SECTION 50 – Table of Contents

50 Lake Rufus Woods Management Plan

The Lake Rufus Woods Subbasin Management Plan was developed by the Lake Rufus Woods Subbasin Work Team. Detailed information describing the membership and formation of the Subbasin Work Teams and the process used to develop and adopt the management plan can be found in Section 1.2. In general, the components of the management plan, including the subbasin vision, guiding principles, and prioritized biological objectives and strategies were developed in a series of six meetings between June 2003 and March 2004.

The Oversight Committee (OC), Technical Coordination Group, and the Lake Rufus Woods Subbasin Work Team worked collaboratively to establish technically sound objectives and strategies that respond to the limiting factors identified in the subbasin assessment. The management plan was developed in several iterations between the OC and Subbasin Work Teams and the Technical Coordination Group.

Biological objectives were developed using a tiered approach. The Council developed the Columbia River Basin biological goals based on the scientific principles identified in the 2000 Fish and Wildlife Plan. The OC established the province level objectives under the Columbia River Basin level goals by responding to recommendations from the GEI Team, the Technical Coordination Group, and the Subbasin Work Teams. The Subbasin Work Teams developed the subbasin level biological objectives and strategies under the Province objectives, with assistance from the Technical Coordination Group and the GEI Team.

50.1 Summary of Lake Rufus Woods Assessment and Limiting Factors

The vision and biological objectives of the management plan reflect what is learned in the assessment and inventory work. In the Lake Rufus Woods Subbasin, the aquatic and terrestrial assessments and inventories are described in detail in sections 46 to 49 of this document. A brief overview of the key limiting factors that are addressed in this management plan is included below.

50.1.1 Lake Rufus Woods Aquatic Assessment and Limiting Factors

Focal species selected for the Lake Rufus Woods Subbasin were Chinook and kokanee salmon, brook and rainbow trout, and white sturgeon. Anadromous Chinook are no longer present in the Subbasin because of the lack of fish passage at Chief Joseph Dam.

Overall, the most important limiting factors for fisheries in the Lake Rufus Woods Subbasin resulted from the construction of Chief Joseph and Grand Coulee dams and the subsequent loss of anadromous fishes and the conversion of rivers into reservoirs. The loss of the anadromous life history in the blocked area had a wide range of impacts on the fish, wildlife, and people of the area. These impacts are described in more detail in sections 2.2 and 1.4.1, but include loss of aquatic productivity, loss of fishing opportunity, increased fishing and hunting pressure on other species, and increased

stocking of nonnative species. These limiting factors are addressed in the Lake Rufus Woods Subbasin Management Plan through objectives 2D1, 2D2, 2D3, 2A2, 2C2, and 2C1.

We used QHA modeling to help us assess the limiting factors in the rivers and streams of the Subbasin. The most significant stream habitat limiting factors for the salmonid focal species are listed in tables 50.1-1, 50.1-2, 50.1-3. In parentheses is the number of reaches or watersheds within the Lake Rufus Woods Subbasin where that particular habitat attribute is the worst habitat-related limiting factor. The numbers in the Objective column correspond to the subbasin objectives that were developed in this management plan to address this limiting factor. Aquatic objectives for the Lake Rufus Woods Subbasin are described in more detail in section 50.3.

Table 50.1-1. Stream habitat conditions that currently most deviate from the reference for brook trout, Lake Rufus Woods Subbasin. The number in parenthesis is the number of reaches or watersheds within the Lake Rufus Woods Subbasin where that particular habitat attribute is the worst habitat-related limiting factor. The numbers in the Objective column correspond to the subbasin objective that was developed to address this limiting factor in Section 50.3.

Brook Trout	
Habitat Condition	**Objective**
Low Flow (10)	1B1, 1B6
Fine Sediment (7)	1B1, 1B4
Habitat Diversity (7)	1B1, 1B5
Low Temperature (5)	1B1, 1B7
Riparian Condition (2)	1B1, 1B3

Table 50.1-2. Stream habitat conditions that currently most deviate from the reference for kokanee, Lake Rufus Woods Subbasin. The number in parenthesis is the number of reaches or watersheds within the Lake Rufus Woods Subbasin where that particular habitat attribute is the worst habitat-related limiting factor. The numbers in the Objective column correspond to the subbasin objective that was developed to address this limiting factor in Section 50.3.

Kokanee	
Habitat Condition	**Objective**
Oxygen (6)	1B1, 1B8
High and Low Flows (4)	1B1, 1B6
Obstructions (2)	1B1, 1B2
Channel Stability (1)	1B1, 1B5
Low Temperature (1)	1B1, 1B7

Table 50.1-3. Stream habitat conditions that currently most deviate from the reference for rainbow trout, Lake Rufus Woods Subbasin. The number in parenthesis is the number of reaches or watersheds within the Lake Rufus Woods Subbasin where that particular habitat attribute is the worst habitat-related limiting factor. The numbers in the

Objective column correspond to the subbasin objective that was developed to address this limiting factor in Section 50.3.

Rainbow	
Habitat Condition	**Objective**
Habitat Diversity (9)	1B1, 1B5
Obstructions (3)	1B1, 1B2
Riparian Condition (3)	1B1, 1B3
Low Flow (2)	1B1, 1B6
Fine Sediment (2)	1B1, 1B4

Lake Rufus Woods is a reregulating reservoir for peaking operations out of the Grand Coulee Project. Because Grand Coulee Dam may release extremely large amounts of water and spill from very high heads, water quality in Rufus Woods can suffer. High total dissolved atmospheric gasses within Lake Rufus Woods have resulted in this water being placed on the Washington 303(d) list. This high gas concentration is potentially a limiting factor to all fish populations in the reservoir. Objectives 1A1 and 1B8 in the management plan address the issue of TDG in the Lake Rufus Woods Subbasin.

Habitat degradation, flow alterations, inundation, water level fluctuations, and nonnative species interactions are all responsible for the diminished populations of the native fishes in the Subbasin. The introduction of nonnative species, although creating an important recreational and subsistence fishery, has the potential to negatively impact the remaining native fishes of the Subbasin. Nonnative fish issues are addressed through objectives 2A3, 2A1, 2A4, and 2C1 in the management plan.

The lack of information about fish populations is a particular problem in the Lake Rufus Woods Subbasin. Objectives 1A1 and 1C1 are research and evaluation objectives that are also discussed in the Research, Monitoring and Evaluation Plan.

50.1.2 Lake Rufus Woods Terrestrial Assessment and Limiting Factors

Wildlife in the Lake Rufus Woods Subbasin are limited by habitat quantity and quality. Construction of the Chief Joseph Project affected 51 miles of the Columbia River and inundated over 8,000 acres of land. In addition, the project resulted in secondary effects to terrestrial resources, including accelerated rates of industrial, agricultural, and residential development leading to loss of habitat; increased hunting pressure on wildlife; and loss of salmonid nutrients to the ecosystem.

Factors that currently limit terrestrial resources in the Subbasin are dominated by loss of habitat and modification of habitat quality as a result of human land uses. The Lake Rufus Woods Subbasin has been highly modified from historic conditions due primarily to agriculture, grazing, residential development, and, in the northeastern portion of the Subbasin, timber management. Approximately 16 percent of native habitats, primarily shrub-steppe, have been converted to agriculture and developed land uses. The majority of the remaining habitats have been modified through land use practices.

Management plan objectives that address the losses from the construction of and inundation from Chief Joseph Dam are Objective 1A and associated sub-objectives. Management plan objectives that address the operational impacts to terrestrial species and habitats are Objective 1B and associated sub-objectives. Objectives 2A and 2B address secondary impacts of the hydropower system.

50.2 Subbasin Vision and Guiding Principles

The vision for the Lake Rufus Woods Subbasin is:

> *We envision the Lake Rufus Woods Subbasin being comprised of and supporting viable diverse anadromous fish, resident fish, and wildlife populations, and their habitats that contribute to the social, cultural, ecological, and economic wellbeing of the region.*

In addition to the vision, the Lake Rufus Woods Subbasin Work Team drafted the following guiding principles:

1. Subbasin planning should be consistent with the Northwest Power Act, Northwest Power and Conservation Council's Fish and Wildlife Program and technical guidance for subbasin planning, while complementing existing plans, policies, and planning efforts.
2. Integrated subbasin plans should consider ecological AND political boundaries.
3. Human interests can be balanced with fish and wildlife needs.
4. All people are stewards for future generations.
5. The Lake Rufus Woods Subbasin Plan should be based on best current scientific, ecological, and biological principles.
6. Subbasin plans will address landowner, cultural, subsistence, and recreational harvest issues.
7. Public outreach is essential for successful plan development and implementation.
8. Possibility of anadromous fish should be considered in the development of the Lake Rufus Woods Subbasin Plan (passage, artificial production, wildlife/fisheries interactions, etc.).
9. Use common sense in decision making.
10. Ensure that projects aimed at restoring fish or wildlife do not result in negative impacts to other fish, wildlife, habitats, or cultural resources.

50.3 Aquatic Objectives and Strategies

Columbia River Basin-level aquatic resource objectives were developed by the Northwest Power and Conservation Council in their 2000 Fish and Wildlife Program. The planners in the IMP have developed province level aquatic resource objectives that are tiered to the Columbia River Basin level goals. In addition, planners in the six subbasins in the IMP developed subbasin specific objectives and strategies, which are tiered to both the Columbia River Basin and IMP goals.

The subbasin objectives and strategies are prioritized. Strategies are listed in priority

order. The ranking of the objectives are given in parenthesis after the objective. Objectives and strategies also included in the research, monitoring, and evaluation plan are marked with an asterisk.

Columbia River Basin Level Category 1: Mitigate for resident fish losses.

Columbia River Basin Level Goal 1A:
Complete assessments of resident fish losses throughout the Columbia River Basin resulting from the federal and federally-licensed hydrosystem, expressed in terms of the various critical population characteristics of key resident fish species.

Province Level Objective 1A:
Fully mitigate fish losses related to construction and operation of federally-licensed and federally operated hydropower projects.

Subbasin Objective 1A1: Develop and implement plans to reduce hydropower impacts to native and focal species. (Priority 7)

Strategy a*: Collect basic inventory, abundance, and interaction information on fish.

Strategy b: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy c*: Continue USGS dissolved gas study during a year with anticipated high gas saturation.

Strategy d*: Develop plan to work with local fish farms to monitor trends in fish health and environmental conditions.

Strategy e: Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations.

Strategy e*: Explore and implement, where feasible, changes in flow regime/lake elevation that enhance salmonid recruitment within Lake Rufus Woods.

Subbasin Objective 1A2: Develop and implement plans to enhance sturgeon and burbot populations, based on the evaluation of limiting factors. (Priority 17)

Strategy a: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy b*: Collect basic inventory, abundance, and interaction information on fish.

Strategy c*: Conduct burbot population assessment, determine limiting factors, and develop plan to address limiting factors.

Strategy d*: Conduct sturgeon population assessment, determine limiting factors, and develop plan to address limiting factors.

Columbia River Basin Level Goal 1B:
Maintain and restore healthy ecosystems and watersheds, which 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 expand habitat and ecosystem functions as the means to significantly increase the abundance, productivity, and life history diversity of resident fish at least to the extent that they have been affected by the development and operation of the federal and federally-licensed hydrosystem.

Province Level Objective 1B:
Protect and restore in-stream and riparian habitat to maintain functional ecosystems for resident fish, including addressing the chemical, biological, and physical factors influencing aquatic productivity.

Subbasin Objective 1B1: Begin implementation of habitat strategies for addressing identified limiting factors for all focal species and native fishes by 2005. (Priority 2)

Strategy a: Conserve and protect floodplain connectivity and function wherever possible.

Strategy b: Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species.

Strategy c: Limit livestock from riparian areas and replant native riparian plants where appropriate.

Strategy d: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy e: Remove artificial migration barriers as to allow fish passage were prudent to increase habitat quantity for migratory fish species.

Strategy f: Develop criteria for prioritizing streams for habitat improvements.

Strategy g*: Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes.

Strategy h: Ensure water rights are defined and enforced.

Strategy i: Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.

Strategy j: Decommission roads wherever possible and develop road abandonment plans for federal, state and Tribal lands to reduce road densities below 3 miles of road per square mile.

Strategy k: Install in-stream structures that improve habitat complexity (Vortex rock weirs, drop log structures, root wads, habitat boulders, etc.).

Strategy l*: Explore and implement, where feasible, changes in flow regime/lake elevation that enhance salmonid recruitment within Lake Rufus Woods.

Subbasin Objective 1B2*: Inventory all barriers in the Rufus Woods Subbasin, including Chief Joseph Dam, by 2005 and begin implementing necessary passage improvements associated with man-made barriers by 2006. (Priority 4)

Strategy a: Remove or modify artificial migration barriers to allow fish passage where prudent to increase habitat quantity for migratory fish species.

Strategy b: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy c*: Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes.

Strategy d*: Explore and implement, where feasible, changes in flow regime/lake elevation that enhance salmonid passage within Lake Rufus Woods.

Subbasin Objective 1B3*: Inventory riparian habitat condition and implement actions to promote riparian area function for all streams within the Subbasin. (Priority 6)

Strategy a: Develop priority criteria and implement actions to address critical limiting factors to riparian function.

Strategy b*: Develop and implement monitoring and evaluation efforts to assess efficacy of actions to restore riparian.

Strategy c: Conserve and protect floodplain connectivity and function wherever possible.

Strategy d: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy e: Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species.

Strategy f: Limit livestock from riparian areas and replant native riparian plants where appropriate.

Strategy g*: Implement habitat inventory to determine current condition/limiting factors/riparian function of salmonid spawning areas.

Strategy h: Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.

Strategy i: Decommission roads wherever possible and develop road abandonment plans for Tribal lands to reduce road densities below 3 miles of road per square mile.

Subbasin Objective 1B4: Improve or maintain streambed embeddedness between 20 percent and 30 percent in all streams with known salmonid populations. (Priority 13)

Strategy a: Conserve and protect floodplain connectivity and function wherever possible.

Strategy b: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy c: Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species.

Strategy d: Limit livestock from riparian areas and replant native riparian plants where appropriate.

Strategy e: Decommission roads wherever possible and develop road abandonment plans for Tribal lands to reduce road densities below 3 miles of road per square mile.

Subbasin Objective 1B5: Reduce width-to-depth ratios to <10 for all streams within the Subbasin. (Priority 10)

Strategy a: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy b: Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species.

Strategy c: Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes.

Strategy d: Limit livestock from riparian areas and replant native riparian plants where appropriate.

Strategy e: Install in-stream structures that improve habitat complexity (Vortex rock weirs, drop log structures, root wads, habitat boulders, etc.).

Strategy f: Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.

Subbasin Objective 1B6: Protect and maintain flows at or near historic in all intermittent, ephemeral, and perennial streams. (Priority 14)

Strategy a: Conserve and protect floodplain connectivity and function wherever possible.

Strategy b: Establish water bank, set “target flows”, encourage voluntary relinquishment of water rights, protect areas without existing water rights from new allocations, develop water recharge and storage.

Strategy c: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy d: Ensure all water rights are defined and enforced.

Strategy e*: Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes.

Subbasin Objective 1B7: Maintain and/or achieve stream temperatures below 18^{o} C for all streams that support salmonid fish populations. (Priority 8)

Strategy a: Conserve and protect floodplain connectivity and function wherever possible.

Strategy b: Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species.

Strategy c: Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes.

Strategy d: Limit livestock from riparian areas and replant native riparian plants where appropriate.

Strategy e: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy f: Ensure all water rights are defined and enforced.

Strategy g: Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.

Subbasin Objective 1B8: Maintain total dissolved gases (TDG) below 110 percent saturation for mainstem Columbia River. (Priority 11)

Strategy a: Make Bureau of Reclamation responsible for finding solutions to any negative TDG issues resulting from discharge at outlet tubes on Grand Coulee.

Strategy b: Flip-lip installation at Chief Joseph and speed up implementation of Grand Coulee power swap with Chief Joseph.

Strategy c: Participate in technical and policy working groups (for example, TDG, TMDL) to develop changes in hydrosystem operations and/or physical attributes of dams to reduce TDG.

Columbia River Basin Level Goal 1C:
Restore resident fish **s**pecies (subspecies, stocks and populations) to near historic abundance throughout their historic ranges where suitable habitat conditions exist and/or where habitats can be restored

Province Level Objective 1C1:
Protect, enhance, restore, and increase distribution of native resident fish populations and their habitats in the IMP with primary emphasis on sensitive, native salmonid stocks.

Province Level Objective 1C2:
Maintain and enhance self-sustaining, wild populations of native game fish, and subsistence species, to provide for harvestable surplus.

Province Level Objective 1C3:
Minimize negative impacts (e.g., competition, predation, introgression) to native species from nonnative species and stocks.

Province Level Objective 1C4:
Increase cooperation and coordination among stakeholders throughout the province.

In the Lake Rufus Woods Subbasin, objectives that address Province level objectives 1C1-1C4 are addressed under Category 2, below.

Province Level Objective 1C5:
Meet and exceed the recovery plan goals for federally-listed threatened and endangered fish species.

Subbasin Objective 1C1*: The Lake Rufus Woods Subbasin is within the N.E. Washington Bull Trout Recovery Unit and is identified as a "Research Need Area" (USFWS 2002). Surveys are needed in the Subbasin to determine how/if the Subbasin can contribute to recovery. (Priority 19)
(Refer to http://pacific.fws.gov/bulltrout/recovery.htm)

Strategy a: Conduct bull trout distribution and habitat suitability surveys.

Province Level Objective 1C6:
Restore resident fish **s**pecies (subspecies, stocks and populations) to near historic abundance throughout their historic ranges where suitable habitat conditions exist and/or where habitats can be restored

In the Lake Rufus Woods Subbasin, objectives that address the topics listed in Province Level Objective 1C6 are addressed under Category 2, below.

Columbia River Basin Level Category 2: Substitute for anadromous fish losses.

Columbia River Basin Level Goal 2A:
Restore resident fish **s**pecies (subspecies, stocks and populations) to near historic abundance throughout their historic ranges where suitable habitat conditions exist and/or where habitats can be feasibly restored.

Province Level Objective 2A1:
Protect, enhance, restore, and increase distribution of native resident fish populations and their habitats in the IMP with primary emphasis on sensitive, native salmonid stocks.

Province Level Objective 2A2:
Maintain and enhance self-sustaining, wild populations of native game fish, and subsistence species, to provide for harvestable surplus.

Province Level Objective 2A3:
Minimize negative impacts (for example, competition, predation, introgression) to native species from nonnative species and stocks.

Province Level Objective 2A4:
Increase cooperation and coordination among stakeholders throughout the province.

The following subbasin objectives address province level objectives 2A1 – 2A4:

Subbasin Objective 2A1: Determine genetic distribution of native focal species (white sturgeon, rainbow/redband trout, kokanee), identify limiting factors, and develop strategies for addressing limiting factors by 2005. (Priority 15)

Strategy a*: Assess distribution of native species, population abundance, and historical presence pre-BPA hydro projects on the Columbia River.

Strategy b*: Collect basic inventory, abundance, and interaction information on fish.

Strategy c: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Subbasin Objective 2A2: Maintain average rainbow trout catch rates on Lake Rufus Woods at between 0.5 and 0.75 fish/hour annually, and maintain fish condition with Wr greater than or equal to 100. (Priority 12)

Strategy a: Augment with direct stocking with yearling age rainbow trout if natural recruitment is insufficient.

Strategy b: Enhance tributary habitat to increase rainbow production and potential emigration into Lake Rufus Woods.

Strategy c*: Provide a randomized roving creel census survey to assess if achieving objective.

Subbasin Objective 2A3: Preserve and enhance native fish where historically present. (Priority 9)

Strategy a: Artificially produce or purchase native trout and stock.

Strategy b: Avoid future introduction of exotic species/stocks into waters that have only indigenous species composition.

Strategy c: Utilize available species interaction research data for habitat conditions to develop site-specific management plans that provide fishery opportunities for indigenous and non-indigenous species in locations that they currently co-exist. Management should be consistent with maintenance/preservation/enhancement of indigenous species where habitat allows.

Subbasin Objective 2A4: Protect the genetic integrity of all focal and native fish species throughout the Subbasin. (Priority 18)

Strategy a: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy b: Wherever possible use locally adapted genetically appropriate salmonids to supplement natural populations or in harvest applications where emigration can occur.

Strategy c: Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations.

Strategy d: Maintain genetic quality of native fish.

Strategy e: Prevent introgression between hatchery and wild stocks.

Columbia River Basin Level Goal 2B:
Provide sufficient populations of fish and wildlife for abundant opportunities for Tribal trust and treaty right harvest and for non-Tribal harvest.

Province Level Objective 2B
Focus restoration efforts on habitats and ecosystem conditions and functions that will

allow for expanding and maintaining diversity within, and among, species in order to sustain a system of robust populations in the face of environmental variation.

Planners in the Lake Rufus Woods Subbasin did not develop objectives and strategies for Province Level Objective 2B. Objectives related to habitats and ecosystem conditions and functions are listed under 1B.

Columbia River Basin Level Goal 2C:
Administer and increase opportunities for consumptive and non-consumptive resident fisheries for native, introduced, wild, and hatchery reared stocks that are compatible with the continued persistence of native resident fish species and their restoration to near historic abundance (includes intensive fisheries within closed or isolated systems).

Province Level Objective 2C1:
Artificially produce sufficient salmonids to supplement consistent harvest to meet management objectives.

Province Level Objective 2C2:
Provide both short- and long-term harvest opportunities that support both subsistence activities and sport-angler harvest.

Subbasin Objective 2C1: Manage walleye consistent with native and focal species management. (Priority 20)

Strategy a: Assess walleye limiting factors on consumptive and non-consumptive fish.

Strategy b: Conduct walleye/other species interaction assessment.

Strategy c: Develop management plans consistent with native and focal species management (including walleye and other species).

Strategy d: Evaluate limiting factors on walleye (RME to Review and update WDFW study done in 1970s).

Subbasin Objective 2C2: Artificially produce enough salmonids to supplement a consistent harvest rate of 1 fish per hour, where habitats allow. (Priority 16)

Strategy a: Wherever possible use locally adapted genetically appropriate salmonids to supplement natural populations or in harvest applications where emigration can occur.

Strategy b: Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations.

Strategy c: Annually produce a minimum of 50,000 pounds of trout at the Colville Tribal Hatchery.

Strategy d: Utilize existing creel data/stocking efforts to determine validity of this objective.

Strategy e: Prioritize select waters that are determined to have the capacity to achieve one fish/hour catch rate with reasonable stocking support and provide necessary fish stocking to support the highest priority fishery.

Strategy f: Monitor fishery to assess the maintenance of the one fish/hour catch rate. If stocking successfully supports the fishery with reasonable stocking effort, apply the strategy to other waters identified in the prioritization.

Strategy g: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Columbia River Basin Level Goal 2D:
Reintroduce anadromous fish into blocked areas where feasible[1].

Province Level Objective 2D1:
Develop an anadromous fish reintroduction feasibility analysis by 2006 for Chief Joseph and by 2015 for Grand Coulee[2].

Subbasin Objective 2D1*: Develop an anadromous fish reintroduction feasibility analysis by 2006. (Priority 1)

Strategy a: Conduct a feasibility study for anadromous fish reintroduction to subbasin.

Strategy b: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Province Level Objective 2D2:

[1] OC notes that "where feasible" is actual language from Council's Program.

[2] At this time the WDFW has no formal agency position, pro or con, on possible reintroduction and/or establishment of anadromous Chinook or steelhead above Grand Coulee Dam. Consideration for re-establishment of anadromous salmonid stocks above Grand Coulee Dam should be carefully evaluated in light of local habitat conditions, and potential impacts upon existing resident fish substitution programs currently in place to partially mitigate for the loss of historic anadromous fish resources.

Develop an implementation plan within five years of feasibility determination for each facility.

Subbasin Objective 2D2: If anadromous fish reintroduction is deemed feasible, implement anadromous reintroductions within five years of feasibility determination. (Priority 3)

Strategy a: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

Strategy b: Expand Chinook salmon and steelhead range and habitat wherever possible.

Strategy c: Close critical spawning areas to fishing during spawning or until escapement quotas are reached.

Strategy d: Use artificial production to rebuild extirpated salmonid stocks and provide harvest opportunities.

Strategy e: Provide anadromous fish passage at Chief Joseph Dam.

Strategy f: Ensure all Tribal trust fishing, hunting, and water rights are defined and enforced.

Strategy g: Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations.

Strategy h*: Monitor efficacy of reintroduction.

Strategy i: Modify Lake Rufus Woods elevations or flow regimes to increase salmonid production.

Strategy j: Wherever possible use locally adapted salmonids to supplement natural populations or in harvest applications where emigration can occur.

Strategy k: Construct spawning channels or acclimation sites to increase salmonid production.

Subbasin Objective 2D3: Increase the amount of salmon available for harvest in areas directly downstream of Chief Joseph Dam utilizing artificial production. (Priority 5)

Strategy a: Build an anadromous fish hatchery below Chief Joseph Dam.

Strategy b: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.

50.3.1 Prioritization of Aquatic Objectives and Strategies

A detailed discussion of the methods used to prioritize the objectives and strategies is found in Section 1.2. In Lake Rufus Woods Subbasin, the members of the Subbasin Work Team contributed to the development of ranking criteria which were based largely on the criteria in the Council's 2000 Fish and Wildlife Program. The ranking criteria were finalized by the IMP OC, but each Work Team was offered the option of adding additional subbasin specific criteria to the ranking. In the Lake Rufus Woods Subbasin, the Work Team decided not to add any additional subbasin specific criteria.

The Work Team rated the criteria for each objective from one to ten. An average ranking was calculated for each respondent for each objective, and then an overall Work Team average was calculated. Strategies were rated high, medium and low. These categories were converted to numeric values: 3, 2, and 1 respectively. The average ranking for each strategy was calculated for each respondent and for the Work Team as a whole.

The Work Team discussed the preliminary prioritization results for the objectives and strategies at the sixth Work Team meeting, and based on a consensus decision agreed to the final prioritization of the objectives and strategies.

The final prioritization of the aquatic objectives for the Lake Rufus Woods Subbasin is displayed in Table 50.3-1.

Table 50.3-1. Ranking of aquatic objectives in the Lake Rufus Woods Subbasin, with the limiting factor(s) that the objective was designed to address

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
(1) Develop an anadromous fish reintroduction feasibility analysis by 2006[3]. **Subbasin Objective 2D1**	**Strategy a:** Conduct a feasibility study for anadromous fish reintroduction to subbasin. **Strategy b:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.	Loss of anadromous life history
(2) Begin implementation of habitat strategies for addressing identified limiting factors for all focal species and native fishes by 2005. **Subbasin Objective 1B1**	**Strategy a:** Conserve and protect floodplain connectivity and function wherever possible. **Strategy b:** Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species. **Strategy c:** Limit livestock from riparian areas and replant native riparian plants where appropriate. **Strategy d:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy e:** Remove artificial migration barriers as to allow fish passage were prudent to increase habitat quantity for migratory fish species. **Strategy f:** Develop criteria for prioritizing streams for habitat improvements. **Strategy g*:** Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes. **Strategy h:** Ensure water rights are defined and enforced. **Strategy i:** Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion. **Strategy j:** Decommission roads wherever possible and develop road abandonment plans for federal, state and Tribal lands to reduce road densities below 3 miles of road per square mile. **Strategy k:** Install in-stream structures that improve habitat complexity (Vortex rock weirs, drop log structures, root wads, habitat boulders, etc.).	Habitat limiting factors such as: riparian vegetation, sediment, floodplain connectivity, in-stream flows, fish passage barriers, etc.

[3] Not all members of the Work Team agreed that this objective should be first priority. See text for more information on the minority report.

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
	Strategy l*: Explore and implement, where feasible, changes in flow regime/lake elevation that enhance salmonid recruitment within Lake Rufus Woods.	
(3) If anadromous fish reintroduction is deemed feasible, implement anadromous reintroductions within five years of feasibility determination. **Subbasin Objective 2D2**	**Strategy a:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy b:** Expand Chinook salmon and steelhead range and habitat wherever possible. **Strategy c:** Close critical spawning areas to fishing during spawning or until escapement, quotas are reached. **Strategy d:** Use artificial production to rebuild extirpated salmonid stocks and provide harvest opportunities. **Strategy e:** Provide anadromous fish passage at Chief Joseph Dam. **Strategy f:** Ensure all Tribal trust fishing, hunting, and water rights are defined and enforced. **Strategy g:** Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations. **Strategy h*:** Monitor efficacy of reintroduction. **Strategy i:** Modify Lake Rufus Woods elevations or flow regimes to increase salmonid production. **Strategy j:** Wherever possible use locally adapted salmonids to supplement natural populations or in harvest applications where emigration can occur. **Strategy k:** Construct spawning channels or acclimation sites to increase salmonid production.	Loss of anadromous life history
(4) Inventory all barriers in the Rufus Woods Subbasin, including Chief Joseph Dam, by 2005 and begin implementing necessary passage improvements associated with man-made barriers by 2006. **Subbasin Objective 1B2***	**Strategy a:** Remove or modify artificial migration barriers as to allow fish passage where prudent to increase habitat quantity for migratory fish species. **Strategy b:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy c*:** Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes. **Strategy d*:** Explore and implement, where feasible, changes in flow regime/lake elevation that enhance salmonid passage within Lake Rufus Woods.	Fish passage barriers
(5) Increase the amount of salmon available for	**Strategy a:** Build an anadromous fish hatchery below Chief	Loss of anadromous life history, loss of

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
harvest in areas directly downstream of Chief Joseph Dam utilizing artificial production. **Subbasin Objective 2D3**	Joseph Dam. **Strategy b:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.	lotic habitat, habitat degradation
(6) Inventory riparian habitat condition and implement actions to promote riparian area function for all streams within the Subbasin. **Subbasin Objective 1B3***	**Strategy a:** Develop priority criteria and implement actions to address critical limiting factors to riparian function. **Strategy b*:** Develop and implement monitoring and evaluation efforts to assess efficacy of actions to restore riparian. **Strategy c:** Conserve and protect floodplain connectivity and function wherever possible. **Strategy d:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy e:** Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species. **Strategy f:** Limit livestock from riparian areas and replant native riparian plants where appropriate. **Strategy g*:** Implement habitat inventory to determine current condition/limiting factors/riparian function of salmonid spawning areas. **Strategy h:** Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion. **Strategy i:** Decommission roads wherever possible and develop road abandonment plans for Tribal lands to reduce road densities below 3 miles of road per square mile.	Riparian habitat degradation
(7) Develop and implement plans to reduce hydropower impacts to native and focal species. **Subbasin Objective 1A1**	**Strategy a*:** Collect basic inventory, abundance, and interaction information on fish. **Strategy b:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy c*:** Continue USGS dissolved gas study during a year with anticipated high gas saturation. **Strategy d*:** Develop plan to work with local fish farms to monitor trends in fish health and environmental conditions. **Strategy e:** Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private	Lack of data, habitat degradation

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
	aquaculture operations. **Strategy e*:** Explore and implement, where feasible, changes in flow regime/lake elevation that enhance salmonid recruitment within Lake Rufus Woods.	
(8) Maintain and/or achieve stream temperatures below 18^{o} C for all streams that support salmonid fish populations. **Subbasin Objective 1B7**	**Strategy a:** Conserve and protect floodplain connectivity and function wherever possible. **Strategy b:** Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species. **Strategy c:** Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes. **Strategy d:** Limit livestock from riparian areas and replant native riparian plants where appropriate. **Strategy e:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy f:** Ensure all water rights are defined and enforced. **Strategy g:** Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.	Water temperature
(9) Preserve and enhance native fish where historically present. **Subbasin Objective 2A3**	**Strategy a:** Artificially produce or purchase native trout and stock. **Strategy b:** Avoid future introduction of exotic species/stocks into waters that have only indigenous species composition. **Strategy c:** Utilize available species interaction research data for habitat conditions to develop site-specific management plans that provide fishery opportunities for indigenous and non-indigenous species in locations that they currently co-exist. Management should be consistent with maintenance/preservation/enhancement of indigenous species where habitat allows.	Nonnative fish, habitat degradation
(10) Reduce width-to-depth ratios to <10 for all streams within the Subbasin. **Subbasin Objective 1B5**	**Strategy a:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy b:** Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species.	Stream channel instability

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
	Strategy c: Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes. **Strategy d:** Limit livestock from riparian areas and replant native riparian plants where appropriate. **Strategy e:** Install in-stream structures that improve habitat complexity (Vortex rock weirs, drop log structures, root wads, habitat boulders, etc.). **Strategy f:** Use vegetation enhancements, annual seeding and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.	
(11) Maintain total dissolved gases (TDG) below 110% saturation for mainstem Columbia River. **Subbasin Objective 1B8**	**Strategy a:** Make Bureau of Reclamation responsible for finding solutions to any negative TDG issues resulting from discharge at outlet tubes on Grand Coulee. **Strategy b:** Flip-lip installation at Chief Joseph and speed up implementation of Grand Coulee power swap with Chief Joseph. **Strategy c:** Participate in technical and policy working groups (e.g., TDG, TMDL) to develop changes in hydrosystem operations and/or physical attributes of dams to reduce TDG.	Water quality degradation
(12) Maintain average rainbow trout catch rates on Lake Rufus Woods at between 0.5 and 0.75 fish/hour annually, and maintain fish condition with Wr greater than or equal to 100. **Subbasin Objective 2A2**	**Strategy a:** Augment with direct stocking with yearling age rainbow trout if natural recruitment is insufficient. **Strategy b:** Enhance tributary habitat to increase rainbow production and potential emigration into Lake Rufus Woods. **Strategy c*:** Provide a randomized roving creel census survey to assess if achieving objective.	Loss of fishing opportunity due to loss of anadromous life history, loss of lotic habitat, habitat degradation
(13) Improve or maintain streambed embeddedness between 20% and 30% in all streams with known salmonid populations. **Subbasin Objective 1B4**	**Strategy a:** Conserve and protect floodplain connectivity and function wherever possible. **Strategy b:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy c:** Conduct riparian habitat restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for all focal species. **Strategy d:** Limit livestock from riparian areas and replant native riparian plants where appropriate. **Strategy e:** Decommission roads wherever possible and	Sedimentation, lack of spawning habitat

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
	develop road abandonment plans for Tribal lands to reduce road densities below 3 miles of road per square mile.	
(14) Protect and maintain flows at or near historic in all intermittent, ephemeral, and perennial streams. **Subbasin Objective 1B6**	**Strategy a:** Conserve and protect floodplain connectivity and function wherever possible. **Strategy b:** Establish water bank, set "target flows", voluntary relinquishment of water rights, protect areas without existing water rights from new allocations, develop water recharge and storage. **Strategy c:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy d:** Ensure all water rights are defined and enforced. **Strategy e*:** Develop minimum in-stream flows for fish-bearing streams within the Lake Rufus Woods Subbasin that meet the biological requirements of salmonid fishes.	In-stream flows
(15) Determine genetic distribution of native focal species (white sturgeon, rainbow/redband trout, kokanee), identify limiting factors, and develop strategies for addressing limiting factors by 2005. **Subbasin Objective 2A1**	**Strategy a*:** Assess distribution of native species, population abundance, and historical presence pre-BPA hydro projects on Columbia River. **Strategy b*:** Collect basic inventory, abundance, and interaction information on fish. **Strategy c:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.	Nonnative species impacts, habitat degradation
(16) Artificially produce enough salmonids to supplement a consistent harvest rate of 1 fish per hour, where habitats allow. **Subbasin Objective 2C2**	**Strategy a:** Wherever possible use locally adapted genetically appropriate salmonids to supplement natural populations or in harvest applications where emigration can occur **Strategy b:** Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations. **Strategy c:** Annually produce a minimum of 50,000 pounds of trout at the Colville Tribal Hatchery. **Strategy d:** Utilize existing creel data/stocking efforts to determine validity of this objective. **Strategy e:** Prioritize select waters that are determined to have the capacity to achieve one fish/hour catch rate with reasonable stocking support and provide necessary fish stocking to support the highest priority fishery.	Loss of fishing opportunity due to loss of anadromous life history, loss of lotic habitat, habitat degradation

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
	Strategy f: Monitor fishery to assess the maintenance of the one fish/hour catch rate. If stocking successfully supports the fishery with reasonable stocking effort, apply the strategy to other waters identified in the prioritization. **Strategy g:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin.	
(17) Develop and implement plans to enhance sturgeon and burbot populations, based on the evaluation of limiting factors. **Subbasin Objective 1A2**	**Strategy a:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy b*:** Collect basic inventory, abundance, and interaction information on fish. **Strategy c*:** Conduct burbot population assessment, determine limiting factors, and develop plan to address limiting factors. **Strategy d*:** Conduct sturgeon population assessment, determine limiting factors, and develop plan to address limiting factors.	Loss of lotic habitat, modification of flow regimes, fish passage barriers
(18) Protect the genetic integrity of all focal and native fish species throughout the Subbasin. **Subbasin Objective 2A4**	**Strategy a:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Lake Rufus Woods Subbasin. **Strategy b:** Wherever possible use locally adapted genetically appropriate salmonids to supplement natural populations or in harvest applications where emigration can occur. **Strategy c:** Ensure fish stocking activities are coordinated between Indian Tribes, USFWS, WDFW, NMFS, and private aquaculture operations. **Strategy d:** Maintain genetic quality of native fish. **Strategy e:** Prevent introgression between hatchery and wild stocks.	Nonnative species impacts
(19) The Lake Rufus Woods Subbasin is within the N.E. Washington Bull Trout Recovery Unit and is identified as a “Research Need Area” (USFWS 2002). Surveys are needed in the Subbasin to determine how/if Subbasin can contribute to recovery. **Subbasin Objective 1C1***	**Strategy a:** Conduct bull trout distribution and habitat suitability surveys.	Lack of information
(20) Manage walleye consistent with native and focal species management. **Subbasin Objective 2C1**	**Strategy a:** Assess walleye limiting factors on consumptive and non-consumptive fish. **Strategy b:** Conduct walleye/other species interaction	Loss of fishing opportunity due to habitat degradation and loss of anadromous life history

Objectives in Priority Order	Strategies in Priority Order	Limiting Factor(s) Addressed
	assessment. **Strategy c:** Develop management plans consistent with native and focal species management (including walleye and other species). **Strategy d:** Evaluate limiting factors on walleye (RME to Review and update WDFW study done in 1970s).	

* = Objectives and strategies that are included in the RM&E plan.

50.3.2 Discussion of Aquatic Prioritization

The Work Team discussed the preliminary prioritization results for the aquatic objectives and strategies, and, based on a consensus decision with one minority opinion, agreed to the final prioritization of the aquatic objectives and strategies that are reflected in Table 50.3-1. The Lake Rufus Woods Subbasin Work Team selected Objective 2D1 "Develop an anadromous fish reintroduction feasibility analysis by 2006" as their top priority objective. The Work Team agreed that restoration of anadromous fish in the blocked area is an extremely important cultural issue and a major impact of the construction of the FCRPS. Loss of anadromous fish has had a profound effect on the fish, wildlife, and people of the upper Columbia River basin. Restoration of anadromous fish cannot happen upstream of Grand Coulee Dam until anadromous fish are passed upstream of Chief Joseph Dam. Therefore, the group felt it was appropriate to make this objective the top priority objective in this subbasin. This objective is compatible with the Council's assumption that, "restoration of anadromous fish into areas blocked by dams should be actively pursued where feasible." The third priority objective for the Subbasin is contingent upon the first priority objective. That is, if anadromous fish reintroduction is deemed feasible, then reintroduction would be implemented.

The minority opinion on the choice of the top priority objective reads: "Jim Egbert, and some other property owners, would rather see habitat restoration efforts having a higher prioritization than reintroduction of anadromous fish." In addition, the WDFW has no formal agency position, pro or con, on possible reintroduction and/or establishment of anadromous Chinook or steelhead above Grand Coulee Dam.

The second priority objective is a broad, overarching objective to address habitat limiting factors. The Work Team was in consensus agreement about this, and all other, priorities. As described above, the Lake Rufus Woods Subbasin has experienced a wide array of habitat problems in Lake Rufus Woods, the Nespelem River, and tributary streams. This objective would cover a variety of habitat improvement projects that may be needed in the Lake Rufus Woods Subbasin. This priority is in alignment with the Council's 2000 Fish and Wildlife Program which is "a habitat-based program, rebuilding healthy, naturally producing fish and wildlife populations by protecting, mitigating, and restoring habitats and the biological systems within them, including anadromous fish migration corridors."

Many of the objectives that were ranked fourth through eighteenth priority are a mixture of habitat restoration objectives that target specific habitat problems. For example, Objective 1B2 (ranked fourth) addresses fish passage barriers and Objective 1B3 (ranked sixth) addresses riparian habitats. These objectives address known habitat limiting factors in the Lake Rufus Woods Subbasin.

Artificial production is a necessary element of fisheries management in the Lake Rufus Woods Subbasin because of the loss of the anadromous life history and impacts to resident fish. Several objectives, including 2D3 (ranked fifth), specify the use of artificial production. The Council's 2000 Fish and Wildlife Program acknowledges that, "there is an obligation to provide fish and wildlife mitigation where habitat has been permanently

lost due to hydroelectric development. Artificial production of fish may be used to replace capacity, bolster productivity, and alleviate harvest pressure on weak, naturally spawning resident and anadromous fish populations."

Protection and restoration of native stocks of salmonids is also a concern in the Lake Rufus Woods Subbasin. Objective 2A3 (ranked ninth) calls for preserving and enhancing native fish where historically present. Objectives 2A1 (ranked fifteenth) and 2A4 (ranked eighteenth) address protecting the genetic integrity of all focal and native fish species.

The lowest ranked objective in the Lake Rufus Woods Subbasin was walleye management. This species is not native to the Subbasin, but does provide a limited, but important, fishery resource. The second lowest ranked objective was bull trout surveys. Bull trout are not known to be present in the Subbasin, but this area was identified in the USFWS Draft Recovery Plan as a research need area.

50.4 Terrestrial Objectives and Strategies

The Columbia River Basin, Province Level, and Lake Rufus Woods objectives for terrestrial resources are presented below. The province objectives were prioritized by the OC and are presented in order of priority. The subbasin objectives were prioritized by the Work Team and the ranking is given in parenthesis after each objective. Strategies are presented beneath the objectives in order of priority. Objectives and strategies also included in the research, monitoring, and evaluation plan are marked with an asterisk.

Columbia River Basin Level Category 1:

A primary overarching objective of the Columbia River Basin 2000 Fish and Wildlife Program is the completion of mitigation for the adverse effects to wildlife caused by the development and operation of the hydrosystem.

Provincial Priority 1: **Columbia River Basin Level Goal 1A:**
Complete the current Wildlife Mitigation Program for construction and inundation losses of federal hydrosystem as identified in Appendix C, Table 11-4 of the Columbia River Basin 2000 Fish and Wildlife Program.

> **Province Level Objective 1A**:
> Fully mitigate for construction and inundation losses incurred from 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 (Appendix C, Table 11-4 of the Columbia River Basin 2000 Fish and Wildlife Program) by 2015. This includes developing and implementing projects within the IMP that protect, enhance, or restore Habitat Units for HEP evaluation species and habitats as specified in the construction loss assessments for Chief Joseph, Grand Coulee, and Albeni Falls dams (Kuehn and Berger 1992; Creveling and Renfrow 1986; Martin et al. 1988); coordinated planning; provision of adequate funding for long-term Operations and Maintenance (O&M); and effectiveness monitoring of projects.

Lake Rufus Woods Subbasin Objective 1A: Fully mitigate for losses incurred from construction and inundation of the Chief Joseph Project per the requirements of the Northwest Power Act. Complete the compensation mitigation consistent with the HEP loss assessment by 2015. Protect, enhance, and manage mitigation properties to attain their highest habitat potential.

Objective 1A is the overall top priority objective within this Subbasin. The sub-objectives listed below have also been prioritized.

Objective 1A1: Protect, enhance or replace 2,290 habitat units of sharp-tailed grouse habitat to address shrub-steppe, rockland[4], and riparian losses resulting from construction of the Chief Joseph Project. (Priority 2)

Objective 1A2: Protect, enhance, or replace 1,179 habitat units of sage grouse habitat to address rockland[4] and shrub-steppe losses resulting from construction of the Chief Joseph Project. (Priority 1)

Objective 1A3: Protect, enhance, or replace 58 habitat units of yellow warbler habitat to address palustrine habitat losses resulting from construction of the Chief Joseph Project. (Priority 3)

Objective 1A4: Protect, enhance, or replace 213 habitat units of Canada goose habitat to address island/sandbar losses resulting from construction of the Chief Joseph Project. (Priority 9)

Objective 1A5: Protect, enhance or replace 239 habitat units of ring-necked pheasant wintering habitat to address agricultural losses resulting from construction of the Chief Joseph Project. (Priority 10)

Objective 1A6: Protect, enhance, or replace 286 habitat units of Lewis' woodpecker habitat to address ponderosa pine savanna and mixed forest losses resulting from construction of the Chief Joseph Project. (Priority 8)

Objective 1A7: Protect, enhance, or replace 920 habitat units of mink habitat to address riverine/riparian losses resulting from construction of the Chief Joseph Project. (Priority 4)

Objective 1A8: Protect, enhance, or replace 1,992 habitat units of mule deer winter range to address mixed forest, ponderosa pine savanna, shrub-steppe and rockland[4] losses resulting from construction of the Chief Joseph Project. (Priority 5)

[4] Rockland: Shrub-steppe habitat with scattered occurrence of small to large haystack basaltic rock deposits which support a higher diversity of shrubs in their micro-environments (Kuehn and Berger 1992).

Objective 1A9: Protect, enhance, or replace 401 habitat units of bobcat habitat to address rock and rockland[4] losses resulting construction of the Chief Joseph Project. (Priority 6)

Objective 1A10: Protect, enhance, or replace 1,254 habitat units of spotted sandpiper habitat to address the sand/gravel/cobble losses resulting from construction of the Chief Joseph Project. (Priority 7)

Strategies for Objectives 1A1 through 1A9, in priority order:

Strategy a: Protect habitat through conservation easements, lease, management plans, or habitat conservation plans. Identify and implement incentive programs.

Strategy b: Management plans should include specifics that address fencing maintenance, noxious weeds, access management, grazing management, fire management, forestry management, recreational management, vegetation management, and threatened, endangered and cultural species management.

Strategy c*: Maintain research, monitoring, and evaluation of effectiveness of mitigation for habitat protection.

Strategy d: Assure funding source to maintain wildlife habitat values (Habitat Units) for the life of the project.

Strategy e*: Identify and evaluate habitats for suitability as mitigation sites.

Strategy f: Protect habitat through fee title acquisition. Identify and implement incentive programs.

Provincial Priority 2: **Columbia River 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.

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.

Lake Rufus Woods Subbasin Objective 1B*: Quantitatively assess operational impacts of the Chief Joseph Project on terrestrial resources by year 2008.

Objective 1B1*: Assess operational impacts of the Chief Joseph Project on terrestrial resources in the Lake Rufus Woods Subbasin by year 2008. (Priority 11)

Strategy a*: Assess localized and systemic impacts from reservoir fluctuation due to hydro-system management of both Grand Coulee and Chief Joseph projects, include effects of reservoir fluctuations, loss of specialized species habitat, loss of nutrients (anadromous fish), shoreline erosion, effects of cultural and threatened and endangered species, and transmission corridor effects.

Strategy b*: Assess project-related recreational activities effects on habitat.

Objective 1B2*: Upon completion of assessment of operational impacts, develop plan for mitigation of effects by year 2010 and implement initial plan measures by year 2015. (Priority 12)

Columbia River Basin Level Category 2:

In consideration of the primary overarching objectives of the Columbia River Basin 2000 Fish and Wildlife Program, provide: 1) sufficient populations of wildlife for abundant opportunities for Tribal trust and treaty right harvest and for non-Tribal harvest; 2) recovery of wildlife species affected by the development and operation of the hydrosystem that are listed under the Endangered Species Act; and 3) a Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife.

Provincial Priority 3: **Columbia River Basin Level Goal 2**:
Mitigate for wildlife losses that have occurred through secondary effects of hydrosystem development, including assessment, development of mitigation plan in coordination with other resources and resource managers, implementation, maintenance, and monitoring.

Province Level Objective 2A:
Mitigate for wildlife losses that have occurred through secondary effects of hydrosystem development by protecting, enhancing, restoring, and sustaining populations of wildlife for aesthetic, cultural, ecological, and recreational values. Objective includes assessment of secondary impacts, development of mitigation plan in coordination with other resources and resource managers, implementation, maintenance, and monitoring. Because the secondary effects of hydrosystem development are tightly intermingled with the effects of other activities in the province, this objective also incorporates other actions to maintain or enhance populations of federal, state, and Tribal species of special concern, and other

native and desirable nonnative wildlife species, within their present and/or historical ranges in order to prevent future declines and restore populations that have suffered declines or been extirpated.

Objective 2A1: Maintain bald eagle at or above present levels (2004) in the Lake Rufus Woods Subbasin. Annually maintain and/or enhance the integrity of bald eagle nesting territories and winter roost sites. (Priority 15)

Strategy a*: Continue to maintain high level of bald eagle nest surveys and monitoring.

Objective 2A2: Increase sharp-tailed grouse populations within the Intermountain Province and associated subbasins to a minimum of 800 grouse by 2010; over the long-term, improve and maintain the habitats necessary to support self-sustaining, persistent populations of grouse, estimated to consist of a minimum of 2,000 birds. (This objective shared with San Poil, Spokane, and Upper Columbia subbasins). (Priority 14)

Strategy a: Protect existing habitat and populations through conservation easements, lease or management plans. Identify and implement incentive programs.

Strategy b: Enhance potential habitat.

Strategy c*: Continue monitoring and evaluation.

Strategy d: Minimize conversion of existing sharp-tailed grouse habitat to other habitat types.

Strategy e: Protect existing habitat and populations through fee title acquisitions. Identify and implement incentive programs.

Strategy f: Augment existing populations.

Objective 2A3: Increase sage grouse populations within the Lake Rufus Woods and San Poil subbasins to a minimum of 500 grouse by 2015. (Priority 13)

Strategy a: Protect existing habitat and populations through conservation easements, lease or management plans. Identify and implement incentive programs.

Strategy b*: Continue monitoring and evaluation.

Strategy c: Enhance potential habitat.

Strategy d: Minimize conversion of existing sage grouse habitat to other habitat types.

Strategy e: Augment existing populations.

Strategy f: Protect existing habitat and populations through fee title acquisitions. Identify and implement incentive programs.

Objective 2A4: Maintain or enhance populations of federal, state, and Tribal species of special concern, and other native and desirable nonnative wildlife species, within their present and/or historical ranges within the Lake Rufus Woods Subbasin in order to prevent future declines and restore populations that have suffered declines. (Priority 16)

Strategy a: Improve enforcement of WDFW and Tribal hunting regulations.

Strategy b*: Increase and maintain high level of monitoring on selected state, federal and Tribal species of concern.

Province Level Objective 2B:
Mitigate for wildlife losses that have occurred through secondary effects of hydrosystem development by protecting, enhancing, restoring, and sustaining native wildlife habitat function to maintain or enhance ecological diversity and security for native and desirable nonnative wildlife species. Objective includes assessment of secondary impacts, development of mitigation plan in coordination with other resources and resource managers, implementation, maintenance, and monitoring. Because the secondary effects of hydrosystem development are tightly intermingled with the effects of other activities in the province, this objective also incorporates other actions to identify, maintain, restore, and enhance priority habitats (wetlands, riparian areas, upland forests, steppe and shrub-steppe, cliffs and rock outcrops, caves, grasslands, and other priority habitats) including their structural attributes, ecological functions, and distribution and connectivity across the landscape to optimize conditions required to increase overall wildlife productivity of desired species assemblages. Strategies may include land acquisition, conservation easements, management contracts, and/or partnerships with other landowners.

Province Objective 2B1: Identify and implement strategies and opportunities for restoring the diversity, block size, and spatial arrangement of habitat types needed to sustain target wildlife species at ecologically sound levels.

Province Objective 2B2: Restore the connectivity of habitat types needed to sustain wildlife populations at the landscape level. Encourage and support the implementation of all forest practices, including road building and maintenance, as specified in the WDNR and IDL Forest Practices

Rules and Subbasin Forest Plans for all National Forests within the Subbasin.

Lake Rufus Woods Objective 2B: Protect, enhance, and restore native wildlife habitat function to maintain or enhance ecological diversity and security for native wildlife species. Emphasize maintenance and improvement of identified priority habitats (rocks/cliffs, caves, upland forest, steppe and shrub-steppe, riparian, and wetland) to provide cover, forage, and food for desired wildlife species.

> **Strategy a*:** Assess loss due to disruption of habitat continuity, fragmentation, and quality.
>
> **Strategy b:** Reintroduction of extirpated species.

Objective 2B1*: Identify, maintain, restore, and enhance priority habitats (wetlands, riparian areas, upland forests, steppe and shrub-steppe, cliffs and rock outcrops, caves, and other priority habitats) within the Lake Rufus Woods Subbasin, including their structural attributes, ecological functions, and distribution and connectivity across the landscape. (Priority 17)

> **Strategy a:** Ensure coordination between terrestrial and aquatic strategies with regard to riparian/wetland mitigation activities.

Objective 2B2: Reverse long-term mule deer population decline by providing for a 25-year increasing trend in the quantity and quality of mule deer habitats, particularly winter and spring habitats, in Okanogan County. (Priority 18)

> **Strategy a:** Secure and enhance winter and spring ranges; protect from human development.
>
> **Strategy b*:** Identify specific factors limiting/affecting mule deer populations in the Lake Rufus Woods Subbasin.
>
> **Strategy c:** Manage motorized traffic in critical mule deer spring and winter ranges.
>
> **Strategy d:** Improve enforcement of state and Tribal hunting regulations.
>
> **Strategy e:** Modify state and Tribal hunting regulations to help increase mule deer populations.

Strategy f: Restore grasses and forbs where noxious weeds have impacted mule deer habitat.

Strategy g: Increase the area of aspen stands.

Strategy h: Manage forests for a variety of successional stages to meet mule deer habitat needs on a site-specific basis; use fire and forest management to increase quality and quantity of shrubs and mature forest cover.

50.4.1 Prioritization of Terrestrial Objectives

A detailed discussion of the methods used to prioritize the objectives and strategies is found in Section 1.2. In Lake Rufus Woods Subbasin, the members of the Subbasin Work Team contributed to the development of ranking criteria which were based largely on the criteria in the Council's 2000 Fish and Wildlife Program. The ranking criteria were finalized by the IMP OC, but each Work Team was offered the option of adding additional subbasin specific criteria to the ranking. In the Lake Rufus Woods Subbasin, the Work Team decided not to add any additional subbasin specific criteria.

The Work Team rated the criteria for each objective from one to ten. An average ranking was calculated for each respondent for each objective, and then an overall Work Team average was calculated. Strategies were rated high, medium and low. These categories were converted to numeric values: 3, 2, and 1 respectively. The average ranking for each strategy was calculated for each respondent and for the Work Team as a whole.

The Work Team discussed the preliminary prioritization results for the objectives and strategies at the sixth Work Team meeting, and based on a consensus decision agreed to the final prioritization of the objectives and strategies.

The final prioritization of the terrestrial objectives and strategies for the Lake Rufus Woods Subbasin is displayed in Table 50.4-1.

Table 50.4-1 Summary of prioritized terrestrial objectives and strategies for the Lake Rufus Woods Subbasin

Objectives in Priority Order	Strategies	Limiting Factor(s) Addressed
Provincial Priority 1 – Mitigate for construction and inundation losses		
(1) Protect, enhance, or replace 1,179 sage grouse Habitat Units to address rockland[5] and shrub-steppe losses resulting from construction of the Chief Joseph Project. **Objective 1A2**	**Strategy a:** Protect habitat through conservation easements, lease, management plans, or habitat conservation plans. Identify and implement incentive programs. **Strategy b:** Management plans should include specifics that address fencing maintenance, noxious weeds, access management, grazing management, fire management, forestry management, recreational management, vegetation management, and threatened, endangered and cultural species management. **Strategy c*:** Maintain research, monitoring, and evaluation of effectiveness of mitigation for habitat protection. **Strategy d:** Assure funding source to maintain wildlife habitat values (Habitat Units) for the life of the project. **Strategy e*:** Identify and evaluate habitats for suitability as mitigation sites. **Strategy f:** Protect habitat through fee title acquisition. Identify and implement incentive programs.	Inundation of sage grouse habitat by Chief Joseph Project
(2) Protect, enhance or replace 2,290 sharp-tailed grouse Habitat Units to address shrub-steppe, rockland[5], and riparian losses resulting from construction of the Chief Joseph Project. **Objective 1A1**	**Strategies a - f**, as noted in 1A2, above.	Inundation of sharp-tailed grouse habitat by Chief Joseph Project
(3) Protect, enhance, or replace 58 yellow warbler Habitat Units to address palustrine habitat losses resulting from construction of the Chief Joseph Project **Objective 1A3**	**Strategies a - f**, as noted in 1A2, above.	Inundation of yellow warbler habitat by Chief Joseph Project

[5] Rockland: Shrub-steppe habitat with scattered occurrence of small to large haystack basaltic rock deposits which support a higher diversity of shrubs in their micro-environments (Kuehn and Berger 1992).

Objectives in Priority Order	Strategies	Limiting Factor(s) Addressed
(4) Protect, enhance, or replace 920 mink Habitat Units to address riverine/riparian losses resulting from construction of the Chief Joseph Project. **Objective 1A7**	**Strategies a - f**, as noted in 1A2, above.	Inundation of mink habitat by Chief Joseph Project
(5) Protect, enhance, or replace 1,992 mule deer winter range Habitat Units to address mixed forest, ponderosa pine savanna, shrub-steppe and rockland[5] losses resulting from construction of the Chief Joseph Project. **Objective 1A8**	**Strategies a - f**, as noted in 1A2, above.	Inundation of mule deer winter range habitat by Chief Joseph Project
(6) Protect, enhance, or replace 401 bobcat Habitat Units to address rock and rockland[5] losses resulting construction of the Chief Joseph Project. **Objective 1A9**	**Strategies a - f**, as noted in 1A2, above.	Inundation of bobcat habitat by Chief Joseph Project
(7) Protect, enhance, or replace 1,254 spotted sandpiper Habitat Units to address the sand/gravel/cobble losses resulting from construction of the Chief Joseph Project. **Objective 1A10**	**Strategies a - f**, as noted in 1A2, above.	Inundation of spotted sandpiper habitat by Chief Joseph Project
(8) Protect, enhance, or replace 286 Lewis' woodpecker Habitat Units to address ponderosa pine savanna and mixed forest losses resulting from construction of the Chief Joseph Project. **Objective 1A6**	**Strategies a - f**, as noted in 1A2, above.	Inundation of Lewis' woodpecker habitat by Chief Joseph Project
(9) Protect, enhance, or replace 213 Canada goose Habitat Units to address island/sandbar losses resulting from construction of the Chief Joseph Project. **Objective 1A4**	**Strategies a - f**, as noted in 1A2, above.	Inundation of Canada goose habitat by Chief Joseph Project
(10) Protect, enhance or replace 239 ring-necked pheasant wintering Habitat Units to address agricultural losses resulting from construction of the Chief Joseph Project. **Objective 1A5**	**Strategies a - f**, as noted in 1A2, above.	Inundation of ring-necked pheasant wintering habitat by Chief Joseph Project
Provincial Priority 2 – Quantify and mitigate for operational impacts		
(11) Assess operational impacts of the Chief Joseph Project on terrestrial resources in the Lake Rufus Woods Subbasin by year 2008. **Objective 1B1***	**Strategy a*:** Assess localized and systemic impacts from reservoir fluctuation due to hydrosystem management of both Grand Coulee and Chief Joseph projects, include effects of reservoir fluctuations, loss of specialized species habitat, loss of nutrients (anadromous fish), shoreline erosion, effects of cultural and threatened and endangered species, and transmission corridor effects. **Strategy b*:** Assess project-related recreational activities effects on habitat.	Lack of data on operational impacts
(12) Upon completion of assessment of operational impacts, develop plan for mitigation of effects by year 2010 and implement initial plan measures by year 2015. **Objective 1B2***	**Strategy a:** Develop and implement mitigation plan.	Need to mitigate operational impacts
Provincial Priority 3 – Mitigate for secondary effects of FCRPS and other subbasin effects		
(13) Increase sage grouse populations within the Lake Rufus Woods	**Strategy a:** Protect existing habitat and populations	Secondary effects of FCRPS

Objectives in Priority Order	Strategies	Limiting Factor(s) Addressed
and San Poil subbasins to a minimum of 500 grouse by 2015. **Objective 2A3**	through conservation easements, lease or management plans. Identify and implement incentive programs. **Strategy b*:** Continue monitoring and evaluation. **Strategy c:** Enhance potential habitat. **Strategy d:** Minimize conversion of existing sage grouse habitat to other habitat types. **Strategy e:** Augment existing populations. **Strategy f:** Protect existing habitat and populations through fee title acquisitions. Identify and implement incentive programs.	and other subbasin effects on sage grouse
(14) Increase sharp-tailed grouse populations within the Intermountain Province and associated subbasins to a minimum of 800 grouse by 2010; over the long-term, improve and maintain the habitats necessary to support self-sustaining, persistent populations of grouse, estimated to consist of a minimum of 2,000 birds. (This objective is shared with San Poil, Spokane, and Upper Columbia subbasins). **Objective 2A2**	**Strategy a:** Protect existing habitat and populations through conservation easements, lease or management plans. Identify and implement incentive programs. **Strategy b:** Enhance potential habitat. **Strategy c*:** Continue monitoring and evaluation. **Strategy d:** Minimize conversion of existing sharp-tailed grouse habitat to other habitat types. **Strategy e:** Protect existing habitat and populations through fee title acquisitions. Identify and implement incentive programs. **Strategy f:** Augment existing populations.	Secondary effects of FCRPS and other subbasin effects on sharp-tailed grouse populations
(15) Maintain bald eagle at or above present levels (2004) in the Lake Rufus Woods Subbasin. Annually maintain and/or enhance the integrity of bald eagle nesting territories and winter roost sites. **Objective 2A1**	**Strategy a*:** Continue to maintain high level of bald eagle nest surveys and monitoring.	Secondary effects of FCRPS and other subbasin effects on bald eagles
(16) Maintain or enhance populations of federal, state, and Tribal species of special concern, and other native and desirable nonnative	**Strategy a:** Improve enforcement of Washington Department of Fish and Wildlife and Tribal hunting	Secondary effects of FCRPS and other subbasin effects

Objectives in Priority Order	Strategies	Limiting Factor(s) Addressed
wildlife species, within their present and/or historical ranges within the Lake Rufus Woods Subbasin in order to prevent future declines and restore populations that have suffered declines. **Objective 2A4**	regulations. **Strategy b*:** Increase and maintain high level of monitoring on selected state, federal and Tribal species of concern.	on special concern species
(17) Reverse long-term mule deer population decline by providing for a 25-year increasing trend in the quantity and quality of mule deer habitats, particularly winter and spring habitats, in Okanogan County. **Objective 2B2**	**Strategy a:** Secure and enhance winter and spring ranges; protect from human development. **Strategy b*:** Identify specific factors limiting/affecting mule deer populations in the Lake Rufus Woods Subbasin. **Strategy c:** Manage motorized traffic in critical mule deer spring and winter ranges. **Strategy d:** Improve enforcement of state and Tribal hunting regulations. **Strategy e:** Modify state and Tribal hunting regulations to help increase mule deer populations. **Strategy f:** Restore grasses and forbs where noxious weeds have impacted mule deer habitat. **Strategy g:** Increase the area of aspen stands. **Strategy h:** Manage forests for a variety of successional stages to meet mule deer habitat needs on a site-specific basis; use fire and forest management to increase quality and quantity of shrubs and mature forest cover.	Secondary effects of FCRPS and other subbasin effects on mule deer habitats
(18) Identify, maintain, restore, and enhance priority habitats (wetlands, riparian areas, upland forests, steppe and shrub-steppe, cliffs and rock outcrops, caves, and other priority habitats) within the Lake Rufus Woods Subbasin, including their structural attributes, ecological functions, and distribution and connectivity across the landscape. **Objective 2B1***	**Strategy a:** Ensure coordination between terrestrial and aquatic strategies with regard to riparian/wetland mitigation activities.	Secondary effects of FCRPS and other subbasin effects on priority habitats

* = Objectives and strategies that are included in the RM&E plan.

50.4.2 Discussion of Terrestrial Prioritization

The overall top priority terrestrial objective for the Lake Rufus Woods Subbasin is to fully mitigate for terrestrial resource losses incurred from construction and inundation of the Chief Joseph Project per the requirements of the Northwest Power Act. Within this objective, there are ten sub-objectives that have been prioritized. The objectives addressing sage and sharp-tailed grouse were ranked at the top of the list because these species are designated as threatened species within the State of Washington. Yellow warbler and mink habitat losses were ranked third and fourth priority because of the importance of riparian habitat types to a wide array of species. Mule deer habitat was ranked fifth priority because there is considerable concern about mule deer populations in the Subbasin, and these species are particularly important for cultural and subsistence purposes to the Tribes. Ring-necked pheasant wintering habitat was the lowest ranked objective in this group of objectives because they are a nonnative species. However, it should be noted that habitat acquisition to mitigate for the construction and inundation losses, is the most important overall objective in the Subbasin and in the Province as a whole.

The next level of priority is quantifying and mitigating for the operational impacts of the FCRPS per the requirements of the Northwest Power Act. In the Lake Rufus Woods Subbasin, no assessment of operational impacts has been conducted. Therefore, this is the first priority in this category of objectives. Once the impacts have been identified, the next priority will be to develop a mitigation plan by 2010 and to implement the mitigation plan by 2015.

The third priority in the IMP is to mitigate for secondary effects of the hydrosystem development in combination with other subbasin effects on wildlife populations. In this category of objectives, the Lake Rufus Woods Subbasin Work Team ranked increasing sage and sharp-tailed grouse as the highest priority. Bald eagles, as a federally listed threatened species and species of special concern are the next priorities.

In the category of mitigating for secondary effects of the FCRPS and other subbasin effects on habitat, mule deer habitats were considered top priority in the Lake Rufus Woods Subbasin; these are species of concern in the Subbasin. Mitigating for secondary impacts to priority habitat types was the final, but still important, objective.