

SECTION 47 – Table of Contents

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47 Lake Rufus Woods Subbasin Inventory of Existing Programs – Aquatic

Large portions of Section 47 were contained within the Lake Rufus Woods Subbasin Summary Report (2001) and are summarized here.

47.1 Current Management Directions

Within the Lake Rufus Woods Subbasin, fish and wildlife resources are co-managed by the Washington Department of Fish and Wildlife (WDFW) and the Colville Confederated Tribes (CCT) outside of the boundaries of the Colville Indian Reservation and exclusively by the CCT within the boundaries of the reservation. The current management direction is to maintain viable populations of native and desired nonnative species of fish and wildlife, and their supporting habitats, while providing sufficient numbers to meet the cultural, subsistence and recreational needs. A complete list of state, federal, and Tribal entities that are involved in management of fish and wildlife or their habitats is included in section 2.4.1, along with a description of the agency's management direction.

47.1.1 Local Government

47.1.1.1 Douglas County

Douglas County on the east side of the reservoir regulates and enforces the Growth Management Act and is responsible for planning, land use and building permits. The vision for the CCT is to manage the natural resources under its jurisdiction on the Colville Indian Reservation to enhance and maintain the ecological health of the environment and the social well being of the Tribal Members and other human populations (CCT 2000)

47.1.1.2 Okanogan County

The CCT have management and regulatory authority of lands within the boundaries of the Colville Indian Reservation in Okanogan County.

47.2 Existing and Imminent Protections

Currently, bull trout are the only federally listed fish species within the Lake Rufus Woods Subbasin. However, it is presumed that the distribution of bull trout is not widespread within the Subbasin. Habitat within the Lake Rufus Woods Subbasin has not been determined to be within the critical habitat area as outlined by the USDA (2001). A petition to list westslope cutthroat trout as a threatened species in 2003 has been set aside by the USFWS (Federal Register 2003). Other aquatic candidates for potential listing may include redband trout due to hybridization with introduced stocks of rainbow trout and white sturgeon because of a lack of juvenile recruitment and suitable spawning habitat within Lake Rufus Woods.

47.3 Inventory of Recent Restoration and Conservation Projects

Few activities are ongoing in the Subbasin (both BPA and non-BPA funded) that address current research, monitoring and evaluation needs in the Lake Rufus Woods Subbasin. At

this time the activities are focused on small areas. Many are in the initial stages of assessment and enhancements. Most of what does occur is done as part of a larger project and not necessarily focused at the Lake Rufus Woods Subbasin.

47.3.1 BPA Funded Activities

Chief Joseph Kokanee Enhancement Project (#9501100)

Project Description:

This is mainly a fish stock status project with emphasis placed upon the protection and ultimate enhancement of the natural production kokanee found in the blocked area. Current focus is on testing the efficacy of strobe light technology as a deterrent to fish entrainment at Grand Coulee Dam. At the direction of the Independent Scientific Review Panel (ISRP), the project engaged a subcontractor to test strobe lights at Grand Coulee. The project is using multi and split beam acoustic transducers combined with exclusive software developed to determine the effectiveness of the light array to elicit an avoidance response to the lights. Additionally the project is monitoring fine scale fish behavior using surgically implanted sonic tags monitored by underwater hydrophone arrays in the power plant cul-de-sac and below the dam. Other objectives include determining the baseline genetic code of natural production kokanee found within the blocked area and Canada. As part of this objective the project is monitoring the annual status of the natural production kokanee stocks at various locations on and off of the Colville Indian Reservation.

Associated Monitoring:

The project is monitoring entrainment on an ongoing basis each spring and early summer period. It is also tracking and compiling a genetic family tree of “wild” kokanee stocks found in the blocked area. Annual adult kokanee spawner recruitment is tracked as a matter of routine each fall.

Accomplishments:

- Conducted a 42-month entrainment study at Grand Coulee Dam using single beam acoustic monitors installed near the turbine intake area of 14 of the 24 turbine intakes at Grand Coulee Dam.
- Determined that entrainment was substantial and represented the greatest threat to the BPA funded hatchery program related to Lake Roosevelt and Banks Lake.
- Determined that entrainment ranged from 211,000 to 600,000 annually. A total of 1,655,000 fish targets counted in the 42-month study.
- Identified the third power plant as entraining the greatest number of fish annually. Eighty five percent of the total entrainment occurred at the third power plant.
- Determined that power peaking and flood control operations were the cause of much of the high entrainment rates.
- Determined that a correlation exists between high water years, timing of lake refill, dam discharge, dam operations, timing of net pen and hatchery releases, and high entrainment.
- Determined that at a minimum six kokanee stocks have the potential of occupying Lake Roosevelt waters.
- Discovered a stock of kokanee in Chain Lake that predates the construction of Grand

- Coulee Dam that is genetically unique probably due to genetic isolation.
- Determined that wild tributary spawning kokanee do support the intensive Lake Roosevelt kokanee fishery.
- In conjunction with the entrainment a weekly gill net survey was conducted that determined that while many fish species were present near the dam, kokanee and rainbow trout made up the majority of the gill net catch. Walleye were the third most commonly encountered specie.
- Determined that some current velocities present in the center of the third power plant cul-de-sac may overwhelm the ability of fish to modify their direction of travel and be sucked through the dam intakes.
- Discovered that operations of the Pumping/Generation station may also be a substantial contributor to entrainment at Grand Coulee Dam.
- Determined that the pumping station intakes are unscreened as are the turbine intakes.

Colville Tribal Fish Hatchery (#8503800)

Currently the hatchery provides surplus fish when available to supplement the rainbow trout fishery within Lake Rufus Woods and stocks fish into lakes and streams on the Colville Reservation. Lakes on the Colville Reservation are monitored and evaluated for activities associated with hatchery stocking efforts, broodstock maintenance/development, fishery contribution, and relative species abundance.

47.3.2 Non-BPA Funded Activities

Confederated Tribes of the Colville Reservation

- A fish passage feasibility studies were and continue to be funded by the Colville Tribes for Chief Joseph Dam.
- Ecological Interaction Research Study (Tropic Cascade) and limnological studies were conducted on Buffalo Lake. .
- Creel census work was and continues to be conducted on many Subbasin lakes and streams largely as part of the Colville Tribal Hatchery monitoring and evaluation efforts.
- Both the CCT Parks and Recreation Department and the WDFW enforce fish and wildlife regulations.
- Tribal Environmental Trust department monitors water quality and flow regimes in Subbasin lakes and streams.
- Permitting and regulatory activities are conducted by the CCT (including but not limited to shoreline, Hydraulic, planning/land use, burning, water withdrawal, timber harvest, and other permits that are issued by a variety of departments.

Washington Department of Natural Resources

The Washington Department of Natural Resources monitors land use and forest practice activities on fee lands within the Subbasin.

U.S. Bureau of Reclamation

The Bureau of Reclamation monitors water flow regimes and water quality. Dissolved gas and lake levels are monitored for Lake Roosevelt and Grand Coulee Dam.

U.S. Geological Survey

The Kalispel Tribe Stock Status Above Chief Joseph and Grand Coulee Dams (#9700400) project is developing better communication and data use throughout the province while conducting inventories on all pertinent fish species. The USGE-BRD has conducted Gas Bubble disease studies in Lake Rufus Woods.

Douglas County

Various building and shoreline codes are monitored and permitted by this county government.

47.4 Strategies Currently Being Implemented Through Existing Projects

Few projects through the Northwest Power and Conservation Council's (Council) Fish and Wildlife Program have been initiated in the Lake Rufus Woods Subbasin. These projects were undertaken to partially mitigate for the loss of anadromous fish due to the creation of the federal hydropower system utilizing resident fish substitution. The following projects have enhanced the resident fishery (both native and nonnative) in the Lake Rufus Woods Subbasin:

- Stock assessments: Chief Joseph Kokanee Enhancement Project #9501100
 - Addresses kokanee salmon monitoring in the blocked area and entrainment reduction research at Grand Coulee Dam.
 - Primarily represents R, M & E activities for blocked area.

- Artificial production enhancement activities: Colville Tribal Fish Hatchery #8503800
 - Provides hatchery production for lakes and streams on the Colville Reservation.
 - Monitors and evaluates hatchery activities.
 - Resident Fish substitution and R, M & E activities on lakes.

47.4.1 Limiting Factors and Strategies Currently Being Implemented

As described in Section 2.4.2, a database was developed that lists the recent projects that have been implemented in the Subbasin. Each project was coded for the limiting factors that were addressed and the strategies that were employed.

In the Lake Rufus Woods Subbasin, seven recent restoration and conservation projects were identified. Of the projects identified, three were focused on resident fish, three primarily benefited wildlife, and one benefited both fish and wildlife. Projects in the Lake Rufus Woods Subbasin have been diverse. All the categories of limiting factors received some attention in recent years (Figure 47.1).

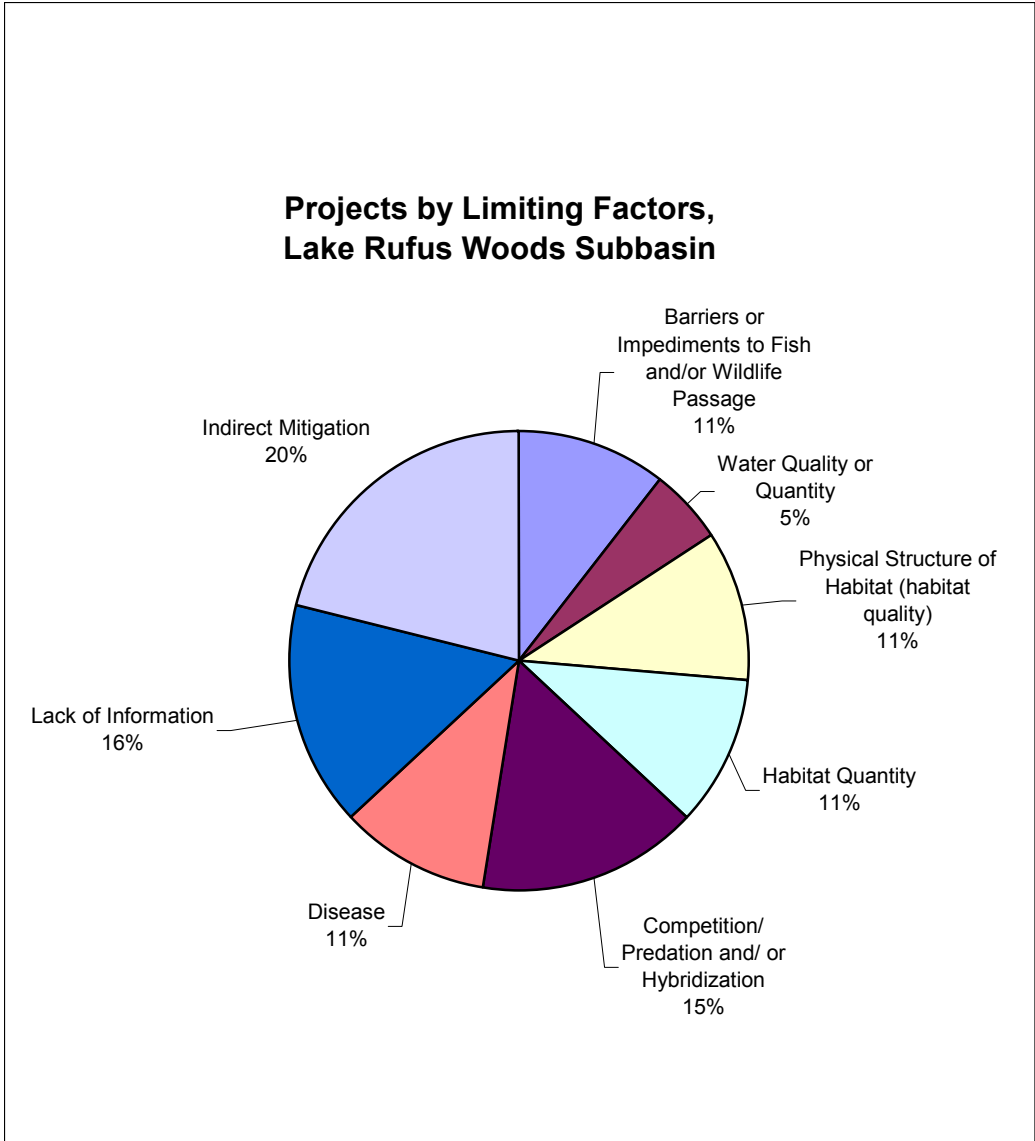


Figure 47.1. Proportion of projects in the Lake Rufus Woods Subbasin that relate to specific limiting factors

The strategies that have been employed in the Lake Rufus Woods Subbasin have also been diverse (Figure 47.2). The only strategy that has not been extensively employed by the projects in the database is enforcement/protection.

Project by Strategy, Lake Rufus Woods Subbasin

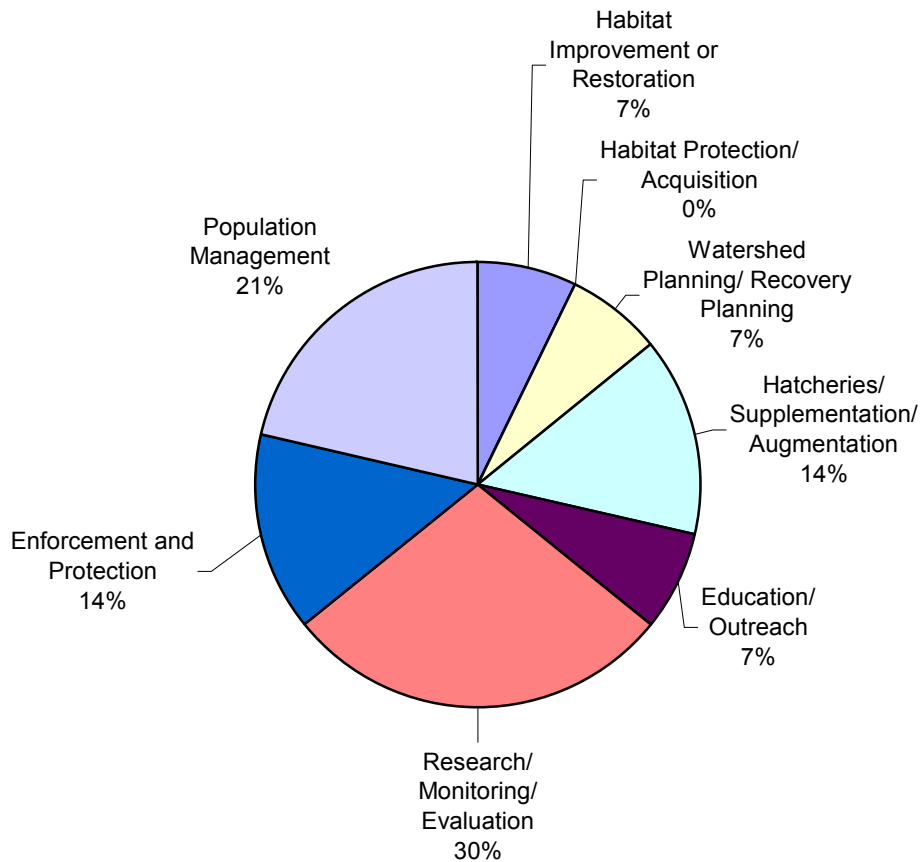


Figure 47.2. Proportion of projects in the Lake Rufus Woods Subbasin that relate to specific strategies

47.4.2 Gaps Between Actions Taken and Actions Needed

The Technical Guide for Subbasin Planners requires that gaps between actions taken and actions needed be identified. This perspective will help determine whether ongoing activities are appropriate or should be modified and lead to new management activity considerations.

In the IMP, the Technical Coordination Group provided information identified only 7 total projects in this Subbasin for both fish and wildlife combined. The most obvious gap between the actions taken and the actions needed in the Lake Rufus Woods Subbasin is the lack of action.