

SECTION 43 – Table of Contents

43 San Poil Subbasin Research, Monitoring and Evaluation Plan2

43 San Poil Subbasin Research, Monitoring and Evaluation Plan

In light of the various ongoing efforts to develop a regional monitoring plan, subbasin planners the Intermountain Province (IMP) have chosen to develop a monitoring plan based on existing monitoring methods described in the scientific literature. The IMP approach to the Research, Monitoring and Evaluation (RM&E) is as follows:

- Research is handled separately from the M&E design. A wish list of research needs is identified based on the biological objectives, strategies and critical uncertainties identified in the subbasin management plans and subbasin assessments. Many of the subbasin work teams developed preliminary research needs lists. Although there is an extensive “wish list” of research questions in the IMP, the limitations of available funding made it important to prioritize the research questions into two categories: “need to know” and “would like to know.”
- For the M&E component, the IMP planners developed a framework to link specific objectives and strategies identified in the IMP subbasin management plans to a suite of M&E protocols and existing programs (an M&E “tool box”). To do this a subcommittee of the OC identified a broad list of existing M&E protocols and existing M&E programs, which represent: peer reviewed, scientifically validated approaches to M&E; are appropriate to range of geographic scales; and, include the range of the Independent Science Review Panel’s (ISRP) three tiers of RM&E. Specific M&E objectives and strategies from each of the subbasin management plans, and from the province level, were then linked in Table 43.1 to:
 - The type of generic approach to addressing limiting factors that is addressed by the strategy or objective (same list used to categorize the inventory of projects)
 - The type of M&E protocol that would be most appropriate
 - Which ISRP M&E tier level of RM&E would be appropriate
 - Which of the “tool box” tools would be used.

The complete tool box bibliography is found in Appendix I. More detailed information on the process for developing the RM&E plan is found in Section 2.

Table 43.1. San Poil Subbasin research, monitoring, and evaluation plan

AQUATIC					
Strategy & Objective	Strategy Type ¹	Monitoring Type ²	Tier ³	Scale ⁴	Tool Box Tool ⁵
Subbasin Objective 1A2: Study and monitor the effects of nutrient enrichment on fish growth, invertebrate communities, water quality, and riparian areas within the San Poil Subbasin.	1,2,6,8,9		1,2 and 3	1,2,3,4	4,5,6,9,10,16,17,22
Subbasin Objective 1B1: Strategy b: Inventory and prioritize all passage barriers within the San Poil Subbasin.	1,2,3,4,5,6,9,10	2	?	1,2,3,4	1,4,5,6,9,10....
Subbasin Objective 1B7: Strategy b: Develop Minimum-flows for all fish-bearing streams within the San Poil Subbasin that meet the needs of native salmonids still present in the Subbasin.	1,2,3,4,5,9,10			1,2,3	1,4,5,6,9,10,14,15,16,18,19,20,21,23,25,26,28
Subbasin Objective 2A2: Strategy f: Determine and map the genetic and geographic distribution of redband trout.	1,2,3,4,5,6,8,9,10			1,2,3,4	4,5,6,7,8,12,14,15,16,17,18,19,20,21,23,24,25,26,27,28
Subbasin Objective 2A2: Strategy f: Identify limiting factors and management strategies specifically designed to restore redband trout populations	All	All		1,2,3,4	1,4,5,6,9,10....
Subbasin Objective 2B1: Strategy b: Determine the appropriateness, economic, and ecological impacts of stocking Tiger Muskies as a biological control for enhancing salmonid populations.	2,8,9			1,2,3,4	1,4,5,6,9,10....
Subbasin Objective 2C1: Strategy a: Conduct feasibility study of potential reintroduction of anadromous Chinook and steelhead into the San Poil Subbasin	All	All habitat		2,3,4	1,4,5,6,9,10....
Subbasin Objective 1B2: Develop EMAP sites for water quality, focal species production, habitat quality, and habitat quantity data needed to determine progress toward objectives in the San Poil Watershed. (6 sites)	All			1,2,3,4	6,10,14,16,26,28
Subbasin Objective 1B4: Continuously monitor water quality (flow, temperature, etc.) at all selected EMAP sites (5 sites annually, 15 sites every 4th year).	All			1,2,3,4	6,10,14,16,26,28
Subbasin Objective 1B6: Develop baseline Width to depth ratios for at all selected EMAP sites (5 sites annually, 15 sites every 4th year).	1,5			1,2,3,4	6,10,14,16,26,28
Subbasin Objective 1B3: Develop GIS layer of historic riparian habitats	1,6			1,2,3,4	1,2,4,5,6,7,9,10,11,12,14,15,16,17,18,21,25,26,28

AQUATIC					
Strategy & Objective	Strategy Type ¹	Monitoring Type ²	Tier ³	Scale ⁴	Tool Box Tool ⁵
Subbasin Objective 1B3: Survey and monitor existing riparian habitats to determine the percent of remaining functional riparian areas compared to historic at all selected EMAP sites (5 sites annually, 15 sites every fourth year).	1,6			1,2,3,4	1,2,4,5,6,7,9,10,11,12,14,15,16,17,18,21,25,26,28
Subbasin Objective 1B5: Determine stream embeddedness at all selected EMAP sites (5 sites annually, 15 sites every fourth year).	1,5			1,2,3,4	1,2,4,5,6,7,9,10,11,12,14,15,16,17,18,21,25,26,28
Subbasin Objective 2A1: Conduct annual creel surveys along the San Poil River to estimate harvest rates of adfluvial redband trout	2,9			1,2,3,4	3,4,5,6,8,12,17,24
Subbasin Objective 2A2: Strategy a: Estimate annual adult returns of kokanee salmon to the San Poil River.	2,4,8,9,10			1,2,3,4	3,4,5,6,8,12,17,24
Subbasin Objective 2B2: Report species, stocks, size, return-to-creel and locations of all artificial production planted into waters contained within the San Poil Subbasin.	9			1,2,3,4	3,4,5,6,8,12,17,24
Subbasin Objective 2B2: Develop a database to store all monitoring, evaluation, and research data throughout the IMP and make data available by the internet for all managers.	All			1,2,3,4	12
Subbasin Objective 1A1: Assess all efforts to increase littoral habitat along Lake Roosevelt by area and type.	1,7,10			1,2,3,4	4,8,12,22,24
Subbasin Objective 1C1: Identify adult and juvenile annual habitat utilization for all focal species.	All			1,2,3,4	1,2,4,5,6,7,9,10,11,12,14,15,16,17,18,21,25,26,28
Subbasin Objective 2A3: Monitor all upland lakes that receive hatchery production for return to creel, age and growth, species composition, natural reproduction, and habitat suitability once every 10 years and adjust management or stocking rates accordingly.	1,2,8,9			1,2,3,4	4,8,12,22,24

AQUATIC					
Strategy & Objective	Strategy Type	Monitoring Type	Tier	Scale	Tool Box-tool
ADDITIONAL RESEARCH, MONITORING, AND EVALUATION NEEDS					
Research: Determine the economic costs and benefits to the San Poil Subbasin from implementing the measures called for in the subbasin plan.	8			1,2,3,4	Standard environmental economic accounting protocols
Research: Determine the keystone species that can be used to indicate the quality of environments for focal salmonid fish species.	All			1,2,3,4	Basic Research
Research: Determine contaminant levels in fish and provide information to the public	2,9			1,2,3,4	Basic Research
Research: Establish population estimates for all focal species in all established stream reaches and determine viability thresholds to meet recovery/restoration/management goals.	2,9			1,2,3,4	Basic Research

1 Strategy types:

- 1) Habitat Assessments
- 2) Population Assessments
- 3) In-stream Diversion
- 4) In-stream Passage
- 5) In-stream Habitat
- 6) Riparian Habitat
- 7) Upland Habitat
- 8) Education/Coordination
- 9) Population Management
- 10) Reservoir Operations

2 Monitoring Protocol e.g., type of monitoring protocol [note: the specific reference to detailed monitoring protocol is identified in the "tool box"]:

- TMDL
- Survey
- Survey and mapping
- HEP
- P/A and trend surveys
- All habitat

3 ISRP Tier Level:

- 1) Tier 1: trend or routine monitoring
- 2) Tier 2: statistical (status) monitoring
- 3) Tier 3: experimental research (effectiveness) monitoring

⁴Scale of Monitoring and Evaluation:

- 1) Project
- 2) Subbasin
- 3) Province
- 4) Columbia Basin

⁵Tool Box Tool

The Tool Box is found in Appendix I.

TERRESTRIAL					
Strategy & Objective	Strategy Type ¹	Monitoring Type ²	Tier ³	Scale ⁴	Tool Box Tool ⁵
Columbia Basin Level Goal 1B: Quantify the operational effects of federal hydrosystem projects on terrestrial resources, develop mitigation plan in coordination with other resource mitigation and resource planning efforts, and implement projects to mitigate the impacts, including maintenance and monitoring.	1,6,7			1,2,3,4	29,30,31,32,33,34,35
Province Level Objective 1B: Quantitatively assess and mitigate operational impacts of the Chief Joseph Dam, Grand Coulee Dam, and Albeni Falls projects per the requirements of the Northwest Power Act and the current Wildlife Mitigation Program. Complete assessment of operational impacts by 2008 ; develop mitigation plan by 2010 ; implement initial mitigation by 2015 ; incorporate formal methods for review and update of effects assessment and mitigation plan on a three-year cycle to respond to changes in operation and to effectiveness of mitigation actions.	1,6,7			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 1B: Quantitatively assess operational impacts of the Grand Coulee Project on terrestrial resources by year 2008.	1,6,7			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 1B1: Quantitatively assess operational impacts of the Grand Coulee Project on terrestrial resources by year 2008.	1,6,7			1,2,3,4	29,30,31,32,33,34,35
Strategy a (2.50, 0.50): Conduct the assessment and include, but not limit to, fluctuation zone effects on vegetation and wildlife, loss of nutrients in watershed from loss of salmon, recreational effects to terrestrial resources, BPA transmission lines, etc.	1,2,6,7			1,2,3,4	29,30,31,32,33,34,35
Strategy b: Identify and map current or potential winter perching and foraging habitat.	1,2			1,2,3,4	30
Strategy c: Continue or increase monitoring of nesting and wintering bald eagles.	1,2,9			1,2,3,4	30
Subbasin Objective 2A2: Strategy a: Determine limiting factors on sharp-tailed grouse populations within the IMP and associated subbasins by 2006.	1,2,6,7,9			1,2,3,4	29,30,31,32,33,34,35

TERRESTRIAL					
Strategy & Objective	Strategy Type ¹	Monitoring Type ²	Tier ³	Scale ⁴	Tool Box Tool ⁵
Strategy c: Continue and increase monitoring.	1,2,6,7,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2B3: Strategy a: Inventory existing and historic habitat.	1,6,7			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2A2: Strategy d: Assess and, if deemed needed, limit/restrict nonnative invasive species interaction/competition and habitat degradation.	1,6,7			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2A3: Strategy a: Identify specific factors limiting/affecting sage grouse populations in the San Poil Subbasin.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Strategy c: Continue and increase monitoring.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2A6: Strategy a: Determine limiting factors for golden eagles by 2006.	1,2,6,7,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2A6: Strategy c: Continue and increase monitoring of golden eagles.	1,2,6,7,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2A6: Strategy b: Develop, prioritize, and implement projects and/or research to address identified golden eagle limiting factors by 2007.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Strategy b for Objective 1A and Sub-objectives 1A1-1A9): Develop management plans that address road closure, cattle, soil, vegetation and unwanted species, fire and fuels, nonnative wildlife, etc.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 1B2: Develop mitigation plan and begin implementation of mitigation by year 2010.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2B3: Strategy j: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the San Poil Subbasin.	8			1,2,3,4	Coordinated activities
Subbasin Objective 2B2: Strategy a: Inventory existing and historic shrub-steppe habitat.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35

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Subbasin Objective 2B2: Strategy d: Monitor shrub-steppe habitat.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2B4: Strategy a: Inventory existing and historic upland forest habitat.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2B4: Strategy d: Monitor upland forest habitat.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2B5: Strategy f: Identify specific factors limiting/affecting mule deer populations in the San Poil Subbasin.	1,2,6,7,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2B1: Strategy a: Inventory existing rock/cliff/talus habitat.	1,2,6,7,8,9			1,2,3,4	29,30,31,32,33,34,35
Subbasin Objective 2A5: Strategy a: Assess feasibility of translocating extirpated/historic species.	9			1,2,3,4	Basic Research
Subbasin Objective 2B5: Strategy c (1.67, 0.67): Monitor translocations.	2,9			1,2,3,4	29,30,31,32,33,34,35

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