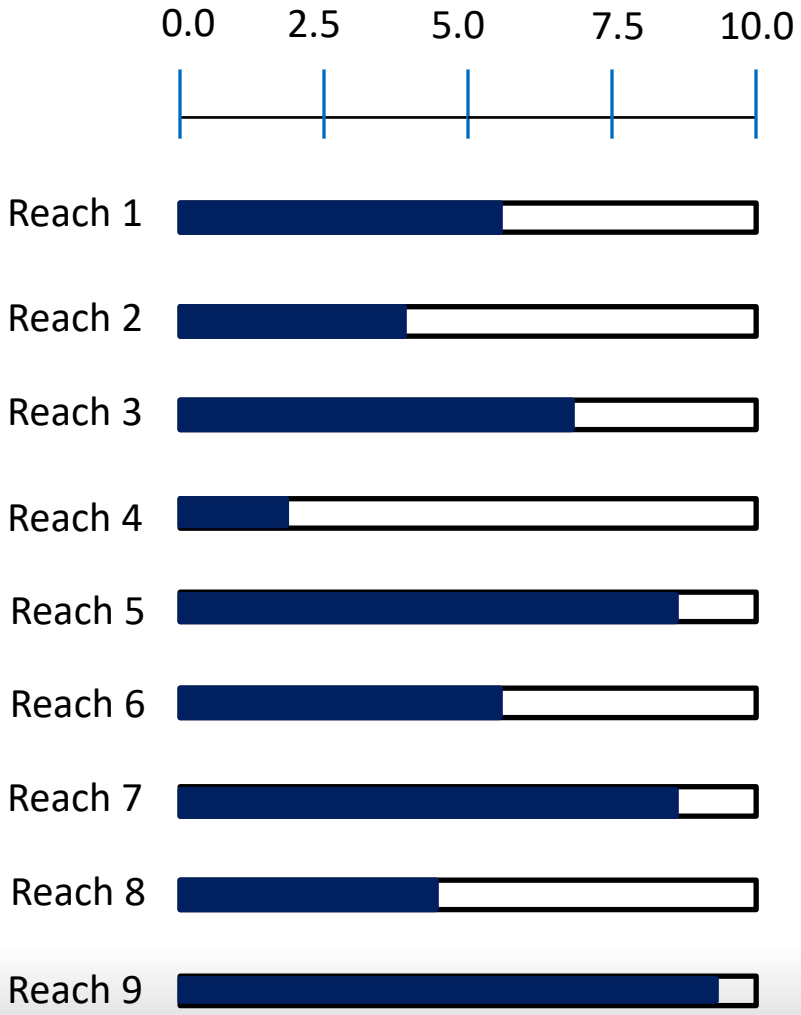
Source: Protect and Restore NE OR and SE WA Watershed Habitat – Presentation to ISRP, 2021

Source: Potlatch River Watershed Restoration - Latah SWCD Project Development – Presentation to ISRP, 2021

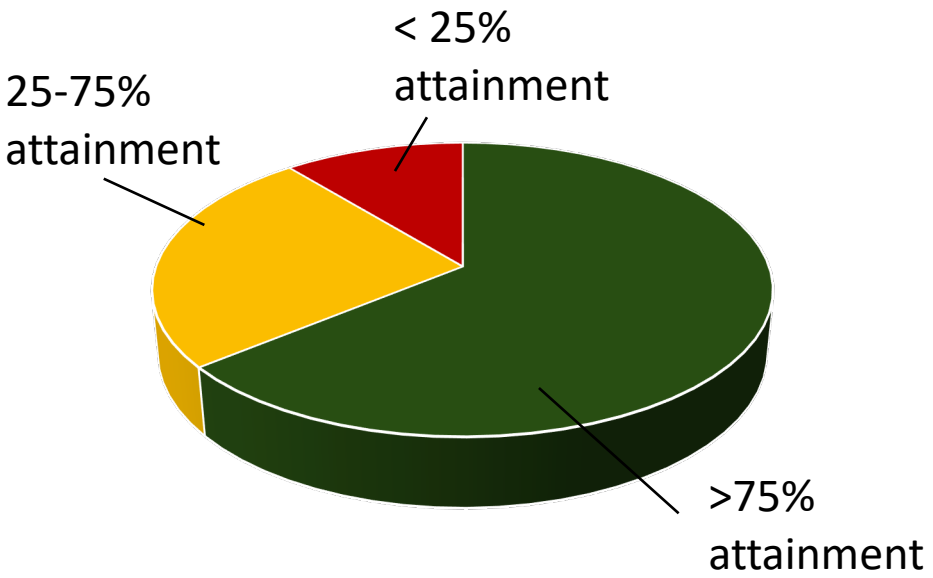
From: Table 3 of Strategy – Menu of Habitat Response Indicators

Ecological Concern/Limiting Factor	Action Category	Indicators (Reported as a % Change)
Floodplain/Wetland Condition	Floodplain/Wetland Improvement	Floodplain Area Connected
		Inundation Period and Duration
		Side Channel Area Connected
		Node Density (channel junctions/valley length)
		Beaver Ponds
		Channel Change
		Stream Sinuosity

Habitat Response Reporting Example

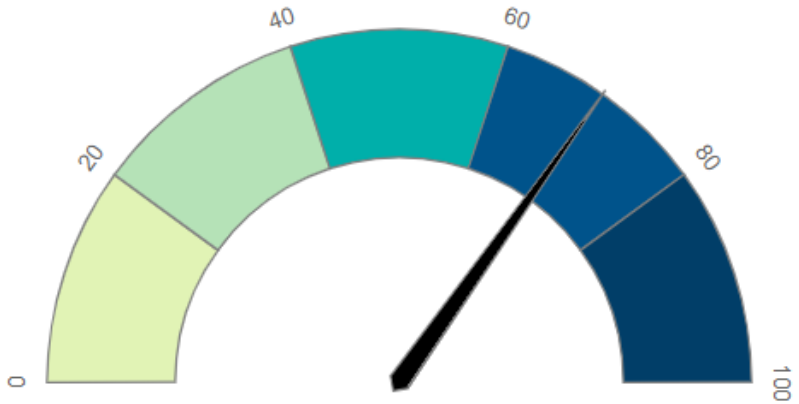


Assessment Unit Reporting



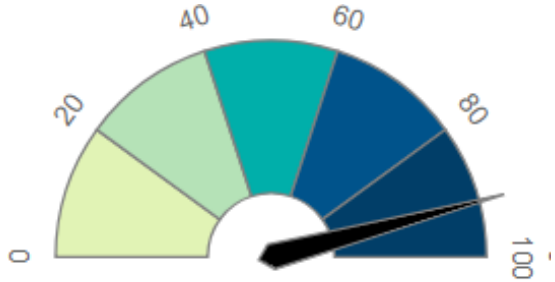
Habitat Response Reporting Example

Overall Steelhead Habitat at Assessment Unit Scale



Currently performing at **70%** of historical habitat potential

Single Habitat Indicator at Assessment Unit Scale



% of Template	**92%**
Factor Trend	▼
Factor Weight	**64.0%**
Level of Proof	**2.8**

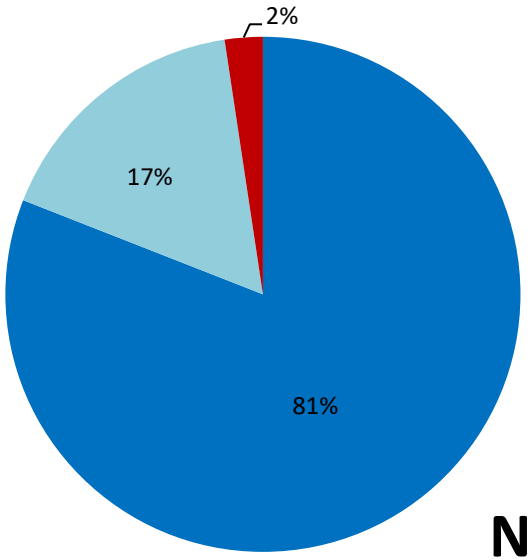
From: Colville Tribes Methow Monitoring and Evaluation Program

KMQ 5: Biological Benefits

Biological Indicator Types	Indicators
Abundance	
Productivity	
Spatial Structure	
Diversity	Juvenile Migration Timing
	Smolt Migration Timing
	Age at Smolting (for Steelhead
	Size at Smolting


Source: Methow Watershed Background - Presentation to ISAB, 2017

Before Reconnection



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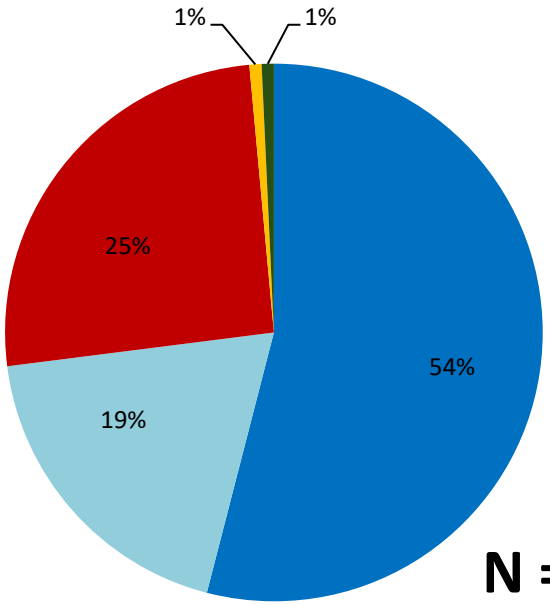
After Reconnection



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Data Management

- Data Resources and Analysis Tools
- Data Collection and Storage Guidance
- Data Sharing and Data Exchange Standards
- Applications to Adaptive Management
- Documentation and Reporting
- Synthesis and Reporting

Next Steps

- Evaluation of how the strategy fits within the Fish and Wildlife Program
- Coordinate with Bonneville on implementation
- Further discussions with managers and others implementing habitat actions
- How to incorporate into future project reviews

Questions/Discussion