# SECTION 26 – Table of Contents

# 26 Spokane Subbasin Management Plan

The Spokane Subbasin Management Plan was developed by the Spokane 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 Spokane 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.

## 26.1 Summary of Spokane 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 Spokane Subbasin, the aquatic and terrestrial assessments and inventories are described in detail in sections 22 to 25 of this document. A brief overview of the key limiting factors that are addressed in this management plan is included below.

### 26.1.1 Spokane Aquatic Assessment and Limiting Factors

Focal species selected for the Spokane Subbasin include redband/rainbow trout, mountain whitefish, kokanee, Chinook, and largemouth bass. Redband/rainbow trout, mountain whitefish, kokanee and Chinook are all native to at least some portions of the Subbasin. Chinook have been eradicated from the Subbasin since the construction of Grand Coulee Dam without fish passage facilities. Largemouth bass are a nonnative species that is an important component of the fishery of Lake Spokane and is used as a substitute species in those habitats that can no longer support native fishes.

QHA modeling was used to help 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 26.1-1, 26.1-2, and 26.1-3. In parentheses is the number of reaches or watersheds within the Spokane 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 Spokane Subbasin are described in more detail in Section 26.3.

Within the Spokane Subbasin, fine sediment was the variable most commonly problematic for the salmonid focal species. Other limiting factors identified included pollutants, obstructions, channel stability, and flow issues.

Table 26.1-1. Stream habitat conditions that currently most deviate from the reference for mountain whitefish, Spokane Subbasin. The number in parenthesis is the number of reaches or watersheds within the Spokane 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 26.3.

| Mountain Whitefish | |
|---|---|
| **Habitat Condition** | **Objective** |
| Fine Sediment (30) | 1B1, 1B2, 1B3, 1B5, 1B7 |
| High Flow (5) | 1B4 |
| Pollutants (4) | 1B3, 1B6, 1B7 |
| Obstructions (2) | 1B1, 1B2 |
| Low Flow (1) | 1B4 |
| Channel Stability (1) | 1B1,1B2 |

Table 26.1-2. Stream habitat conditions that currently most deviate from the reference for kokanee, Spokane Subbasin. The number in parenthesis is the number of reaches or watersheds within the Spokane 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 26.3.

| Kokanee | |
|---|---|
| **Habitat Condition** | **Objective** |
| Fine Sediment (7) | 1B1, 1B2, 1B3, 1B5, 1B7 |
| Obstructions (3) | 1B1, 1B2 |
| Pollutants (2) | 1B3, 1B6, 1B7 |
| Channel Stability (1) | 1B1,1B2 |
| Low Flow (1) | 1B4 |

Table 26.1-3. Stream habitat conditions that currently most deviate from the reference for rainbow trout, Spokane Subbasin. The number in parenthesis is the number of reaches or watersheds within the Spokane 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 26.3.

| Rainbow | |
|---|---|
| **Habitat Condition** | **Objective** |
| Fine Sediment (26) | 1B1, 1B2, 1B3, 1B5, 1B7 |
| Habitat Diversity (18) | 1B1,1B2 |
| Low Flow (15) | 1B4 |

| | |
|---|---|
| Pollutants (5) | 1B3, 1B6, 1B7 |
| Channel Stability (3) | 1B1,1B2 |

While widespread habitat degradation has occurred in the Spokane Subbasin, other factors have negatively impacted the native fish assemblages of the Subbasin. Permanent mainstem river fish barriers have resulted in the loss of the anadromous life history in the Spokane Subbasin. Objectives that were developed to address the impacts of the loss of anadromous fish include objectives 2A1. 2A2. 2A3, 2B1, 2C1, 2C2, 2C3, and 2D1. In addition, urbanization and agricultural development have negatively impacted populations of focal species within the Spokane Subbasin. Management plan objectives developed to address limiting factors resulting from agriculture and urbanization include objectives 1A1, 1B2, 1C4, 2B1, 2C1, 1A2, 1C1, 1C2, and 2A3.

Managers are often left with an unnatural environment where habitat for native species is limited. Therefore, nonnative species management is substituted to fill the void in the recreational fishery, which is accomplished through hatchery stocking and directly managing for nonnative fishes. While the current nonnative fishes provide recreational opportunities throughout the Subbasin, they also pose a threat to the remaining native fish assemblages from direct predation, competition, and hybridization, depending on specifics and locations. Objectives that are designed to address the positive and negative impacts of nonnative fish species include 2A2, 1C4, 2C1, 2A1, 2C2, and 2C3.

### 26.1.2 Spokane Terrestrial Assessment and Limiting Factors

Wildlife in the Spokane Subbasin are limited by habitat quantity and quality. Construction of the Grand Coulee Project affected inundated lands located along the lowermost 29 miles of the Spokane River. In addition, the project has had a number of secondary effects to terrestrial resources within the Pend Oreille Subbasin, 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 Spokane Subbasin are dominated by habitat loss and modification of habitat quality as a result of human land uses. Development, including urban, suburban, and agricultural land uses, has converted a total of 45 percent of native habitats to other cover types. Road densities are high throughout most of the Subbasin and large tracts of protected lands are virtually nonexistent.

Management plan objectives that address the losses from the construction of and inundation from Grand Coulee 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 and other subbasin effects to terrestrial resources.

## 26.2 Subbasin Vision

The Spokane Subbasin vision is:

> *We envision the Spokane Subbasin as having functionally intact habitats that support viable native fish and wildlife populations that meet the social, cultural, recreational, and economic needs of the Subbasin.*

In addition to the vision statement, Spokane Subbasin Work Team members drafted the following guiding principles:

1. The Spokane Subbasin plan will 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. Fish and wildlife species and habitat should be managed in perpetuity based on scientific, ecological, and biological principles, not political interests or boundaries.
3. We have a responsibility to future generations.
4. Public education and outreach is essential for successful plan development and implementation.
5. The Spokane Subbasin plan will consider community and cultural issues.
6. The Spokane Subbasin plan will consider the economic and cultural wellbeing of the area along with fish and wildlife.

## 26.3 Aquatic Objectives and Strategies

The subbasin objectives and strategies are prioritized. The Category 1 and 2 Province level objectives were agreed by the Work Team to be of equal priority. The Subbasin objectives are grouped into priority classes, but there is not a sequential ranking of the objectives within each priority group. The ranking of the objectives (priority group) is given in parentheses after the objective. Strategies are listed in priority order, except when the strategies are of equal priority, in which case this is noted.

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***: Complete assessments of resident fish losses throughout the Spokane Subbasin resulting from the FCRPS construction and

operation, expressed in terms of the various critical population characteristics of key resident fish species, through the evaluation of altered habitat, carrying capacity, and competition by year 2020. (Priority 1)

**Strategy a***: Using existing databases, identify data gaps and critical information needs for the Spokane Subbasin.

**Strategy b*:** Continue filling data gaps in the Subbasin through ongoing investigations (such as JSAP) and new investigations.

**Strategy c:** Reduce entrainment at Grand Coulee Dam where desirable.

**Strategy d*:** Monitor entrainment.

**Subbasin Objective 1A2:** Fully mitigate and compensate for resident fish losses related to construction and operation of FCRPS by the year 2050. (Priority 2)

**Strategy a*:** Following the completion of baseline data gathering as proposed by the Resident Fish Stock Status above Chief Joseph and Grand Coulee dams project and other similar assessment tools, current baseline conditions can be established to propose projects to address limiting factors for restoration, protection and enhancement for resident fish species in the Spokane Subbasin.

**Strategy b:** Achieve subbasin objectives 1B1 through 1C4.

**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 instream and riparian habitat to maintain functional ecosystems for resident fish, including addressing the chemical, biological, and physical factors influencing aquatic productivity.

**Subbasin Objective 1B1*:** Evaluate instream and riparian habitat quality and quantity (at least 50 miles per year) for resident fish with primary emphasis on native salmonid habitats by year 2010. (Priority 2)

**Strategy a:** Continue stream and riparian habitat surveys and initiate new surveys as appropriate.

**Strategy b:** Inventory fish passage barriers by year 2010.

**Strategy c:** Continue populating existing databases and develop new databases as appropriate.

**Strategy d**: Develop and utilize consistent barrier criteria and inventory methodology to be used province-wide by agencies/managers.

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

**Subbasin Objective 1B2:** Develop and implement projects directed at protecting, restoring, and enhancing fish habitat for both native and nonnative resident fish, through improvements in riparian conditions, fish passage, and aquatic conditions. (Priority 1)

**Strategy a:** Using appropriate assessment tools, develop and prioritize projects for implementation. (Priority 1, equal to b)

**Strategy b**: Conduct riparian restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for salmonid species. (Priority 1, equal to a)

**Strategy c:** Develop management plans with federal, state, Tribal, and private landowners to protect critical salmonid habitat. (Priority 2, equal to d and e)

**Strategy d:** Create or use existing incentive programs for private landowners to implement strategies to achieve this objective. (Priority 2, equal to c and e)

**Strategy e:** Implement projects aimed at improving aquatic conditions in both lotic and lentic habitats. (Priority 2, equal to c and d)

**Strategy f:** Where possible, acquire Priority properties that currently support native fish through fee title acquisition, conservation easements, and/or long-term leases by year 2020. (Priority 3)

**Strategy g:** Manage livestock grazing within riparian zones to maximize native habitats. (Priority 4, equal to h and i)

**Strategy h:** Implement projects for removal of fish passage barriers. (Priority 4, equal to g and i)

**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. (Priority 4, equal to g and h)

**Strategy j**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. (Priority 5)

**Subbasin Objective 1B3:** Meet or exceed applicable water quality standards by year 2015. (Priority 4)

**Strategy a:** Identify point and non-point source pollution. (Priority 1, equal to b)

**Strategy b:** Conduct riparian restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for salmonid species. (Priority 1, equal to a)

**Strategy c**: Create or use existing incentive programs for private landowners to implement strategies to achieve this objective. (Priority 2, equal to d, e, and f)

**Strategy d:** Where possible, acquire Priority properties through fee title acquisition, conservation easements, and/or long-term leases by year 2020. (Priority 2, equal to c, e, and f)

**Strategy e**: Use vegetation enhancements, annual seeding, and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion. (Priority 2, equal to c, d, and f)

**Strategy f:** Manage livestock grazing within riparian zones to maximize native habitats. (Priority 2, equal to c, d, and e)

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

**Strategy h*:** Develop TMDL subbasin assessments, pollution reduction allocations and implementation plans for impaired water bodies by 2015. Carry out actions identified in TMDL implementation plans. (Priority 4, equal to i and j)

**Strategy i**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. (Priority 4, equal to h and j)

**Strategy j:** Monitor TDG levels at fixed sites and in fish, in addition to TMDL-mandated monitoring. (Priority 4, equal to h and i)

**Subbasin Objective 1B4:** Determine a range of flows suitable for protection and enhancement of native resident fish species in the Subbasin. (Priority 3)

**Strategy a:** Complete or initiate flow studies on Spokane River, Little Spokane River, Hangman Creek, and other tributaries to determine flows

suitable for protection and enhancement of native resident fish species. (Priority 1, equal to b)

**Strategy b:** Develop and implement projects to achieve flows suitable for protection and enhancement of native resident fish species. (Priority 1, equal to a)

**Strategy c:** Where possible, acquire and enhance priority properties that historically functioned as riparian/wetland habitat but now are contributing to the flashy hydrology of the watershed due to drainage installed for agricultural production. Acquire priority properties through fee title acquisition, conservation easements, and/or long-term leases. (Priority 2)

**Strategy d:** Create or use existing incentive programs for private landowners to remove/modify tile and drainage systems within potential riparian and wetland habitats, and/or to implement other strategies that achieve this objective. (Priority 3, equal to e)

**Strategy e:** Implement measures to initiate plant succession toward ecologic potential within wetland and riparian habitats. (Priority 3, equal to d)

**Strategy f**: Reclaim, reuse, conserve, store and/or recharge ground water so as to improve, or at a minimum, maintain, the ground water/aquifer resource. (Priority 4, equal to g)

**Strategy g:** Construct ponds and catchment basins within intermittent drainages to function as both 1) June-September low flow period water sources, and 2) as sediment catchment basins. (Priority 4, equal to f)

**Strategy h**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. (Priority 5)

**Subbasin Objective 1B5:** Reduce persistent bioaccumulating toxin concentrations in the waters of the Spokane Subbasin to acceptable levels, as defined by the applicable regulatory authorities by year 2015. (Priority 7)

**Strategy a**: Work with EPA and other agencies to remove contaminated sediments from the upper Spokane River (Post Falls to Upriver dam) or other highly contaminated areas.

**Strategy b:** Reduce sediment collection in Lake Spokane by 75 percent of current year aggradation rates by year 2020.

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

**Subbasin Objective 1B6*:** Evaluate heavy metal/organic/inorganic contamination as a limiting factor on native, culturally, and economically important species. (Priority 6)

**Strategy a*:** Conduct the evaluations as needed to fill data gaps.

**Strategy b:** Implement the assessment recommendations.

**Subbasin Objective 1B7:** Expand stable littoral zones along Lake Roosevelt by 10 percent of lake surface area. (Priority 5)

**Strategy a:** Modify dam operations to reduce erosion. (Priority 1, equal to b)

**Strategy b**: Increase water retention time in reservoirs to increase zooplankton production and reduce entrainment of juveniles. (Priority 1, equal to a)

**Strategy c:** Use vegetation enhancements, annual seeding, and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion. (Priority 2, equal to d and e)

**Strategy d:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. (Priority 2, equal to c and e)

**Strategy e**: Manage livestock grazing within riparian zones to maximize native habitats. (Priority 2, equal to c and d)

**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 (for example, 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 Spokane Subbasin, objectives that address the topics listed in Province level objectives 1C1 – 1C4 are covered in 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*:** Assess the distribution and relative abundance of threatened or endangered species within the Spokane River Subbasin by year 2010. (Priority 2, equal to 1C2)

**Strategy a:** Complete assessments of threatened and endangered species.

**Subbasin Objective 1C2:** Within five years of identification of threatened and endangered species, implement activities for protection and restoration. (Priority 2, equal to 1C1)

**Strategy a:** Implement protection and restoration of threatened and endangered species.

**Subbasin Objective 1C3:** Maintain and implement restoration activities consistent with Upper Columbia White Sturgeon Recovery Plan by 2005. (Priority 1, equal to 1C4)

**Strategy a:** Implement Upper Columbia White Sturgeon Recovery Plan. Implement protection and restoration of threatened and endangered species.

**Subbasin Objective 1C4:** Develop and meet recovery plan goals for sensitive native resident fish species. (Priority 1, equal to 1C3)

**Strategy a:** Implement restoration, protection, and enhancement methods for native salmonids. (Priority 1)

**Strategy b:** Increase the number of miles of streams within the Spokane River watershed that support native redband rainbow trout. (Priority 2, equal to c and d)

**Strategy c**: Increase the number of miles of streams within the Spokane River watershed that support native mountain whitefish. (Priority 2, equal to b and d)

**Strategy d:** Increase the number of spawning adult kokanee in the Chain

Lakes to 5000 individuals. (Priority 2, equal to b and c)

**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 Spokane Subbasin, objectives that address the topics listed in Province level objective 1C6 are covered in 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 objectives 2A1 – 2A4:**

**Subbasin Objective 2A1*:** Conduct baseline investigations to determine native resident and resident fish stock composition, distribution, and relative abundance in the Subbasin by year 2010. (Priority 1)

**Strategy a *:** Perform assessment of native salmonid stocks composition using DNA analysis or other appropriate techniques by 2010. (Priority 1, equal to b)

**Strategy b *:** Continue surveys to determine fish species distribution and relative abundance. (Priority 1, equal to a)

**Strategy c**: Continue populating existing databases and develop new databases as appropriate. (Priority 2)

**Subbasin Objective 2A2:** Minimize negative impacts (for example, competition, predation, introgression) to native species from nonnative species and stocks. (Priority 3)

**Strategy a:** Utilizing appropriate assessment tools, prioritize native fish populations for restoration, protection and enhancement. (Priority 1, equal to b and c)

**Strategy b:** Decrease the number of miles of stream within the Little Spokane River watershed with nonnative species by 50 percent by year 2025. (Priority 1, equal to a and c)

**Strategy c**: Decrease the number of miles of stream within the Hangman Creek watershed with nonnative species by 50 percent by year 2025. (Priority 1, equal to a and b)

**Strategy d:** Utilize sport fishing regulation to control number of nonnative species through harvest. (Priority 2)

**Strategy e:** Utilize mechanical removal techniques to control number of nonnative species. (Priority 3)

**Strategy f**: Utilize chemical removal techniques to control number of nonnative species. (Priority 4)

**Subbasin Objective 2A3:** Double the number of miles of stream within the Spokane Subbasin that support native game fish, including redband trout and native mountain whitefish, and subsistence species by 2020 through strategies addressing habitat and management of game species. (Priority 2)

**Strategy a**: Utilizing appropriate assessment tools, prioritize habitats for restoration, protection and enhancement. (Priority 1, equal to b and c)

**Strategy b:** Restore, protect or enhance riparian corridors and wetlands. (Priority 1, equal to a and c)

**Strategy c:** Restore, protect or enhance instream habitats. (Priority 1, equal to a and b)

**Strategy d**: Coordinate with landowners to develop leases, conservation easements, management agreements, and implementation of Best Management Practices or purchase critical aquatic, riparian, or upland habitats. (Priority 2)

**Strategy e:** Augment stream flows with water purchased, leased, or acquired from water trusts to restore, protect, or enhance resident fish populations in the Subbasin. (Priority 3)

**Strategy f:** Establish harvest quotas and/or regulations within streams that produce native resident game and subsistence fish populations that promote the expansion of those populations by 2007. (Priority 4, equal to g)

**Strategy g:** Liberalize catch limits and seasons for fish species that compete with native game and subsistence fish species by 2007. (Priority 4, equal to f)

**Strategy h:** Remove barriers found to be detrimental to fish populations. (Priority 5)

**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.

**Subbasin Objective 2B1**: Protect, restore, and enhance existing terrestrial and aquatic resources in order to meet the increased demands (cultural, subsistence, and recreational) on these resources associated with the extirpation of anadromous fisheries.

**Strategy a**: Where possible, acquire management rights to priority properties that can be protected or restored to support native ecosystem/watershed function through title acquisition, conservation easements, and/or long-term leases. (Priority 1, equal to b)

**Strategy b**: Create or use existing incentive programs for private landowners to protect and/or restore habitats to support native ecosystem/watershed function. (Priority 1, equal to a)

**Strategy c**: Where management rights are acquired, identify the current condition and biological potential of the habitat, and then protect or restore those properties to the extent that their condition is consistent with the biological objectives of the 2000 Fish and Wildlife Program. (Priority 2)

**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.

**The following subbasin objectives address province objectives 2C1 – 2C2:**

**Subbasin Objective 2C1:** Use artificial production to provide recreational and subsistence fisheries of white sturgeon, rainbow trout, kokanee salmon, and or other species consistent with the NPCC Resident Fish Substitution Policy. (Priority 1, equal to 2C2 and 2C3)

**Strategy a:** Use genetically appropriate native stocks when possible.

**Strategy b:** Use artificial production to produce sufficient quantities and better quality fish to drive recreational and subsistence fisheries.

**Subbasin Objective 2C2*:** Assess need for conservation aquaculture facilities to assist with enhancing or re-establishing healthy, self-sustaining native fish populations for reproduction, recreation, and subsistence by year 2012. (Priority 1, equal to 2C1 and 2C3)

**Strategy a**: Enhance populations of sensitive native resident fish (for example, white sturgeon) through habitat improvements and artificial production, in concert with recovery plans (for example, the Upper Columbia White Sturgeon Recovery Plan).

**Strategy b:** Use artificial production and habitat improvements to establish/enhance non-anadromous populations of Chinook salmon and steelhead range wherever appropriate. See footnote 2.

**Strategy c:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions.

**Subbasin Objective 2C3:** Supplement non-self sustaining fish species to provide a recreational and subsistence fishery (Priority 1, equal to 2C1 and 2C2)

**Strategy a**: By 2015, maintain and increase the number of trout fishing opportunities in ponds, lowland lakes, and reservoirs to provide anglers with the following catch rates and species. (Priority 1, equal to b):

**Put and take:** 5 fish per angler per trip, utilizing rainbow trout
**Harvest oriented:** 3 fish per angler per trip, utilizing rainbow, cutthroat, tiger, brown, and brook trout

**Catch and release:** 8 fish per angler per trip utilizing rainbow, cutthroat, tiger, brown, and brook trout
**Quality trout** (trout greater than 40 cm in length): 1 fish per angler per trip utilizing rainbow, cutthroat, tiger, brown, and brook trout
**Trophy trout** (trout greater than 50 cm in length): 0.5 fish per angler per trip utilizing rainbow, cutthroat, tiger, brown, and brook trout

**Strategy b:** Increase hatchery production capabilities to produce sufficient quantities and better quality gamefish to drive harvest and subsistence oriented fisheries by year 2015. (Priority 1, equal to a)

**Strategy c:** Increase put and take warm water fisheries (walleye, crappie, sunfish) with angler catch rates of 7 fish per angler per trip by year 2020. (Priority 2, equal to d and e)

**Strategy d:** Increase catch rates of largemouth bass in Lake Spokane to 8 fish per angler trip by 2020. (Priority 2, equal to c and e)

**Strategy e:** Increase catch rates of rainbow trout in Lake Spokane to 5 fish per angler per trip by year 2010. (Priority 2, equal to c an d)

**Strategy f:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions. (Priority 3)

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

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

**Province Level Objective 2D2:**
Develop an implementation plan within five years of feasibility determination for each facility.

**Subbasin Objective 2D1*:** In the event anadromous fish return to the Spokane arm of Lake Roosevelt, the appropriate tribes, agencies, and stakeholders will

[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.

assess the feasibility of restoration of access and habitat throughout the remainder of the Spokane River Subbasin. (Priority 1)

**Strategy a*:** Conduct the study.

**Strategy b:** Expand Chinook salmon and steelhead range and habitat where appropriate.

**Subbasin Objective 2D2*:** Upon the three-year review cycle of the Subbasin plan, assess the status of anadromous fish in Lake Roosevelt and the Spokane Subbasin. (Priority 2)

### 26.3.1 Prioritization of Aquatic Objectives

A detailed discussion of the methods used to prioritize the objectives and strategies is found in Section 1.2. In the Spokane 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. These criteria were reviewed and discussed at the fifth Work Team meeting. The Work Team used the criteria to rank 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 Spokane Subbasin is displayed in Table 26.3-1.

Table 26.3-1. Ranking of objectives in the Spokane 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 |
|---|---|---|
| **Priority 1** | | |
| **Subbasin Objective 1A1***: Complete assessments of resident fish losses throughout the Spokane Subbasin resulting from the FCRPS construction and operation, expressed in terms of the various critical population characteristics of key resident fish species, through the evaluation of altered habitat, carrying capacity, and competition by year 2020. | **Strategy a***: Using existing databases, identify data gaps and critical information needs for the Spokane Subbasin.<br>**Strategy b*:** Continue filling data gaps in the Subbasin through ongoing investigations (such as JSAP) and new investigations.<br>**Strategy c:** Reduce entrainment at Grand Coulee Dam where desirable.<br>**Strategy d*:** Monitor entrainment. | Lack of information, habitat degradation |
| **Subbasin Objective 1B2:** Develop and implement projects directed at protecting, restoring, and enhancing fish habitat for both native and nonnative resident fish, through improvements in riparian conditions, fish passage, and aquatic conditions. | **Strategy a:** Using appropriate assessment tools, develop and prioritize projects for implementation.<br>**Strategy b**: Conduct riparian restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for salmonid species.<br>**Strategy c:** Develop management plans with federal, state, Tribal, and private landowners to protect critical salmonid habitat.<br>**Strategy d:** Create or use existing incentive programs for private landowners to implement strategies to achieve this objective.<br>**Strategy e:** Implement projects aimed at improving aquatic conditions in both lotic and lentic habitats.<br>**Strategy f:** Where possible, acquire Priority properties that currently support native fish through fee title acquisition, conservation easements, and/or long-term leases by year 2020.<br>**Strategy g:** Manage livestock grazing within riparian zones to maximize native habitats.<br>**Strategy h:** Implement projects for removal of fish passage barriers.<br>**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.<br>**Strategy j**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. | Degraded riparian conditions, fish passage barriers, and degraded aquatic habitat. |
| **Subbasin Objective 1C3:** Maintain and implement restoration activities consistent with Upper Columbia White Sturgeon Recovery Plan by 2005. | **Strategy a:** Implement Upper Columbia White Sturgeon Recovery Plan. Implement protection and restoration of threatened and endangered species. | Loss of anadromous life history, fish passage barriers, modified flow regimes |
| **Subbasin Objective 1C4:** Develop and meet recovery plan goals for sensitive native resident fish species. | **Strategy a:** Implement restoration, protection, and enhancement methods for native salmonids.<br>**Strategy b:** Increase the number of miles of streams within the | Lack of information, habitat degradation |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| | Spokane River watershed that support native redband rainbow trout.<br>**Strategy c**: Increase the number of miles of streams within the Spokane River watershed that support native mountain whitefish.<br>**Strategy d:** Increase the number of spawning adult kokanee in the Chain Lakes to 5000 individuals. | |
| **Subbasin Objective 2A1*:** Conduct baseline investigations to determine native resident and resident fish stock composition, distribution, and relative abundance in the Subbasin by year 2010. | **Strategy a *:** Perform assessment of native salmonid stocks composition using DNA analysis or other appropriate techniques by 2010.<br>**Strategy b *:** Continue surveys to determine fish species distribution and relative abundance.<br>**Strategy c**: Continue populating existing databases and develop new databases as appropriate. | Lack of information, nonnative species impacts |
| **Subbasin Objective 2B1**: Protect, restore, and enhance existing terrestrial and aquatic resources in order to meet the increased demands (i.e., cultural, subsistence, and recreational) on these resources associated with the extirpation of anadromous fisheries. | **Strategy a**: Where possible, acquire management rights to priority properties that can be protected or restored to support native ecosystem/watershed function through title acquisition, conservation easements, and/or long-term leases.<br>**Strategy b**: Create or use existing incentive programs for private landowners to protect and/or restore habitats to support native ecosystem/watershed function.<br>**Strategy c**: Where management rights are acquired, identify the current condition and biological potential of the habitat, and then protect or restore those properties to the extent that their condition is consistent with the biological objectives of the 2000 Fish and Wildlife Program. | Loss of fishing opportunity, loss of anadromous life history |
| **Subbasin Objective 2C1:** Use artificial production to provide recreational and subsistence fisheries of white sturgeon, rainbow trout, kokanee salmon, and or other species consistent with the NPCC Resident Fish Substitution Policy. | **Strategy a:** Use genetically appropriate native stocks when possible.<br>**Strategy b:** Use artificial production to produce sufficient quantities and better quality fish to drive recreational and subsistence fisheries. | Loss of anadromous life history, lack of spawning habitat, habitat degradation |
| **Subbasin Objective 2C2*:** Assess need for conservation aquaculture facilities to assist with enhancing or re-establishing healthy, self-sustaining native fish populations for reproduction, recreation, and subsistence by year 2012. | **Strategy a**: Enhance populations of sensitive native resident fish (e.g., white sturgeon) through habitat improvements and artificial production, in concert with recovery plans (e.g., the Upper Columbia White Sturgeon Recovery Plan).<br>**Strategy b:** Use artificial production and habitat improvements to establish/enhance non-anadromous populations of Chinook salmon and steelhead range wherever appropriate.<br>**Strategy c:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions. | Loss of fishing opportunity, loss of anadromous life history, habitat degradation |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Subbasin Objective 2C3:** Supplement non-self sustaining fish species to provide a recreational and subsistence fishery. | **Strategy a**: By 2015, maintain and increase the number of trout fishing opportunities in ponds, lowland lakes, and reservoirs to provide anglers with the following catch rates and species:<br><br>**Put and take:** 5 fish per angler per trip, utilizing rainbow trout<br>**Harvest oriented:** 3 fish per angler per trip, utilizing rainbow, cutthroat, tiger, brown, and brook trout<br>**Catch and release:** 8 fish per angler per trip utilizing rainbow, cutthroat, tiger, brown, and brook trout<br>**Quality trout** (trout greater than 40 cm in length): 1 fish per angler per trip utilizing rainbow, cutthroat, tiger, brown, and brook trout<br>**Trophy trout** (trout greater than 50 cm in length): 0.5 fish per angler per trip utilizing rainbow, cutthroat, tiger, brown, and brook trout<br>**Strategy b:** Increase hatchery production capabilities to produce sufficient quantities and better quality gamefish to drive harvest and subsistence oriented fisheries by year 2015.<br>**Strategy c:** Increase put and take warm water fisheries (i.e. walleye, crappie, sunfish) with angler catch rates of 7 fish per angler per trip by year 2020.<br>**Strategy d:** Increase catch rates of largemouth bass in Lake Spokane to 8 fish per angler trip by 2020.<br>**Strategy e:** Increase catch rates of rainbow trout in Lake Spokane to 5 fish per angler per trip by year 2010.<br>**Strategy f:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions. | Loss of fishing opportunity, loss of anadromous life history, habitat degradation |
| **Subbasin Objective 2D1*:** In the event anadromous fish return to the Spokane arm of Lake Roosevelt, the appropriate tribes, agencies, and stakeholders will assess the feasibility of restoration of access and habitat throughout the remainder of the Spokane River Subbasin. | **Strategy a*:** Conduct the study.<br>**Strategy b:** Expand Chinook salmon and steelhead range and habitat where appropriate. | Loss of anadromous life history |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Priority 2** | | |
| **Subbasin Objective 1A2:** Fully mitigate and compensate for resident fish losses related to construction and operation of FCRPS by the year 2050. | **Strategy a*:** Following the completion of baseline data gathering as proposed by the Resident Fish Stock Status above Chief Joseph and Grand Coulee dams project and other similar assessment tools, current baseline conditions can be established to propose projects to address limiting factors for restoration, protection and enhancement for resident fish species in the Spokane Subbasin.<br>**Strategy b:** Achieve subbasin objectives 1B1 through 1C4 | Habitat degradation as a result of FCRPS construction and operation |
| **Subbasin Objective 1B1*:** Evaluate instream and riparian habitat quality and quantity (at least 50 miles per year) for resident fish with primary emphasis on native salmonid habitats by year 2010. | **Strategy a:** Continue stream and riparian habitat surveys and initiate new surveys as appropriate.<br>**Strategy b:** Inventory fish passage barriers by year 2010.<br>**Strategy c:** Continue populating existing databases and develop new databases as appropriate.<br>**Strategy d**: Develop and utilize consistent barrier criteria and inventory methodology to be used province-wide by agencies/managers.<br>**Strategy e:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. | Degraded riparian habitat and instream flows |
| **Subbasin Objective 1C1*:** Assess the distribution and relative abundance of threatened or endangered species within the Spokane River Subbasin by year 2010. | **Strategy a:** Complete assessments of threatened and endangered species. | Lack of information |
| **Subbasin Objective 1C2:** Within five years of identification of threatened and endangered species, implement activities for protection and restoration. | **Strategy a:** Implement protection and restoration of threatened and endangered species. | Habitat degradation, loss of fishing opportunity |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Subbasin Objective 2A3:** Double the number of miles of stream within the Spokane Subbasin that support native game fish, including redband trout and native mountain whitefish, and subsistence species by 2020 through strategies addressing habitat and management of game species. | **Strategy a**: Utilizing appropriate assessment tools, prioritize habitats for restoration, protection and enhancement.<br>**Strategy b:** Restore, protect or enhance riparian corridors and wetlands.<br>**Strategy c:** Restore, protect or enhance instream habitats.<br>**Strategy d**: Coordinate with landowners to develop leases, conservation easements, management agreements, and implementation of Best Management Practices or purchase critical aquatic, riparian, or upland habitats.<br>**Strategy e:** Augment stream flows with water purchased, leased, or acquired from water trusts to restore, protect, or enhance resident fish populations in the Subbasin.<br>**Strategy f:** Establish harvest quotas and/or regulations within streams that produce native resident game and subsistence fish populations that promote the expansion of those populations by 2007.<br>**Strategy g:** Liberalize catch limits and seasons for fish species that compete with native game and subsistence fish species by 2007.<br>**Strategy h:** Remove barriers found to be detrimental to fish populations. | Habitat degradation, loss of fishing opportunity |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Priority 3** | | |
| **Subbasin Objective 1B4:** Determine a range of flows suitable for protection and enhancement of native resident fish species in the Subbasin. | **Strategy a:** Complete or initiate flow studies on Spokane River, Little Spokane River, Hangman Creek, and other tributaries to determine flows suitable for protection and enhancement of native resident fish species.<br>**Strategy b:** Develop and implement projects to achieve flows suitable for protection and enhancement of native resident fish species.<br>**Strategy c:** Where possible, acquire and enhance priority properties that historically functioned as riparian/wetland habitat but now are contributing to the flashy hydrology of the watershed due to drainage installed for agricultural production. Acquire priority properties through fee title acquisition, conservation easements, and/or long-term leases.<br>**Strategy d:** Create or use existing incentive programs for private landowners to remove/modify tile and drainage systems within potential riparian and wetland habitats, and/or to implement other strategies that achieve this objective.<br>**Strategy e:** Implement measures to initiate plant succession toward ecologic potential within wetland and riparian habitats.<br>**Strategy f**: Reclaim, reuse, conserve, store and/or recharge ground water so as to improve, or at a minimum, maintain the ground water/aquifer resource.<br>**Strategy g:** Construct ponds and catchment basins within intermittent drainages to function as both 1) June-September low flow period water sources, and 2) as sediment catchment basins.<br>**Strategy h**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. | Instream flows |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Subbasin Objective 2A2:** Minimize negative impacts (e.g., competition, predation, introgression) to native species from nonnative species and stocks. | **Strategy a:** Utilizing appropriate assessment tools, prioritize native fish populations for restoration, protection and enhancement.<br>**Strategy b:** Decrease the number of miles of stream within the Little Spokane River watershed with nonnative species by 50 percent by year 2025.<br>**Strategy c**: Decrease the number of miles of stream within the Hangman Creek watershed with nonnative species by 50 percent by year 2025.<br>**Strategy d:** Utilize sport fishing regulation to control number of nonnative species through harvest.<br>**Strategy e:** Utilize mechanical removal techniques to control number of nonnative species.<br>**Strategy f**: Utilize chemical removal techniques to control number of nonnative species. | Nonnative species impacts |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Priority 4** | | |
| **Subbasin Objective 1B3:** Meet or exceed applicable water quality standards by year 2015. | **Strategy a:** Identify point and non-point source pollution.<br>**Strategy b:** Conduct riparian restoration, reduce fine sediment inputs, and increase channel complexity to address known limiting factors for salmonid species.<br>**Strategy c**: Create or use existing incentive programs for private landowners to implement strategies to achieve this objective.<br>**Strategy d:** Where possible, acquire Priority properties through fee title acquisition, conservation easements, and/or long-term leases by year 2020.<br>**Strategy e**: Use vegetation enhancements, annual seeding, and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.<br>**Strategy f:** Manage livestock grazing within riparian zones to maximize native habitats.<br>**Strategy g:** Decommission roads wherever possible and develop road abandonment plans for federal, state, and Tribal lands to reduce road densities below three miles of road per square mile.<br>**Strategy h*:** Develop TMDL subbasin assessments, pollution reduction allocations and implementation plans for impaired water bodies by 2015. Carry out actions identified in TMDL implementation plans.<br>**Strategy i**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin.<br>**Strategy j:** Monitor TDG levels at fixed sites and in fish, in addition to TMDL-mandated monitoring. | Water quality |

| Objectives in Priority Order | Strategies in Priority Order | Limiting Factor(s) Addressed |
|---|---|---|
| **Priority 5** | | |
| **Subbasin Objective 1B7:** Expand stable littoral zones along Lake Roosevelt by 10 percent of lake surface area. | **Strategy a:** Modify dam operations to reduce erosion.<br>**Strategy b**: Increase water retention time in reservoirs to increase zooplankton production and reduce entrainment of juveniles.<br>**Strategy c:** Use vegetation enhancements, annual seeding, and water retention in backwater areas to increase near-shore fish production, increase shoreline stability, and reduce erosion.<br>**Strategy d:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin.<br>**Strategy e**: Manage livestock grazing within riparian zones to maximize native habitats. | Productivity, rearing habitat in Lake Roosevelt |
| **Priority 6** | | |
| **Subbasin Objective 1B6*:** Evaluate heavy metal/organic/inorganic contamination as a limiting factor on native, culturally, and economically important species. | **Strategy a*:** Conduct the evaluations as needed to fill data gaps.<br>**Strategy b:** Implement the assessment recommendations. | Water quality, sedimentation |
| **Priority 7** | | |
| **Subbasin Objective 1B5:** Reduce persistent bioaccumulating toxin concentrations in the waters of the Spokane Subbasin to acceptable levels, as defined by the applicable regulatory authorities by year 2015. | **Strategy a**: Work with EPA and other agencies to remove contaminated sediments from the upper Spokane River (Post Falls to Upriver dam), or other highly contaminated areas.<br>**Strategy b:** Reduce sediment collection in Lake Spokane by 75 percent of current year aggradation rates by year 2020.<br>**Strategy c**: Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Subbasin. | Water quality, sedimentation |

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

### 26.3.2 Discussion of Aquatic Prioritization

The Spokane Subbasin Work Team based its preliminary prioritization process on the criteria ranking worksheets. The results of the preliminary ranking were used during the sixth Work Team meeting as a starting point for discussion. The Work Team based its final prioritization process on the assumption that Category 1 and 2 and Province level objectives are of equal importance, reflecting the OC decision not to prioritize these objectives at the Province level. Although the preliminary ranking resulted in objectives with different priorities, the Work Team consensus process resulted in the decision that the Province level objectives could not be prioritized, but that individual subbasin objectives within them could be rank ordered. The result is a prioritized list with objectives from categories 1 and 2 grouped by priority. The objectives within priority groups are listed in alphanumeric order, since all are of equal priority.

In general, objectives addressing loss of anadromous and resident fish habitats due to the FCRPS were ranked higher than those addressing flows and other aspects of water quality.

## 26.4 Terrestrial Objectives and Strategies

Columbia River Basin-level terrestrial resource objectives were developed by the Northwest Power and Conservation Council in their 2000 Fish and Wildlife Program. The IMP subbasin planners have developed province level terrestrial resource objectives that are tiered to the Columbia River Basin level goals. These objectives were prioritized by the OC. 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 Columbia River Basin, Province, and Spokane Subbasin terrestrial objectives are prioritized and listed in order of their priority. Strategies are listed in order of priority beneath each Subbasin objective. 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.

***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.

**Spokane Subbasin Objective 1A**: Fully mitigate for terrestrial resource losses incurred from construction and inundation of the Grand Coulee Project per the requirements of the Northwest Power Act. Complete the compensation mitigation for construction losses at Grand Coulee Dam for wildlife and wildlife habitat consistent with the HEP loss assessment (Appendix C, Table 11-4 of the Columbia River Basin 2000 Fish and Wildlife Program) by year 2015. (These requirements will be met in coordination with San Poil and Upper Columbia subbasins, which also are influenced by Lake Roosevelt).

**Strategy a** (**for Objectives 1A1-1A9)*:** Identify and evaluate parcels for potential use in mitigation.

**Strategy b** (**for Objectives 1A1-1A9):** Protect habitat through fee title acquisition, conservation easements, lease, or management plans that address access management, livestock management, soil, vegetation and unwanted species, fire and fuels, nonnative wildlife, etc.

**Strategy c** (**for Objectives 1A1-1A9):** Develop and implement management plans that specify habitat/vegetation enhancements as well as management of access, livestock, soil, vegetation and unwanted species, fire and fuels, nonnative wildlife, etc.

**Objective 1A1**: Protect, enhance, or restore secure riverine island Canada goose nest sites to address riverine island/bar habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A2**: Protect enhance, or restore mourning dove Habitat Units to address riparian and agricultural habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A3**: Protect, enhance, or restore mule deer Habitat Units to address shrub-steppe and river break habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A4**: Protect, enhance, or restore riparian forest Habitat Units to address habitat losses resulting from construction of the Grand Coulee Project.

**Strategy d:** Protect, restore, and provide connectivity of cottonwood galleries.

**Strategy e:** Protect, restore, and provide connectivity of key riparian habitats.

**Objective 1A5**: Protect, enhance, or restore riparian shrub Habitat Units to address habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A6**: Protect, enhance, or restore ruffed grouse Habitat Units to address riparian/hardwood forest habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A7**: Protect, enhance, or restore sage grouse Habitat Units to address shrub-steppe habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A8**: Protect, enhance, or restore sharp-tailed grouse Habitat Units to address grasslands, shrub-steppe, and riparian draw habitat losses resulting from construction of the Grand Coulee Project.

**Objective 1A9**: Protect, enhance, or restore white-tailed deer Habitat Units to address seral forest habitat losses resulting from construction of the Grand Coulee Project.

**Strategy e:** Replace Habitat Units for white-tailed deer at low elevation sites.

**Objective 1A10**: Maintain wildlife values, Habitat Units (HUs), for the life of the project on existing and newly acquired mitigation lands through adequate long-term Operations and Maintenance (O&M) funding.

**Strategy a:** Develop and implement O&M funding mechanism to ensure maintenance of wildlife values, HUs, for the life of the project on existing and newly acquired mitigation lands.

**Objective 1A11***: Evaluate effectiveness of mitigation by monitoring and evaluating species and habitat responses to mitigation actions.

**Strategy a:** Develop and implement monitoring program on existing and newly acquired mitigation lands.

***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, 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.

**Spokane Subbasin Objective 1B***: Assess and mitigate the operational effects of the Grand Coulee Project in the Spokane Subbasin.

**Objective 1B1***: Using an impartial third party contractor, perform assessment of operational impacts of the Grand Coulee Project on terrestrial resources by year 2008.

**Strategy a*:** Have an impartial third party contractor conduct the assessment and consider fluctuation zone, loss of nutrients in watershed from loss of salmon, identify recreational effects to terrestrial resources, BPA transmission lines, connectivity, and erosion.

**Objective 1B2**: Develop mitigation plan for operational effects by year 2010.

**Objective 1B3**: Implement initial mitigation plan by 2015, incorporating an ongoing revision and review cycle and adequate O&M funding.

## 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.

***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.

**Spokane Subbasin Objectives:**

**Objective 2A1**: Maintain bald eagle at or above present levels (2004) in the Spokane Subbasin.

**Strategy a:** Maintain secure bald eagle breeding and wintering habitats. (Secure nesting habitat has full protection within 400 feet of nests and conditional protection within 800 feet of nests per WDFW definition.)

**Strategy b*:** Identify, map, and provide long-term protection to current and potential winter perching and foraging habitat.

**Strategy c*:** Continue or increase monitoring of nesting and wintering bald eagles.

**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 Lake Rufus Woods, Spokane, and Upper Columbia subbasins.)

**Strategy a*:** Determine limiting factors on, and size of, sharp-tailed grouse populations within the IMP and associated subbasins by 2006.

**Strategy b*:** Develop, prioritize, and implement projects and/or research to address identified sharp-tailed grouse limiting factors by year 2007.

**Strategy c*:** Assess current versus historical habitat availability and quality and if needed implement habitat restoration/conversion to address concerns.

**Strategy d*:** Assess and if deemed needed limit/restrict nonnative invasive species interaction/competition and habitat degradation.

**Objective 2A3**: Increase blue grouse populations by 20 percent within the Spokane Subbasin and adjacent subbasins/provinces by year 2010.

**Strategy a*:** Determine limiting factors on blue grouse populations within the Spokane Subbasin and associated subbasins by 2006.

**Strategy b*:** Develop, prioritize, and implement projects and/or research to address identified blue grouse limiting factors by year 2007.

**Strategy c*:** Assess current versus historical habitat availability and quality and if needed implement habitat restoration/conversion to address concerns.

**Strategy d*:** Assess and if deemed needed limit/restrict nonnative invasive species interaction/competition and habitat degradation.

**Objective 2A4:** Maintain or increase golden eagle populations at or above 2004 levels.

**Strategy a*:** Determine limiting factors for golden eagles by 2006.

**Strategy b*:** Develop, prioritize, and implement projects and/or research to address identified limiting factors for golden eagles by 2007.

**Objective 2A5**: Identify specific projects to protect, restore, and/or enhance populations of game species in the Subbasin reflecting federal, state, and Tribal management objectives (white-tailed deer, elk, moose).

**Strategy a:** Identify and implement projects to enhance populations of game species in the Subbasin.

**Objective 2A6:** Maintain raptor populations at or above present levels (2004) in the Spokane Subbasin in accordance with federal, state, and Tribal management plans. Protect important raptor sites including active and alternate nest trees, preferred feeding sites, migratory corridors, wintering areas, and perch and roost trees.

**Strategy a*:** Identify specific factors limiting/affecting raptor populations in the Spokane Subbasin by year 2010.

**Strategy b*:** Determine present population levels and monitor for trends, including continued/increased monitoring of raptors and identification and mapping of new roosting sites.

**Strategy c:** Develop, prioritize, and implement projects and/or research to address identified raptor limiting factors by year 2012.

**Objective 2A7**: Maintain or enhance populations of federal, state, local and Tribal species of special concern, and other native and desirable nonnative wildlife species, within their present and/or historical ranges within the Spokane Subbasin in order to prevent future declines and restore populations that have suffered declines. Target species include: Townsend's big-eared bats, pallid bat, spotted bat, hoary bat, silver-haired bat, fringed myotis, golden eagle, yellow warbler, sage sparrow, pileated woodpecker, Lewis' woodpecker, white-headed woodpecker, beaver, river otter, mink, snowshoe hare, and Columbia spotted frog.

**Strategy a*:** Identify target species/guilds based on management needs and relationships to indicator species utilized in HEP loss assessments; identify specific factors limiting/affecting target species populations in the Spokane Subbasin by 2010.

**Strategy b:** Develop, prioritize, and implement projects and/or research to address identified target species limiting factors by year 2012, with consideration of benefits achieved through mitigation for HEP loss assessment indicator species.

**Strategy c*:** Determine present population levels and conduct trend monitoring.

**Objective 2A8**: Neo-tropical migrant birds. Maintain or enhance neo-tropical migrant bird populations relative to current levels within suitable habitat and identify limiting factors for these populations within the Subbasin.

**Strategy a:** Prioritize neo-tropical bird target species referring to Partners in Flight documents, USFWS Birds of Conservation Concern 2002, and WDFW documents.

**Strategy b*:** Identify specific factors limiting/affecting neo-tropical bird populations in the Spokane Subbasin by 2010.

**Strategy c*:** Determine present population levels and monitor for trends.

**Strategy d:** Develop, prioritize, and implement projects and/or research to address identified neo-tropical bird population limiting factors by 2012.

**Objective 2A9**: Amphibians and Reptiles. Maintain or enhance amphibian and reptiles populations at current levels within suitable habitat and identify limiting factors within the Subbasin.

**Strategy a*:** Identify specific factors limiting/affecting amphibian and reptile populations in the Spokane Subbasin by year 2010.

**Strategy b*:** Determine present population levels and monitor for trends.

**Strategy c:** Develop, prioritize, and implement projects and/or research to address identified amphibian and reptile limiting factors by year 2012.

**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 Level 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 Level 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 Washington Department of Natural Resources and Idaho Department of Lands Forest Practices Rules and Subbasin Forest Plans for all National Forests within the Subbasin.

**Objective 2B1**: Complete mitigation requirements consistent with approved agreements in applicable federal licenses.

**Objective 2B2***: Identify, protect, maintain, restore, and enhance priority habitats (wetlands, riparian areas, upland forests, steppe and shrub-steppe, cliffs and rock outcrops (including caves and mines), in accordance with applicable agency, federal, state, local, and Tribal priority habitat designations), 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.

> **Strategy a**: Identify and map (using GIS) key habitat areas within focal habitats: upland forest, wetlands, riparian, shrub-steppe, and cliffs/rock outcrops/caves/mines.
>
> **Strategy b:** Acquire land management rights to key habitats through fee title acquisition, lease, conservation easement, or management agreement.
>
> **Strategy c:** Develop and implement management plans that address habitat protection, restoration, and/or enhancement, including access management, livestock management, soils and vegetation, nonnative species management, connectivity of habitats with other lands managed for terrestrial resources, and monitoring.
>
> **Strategy d:** Provide incentive program for private landowners to actively manage specific habitats to accomplish Objective 2B2.
>
> **Strategy e*:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Spokane Subbasin.
>
> **Strategy f:** Improve enforcement of existing state and Tribal hunting regulations and modify regulations as needed to increase protection/restoration of key wildlife populations.

**Objective 2B3:** Increase the quantity and quality of mule deer habitats, particularly winter and spring habitats.

> **Strategy a:** Identify key mule deer winter and spring range and acquire land management rights to through fee title acquisition, lease, conservation easement, or management agreement.

**Strategy b*:** Identify specific factors limiting/affecting mule deer populations; provide continuing funding to complete adequate inventory surveys and WDFW's Cooperative Mule Deer Project.

**Strategy c:** Develop and implement management plans and projects to protect, restore, and/or enhance mule deer habitats. Management plans should address:

- Vegetation management (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; restore grasses and forbs where noxious weeds have impacted mule deer habitat; increase the area of hardwood (aspen) stands).
- Access management (especially management of motorized traffic in critical mule deer spring and winter ranges).
- Enforcement (improve enforcement of existing regulations; modify regulations as needed to achieve population targets).
- Monitoring of effectiveness of management activities.

### 26.4.1 Prioritization of Terrestrial Objectives and Strategies

A detailed discussion of the methods used to prioritize the objectives and strategies is found in Section 1.2. In Spokane 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 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 for the Spokane Subbasin is displayed in Table 26.4-1.

Table 26.4-1 Ranking of terrestrial objectives and strategies in the Spokane Subbasin, with the limiting factor(s) that the objective was designed to address

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| **Provincial Priority 1 – Mitigate for construction and inundation losses** | | |
| **(1) Spokane Subbasin Objective 1A:** Fully mitigate for terrestrial resource losses incurred from construction and inundation of the Grand Coulee Project per the requirements of the Northwest Power Act. Complete the compensation mitigation for construction losses at Grand Coulee Dam for wildlife and wildlife habitat consistent with the HEP loss assessment (Appendix C, Table 11-4 of the Columbia River Basin 2000 Fish and Wildlife Program) by year 2015. (These requirements will be met in coordination with San Poil and Upper Columbia subbasins, which also are influenced by Lake Roosevelt).<br>**Objective 1A1:** Protect, enhance, or restore secure riverine island Canada goose nest sites to address riverine island/bar habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A2:** Protect enhance, or restore mourning dove Habitat Units to address riparian and agricultural habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A3:** Protect, enhance, or restore mule deer Habitat Units to address shrub-steppe and river break habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A4:** Protect, enhance, or restore riparian forest Habitat Units to address habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A5:** Protect, enhance, or restore riparian shrub Habitat Units to address habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A6:** Protect, enhance, or restore ruffed grouse Habitat Units to address riparian/hardwood forest habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A7:** Protect, enhance, or restore sage grouse Habitat Units to address shrub-steppe habitat losses resulting from construction of the Grand Coulee Project.<br>O**bjective 1A8:** Protect, enhance, or restore sharp-tailed grouse Habitat Units to address grasslands, shrub-steppe, and riparian draw habitat losses resulting from construction of the Grand Coulee Project.<br>**Objective 1A9:** Protect, enhance, or restore white-tailed deer Habitat Units to address seral forest habitat losses resulting from construction of the Grand Coulee Project. | **Strategy a** (**for Objectives 1A1-1A9)*:** Identify and evaluate parcels for potential use in mitigation.<br><br>**Strategy b** (**for Objectives 1A1-1A9):** Protect habitat through fee title acquisition, conservation easements, lease, or management plans that address access management, livestock management, soil, vegetation and unwanted species, fire and fuels, nonnative wildlife, etc.<br><br>**Strategy c** (**for Objectives 1A1-1A9):** Develop and implement management plans that specify habitat/vegetation enhancements as well as management of access, livestock, soil, vegetation and unwanted species, fire and fuels, nonnative wildlife, etc.<br><br>**Strategy d (Objective 1A4):** Protect, restore, and provide connectivity of cottonwood galleries.<br><br>**Strategy e (Objective 1A4):** Protect, restore, and provide connectivity of key riparian habitats.<br><br>**Strategy e (Objective 1A9):** Replace Habitat Units for white-tailed deer at low elevation sites.<br><br>**Strategy a (Objective 1A10):** Develop and implement O&M funding mechanism to ensure maintenance of wildlife values, HUs, for the life of the project on existing and newly acquired mitigation lands. | Terrestrial resource losses incurred from construction and inundation of the Grand Coulee Project |

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| **Objective 1A10:** Maintain wildlife values, HUs, for the life of the project on existing and newly acquired mitigation lands through adequate long-term Operations and Maintenance (O&M) funding. | | |
| **(2)** Evaluate effectiveness of mitigation by monitoring and evaluating species and habitat responses to mitigation actions. **Objective 1A11*** | **Strategy a:** Develop and implement monitoring program on existing and newly acquired mitigation lands. | Lack of information, adaptive management |
| **Provincial Priority 2 – Quantify and mitigate for operational impacts** | | |
| **(3)** Using an impartial third party contractor, perform assessment of operational impacts of the Grand Coulee Project on terrestrial resources by year 2008. **Objective 1B1*** | **Strategy a*:** Have an impartial third party contractor conduct the assessment and consider fluctuation zone, loss of nutrients in watershed from loss of salmon, identify recreational effects to terrestrial resources, BPA transmission lines, connectivity, and erosion. | Lack of data on operational impacts |
| **(4)** Develop mitigation plan for operational effects by year 2010. **Objective 1B2** | **Strategy a:** Develop mitigation plan. | Need to mitigate operational impacts |
| **(5)** Implement initial mitigation plan by 2015, incorporating an ongoing revision and review cycle and adequate O&M funding. **Objective 1B3** | **Strategy a:** Implement mitigation plan and review cycle. | Need to mitigate operational impacts |
| **Provincial Priority 3 –Mitigate for secondary effects of FCRPS and other subbasin effects** | | |
| **(6)** 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 Lake Rufus Woods, Spokane, and Upper Columbia subbasins.) **Objective 2A2** | **Strategy a*:** Determine limiting factors on, and size of, sharp-tailed grouse populations within the IMP and associated subbasins by 2006.<br><br>**Strategy b:** Develop, prioritize, and implement projects and/or research to address identified sharp-tailed grouse limiting factors by year 2007.<br><br>**Strategy c*:** Assess current versus historical habitat availability and quality and if needed implement habitat restoration/conversion to address concerns.<br><br>**Strategy d*:** Assess and if deemed needed limit/restrict nonnative invasive species interaction/competition and habitat degradation. | Secondary effects of FCRPS and other subbasin effects to sharp-tailed grouse populations |

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| **(7)** Maintain bald eagle at or above present levels (2004) in the Spokane Subbasin. **Objective 2A1** | **Strategy a:** Maintain secure Bald eagle breeding and wintering habitats. (Secure nesting habitat has full protection within 400 feet of nests and conditional protection within 800 feet of nests per WDFW definition.)<br><br>**Strategy b*:** Identify, map, and provide long-term protection to current and potential winter perching and foraging habitat.<br><br>**Strategy c*:** Continue or increase monitoring of nesting and wintering bald eagles. | Secondary effects of FCRPS and other subbasin effects to bald eagle populations |
| **(8)** Identify specific projects to protect, restore, and/or enhance populations of game species in the Subbasin reflecting federal, state, and Tribal management objectives (white-tailed deer, elk, moose). **Objective 2A5** | **Strategy a:** Identify and implement projects to enhance populations of game species in the Subbasin. | Secondary effects of FCRPS and other subbasin effects to game species populations |
| **(9)** Amphibians and Reptiles. Maintain or enhance amphibian and reptiles populations at current levels within suitable habitat and identify limiting factors within the Subbasin. **Objective 2A9** | **Strategy a*:** Identify specific factors limiting/affecting amphibian and reptile populations in the Spokane Subbasin by year 2010.<br><br>**Strategy b*:** Determine present population levels and monitor for trends.<br><br>**Strategy c:** Develop, prioritize, and implement projects and/or research to address identified amphibian and reptile limiting factors by year 2012. | Secondary effects of FCRPS and other subbasin effects to amphibians and reptile populations |

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| **(10)** Increase blue grouse populations by 20 percent within the Spokane Subbasin and adjacent subbasins/provinces by year 2010. **Objective 2A3** | **Strategy a*:** Determine limiting factors on blue grouse populations within the Spokane Subbasin and associated subbasins by 2006.<br><br>**Strategy b*:** Develop, prioritize, and implement projects and/or research to address identified blue grouse limiting factors by year 2007.<br><br>**Strategy c*:** Assess current versus historical habitat availability and quality and if needed implement habitat restoration/conversion to address concerns.<br><br>**Strategy d*:** Assess and if deemed needed limit/restrict nonnative invasive species interaction/competition and habitat degradation. | Secondary effects of FCRPS and other subbasin effects to blue grouse populations |
| (11) Neo-tropical migrant birds. Maintain or enhance neo-tropical migrant bird populations relative to current levels within suitable habitat and identify limiting factors for these populations within the Subbasin. **Objective 2A8** | **Strategy a:** Prioritize neo-tropical bird target species referring to Partners in Flight documents, USFWS Birds of Conservation Concern 2002, and WDFW documents.<br><br>**Strategy b*:** Identify specific factors limiting/affecting neo-tropical bird populations in the Spokane Subbasin by 2010.<br><br>**Strategy c*:** Determine present population levels and monitor for trends.<br><br>**Strategy d:** Develop, prioritize, and implement projects and/or research to address identified neo-tropical bird population limiting factors by 2012. | Secondary effects of FCRPS and other subbasin effects to neo-tropical migrant bird populations |
| **(12)** Maintain or increase golden eagle populations at or above 2004 levels. **Objective 2A4** | **Strategy a*:** Determine limiting factors for golden eagles by 2006.<br><br>**Strategy b*:** Develop, prioritize, and implement projects and/or research to address identified limiting factors for golden eagles by 2007. | Secondary effects of FCRPS and other subbasin effects to golden eagle populations |

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| (13) Maintain raptor populations at or above present levels (2004) in the Spokane Subbasin in accordance with federal, state, and Tribal management plans. Protect important raptor sites including active and alternate nest trees, preferred feeding sites, migratory corridors, wintering areas, and perch and roost trees. **Objective 2A6** | **Strategy a*:** Identify specific factors limiting/affecting raptor populations in the Spokane Subbasin by year 2010.<br><br>**Strategy b*:** Determine present population levels and monitor for trends, including continued/increased monitoring of raptors and identification and mapping of new roosting sites.<br><br>**Strategy c:** Develop, prioritize, and implement projects and/or research to address identified raptor limiting factors by year 2012. | Secondary effects of FCRPS and other subbasin effects to raptor populations |
| **(14)** Maintain or enhance populations of federal, state, local and Tribal species of special concern, and other native and desirable nonnative wildlife species, within their present and/or historical ranges within the Spokane Subbasin in order to prevent future declines and restore populations that have suffered declines. **Objective 2A7** | **Strategy a*:** Identify target species/guilds based on management needs and relationships to indicator species utilized in HEP loss assessments; identify specific factors limiting/affecting target species populations in the Spokane Subbasin by 2010.<br><br>**Strategy b:** Develop, prioritize, and implement projects and/or research to address identified target species limiting factors by year 2012, with consideration of benefits achieved through mitigation for HEP loss assessment indicator species.<br><br>**Strategy c*:** Determine present population levels and conduct trend monitoring. | Secondary effects of FCRPS and other subbasin effects to species of special concern populations |

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| **(15)** Identify, protect, maintain, restore, and enhance priority habitats (wetlands, riparian areas, upland forests, steppe and shrub-steppe, cliffs and rock outcrops (including caves and mines), in accordance with applicable agency, federal, state, local, and Tribal priority habitat designations), 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. **Objective 2B2*** | **Strategy a**: Identify and map (using GIS) key habitat areas within focal habitats: upland forest, wetlands, riparian, shrub-steppe, and cliffs/rock outcrops/caves/mines.<br><br>**Strategy b:** Acquire land management rights to key habitats through fee title acquisition, lease, conservation easement, or management agreement.<br><br>**Strategy c:** Develop and implement management plans that address habitat protection, restoration, and/or enhancement, including access management, livestock management, soils and vegetation, nonnative species management, connectivity of habitats with other lands managed for terrestrial resources, and monitoring.<br><br>**Strategy d:** Provide incentive program for private landowners to actively manage specific habitats to accomplish **Objective 2B2**.<br><br>**Strategy e*:** Develop technical and policy working groups that meet regularly to identify problems and implement solutions for the Spokane Subbasin.<br><br>**Strategy f:** Improve enforcement of existing state and Tribal hunting regulations and modify regulations as needed to increase protection/restoration of key wildlife populations. | Secondary effects of FCRPS and other subbasin effects to priority habitats |

| Objectives in Priority Order | Strategies | Limiting Factor(s) Addressed |
|---|---|---|
| **(16)** Increase the quantity and quality of mule deer habitats, particularly winter and spring habitats. **Objective 2B3** | **Strategy a:** Identify key mule deer winter and spring range and acquire land management rights to through fee title acquisition, lease, conservation easement, or management agreement.<br><br>**Strategy b*:** Identify specific factors limiting/affecting mule deer populations; provide continuing funding to complete adequate inventory surveys and WDFW's Cooperative Mule Deer Project.<br><br>**Strategy c:** Develop and implement management plans and projects to protect, restore, and/or enhance mule deer habitats. Management plans should address:<br>• Vegetation management (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; restore grasses and forbs where noxious weeds have impacted mule deer habitat; increase the area of hardwood (aspen) stands.<br>• Access management (especially management of motorized traffic in critical mule deer spring and winter ranges).<br>• Enforcement (improve enforcement of existing regulations; modify regulations as needed to achieve population targets).<br>• Monitoring of effectiveness of management activities. | Secondary effects of FCRPS and other subbasin effects to mule deer habitats |
| **(17)** Complete mitigation requirements consistent with approved agreements in applicable federal licenses. **Objective 2B1** | No specific strategies identified. | Other subbasin effects associated with hydropower development |

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

### 26.4.2 Discussion of Terrestrial Prioritization

The ranking of the terrestrial objectives directly reflects the priorities established in the Council's 2000 Fish and Wildlife Program. The overall top priority terrestrial objective for the Spokane Subbasin is to fully mitigate for terrestrial resource losses incurred from construction and inundation of the Grand Coulee Project per the requirements of the Northwest Power Act. Within this objective, there are ten sub-objectives that have not been prioritized. All ten sub-objectives are considered to be equally high priority.

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 Spokane 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 and to implement the mitigation plan. The objective is to implement the initial mitigation plan for operational impacts by 2015.

The third priority in the IMP is to mitigate for secondary effects of the hydrosystem development in combination with other subbasin effects to terrestrial resources. In this category of objectives, the Spokane Subbasin Work Team ranked increasing sharp-tailed grouse and maintaining and increasing bald eagles as the highest priority. Sharp-tailed grouse are a Washington State threatened species and bald eagles are a federally-listed threatened species.

Protecting, enhancing, or restoring game species is next on the priority list, with reptiles and amphibians ranked ninth. The remainder of the objectives address secondary FCRPS and other subbasin impacts on other important species and/or habitats including: blue grouse, neo-tropical migrant birds, golden eagles, raptors, species of special concern, priority habitats, and mule deer habitats. The last objective on the list says to complete mitigation requirements consistent with approved agreements in applicable federal licenses. Although this is an important objective, it addresses FERC rather than FCRPS hydropower and so was placed low on the priority list for this plan.