LITTLE GOOSE MASTER PLAN

US Army Corps
of Engineers ®
Walla Walla District

Draft – July 2020

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BPA	Bonneville Power Administration
BRZ	boat restricted zone
CFR	Code of Federal Regulation
cfs	cubic feet per second
Colville	Confederated Tribes of the Colville Reservation
Corps	U.S. Army Corps of Engineers
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
District	Walla Walla District
DM	Design Memorandum
EA	Environmental Assessment
EM	Engineer Manual
ENS	Environmental Stewardship
EO	Executive Order
EP	Engineer Pamphlet
EPA	Environmental Protection Agency
ER	Engineer Regulation
ESA	Environmentally Sensitive Area
FCRPS	Federal Columbia River Power System
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Conservation Act
GIS	geographic information system
HEP	Habitat Evaluation Procedure
HMU	Habitat Management Unit
IPMP	Integrated Pest Management Plan
JFF	Juvenile Fish Facility
LSRFWCP	Lower Snake River Fish and Wildlife Compensation Plan
MRM	Multiple Resource Management
MRM-FIRA	Multiple Resource Management-Future and Inactive Recreation Areas

MRM-LDR	Multiple Resource Management-Low Density Recreation
MRM-VM	Multiple Resource Management-Vegetative Management
MRM-WM	Multiple Resource Management-Wildlife Management
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
O&M	Operation and Maintenance
OMP	Operational Management Plan
PIT	passive integrated transponder
PL	Public Law
Project	Little Goose Lock and Dam Operating Project
PSMP	Programmatic Sediment Management Plan
RM	river mile
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
TCP	Traditional Cultural Property
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WRDA	Water Resources Development Act
WSDOT	Washington State Department of Transportation
WSU	Washington State University
Yakama	The Confederated Tribes and Bands of the Yakama Nation

PREFACE

The Little Goose Master Plan was first approved in 1969. There has been one supplemental change since that time, but no formal revisions. Most of the changes in the current plan reflect new resource objectives, a new land classification system that updates 1969 classifications to existing conditions, and documentation of land classification changes between 1969 and present day. This plan also includes changes in land classification that were made in conjunction with a multidisciplinary team and input from the public.

The format for this plan is outlined in Engineer Pamphlet 1130-2-550 (Corps 1996), revised January 2013, which sets forth policy and procedure to be followed in preparation and revision of project master plans.

The Master Plan is intended to serve as a guide for the orderly and coordinated development, management, and stewardship of all lands, facilities, and water resources of Little Goose Lock and Dam. This plan is an overarching framework for the more detailed Operational Management Plan, which is developed after the Master Plan is completed and updated annually.

The 2020 Master Plan presents an inventory of land resources and how they are classified, existing park facilities, and analysis of resource use, anticipated influences on Project operation and management, and an evaluation of future needs. It presents data on changes from 1969 to present conditions, anticipated recreational use, sensitive resources requiring protection, and mitigation requirements under the Lower Snake River Fish and Wildlife Compensation Plan (Corps 1975).

1. Introduction

This document is the Little Goose Lock and Dam Master Plan (Master Plan) for management of the lands and associated recreational, natural, and cultural resources of Little Goose Lock and Dam (also referred to as the Project throughout the rest of the document). Master plans are required for civil works projects and other fee-owned lands for which the U.S. Army Corps of Engineers (Corps) Walla Walla District (District) has administrative responsibility for management. Chapter 1 identifies the authorized purposes and provides a description of Little Goose Lock and Dam and provides information about the scope, goals, and planning processes of this Master Plan.

1.1. PROJECT AUTHORIZATION

The first formal proposal by Congress for the improvement of the Snake River for navigation and other purposes was made in 1902. This was followed by other actions, notably in 1910 and 1935, eventually leading to the River and Harbor Act of 1945 (Public Law [PL] 79-14), which authorized construction of a series of dams on the reach of Snake River downstream from Lewiston, Idaho, substantially in accordance with the plan submitted in House Document Numbered 704, Seventy-fifth Congress. House Document 531, Eighty-First Congress, Second Session, dated March 20, 1950, proposed a four-dam plan with Little Goose as the third unit of the four dams. Construction funds for Little Goose Lock and Dam were first appropriated under PL 89-16, dated April 30, 1965. The main dam structure and installation of the first three power-generating units was complete in 1970, with the addition of three more units in 1978. A legislative history for the Project is provided in Appendix A, Legislative History of Little Goose Lock and Dam.

1.2. AUTHORIZED PURPOSES

The purposes of Little Goose Lock and Dam, as originally authorized by Congress, include navigation, hydroelectric power and irrigation, with fish and wildlife conservation and recreation added later as additional purposes. The Master Plan does not address the authorized purposes of navigation, hydroelectric power, or incidental irrigation.

1.2.1. Recreation

Section 4 of the Flood Control Act of 1944, as amended in 1946 and 1954 and by Section 207 of the 1962 Flood Control Act (PL 87-874), is the basic authority recreation development on Lake Bryan.

The Corps is the largest provider of water-based outdoor recreation in the nation. With more than 400 lakes and river projects in 43 states, the Corps plays a major role in meeting the nation's outdoor recreation needs. Popular recreation activities around Lake Bryan include fishing, swimming, picnicking, boating, hunting, and camping. There are several day-use areas, campsites, parks, habitat management units (HMUs), boat ramps, and a marina.

1.2.2. Fish and Wildlife

The Fish and Wildlife Coordination Act (FWCA) of 1958 (PL 85-624) provides authority to incorporate project features or structures for conservation of fish and wildlife. Under the guidance of this law, the various proposals and concepts set forth in this Master Plan have been, and will continue to be, coordinated with the fish and wildlife agencies.

The Lower Snake River Fish and Wildlife Compensation Plan (LSRFWCP) was authorized by the Water Resources Development Act (WRDA) of 1976, Section 102, PL 94-587 (October 1976). It was amended by WRDA 1986, Section 856, PL 99-662 (November 1986), to increase project cost. It was also amended by WRDA 2007, Section 3165, PL 110-114, to add woody riparian vegetation restoration to the plan.

The Corps developed the LSRFWCP to comply with the FWCA and to provide mitigation for fish and wildlife losses caused by the construction of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams on the Snake River in Washington and Idaho.

As originally authorized, the plan was divided into two parts: fisheries compensation and wildlife compensation. Fisheries compensation centered on fish propagation facilities and providing anglers access along tributary streams. The wildlife compensation involved on-project lands habitat development, off-project habitat acquisition, and the purchase and release of game farm birds (pheasants). More detailed information relating to Project lands associated with the LSRFWCP can be found in Chapter 4, Land Classification; Chapter 5, Resource Plan; and Chapter 6, Special Topics.

The fish and wildlife mission is therefore managed under two different authorities – environmental stewardship (ENS) as authorized under the Projects general operation and management (O&M) budget, and mitigation as authorized under the FWCA and associated LSRFWCP. This presents unique opportunities, like the ability to manage fish and wildlife habitat on lands classified under a few different land classifications. It also presents unique challenges, especially funding challenges, due to the funding structure of ENS in the District.

Yearly funding of the ENS mission is a combination of appropriated funding by Congress plus matching funds from Bonneville Power Administration (BPA) based on a pre-

determined calculation; the District must receive both funding sources to execute the funds. In budgeting outyears, sometimes the District only receives the appropriated portion of the funding (without the BPA matching funds), which affects how much work can be done (e.g., habitat planting, invasive control measures, boundary surveys).

Mitigation development under the LSRFWCP has been funded by construction general funds, appropriated by Congress (WRDAs 1976, 1986, 2007). Those funds were scheduled to end in 2019, after which the District is responsible to continue O&M of these mitigation lands into the future.

1.3. PURPOSE AND SCOPE OF THE MASTER PLAN

The Little Goose Master Plan is a strategic land use document that guides the comprehensive management and development of all Project recreational, natural, and cultural resources throughout the life of the Project. This Master Plan guides and articulates Corps responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources at the Project. It is dynamic and flexible, based on changing conditions, and intended to be effective for about 20 years. The Master Plan focuses on overarching management goals and objectives.

Details of design, management and administration, and implementation are addressed in another document, the Little Goose OMP, which is a 5-year management plan that details information required to implement the concepts described in the Master Plan. Neither the OMP nor the Master Plan addresses regional water quality, water management, or the operation and maintenance of Project operations facilities such as Little Goose Navigation or hydropower production at the Dam. Actions identified in the OMP should be reviewed annually to identify upcoming actions needing review under the National Environmental Policy Act (NEPA) and other applicable environmental laws and regulations.

The Master Plan was developed with consideration of regional and local needs, resource capabilities and suitability, and expressed public interests consistent with authorized Project purposes and regulations. The Little Goose Master Plan was last updated in 1969 (Corps 1969). A revision is warranted due to the age of the 1969 Master Plan; changes in Corps policy and guidance regarding master plans; land purchases; management changes; and changes in the intensity of visitor use.

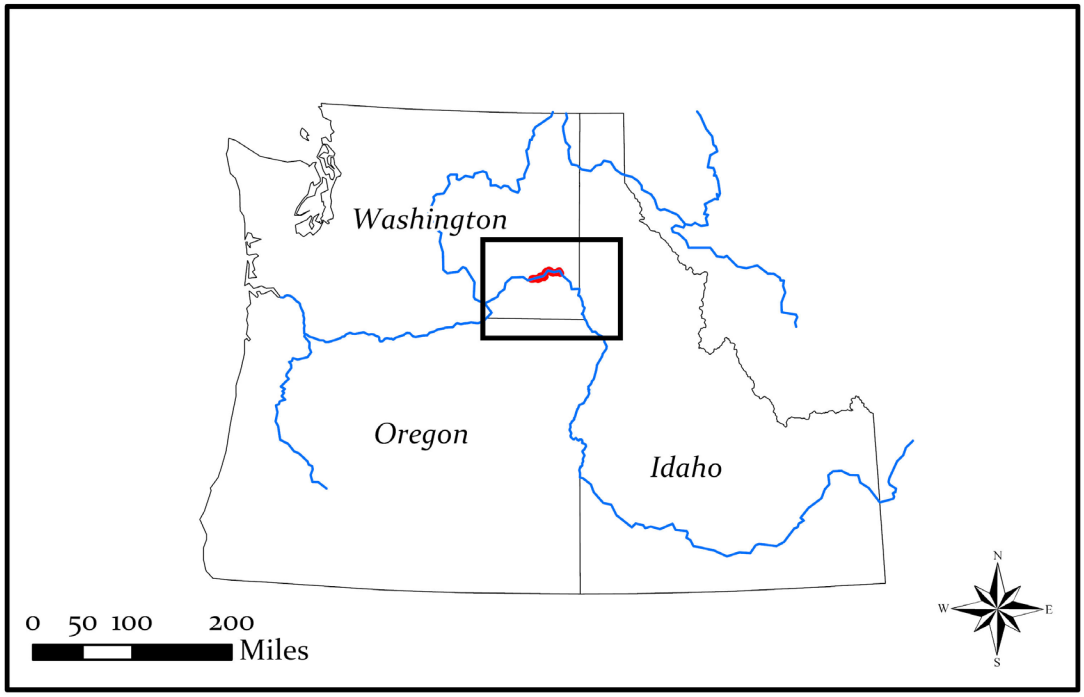
Because it has been more than 50 years since the last Master Plan for the Little Goose Project, it would be very difficult to document all the changes that have occurred over the years. We have attempted to capture some of the most important and impactful changes, such as the addition of mitigation lands and the increasing challenges of invasive species.

The Master Plan is a future-facing document, so it is important to capture the history of the Project while anticipating what will continue to impact the Project in coming years.

An Environmental Assessment (EA) was conducted as an integral part of developing the 2020 Master Plan and can be found in Appendix B.

1.4. PROJECT DESCRIPTION

Little Goose Lock and Dam is located on the Snake River, at river mile (RM) 70.3, 28.7 miles upstream from Lower Monumental Lock and Dam, in the southeastern corner of Washington State (Figure 1-1). The dam and the reservoir lie in southeast Washington, in Columbia, Whitman, and Garfield Counties. The lake created by the dam extends upstream on the Snake River about 37.2 miles to Lower Granite Lock and Dam, more than 395 RMs from the Pacific Ocean. It is named Lake Bryan.



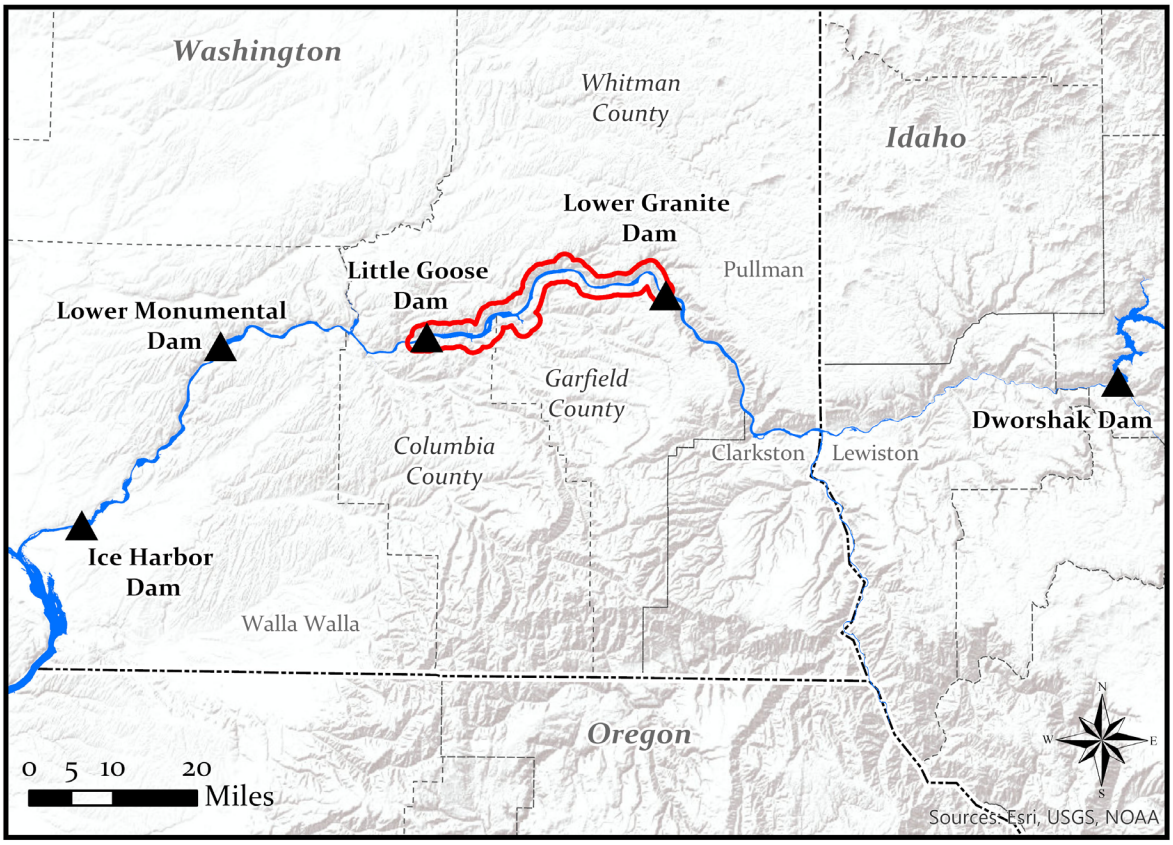


Figure 1-1. Little Goose Project Location

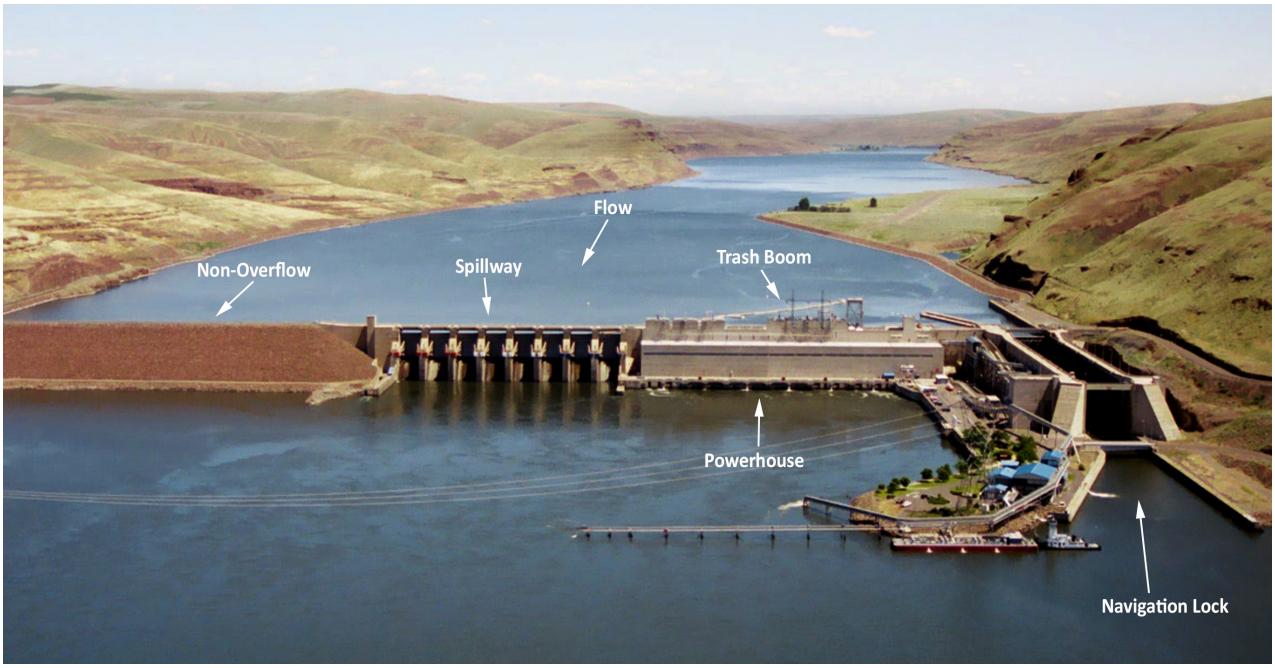


Figure 1-2. Little Goose Lock and Dam Aerial View

1.5. PROJECT PERTINENT DATA

Table 1-1. Little Goose Lock and Dam Pertinent Data

LOCATION	
State	Washington
County	Columbia, Garfield, Whitman
River	Snake River
River miles from mouth of Snake River	70.3
River miles upstream from Lower Monumental Dam	28.1
Type of Project	Run-of-river
RESERVOIR	
Name	Lake Bryan
Elevations (Feet Mean Sea Level)	Maximum at dam for spillway design flood 646.5
Normal operating range gauged at dam	633 to 638
Maximum at dam for standard project flood	646.5
Length, miles	37.2
Length of shoreline	92 miles

Surface area at elevation 638 (low flow, flat pool)	10,025 acres
Storage between elevation 633 and 638	48,900 acre feet
DAM	
Length, feet	2,655
SPILLWAY	
Total number of bays	8
Overall length (abutment centerlines)	512 feet
Deck elevation	651 ft msl
Ogee crest elevation	581 ft msl

1.6. CONCEPTUAL FRAMEWORK

The process of developing the Little Goose Master Plan encompassed a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions and trends. With a generalized conceptual framework, the process focused on four primary components:

- Regional and ecosystem needs.
- Project resource capabilities and suitability.
- Expressed public interests that are compatible with the Project's authorized purposes.
- Environmentally sustainable elements.

The Corps held two scoping meetings in support of the Master Plan to give the public opportunities to provide input and ideas. One was held in Dayton, Washington, on August 20, 2019, and the other in Pasco, Washington, on August 21, 2019. The Corps also solicited comments during a 45-day scoping period through a website created for the Master Plan update, through U.S. mail, and via a specialized email address. Recommendations received during scoping helped Corps planners identify opportunities for improved management of Project lands. Those recommendations were considered, along with previous visitor feedback and public use, during formulation and evaluation of the Master Plan.

Information gathered during the scoping period was combined with the detailed Project inventory to form a list of opportunities, constraints, and other influencing factors for future natural resource and recreation development and management at Little Goose Project.

From this inventory and input, updated land classifications were applied, and updated land classification maps were created (Appendix C. Land Classification Maps). These maps are used for locating appropriate development and management actions that will be detailed in the Little Goose OMP.

1.7. REFERENCES AND DESIGN MEMORANDUMS

Document references can be found in Chapter 9, Bibliography, and a list of all design memoranda pertinent to the Project is furnished in Appendix D, Little Goose Project List of Design Memoranda.

2. Project Setting and Factors Influencing Management and Development

2.1. DESCRIPTION OF RESERVOIR, NAVIGATION POOL, AND SHORELINES

Chapter 2 is an overview of the key factors that influence and constrain present and future use, management, and development of land and water resources at the Project. These factors fall into three general and interrelated categories: natural resources, historical and social resources, and administration and policy. An analysis of these factors, as well as regional needs and public input, results in a framework to minimize adverse impacts to the environment and resolve competing and conflicting uses. Information presented in this chapter is used to designate land classifications, develop Project-wide resource objectives, and identify facility needs.

2.2. HYDROLOGY

The Snake River originates near Jackson, Wyoming, and winds its way 1,078 miles to the confluence with the Columbia River near Pasco, Washington. It is the principal tributary of the Columbia River. The major tributaries to the lower Snake River are the Clearwater, Palouse, and Tucannon Rivers. The Clearwater River, the largest tributary to the lower Snake River segment, historically contributes about 39 percent of the combined flow in the lower Snake River reach (Corps 1995). Flows from the Clearwater, along with releases from upriver Dworshak Dam, make up close to 50 percent of the lower Snake River flows during periods of low flow. The Little Goose watershed includes drainage from the Snake, Salmon, and Clearwater Rivers (Figure 2-1). Flows in the lower Snake River are highest in the spring (average annual peak of approximately 165,000 cubic feet per second [cfs]) and lowest in late summer (averaging 25,000 cfs).

Figure 2-1. Watersheds of the Snake, Salmon, and Clearwater Rivers Drain into Lake Bryan

2.3. CLIMATE

The Project lies within the "banana belt" of eastern Washington. This belt of comparatively mild winters extends from Hood River, Oregon, to Lewiston, Idaho, and is slightly lower in elevation than the surrounding terrain. This fact, combined with the influence of Pacific air that spills over the Cascades and through the Columbia Gorge, moderates most winters. Summers are warm to hot, and dry, with plenty of sunshine. These conditions make for a slightly lengthened, water-related recreation season. Spring and fall winds are often strong and gusty and can create waves of four to five feet on exposed reaches of the reservoir system.

The mean annual temperature is 52°F. July, the hottest month of the year, averages 72°F with an average high temperature of 84°F, and January, the coldest month, averages 32°F. About 100 days per year are below freezing, and on the average only a few days are below 0°F, though some years there are periods of 2 or 3 weeks of sub-zero temperatures.

The mean annual precipitation is 10 to 15 inches, occurring primarily in the winter and spring. Sometimes there is no precipitation at all during some of the summer months.

Evaporation in this area is about 38 inches of depth per year. Based on the surface area of Lake Bryan, this amounts to an average loss of 43.8 cfs. Evaporation has increased due to the increase in river area but is still very small.

Light winds, generally from the south and west, blow during the daytime throughout the year. Eighty percent of the time the wind speed is less than 10 miles per hour, and the gusts at the project rarely exceed 30 miles per hour, but greater gusts are found on the wheat lands above the project and severe dust storms occasionally develop. This is the only significant air pollution source in the area, since there are no heavy industries and auto traffic in the area is minimal and dispersed.

2.4. TOPOGRAPHY, GEOLOGY, AND SOILS

2.4.1. Topography

Of all the factors that affect and influence development potential, the topography is the most limiting. The steep, rugged terrain comprises much of Lake Bryan’s shoreline, limiting development of major public recreation facilities, industry, and habitat preservation and enhancement.

Figure 2-2. Steep, Rugged Terrain Typical of the Area

2.4.2. Geology

The Lower Snake River lies in a canyon in the south-central part of the Columbia River plateau, a moderately high area between the Cascade Mountains to the west and the Rockies to the east.

During the Miocene era, the region was overlain with basaltic lava flows alternated with layers of sedimentary rock and flows on other types of volcanic rock, as well as limestone and shale. There is no evidence of any significant faulting or shifting in this area, though some distortion of basalt layers (uplift and tilting) is present. Subsequent glacial activity stripped layers from the surface, and the large water flows of that period helped erode the Snake River Canyon to create what it is today. The plateau above the canyon is deposited with a heavy layer of wind-eroded loess, which gives the area its rolling topography. During the era of glacial melting and very heavy stream flow, alluvial materials were deposited on basalt outcroppings below the water level, which became alluvial benches when the water receded. The current canyon faces are talus slopes alternated with basalt cliffs and occasional benches, interrupted by side canyons, which were eroded by torrents during the melting of the glaciers. The riverbed lies just about 1,100 feet below the plateau at the Little Goose damsite.

The plateau is at an elevation of about 1,800 feet at the dam, rising to about 2,000 feet at the upper end of the lake. Prior to construction of the Little Goose dam, the base of the canyon was somewhat wider than the river, providing several sand and gravel bars, and flat alluvial areas where riparian vegetation was present. Some orchards and fields were operated in the fertile areas along the riverbank. With the presence of the lake, this vegetation was inundated; however, a narrow band of riparian vegetation, including

willows and false indigo, has established itself in many areas. The Corps has also undertaken many years of plantings to reestablish riparian vegetation under the LSRFWCP.

The Snake River Canyon is deeply cut into an unknown thickness of lava formations that underlie much of Idaho and southeastern Washington. The course of the river is generally controlled by the structure of the rocks.

2.4.3. Soils

The soils along the lower Snake River can be primarily divided into three types: upland soils along the hillslopes and canyons, alluvial soils along the river, and bench soils along the ridgetops and terraces above the river. The upland soils are primarily shallow to very deep, silty loam soils formed from loess deposits and residuum from basalt. These soils tend to have a high-to-severe erosion hazard due to rapid runoff along the steep slopes of the canyon. Alluvial soils are found in the valley bottom and are excessively drained and range from cobbley, coarse sand underlain by stratified cobbles, boulders, gravels, and sand. These alluvial soils were more subject to periodic flooding prior to river impoundment. The bench-type soils tend to be sandy loam developed from glacial outwash, loess, volcanic ash, and basalt. These bench-type soils have slow runoff characteristics and slight erosion hazards because they tend to be on less steep slopes.

Many of the Snake River Plateau soils are light and highly erodible with low rainfall limiting the ability of vegetative cover to reestablish, once removed. Wind erosion is prevalent, especially during the spring and fall, when high winds and dry soil conditions create dust storms (Figure 2-3). The severity of these dust storms is exacerbated by dryland agricultural practices that expose the soil during spring cultivation and fall harvesting.

Figure 2-3. Dust Storm

Erosion from areas burned by wildland fires and soils plowed for agriculture are two of the main factors that contribute sediment to the rivers. The use of no-till farming practices reduces the sediment input from agriculture. Landslides in burned areas contribute large amounts of sediment. Landslides of various types also occur along the reservoir shorelines. These landslides are generally within the surface layer sediments, especially those that are somewhat poorly drained because of an admixture of finer grained sediment.

2.5. REGIONAL ACCESSIBILITY

Little Goose Project is remote, and not located near any major U.S. Highways. U.S. Highway 12, a major east-west route that enters the Inland Empire from Montana by the way of Lolo Pass, lies south of the Project by roughly 10 miles. It intersects with State Route 127 which runs north by Central Ferry and across the Snake River. Visitors from areas near Spokane and Pullman, Washington, and Moscow, Idaho, use U.S. Highway 195 to get near the Project, then State Route 194. There are a limited number of state and county roads offering local access along the Project; most access routes are on rural roads, winding and indirect routes, and some gravel roads.

Commercial air transportation service to the Lewiston-Nez Perce County, Pullman-Moscow Regional, and Walla Walla Regional Airports is available. Private planes occasionally use the landing strip near Little Goose Dam and at the Lower Granite Airport. There is no railroad freight service to the Project, nor rail passenger service within the project area.

2.6. RESOURCE ANALYSIS (LEVEL ONE INVENTORY DATA)

There have been many vegetation and wildlife surveys done throughout Project lands over the past 50 years. This inventory data is captured in published and unpublished work as detailed in this chapter. Details on the survey data are summarized in applicable subchapters below.

The Project contains land that supports diverse vegetation that is both actively and passively managed. This land provides habitat for a wide variety of wildlife. The Corps owns and maintains a narrow strip of land along the Snake River that serves as a corridor for wildlife. Existing vegetation, along with mitigation plantings of trees, shrubs, and grasses provide cover and food for foraging fish and animals. There are numerous lowland tributary riparian and wetland areas, allowing for the formation of palustrine forests. The river corridor is typically characterized by grassland or cottonwood and willow riparian species, with shrub-steppe further upland.

Eighteen native and 17 introduced resident fish species are found in the Lower Snake River. Information on the relative abundance of resident fish in the lower Snake River reservoirs suggests that fish community structure is generally similar among reservoirs (Corps 2002).

Reptiles and amphibians were surveyed in 2009 by Alminas et al. (2010) in areas upstream and downstream of Little Goose pool. In-depth surveys for reptiles and amphibians within Little Goose pool were not conducted, but reptiles and amphibians were recorded during site visits and other surveys within this area (e.g., small mammal surveys, bird surveys).

Seasonal avian surveys on HMUs were conducted from 2004 to 2008 (Fischer et al. 2010). Two prior avian surveys were also conducted (Asherin and Claar 1976; Rocklage and Ratti 1998; Rocklage and Ratti 2000). An avian survey completed in 2018 generated data that will need to be compiled and analyzed for use.

Vegetation has been described in various reports (Engilis et al. 2010; Fischer et al. 2010). The Corps has planted throughout the Project area, especially in mitigation HMUs, to create and enhance wildlife habitat. More details are presented below in Chapter 2.6.2.

In order to meet mitigation goals under the FWCA and then the LSRFWCP, HMUs were established to replace, repair, and enhance fish and wildlife habitat that was lost due to the construction of the dam and reservoir. These HMUs help create wildlife corridors and vegetation connectivity along the river's edge and surrounding lands. The Corps actively manages the HMUs to control invasive species and enhance the local native habitats through a habitat management contract. Invasive species are a big problem in riparian areas. False indigo, for example, is infesting the shoreline in many areas, as are reed canary grass, purple loosestrife, and phragmites in areas of deposition and shallow water. Invasive species treatment is prioritized annually through on-the-ground surveys conducted by Corps wildlife biologists.

2.6.1. Fish and Wildlife Resources

Native and non-native introduced resident, and anadromous fish species are found in the Snake River. Anadromous fish are born in freshwater, spend most of their lives in saltwater, and return to freshwater to spawn. Fish species are listed in Table 2-1.

Table 2-1. Resident Fish Species

NATIVE RESIDENT	NON-NATIVE RESIDENT	ANADROMOUS
white sturgeon	brown trout	Snake River spring/summer Chinook salmon
rainbow trout	common carp	Snake River fall Chinook salmon
kokanee	yellow bullhead	Snake River sockeye salmon
mountain whitefish	brown bullhead	Snake River steelhead
bull trout	channel catfish	American shad
chiselmouth	black bullhead	Pacific lamprey
peamouth	tadpole madtom	
northern pikeminnow	flathead catfish	
longnose dace	mosquitofish	
speckled dace	pumpkinseed	
redside shiner	warmouth	
bridgelip sucker	bluegill	
largescale sucker	smallmouth bass	
sandroller	largemouth bass	
prickly sculpin	white crappie	
mottled sculpin	black crappie	
Piute sculpin	yellow perch	
	walleye	

During small mammal surveys in 2008 to 2009 (Engilis et al. 2010), deer mouse was the most common small mammal species encountered at each HMU and generally outnumbered all other captures combined. Alminas et al. 2010 and Loper and Lohman 1998 documented several reptile and amphibian species in Project lands and areas adjacent to the Project (Table 2-2).

Table 2-2. Small Mammal, Reptile, and Amphibian Species

SMALL MAMMAL SPECIES	REPTILE SPECIES
deer mouse	long-toed salamander
montane vole	American bullfrog
Great Basin pocket mouse	Northern Pacific rattlesnake
Western harvest mouse	Western yellow-bellied racer
bushy-tailed woodrat	Great Basin gopher snake
house mouse	common garter snake
Northern pocket gopher	
vagrant shrew	AMPHIBIAN SPECIES
long-tailed vole	Western toad
cottontail rabbit	Pacific treefrog

Figure 2-4. Western Rattlesnake in Penawawa HMU

Fischer et al. (2010) performed avian surveys on Corps HMUs from 2004 to 2008. More than 41,000 individual birds of 150 unique species were detected. Thirty-seven of those species detected were neotropical migrants, 56 were nearctic migrants, and 57 were permanent residents.

Springtime avian surveys yielded the highest species richness during the study. Surveys during winter resulted in the lowest species richness of any season.

Three past bird studies combined recorded 182 species over the past approximately 35 years. Asherin and Claar (1976) recorded 143 species in the region, in comparison to 150

species detected by Fischer et al. (2010). Rocklage and Ratti (1998, 2000) did not find nearly as many species, as they only recorded 109. However, most of the species missing from previous efforts are waterfowl and waterbirds which are only present in the region during the winter, the season in which these researchers did not survey. Fischer et al. (2010) recorded 23 species that had not been documented in the two previous studies yet did not find 5 species that had been documented in both.

Various avian species are getting established outside of their native range and seeing population success within the reservoir systems of the Lower Snake River. Examples include American white pelican, Caspian tern, cormorant, and rock dove. This opportunistic behavior has led to new and developing wildlife management goals for habitat enhancement.

Figure 2-5. American White Pelican

2.6.2. Vegetative Resources

Engilis et al. (2010) and Fischer et al. (2010) described habitats encountered during the mammal inventory as primarily thin strips of riparian grasslands, sparse shrub-steppe, and rock outcrops in shrub and grassland. Riparian corridors were generally comprised of various native trees including poplar, alder, dogwood, cottonwood, willows and roses as well as non-native species such as black locust, Russian olive, willows, and Himalayan blackberry. Emergent wetland vegetation included native species such as cattail and bulrush and non-native reed canary grass. Grasslands were principally either Basin wildrye or bluebunch wheatgrass. Shrub-steppe was generally gray rabbitbrush with few stands of sagebrush. Cheatgrass, an invasive non-native grass, was ubiquitous throughout all habitats.

2.6.3. Threatened and Endangered Species

Species listed as threatened or endangered under the federal Endangered Species Act that may occur in the Project area are Snake River spring/summer and fall Chinook salmon, Snake River sockeye salmon, Snake River Basin steelhead, bull trout, Spalding's catchfly, and western yellow-billed cuckoo. The lower Snake River and its tributaries within the Project area contain designated critical habitat for all listed fishes. Each is described in the following paragraphs.

Snake River Spring/Summer Chinook Salmon

Snake River spring/summer Chinook salmon were listed as threatened in 1992 and include all natural-origin populations in the Tucannon, Grande Ronde, Imnaha, Salmon, and mainstem Snake Rivers.

Chinook salmon are anadromous, which means that adults spawn in freshwater streams where juveniles hatch, but then they migrate out to the ocean to grow up to 3 years before returning to their natal stream (where they were born) to spawn as adults. Adult and juvenile spring/summer Chinook salmon generally only migrate through the Project area.

Currently, there are five subbasins in the Snake River (lower Snake River, Tucannon River, Grande Ronde River, Imnaha River, and Salmon River), including 33 watersheds with natural spawning populations (NMFS 2013). A number of limiting factors, including degraded freshwater spawning and rearing habitat, the hydropower system, and harvest, affect these populations.

Snake River Fall Chinook Salmon

Snake River fall Chinook salmon were listed as threatened in April 1992, and reaffirmed April 14, 2014. Historically, the lower and middle Snake River populations formed the two major population groups. However, the construction of Hells Canyon Dam extirpated (made extinct) the middle Snake River population. Spawning populations presently occur in the mainstem Snake River below Hells Canyon Dam, Lower Granite Dam, and in the lower reaches of the Clearwater, Grand Ronde, Tucannon, Salmon, and Imnaha Rivers.

Like other salmon species, fall Chinook are anadromous, but the adults typically spawn later in the fall and at lower elevations in streams and rivers compared to spring/summer Chinook. Juveniles outmigrate slightly later in the summer and are typically younger and smaller than spring/summer Chinook.

There are two types of rearing life history characteristics that have been documented in fall Chinook salmon: ocean type and reservoir type. Ocean type refers to juveniles that outmigrate on a typical schedule to the ocean in the summer. Reservoir type refers to juveniles that begin their outmigration later in the summer, then rear in the lower Snake

and Columbia Rivers, where they grow larger and slightly older over winter before completing their migration to the ocean the following spring.

Fall Chinook salmon migrate through the Project area, but reservoir type fall Chinook smolts likely rear in the lower Snake River within the Project area, and a small population of adults typically spawn in the Snake River below the lower Snake River dams.

Snake River Sockeye Salmon

Snake River sockeye salmon were listed as endangered, November 20, 1991. Historically, Redfish Lake in Idaho contained an abundant spawning population of Snake River sockeye. This population was extirpated but has since been restored to a minimum level. Five other historic lakes in the Stanley Basin and Sawtooth Valley once produced sockeye as well, but the Redfish Lake population is the last remaining (NMFS 2013).

Like other salmon, sockeye salmon are anadromous, but they differ in that spawning and rearing occur in headwater lakes rather than instream. This species is at extremely high risk of extinction due to many factors. Hatchery propagation efforts have done well providing substantial numbers of fish for supplementation, but survival rates must increase across all life stages to reestablish a naturally sustainable population.

Sockeye generally only migrate through the Project area, but adults have been known to delay below the Project in the summer when higher water temperature slows or impedes migration. Sockeye may also seek thermal refuge in the Clearwater River upstream of its confluence with the Snake River.

Snake River Steelhead

Snake River steelhead were listed as threatened on August 18, 1997, and protective regulations were issued under Section 4(d) of the Endangered Species Act on July 10, 2000. Their threatened status was reaffirmed on January 5, 2006, and again on April 14, 2014. This distinct population segment includes populations below natural and manmade impassable barriers in streams in the Snake River basin of southeast Washington, northeast Oregon, and Idaho.

Snake River steelhead are a summer run fish that can enter the Columbia River Basin throughout the year as adults, but typically migrate through the lower Snake River September–November. The adults overwinter in the mainstem Snake and Columbia Rivers, during which time they sexually mature, then complete their upriver migration early the following spring to spawn March through April. Juveniles outmigrate April to May, but unlike Chinook salmon, which outmigrate, typically at 1 year of age or less, juvenile steelhead typically do not outmigrate before age 2 or 3. Adult and juvenile steelhead migrate and rear within the Project area.

Steelhead have generally been referred to as "A-run" and "B-run," based on two different ocean rearing strategies. A-run fish generally spend only 1 year in the ocean before returning, and they are smaller than B-run fish, which spend 2 to 3 years in the ocean before returning to freshwater. While A-run fish are also found throughout most of the Snake and Columbia River Basins, research has shown that B-run fish are strictly from the Clearwater and Salmon River Basins (NMFS 2017).

Another life history characteristic separating steelhead from other anadromous salmon is iteroparity, the ability to spawn more than once. While all other salmon species return to freshwater, spawn, and then die, steelhead may return to the ocean again, or remain in the freshwater rivers to spawn again.

Steelhead typically migrate through the Project area, but they may also overwinter in the Little Goose pool prior to completing their spawning migration.

Bull Trout

The U. S. Fish and Wildlife Service (USFWS) issued a final rule listing the Columbia River Basin population of bull trout as a threatened species on June 10, 1998. Bull trout are currently listed throughout their range in the western United States. Historically, bull trout were found in about 60 percent of the Columbia River Basin. They now occur in less than half of their historic range. Populations remain in portions of Oregon, Washington, Idaho, Montana, and Nevada (USFWS 2010a).

Migratory bull trout spawn in headwater streams along with resident bull trout. Their juveniles rear from 1 to 4 years before migrating downstream to mainstem river habitats as sub-adults. Migratory adult bull trout spawn in September and October, then migrate downstream to overwintering areas from October through December after spawning, and then begin their return migration to the headwaters May to June.

Migratory sub-adults may overwinter in creek and river mainstems for several years before returning to the headwaters once sexually mature. Resident and migratory forms may be found together, and either form may give rise to offspring exhibiting either resident or migratory behavior. Both sub-adult and adult bull trout likely use the lower Snake River during the fall, winter, and spring for rearing and overwintering, although the proportion of local populations that may do this is unknown.

Spalding's Catchfly

Spalding's catchfly was listed as threatened October 10, 2001. This plant is found predominantly in grasslands and shrub-steppe within the Palouse region. Its current range extends through northeast Oregon, western Idaho, and southeast Washington, partially encompassing the Project area. To date, no Spalding's catchfly have been documented on Project lands (B. Trumbo, personal communication, February 22, 2018).

Western Yellow-Billed Cuckoo

The western distinct population segment (west of the continental divide) of the yellow-billed cuckoo was listed as threatened under the Endangered Species Act on October 3, 2014. Critical habitat has been proposed; however, not within the state of Washington. These birds mostly nest in open cottonwood forests with dense willow shrub understory near streams, rivers, or lakes adjacent to clearings. Generally, the understory must be a minimum of 75 percent canopy over a minimum of 10 acres. The cuckoo breeds in the Pacific Northwest between May and August. However, in winter, yellow-billed cuckoos migrate to tropical habitats with similar habitat, such as scrub forest and mangroves.

In the Pacific Northwest, the species was formerly common in willow bottoms along the Willamette and Columbia Rivers in Oregon, and in the Puget Sound lowlands and along the lower Columbia River in Washington. The species was rare east of the Cascade Mountains. It may now be extirpated from Washington (USFWS 2008).

Little Goose Lock and Dam lands lack the required vegetation composition to support yellow-billed cuckoos. No yellow-billed cuckoos have been documented in the Project area, and given the absence of suitable habitat, none are expected to be breeding in the area.

2.6.4. Invasive Species

In accordance with Executive Order (EO) 13112, an invasive species is defined as an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Invasive species may be accidentally transported or deliberately introduced because they are thought to be helpful in some way. Nuisance, noxious, pest, and invasive species exist across the project, including avian, fish, and vegetative species. Often these are non-native species that have a special competitive advantage in this area, and little natural pressure from predators and/or other species that keep the species in check. Management of invasive species can be extremely expensive and complicated. Therefore, the Corps uses an integrated pest management approach for all pest control. Vegetation in the Project area includes a wide array of invasive, noxious, nuisance, and pest species. These species can impact Project operations, reduce habitat value, and impact recreation.

There are aquatic invasive fish species and nonnative sport fish that impact the ecological system and species abundance and success; however, the management of these are outside of Corps authority and jurisdiction. The Corps cooperates with the State of Washington to address these when feasible and funded.

The Corps does manage various animals, both native and non-native, nuisance species in compliance and coordination with the State of Washington and the National Oceanic and Atmospheric Administration, USFWS, and the United States Department of Agriculture. These animals are typically causing a nuisance and disrupting other native species such as salmon populations, operations of the project, or establishment of native habitats.

Terrestrial plants including reed canary grass, false indigo, purple loosestrife, and phragmites are becoming more and more of a management issue for the Project and are requiring more focused efforts, both in upland and riparian areas. False indigo, for example, is infesting the shoreline in many areas, outcompeting native willow species in many cases, and even blocking access to the river. Reed canary grass has taken over areas of siltation and portions of irrigated HMUs, out-competing other native riparian vegetation. Purple loosestrife and phragmites can occur in areas of deposition or shallow water. The Corps manages invasive species, within budgetary constraints, in accordance with the District's Integrated Pest Management Program (IPMP, Corps 2019b) for Project operations, natural resource management, habitat management in HMUs, and recreation management.

2.6.5. Ecological Setting

The Natural Resource Management Mission of the U.S. Army Corps of Engineers (Engineer Regulation [ER]1130-2-550, Chapter 2, Paragraph 2-2.a.(1), dated November 15, 1996) states the following:

> *The Army Corps of Engineers is the steward of the lands and waters at Corps water resources projects. Its Natural Resource Management Mission is to manage and conserve those natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations.*
>
> *In all aspects of natural and cultural resources management, the Corps promotes awareness of environmental values and adheres to sound environmental stewardship, protection, compliance, and restoration practices.*
>
> *The Corps manages for long-term public access to, and use of, the natural resources in cooperation with other Federal, State, and local agencies as well as the private sector.*
>
> *The Corps integrates the management of diverse natural resource components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of*

public recreation opportunities. The Corps conserves natural resources and provides public recreation opportunities that contribute to the quality of American life.

The Corps is one agency of several federal agencies, state agencies, and non-governmental organizations that are responsible for managing lands or habitat in the same geographic area. To help achieve consistency with natural resource management across these organizations, the Environmental Protection Agency (EPA) delineated and designated ecoregions across the United States. Ecoregions are areas where ecosystems (and the type, quality, and quantity of environmental resources) are generally similar (EPA 2018). The Columbia Plateau ecoregion is a Level III ecoregion designated by the EPA encompassing approximately 35,000 square miles of land within Washington, Oregon, and Idaho (Wiken, Nava, and Griffith 2011). In support of the Corps natural resource management mission, and to provide a larger-scale context of the resources managed in the region, the following paragraphs describe the Columbia Plateau ecoregion in which the Project area falls.

- Location. The Columbia Plateau ecoregion ranges between the Cascades to west and Rocky Mountains to the east. An ecoregion is a major ecosystem defined by distinctive geography and receiving uniform solar radiation and moisture. The Project area is in southeastern Washington.

- Climate. The ecoregion has a dry, mid latitude desert and steppe climate. It is marked by hot, dry summers and cold winters. The mean annual temperature ranges from approximately 44°F to 53°F. The frost-free period ranges from 70 to 190 days. The mean annual precipitation ranges widely from about 6 to 23 inches with an average of about 13 inches.

- Vegetation. This ecoregion is characterized by shrub-steppe and grasslands, which consist of bluebunch wheatgrass, needle-and-thread grass, Sandberg bluegrass, and Idaho fescue. Big basin sagebrush, Wyoming big sagebrush, and antelope bitterbrush are also common. Invasive cheatgrass encroaches on some large areas.

- Hydrology. Streams originating in the area are generally ephemeral (temporary) and may only flow several days per year, if at all. Most summer precipitation is evaporated or transpired. Perennial streams and rivers originate in adjacent mountainous ecoregions. Some wetlands and marshes occur, but many have been drained for agriculture.

- Terrain. The terrain consists of plateaus of moderate to high relief and irregular plains with open hills. Elevations range from about 196 feet where the Columbia River exits the region to the west, to over 4,900 feet on some hills in the east. Episodic geologic events such as lava flows and massive floods shaped the topography. This region is one of the best examples of plateau flood basalts, and many areas are underlain by basalt over 5,800 feet thick. Deep loess soils covered much of the plateau. Pleistocene floods cut through the thick

deposits of windblown soil, leaving islands of loess separated by scablands and bedrock channels.

- Wildlife. Common wildlife includes species such as Rocky Mountain elk, white-tail and mule deer, coyote, cougar, black-tailed jackrabbit, ground squirrels, American kestrel, bald and golden eagle, red-tailed hawk, great horned owl, western meadowlark, sage thrasher, savanna sparrow, rattlesnake, osprey, and occasional moose.

Figure 2-6. Mule Deer at Central Ferry HMU

Figure 2-7. Moose below Boyer Park

Figure 2-8. Bald Eagle near Lower Granite Dam

Figure 2-9. Osprey at Lower Granite Dam

- Land Use and Human Activities. This ecoregion includes cropland with dryland and irrigated agriculture, rangeland for livestock grazing, and wildlife habitat. Some areas are extensively cultivated for winter wheat, particularly in the eastern portions of the region where precipitation amounts are greater. Other crops include barley, alfalfa, potatoes, onions, hops, lentils, and dry peas. Fruit orchards and vineyards are extensive in some areas. Some areas are military and restricted government land. Some areas are tribal land. Larger cities include Yakima, Richland, Kennewick, Pasco, Walla Walla, Hermiston, Pendleton, and The Dalles.

2.6.6. Wetlands

In contrast to riparian habitats, which usually have water saturated soils during flood events, wetlands generally occur where groundwater saturates the surface layer of soil

during a portion of the growing season, often in the absence of surface water. This water remains at or near the surface of the substrate for periods of sufficient duration and frequency to induce the development of characteristic vegetative, physical, and chemical conditions (16 USC Sec.440b Title 16, ch. 64).

Wetlands along the river and inside stream deltas serve a variety of physical and biological functions including wildlife habitat (waterfowl, big game, furbearers, etc.), fish breeding and foraging habitat, nutrient/sediment trapping, flood control, and recreation.

The amount and occurrence of emergent wetland vegetation has increased since the four dams were constructed, from about 10 acres in 1958 to 353 acres currently. Additionally, numerous small pockets of wetland vegetation, less than one-half acre in size, exist in small impoundments behind roads and railroads and small embayments. Ideally, these areas would be dominated by native vegetation such as cattail, softstem bulrush, and various other rushes and sedges. Commonly, though, especially in depositional areas such as in Lower Deadman HMU, dominant vegetation includes non-natives and invasives such as phragmites, false indigo, and reed canary grass. The increase in emergent wetland communities is likely due to several factors:

- Abundant slack water which causes sediments carried into reservoirs to accumulate and create good conditions for wetland vegetation development, especially at the mouths of tributaries;
- Several embayments and backwaters which also allow wetland development;
- Drawdowns which allowed wetland vegetation to establish; and
- Runoff and seeps from nearby irrigated HMUs.

Approximately 7.6 percent (868 acres) of the vegetated lands at the Project are classified as wetlands.

2.7. CULTURAL RESOURCES AND CONTEXT

There is ample evidence that the Nez Perce and Palus people lived along the Snake River in the Project area for thousands of years. Their ongoing presence is indicated through oral history provided by descendants of the Native American inhabitants, allotment and homestead records, ethnographic study by tribal and non-tribal researchers, museum collections, and from archaeological site investigations. The archaeological sites found on Project lands and throughout the region represent a full range of lifeways, including plant, animal, and toolstone procurement, food processing and storage, rock imagery, ceremonial aspects, and habitation sites ranging from small camps to large villages. These areas not only represent long ago activities, they are still of living importance today to several Tribes.

A number of historic period sites are also present, including those related to agriculture, transportation, industry, and homesteads.

An overview and historic context for Little Goose Lock and Dam and other projects in the Federal Columbia River Power System (FCRPS, a subset of which is now known as the Columbia River System), is discussed in several documents and is not detailed in this document (Historical Resource Associates, Inc., 2015, Reid 1995). The FCRPS is a series of hydroelectric power projects in the Columbia River Basin located on the mainstem Columbia River and in several of its major tributaries, that provide about one-third of the electricity used in the Pacific Northwest.

The Project area is part of the homeland of multiple Tribes, largely of Palus and Nez Perce heritage. Important camps and village sites are found along the Snake River, as well as locations used for fishing, hunting, and gathering of food, medicines, toolstones, and other resources (Reid 1995, Walker 1998; Sprague 1998). The river forms an important travel corridor, and trails lead through and across Corps land to the prairies and high country where resources were found at different times of the year. Tribal members lived along the rivers into the twentieth century, and in some cases the Corps acquired land from tribal owners at the time of dam construction. In and surrounding project lands, there are landscape features that have tribal stories associated with them, or in some cases, names that have been carried over into the modern lexicon. The words Penawawa, Almota, and others originate from languages spoken by the earliest inhabitants of the region.

During the precontact period the Nez Perce Tribe, or Nimiipuu, occupied a territory measuring over 13 million acres. Their territory extended east to the Bitterroot Mountains, with forays into Montana for bison hunting; south into the Clearwater River Basin and South and Middle Forks of the Salmon River Basin in Idaho; and west along the Snake River in Oregon and Washington, with forays to large fishing centers on the Columbia River (Cannell 2001:14). The Nez Perce lived in camps and permanent villages along rivers and streams; named Nez Perce villages are found along the Snake River to the confluence with the Columbia River, and as far south as Weiser, Idaho. They speak a Sahaptian language, sharing language and cultural similarities to other Sahaptian speakers in Oregon and Washington (Walker 1998:420).

During the early 1800s, Euro-American diseases took a significant toll on the Nez Perce. Explorers, fur traders, and missionaries established churches, forts, roads, trading posts and the like throughout the region (Walker 1998:429, 433). In 1855, three treaties were signed in Walla Walla, Washington between the U.S. and several Tribal Nations. The Project is located on lands ceded by the Nez Perce in treaties, which included lands bounded on the west by the Palouse and Tucannon Rivers in the Lower Monumental Project, and extend

north onto the Washington Palouse hills; to the east across Idaho, and to the south into northeastern Oregon.

In 1877, Nez Perce who had not already moved to the diminished reservation boundaries were ordered to do so. Those who did not move were ultimately pursued by the U.S. Army some 1300 miles during the Nez Perce War or Chief Joseph's War (Walker 1998:434). After a great deal of brutal human injury and death, the Nez Perce who did not escape into Canada were then captured at Bear Paw Battlefield in northern Montana. The survivors were then sent on another deadly journey that included incarceration in Kansas, exile to Oklahoma, and ultimately relocation to the northwest in 1885. Chief Joseph and many followers went to live on the Colville Reservation in northeastern Washington (today they are a constituent tribe referred to as the Chief Joseph Band of Nez Perce) while other Nez Perce moved to the Nez Perce Reservation in Idaho (Walker 1998:435).

When the Nez Perce signed the treaty, they retained certain rights, including those to hunt, gather, and take fish in their usual and accustomed areas inside and outside of the reservation boundaries (Nez Perce Tribe 2003:40). Subsequent treaties made a variety of changes, including reduction of the size of the Nez Perce reservation, but did not affect the off-reservation treaty rights still retained by the Tribe today.

The Palus people lived along the lower Snake River between its confluence with the Clearwater River, downstream to the Snake River confluence with the Columbia River, as well as the grasslands to the north. The Palus also speak a Sahaptin language dialect. During the reservation period, some Palus people claimed and remained on allotment or homestead claims along the Snake River, while others moved to reservations, including the Yakama, Nez Perce, Colville, Umatilla, and others (Sprague 1998:357). During the Indian Claims Commission Hearings in 1963 the Confederated Tribes of the Colville Reservation identified and received a settlement for the Palus, relating to territory that the court identified as having been exclusively used and occupied by the Palus (12 Indian Claims Commission 301 Docket No 161). This area is located along the north side of the Snake River, from Devils Canyon (near Lower Monumental Lock and Dam) to Wawawai (near Lower Granite Lock and Dam).

Early Cultural Resources Surveys

Euro-American explorers, missionaries, and ethnographers reported on their interactions with the Nez Perce and Palus people living in the Project area throughout the 1800s, and into the 1900s. The Smithsonian Institute’s River Basin Surveys program in the 1940s kicked off cultural resources management at the Project with an archaeological survey, at which time they recorded 19 sites (Osborne 1948). In the 1960s, researchers from Washington State University (WSU) conducted another cultural resources survey (Nelson

1965). The level of coverage for both surveys is unclear, but it appears to have provided only a limited sampling of the total study area. Following these surveys, but prior to the impoundment of Lake Bryan, several significant archaeological sites threatened by inundation were subject to excavation. There are undoubtedly many undocumented sites located under the waters of the reservoir.

The Corps also relocated several Euro-American cemeteries, including two at Penawawa, and isolated historic graves near New York Bar and Central Ferry. Small communities at Penawawa, Almota, and Central Ferry were affected by the rising reservoir waters, as were numerous homesteads, ranches, and farms.

Following the filling of the reservoir in 1970, there was accelerated erosion of the new reservoir shoreline and cultural remains, including artifacts and Native American burials, were exposed at numerous previously documented and previously unknown sites. A post-impoundment survey in 1976 assessed most of the previously recorded sites (73 sites) and recorded 3 additional sites. Test excavations were conducted at several Project sites where erosion effects were particularly noticeable.

In March 1992, the Corps conducted a reservoir drawdown study, during which time Lake Bryan was drawn down about 12 feet below minimum operating pool, exposing archaeological sites that had been covered for 22 years (Center for Northwest Archaeology, 1992, Webb 1992). Archaeologists from WSU and the Nez Perce Tribe visited eight archaeological sites and also documented and excavated five newly exposed Native American burials. These efforts took considerable time and meant that other sites that were planned for monitoring could not be visited. The monitors noted major effects from erosion due to wind action, while effects from siltation and visitation (Figure 2-10) were not as bad as those observed during the longer drawdown at Lower Granite Reservoir (Center for Northwest Archaeology 1992:5.67)

Figure 2-10. Recreation and Erosion Effects at Little Goose

In 1997, funding was made available for Little Goose Project cultural resources management under the FCRPS Cultural Resources Management Program. Cultural resources have been affected by ongoing effects related to operation and maintenance of the dams. There are ongoing reservoir-related effects to cultural resources, including erosion, sediment deposition, development, and recreational activities. Sites have also been affected by unauthorized actions, such as vandalism, looting, and cattle encroachments. Program accomplishments include completion of the 2000 Cultural Resources Management Plan (Hicks 2000), ongoing surveys of Corps-managed lands to document archaeological sites and Traditional Cultural Properties (TCPs), site condition monitoring, evaluation of sites to determine eligibility for the National Register of Historic Places (NRHP), management and analysis of archaeological collections and records, and shoreline stabilization.

The Payos Kuus Cuukwe Cooperating group was formed to exchange views, technical information, and planning advice to achieve compliance with the National Historic Preservation Act (NHPA). Membership includes representatives from:

- Federal agencies
  - The Corps
  - BPA
- Tribes
  - Confederated Tribes of the Colville Reservation (Colville)
  - Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
  - The Confederated Tribes and Bands of the Yakama Nation (Yakama)
  - The Nez Perce Tribe

- The Wanapum Band
- State Historic Preservation Officers (SHPO) in Idaho, Washington, and Oregon.

Most of the Project land was archaeologically surveyed or resurveyed during five surveys occurring in 2000, 2011, 2012, and 2015 (Cannell 2000, Coyote 2011, Shellenberger et al. 2011, Schalk et al. 2013, Nelson and Schalk 2016). Other inventories, documentation, and testing projects have been conducted prior to infrastructure-related undertakings, including recreation, habitat management, and development projects. Ongoing archaeological site condition monitoring is conducted to assess effects, needs for stabilization, and additional work. At this time, about 4,000 acres have been surveyed at the Project. Corps archaeologists also conduct archaeological surveys, and coordinate contracts with Tribal entities and private cultural resources management firms in order to comply with federal law regarding agency cultural resources responsibilities.

Historical and Archaeological Site Identification and Documentation

The NHPA requires that the Corps identify and evaluate historic properties for listing on the NRHP, and that the agency consider the effects to historic properties from activities (also called undertakings). Historic properties include districts, sites, buildings, structures, and objects. Eligible properties would typically be greater than 50 years old and have an association with an important event, person, interesting architecture, or in the case of archaeological sites, have the potential for further study. Numerous historic properties have been identified at the Project, including archaeological sites, TCPs or Historic Properties of Religious and Cultural Significance to Indian Tribes, and several structures. No districts have been formally documented at the Project at this time.

To date, 115 archaeological sites have been documented on Project lands. There are 88 precontact sites, 25 historic period sites, and 2 multicomponent sites with both precontact and historic components. The precontact sites include numerous camp sites, lithic scatters, and several villages. Many rock features are present including cairns and storage pits, fish walls (where fish could be caught with nets), two rock image sites, and a rockshelter. The precontact sites from this area represent the thousand years of human occupation, including one bison processing site (Reid 1995:2.64). Historic period sites include a cemetery; remnants of historic farms, including wells and foundations; trash scatters; and the former Central Ferry Bridge. Several historic towns and railroad sidings located at Penawawa, Central Ferry, and Almota were inundated as the reservoirs filled, and were not formally recorded. While reservoir clearing and relocation activities meant most above-ground buildings and structures were removed, remnants of those resources may still be present under Lake Bryan.

The Corps is responsible for examining archaeological sites on its land to evaluate whether they are significant and meet criteria to be listed on the NRHP. No archaeological sites at the Project have been formally listed on the NRHP. However, in consultation with the SHPO, a few sites have been found eligible but have not been formally nominated to the NRHP. Three archaeological sites have been found not eligible, and 105 sites have not been evaluated. Many of the unevaluated sites are inundated with only limited information available, with site inundation precluding evaluation.

TCPs, which include Historic Properties of Religious and Cultural Significance to Indian Tribes, are areas tied to beliefs, customs, and practices of a living community. They may coincide with the boundaries of archaeological sites or comprise a number of landscape features. TCPs have been identified at the Project by the Colville, the Nez Perce Tribe, and the Yakama. The Colville have prepared several studies discussing TCPs, and have prepared forms and conducted preliminary eligibility review, while the Nez Perce and Yakama properties will be evaluated for NRHP eligibility in the future.

Historic built resources, including buildings, structures, and objects, have been documented to a very limited extent on Project lands (Figure 2-11). Little Goose Dam was partially completed in 1970, and the reservoir behind it was filled, meaning that the dam is now 50 years of age and potentially eligible for listing on the NRHP. The dam is being evaluated for eligibility for listing this year. Two sheds in the Illia housing area were documented during a survey and found not eligible for listing on the NRHP through a concurrence determination with the SHPO. The Project does not currently have any other documented standing structures or objects remaining on project lands that are greater than 50 years of age. However, as bridges, parks, and leased areas are surveyed, those types of resources will likely be discovered, recorded, and evaluated.

Figure 2-11. Historic Rock Wall in Little Goose Project

The Corps has a responsibility to care for collections and records resulting from cultural resources studies. 36 Code of Federal Regulations (CFR) § 79, "Curation of Federally Owned and Administered Archaeological Collections," outlines minimum standards for appropriate, long term care of federal archaeological collections (this is also addressed in Engineer Pamphlet [EP]1130-2-540). Artifacts, samples, records, and reports associated with studies at the Project are curated at WSU in Pullman, Washington. Currently, there are 295 cubic feet of artifacts and 22 linear feet of records. The collections are available for study by qualified researchers.

In summary, thousands of years of human lifeways are represented at the Project. The Corps will continue to document historic properties as they are found and evaluate them for effects from ongoing and proposed activities in consultation with the Tribes and WSU's Department of Archaeology and Historic Preservation.

2.8. RECREATIONAL FACILITIES AND ACTIVITIES

The Project provides a variety of water-related and land-based recreation opportunities. While use of Project recreation opportunities is currently low relative to other regional recreation areas, we expect the demand for recreation activities in the future will increase. If usage of the Project increases dramatically without corresponding facility expansion, it could change the current user experience and negatively impact Project resources.

2.8.1. Project Access

Lake Bryan is somewhat isolated. The nearest large communities are Tri-Cities (Pasco, Kennewick, Richland), 74 miles from Little Goose Lock and Dam, and Spokane, which is 80 miles from Boyer Park on the upstream end of Lake Bryan. Other population centers include Lewiston and Moscow, Idaho, and Pullman and Clarkston, Washington, as well as smaller municipalities like Dayton, Washington. Little Goose Lock and Dam can be reached via a paved road from Starbuck on the south shore, and a gravel road from Hay on the north shore.

Vehicular access to Lake Bryan is limited. No roads that are contiguous along the reservoir. The reservoir can be crossed at Lower Granite Dam, Little Goose Dam, and on State Route 127 at Central Ferry. Most roads accessing Lake Bryan provide access to only a small portion of the lake. The reservoir can be accessed along the north bank at Purrington via Hopkins Road off State Route 127 near Central Ferry, Penawawa Road, and from State Route 194 in Whitman County. Access to the reservoir on the south bank is at Little Goose Landing, Rice Bar Hill Road, Almota Ferry Road in Garfield County, and Hastings Hill Road. Other than State Route 127, most access routes are on rural roads, winding and indirect routes, with some gravel roads.

2.8.2. Recreation Use

Water-Based Recreation

Boating on Lake Bryan is a primary activity for many visitors. Much of the boating is related to fishing; however, waterskiing, tubing, wake boarding, jet skiing, sailing, kayaking, and canoeing are also important boating activities. Virtually the entire length of the reservoir is designated as part of the Northwest Discovery Water Trail, a 367-mile recreational boating route on the region's defining waterways. It begins at Canoe Camp on the Clearwater River in Idaho, follows the Snake River down to the Columbia River and ends at Bonneville Dam in the Columbia River Gorge, connecting nearly 150 sites to launch your boat, picnic, or camp along these rivers when you travel by motorboat, canoe, sailboat, or kayak.

Additionally, boating provides an efficient means of transportation and allows hunters to gain access to more remote HMUs, many of which have no vehicle access at all. Access to the 37.2-mile long lake is gained through 6 boat ramps located on Corps land. Of the 6 boat ramps, 2 are located on the north bank and 4 on the south. Willow Landing and Little Goose Landing are popular boat ramps providing access on the south bank. Boyer Park Marina on the north bank has a three-lane boat ramp and 150 slips.

Fishing is another major water activity of visitors to Lake Bryan. Most anglers fish for pike minnow, steelhead, hatchery spring/summer Chinook salmon, smallmouth bass, and when a season is allowed by State agencies, hatchery fall Chinook salmon. A heavily visited fishing location is the Little Goose Esplanade on the south bank near Little Goose Dam. This site alone accounted for 11 percent of visitation from 2017 to 2018.

During the hot summer months, swimming is a popular activity. Boyer Park has a popular designated swim area. Visitors also swim in other non-designated areas with shallow beaches, like Illia Dunes. College students from nearby Pullman, Washington, and Moscow, Idaho, come to Boyer Park and Illia Dunes during late summer and again in the spring months; some weekends have more than 1,000 visitors per day.

Camping

Camping is available at the 86 sites at Boyer Park on the upstream end of Lake Bryan, adjacent to Lower Granite Dam. Central Ferry State Park has been converted to habitat lands and is no longer used for camping. Primitive camping is available at various sites along the river, like Little Goose Landing and Willow Landing.

Hunting

Hunting is small percentage of the recorded visitation at Lake Bryan. In 2016, hunting accounted for only 2 percent of visitation, but actual numbers are likely quite a bit higher given the lack of accessibility and difficulty accounting for hunters accessing the area from

upland routes. Vehicle and trail counters on many HMUs are lacking, and many hunters access Corps lands after departing from boat ramps managed by other agencies (e.g., Port of Garfield boat ramp). Therefore, it is very difficult to determine accurate visitation to most Project HMUs.

White-tailed and mule deer are the primary big game species. Upland game bird hunters target turkey, pheasant, chukar, California quail, and mourning dove. Waterfowl hunting is fairly common and takes place in December and January. More than 5,500 acres of Project lands are open to public hunting. Excluding operations lands, recreation lands, and lands near populated areas, most Corps lands are available to hunters.

Picnicking

Picnic tables and shelters are located at Boyer Park, Illia Landing, Little Goose Esplanade, Little Goose Landing, and Willow Landing, with smaller numbers at remote locations. Picnic facilities meet the current demand with normal use.

Trails

The Project provides more than 40 miles of land-based recreation trails. Trail surfaces include pavement, gravel, and dirt. The gravel or dirt trail system allows for hiking, mountain biking, and equestrian use.

2.8.3. Zones of Influence

The concentration and distribution of the population surrounding the Project are major influences on land classification and recreation development. This is illustrated with zones of influence. Figure 2-12 identifies zones of influence for the Project.

Primary

The primary area of influence encompasses the area within 25 miles of the Project. A vast majority of Project visitors come from within this primary zone of influence. This area includes the cities of Lewiston and Moscow, Idaho; and Clarkston and Pullman, Washington at the upstream end of Lake Bryan as well as the unincorporated urban areas surrounding these cities. Additionally, many visitors come from the rural area and smaller nearby towns like Dayton, Waitsburg, Pomeroy, and Colfax, Washington.

Secondary

The secondary zone of influence for the Project is the area within a 50-mile radius of the Project that is not included as part of the primary zone of influence. This area is within 1-hour traveling time from the Project. This area includes the communities of Pasco, Richland, and Kennewick, with a metropolitan population of around 300,000. This also includes

Walla Walla and College Place, Washington and Milton-Freewater, Oregon, with combined population of more than 50,000. There is a significant rural population in this area as well.

Tertiary

The tertiary zone of influence is outside of the 50-mile radius, up to 100 miles from the Project. Some visitors will travel up to 2 hours to the Project. This area includes Spokane, Washington, which has a metropolitan population in excess of 600,000. This also includes a large rural area. When the original Little Goose Master Plan was written in 1969, it was estimated that one-half of the visitation from a 75-mile radius would come from rural areas, including large-scale wheat farmers.

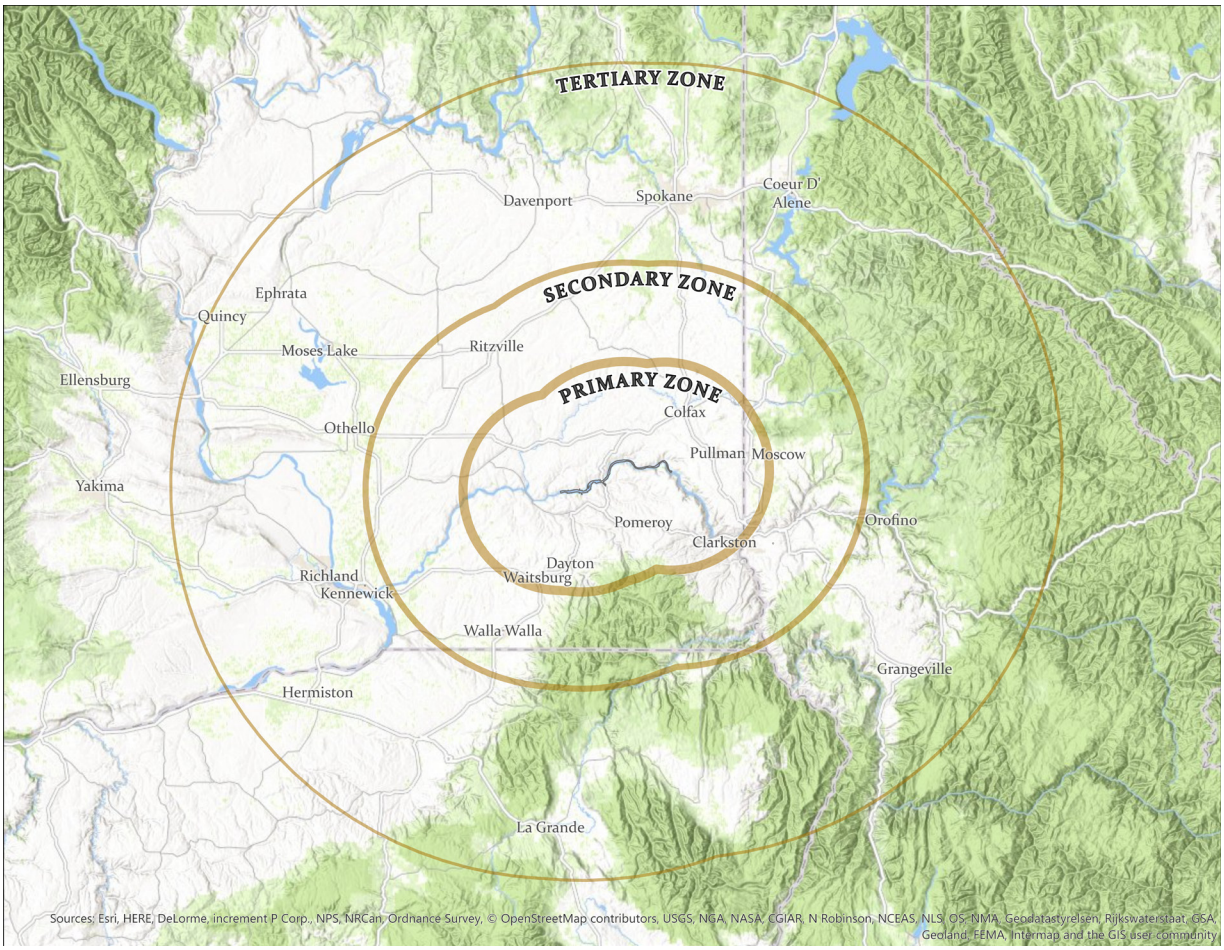


Figure 2-12. Little Goose Zones of Influence for Project Visitation

2.8.4. Project Visitation Profile

Visitation at Little Goose Lock and Dam and Lake Bryan is dominated by Boyer Park and Illia Dunes (69 percent of total visitation), and by access points around Little Goose Lock and Dam (20 percent of total visitation) (Figure 2-13, Table 2-3). However, as noted in the discussion in the previous subchapter, accurate visitation numbers are not available for

most of the Project's HMUs, so a higher percentage of visitation occurs at the HMUs than is captured in the data below.

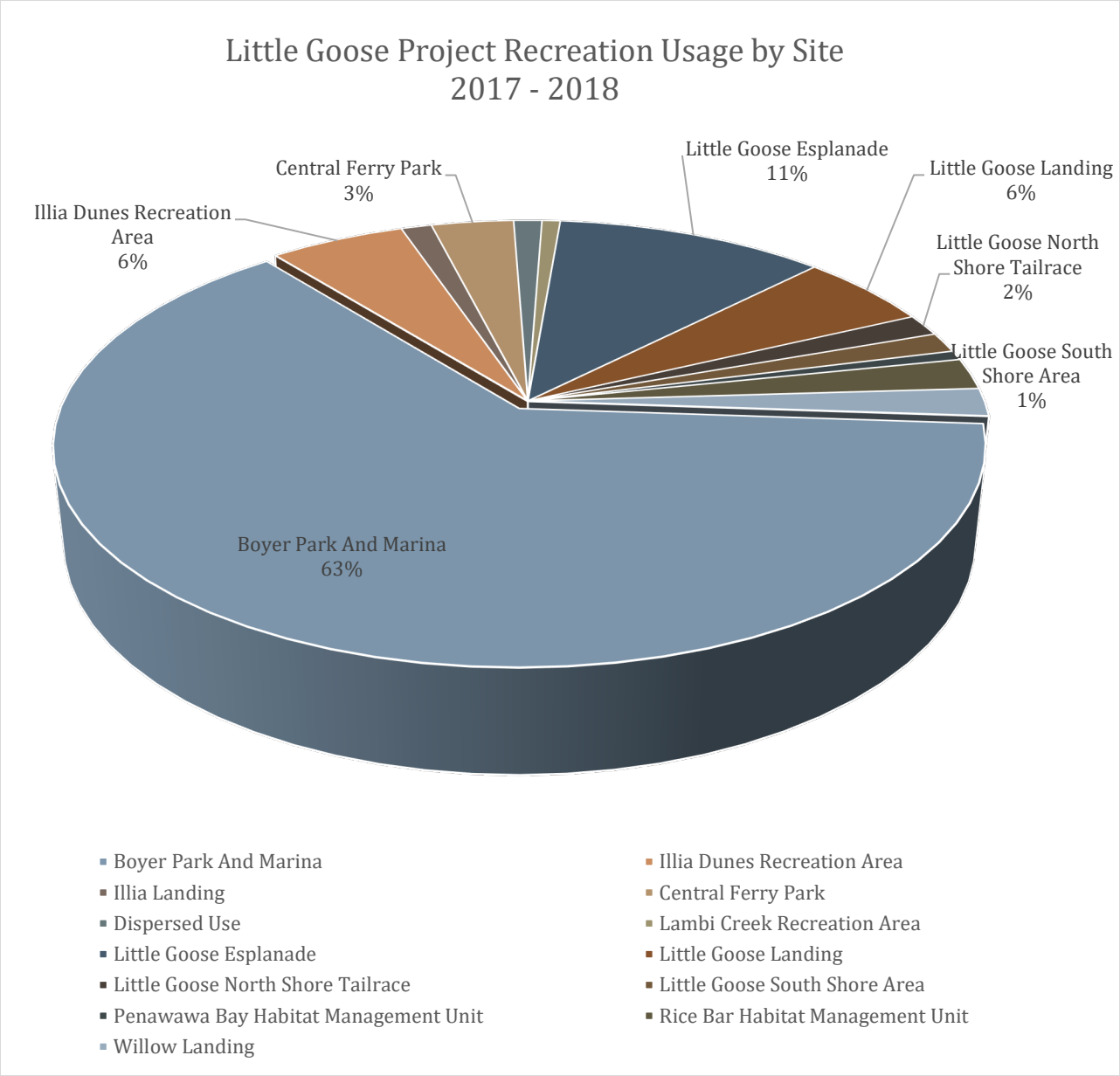


Figure 2-13. Little Goose Project Recreation Usage by Site 2017 - 2018

Table 2-3. Little Goose Project Visitation and Percentage by Location (Source: CRSO 2017-2018 average [Appendix M, Table 3-2])

LOCATION	VISITATION	PERCENTAGE
Boyer Park and Marina	165,762	63%
Central Ferry Park	8,888	3%
Dispersed Use	3,050	1%
Illia Dunes Recreation Area	14,603	6%
Illia Landing	3,298	1%
Lambi Creek Recreation Area	1,973	1%
Little Goose Esplanade	29,176	11%
Little Goose Landing	14,525	6%
Little Goose North Shore Tailrace	4,214	2%
Little Goose South Shore Area	3,890	1%
Penawawa HMU	1,825	1%
Rice Bar HMU	6,042	2%
Willow Landing	5,416	2%
Total	**262,662**	**100.00%**

Seasonal visitation is strongest from May through September, with a peak visitation in July for the Project, with a second peak in October (Figure 2-14). The Project has a second peak in October, largely due to the start of fall semester at WSU and the University of Idaho.

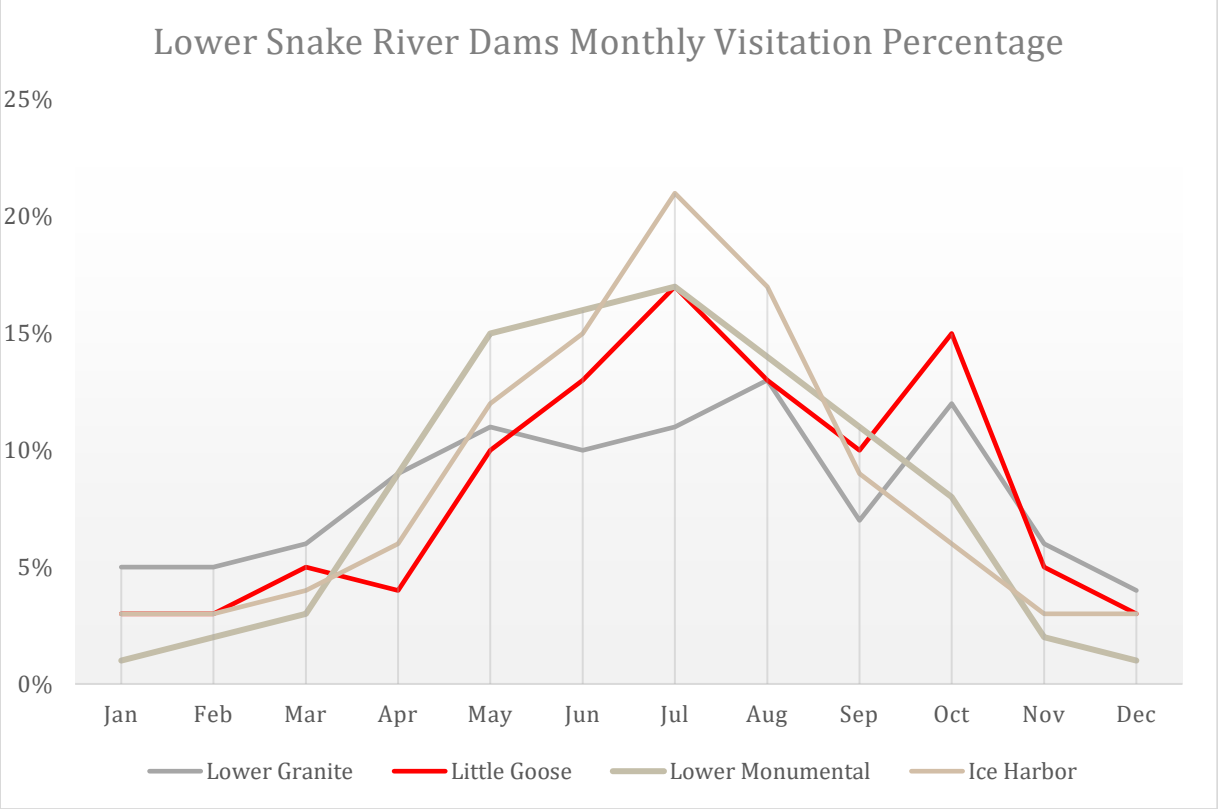


Figure 2-14. Lower Snake River Dams Monthly Visitation by Percentage

2.8.5. Recreation Analysis

Washington State Comprehensive Outdoor Recreation Plan

The Statewide Comprehensive Outdoor Recreation Plans (SCORP) for Washington, Oregon, and Idaho were reviewed to establish the assumption that demand for recreation exist that will produce the projected benefits. Each state SCORP identifies increasing population and increasing demand for outdoor recreation, while addressing the changing demographics of an aging population. The relevant Washington SCORP reports are summarized below (Washington State Recreation and Conservation Office 2018).

- Washington State population is projected to grow by 2 million people (26%) by 2040, mostly from people moving into the state.
- More than 90% of Washingtonians recreate outside today.
- Top 10 outdoor recreation activities in Washington include walking in a park or trail setting (84%), visiting rivers or streams (66%), visiting a beach or tide pools (60%), attending an outdoor concert or event (58%), gathering or collecting things in a nature setting (54%), day-hiking (53%), sightseeing at a scenic or wilderness area (51%), wildlife

or nature viewing (50%), swimming/wading at a freshwater beach (50%), and driving or motorcycling for pleasure (46%).

- 20% of residents reported using federal facilities for outdoor recreation.
- 74% of residents are satisfied or highly satisfied on average with all outdoor recreation categories.

Social Welfare Effects of Recreation

Little Goose Lock and Dam, including Lake Bryan, provide a social welfare effect of $2,567,659 per year, and expenditures are estimated to be $12,260,290 annually.

Social welfare effects are evaluated by estimating the economic value (i.e., consumer surplus) resulting from average annual recreational visitation at near-river sites across the basin (water- and land-based use at reservoirs and river reaches). Social welfare effects are evaluated by estimating the change in economic value resulting from estimated changes in water-based visitation at reservoirs.

Social welfare effects are estimated using a unit day value (UDV) approach (Corps 2019a; Water Resources Council 1983), a standard Corps approach to evaluate recreation consumer surplus benefits. The UDV method relies on expert and informed opinion to assign relative values to recreational visits based on the quality of recreational opportunities supported by individual recreation areas. The social welfare analysis is done in two steps. First, recreational visits are converted to recreational visitor days to account for the fact that overnight trips are longer than 1 day. Second, UDVs are applied to the estimated recreational visitor days. Table 2-4 provides UDVs for area reservoirs in comparison to the Little Goose Project.

Table 2-4. Unit Day Values for Columbia and Snake River Basin Reservoirs and River Reaches

Reservoir/River Reach	Unit Day Value (2019$)
Kootenai River between the US-Canada border and Libby Dam and Lake Koocanusa	$9.87
Flathead River above Flathead Lake and Hungry Horse Dam and Reservoir	$9.87
Clark Fork River, Flathead River below Flathead Lake, and Flathead Lake	$9.87
Pend Oreille River and Lake Pend Oreille	$8.97
Grand Coulee Dam and Lake Roosevelt	$9.05
Chief Joseph Dam and Lake Rufus Woods	$7.95
Wanapum Dam and Lake	$8.61
Clearwater River and Dworshak Dam and Reservoir	$9.87
Lower Granite Dam and Lake	$9.10
Little Goose Dam and Lake Bryan	**$9.17**
Lower Monumental Dam and Lake Herbert G. West	$9.85
Ice Harbor Dam and Lake Sacajawea	$8.66
McNary Dam and Lake Wallula	$8.61
John Day Dam and Lake Umatilla	$8.50
The Dalles Dam and Lake Celilo	$8.93
Bonneville Dam and Lake	$9.14
Below Bonneville Dam	$9.14

Recreation Benefits from Little Goose Lock and Dam, and Lake Bryan

Recreation benefits are measured in different ways to reflect the benefit gained to people recreating, to the people that support recreation, and job and income to the region.

Social welfare effects are an estimate of the value a person receives above the price they pay for that activity. Expenditures are the estimated amount of money that people spend recreating. Regional benefit effects are an estimate of the change in jobs, the labor cost for those jobs, and the resulting value to the region from income and sales from jobs resulting supporting recreation.

Little Goose Lock and Dam and Lake Bryan estimated annual recreation visitation is 262,000 visitors. This generates a social welfare benefit of $2.6 million per year. Expenditures from those visitors is estimated at $12.3 million per year, and approximately 98 percent of those expenditures are estimated to come from non-local visitors. The regional effects from recreation are estimated to be 144 jobs, labor income of $4.6 million, and total sales increase of $17 million.

2.8.6. Recreational Carrying Capacity

The Project provides a variety of water-related and land-based recreation opportunities (Table 2-5), and it is expected that the demand for recreation activities in the future will increase. Future recreation activities and increased usage without facility expansion will change the current user experience and could negatively impact the resources.

Table 2-5. Facilities Available Throughout Little Goose Project

11 recreation areas	14 trails
20 picnic sites	40 trail miles
97 camping sites	0 fishing docks
2 playgrounds	6 boat ramps
1 swimming area	144 marina slips

Visitation data from 2014 to 2018 show a slight increase in visitation. This trend is expected to continue as population in the surrounding area increases.

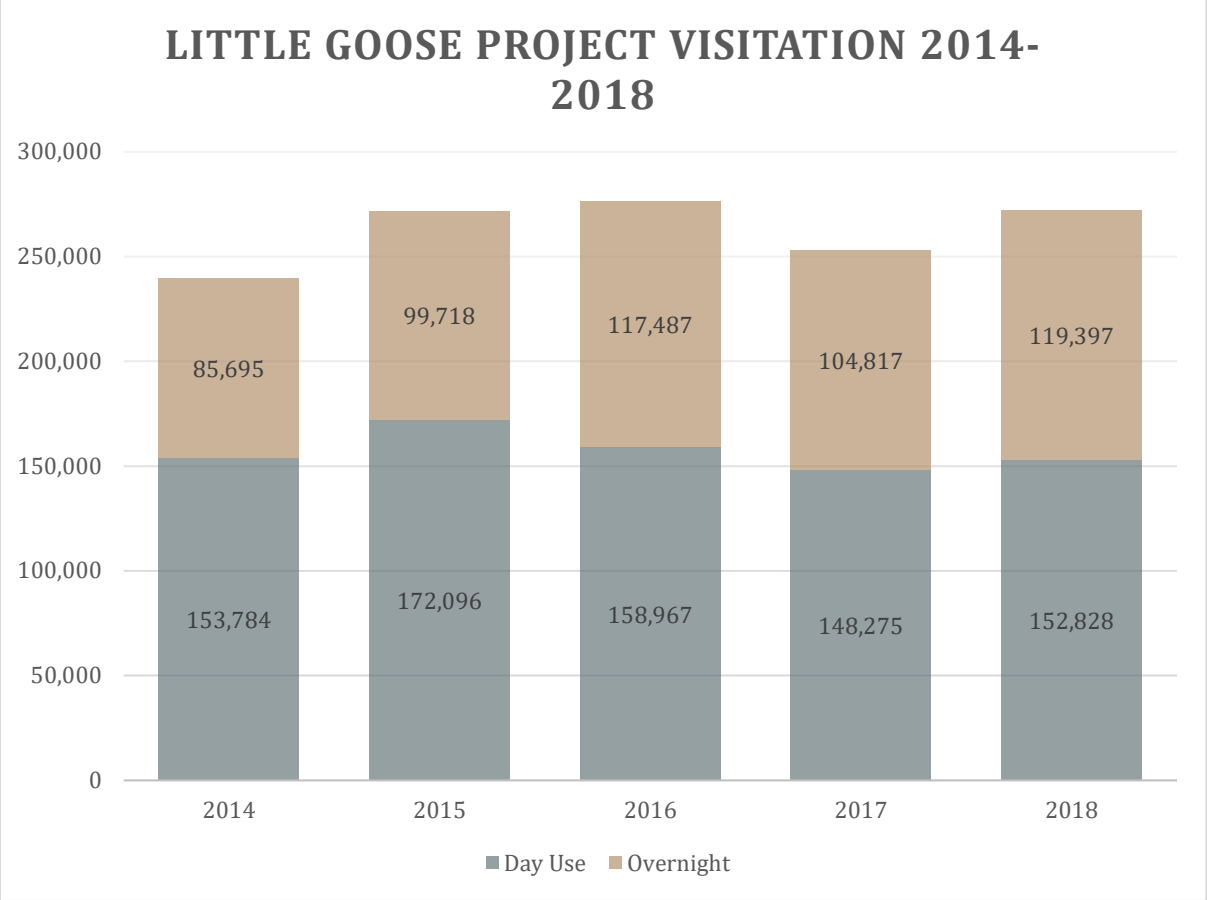


Figure 2-15. Little Goose Project Visitation 2014 - 2018

Future Recreation Demand

Using the state population estimates and assuming recreation participation rate is constant with population growth, estimates for future recreation demand were computed for total Project visitation. The population estimate is a linear trend based on recent historical records. Any major societal changes could have dramatic effects that could skew the estimated population higher or lower. As the population estimate is extended beyond the current year the estimation range will grow.

The visitation assumes similar recreation patterns as currently demonstrated. An aging population and other demographic changes may greatly affect future visitation patterns. These estimates are for similar recreation demand and assumes facilities are available to meet any increased recreation demand. As facilities reach their carrying capacity demand may shift to other recreation types, or to other sites outside this area.

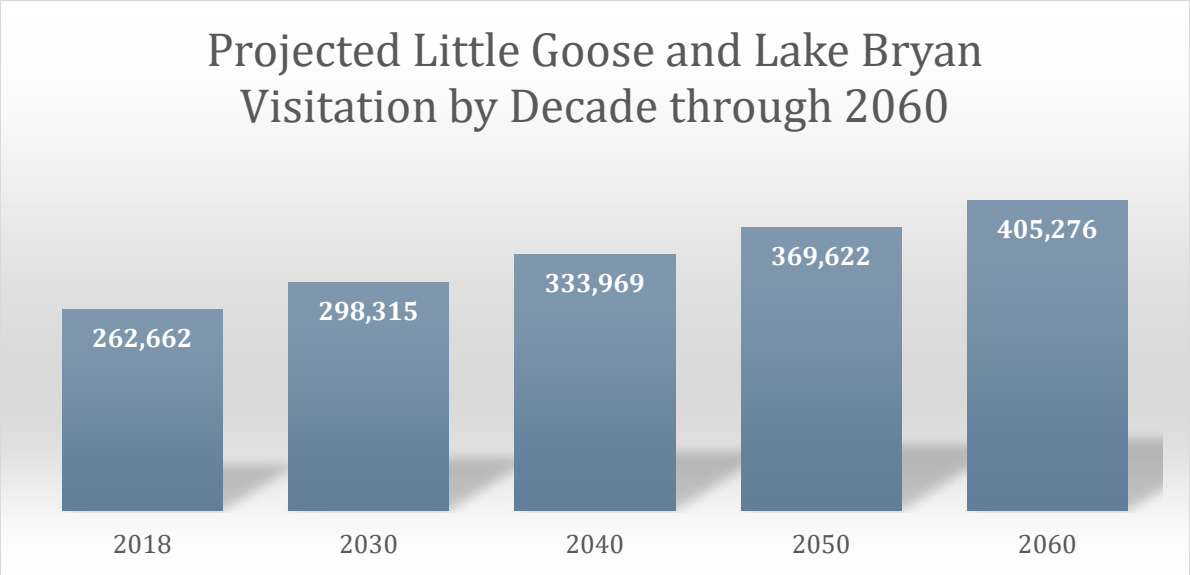


Figure 2-16. Projected Little Goose and Lake Bryan Visitation by Decade through 2060

Recreation activities and sites around Lake Bryan are varied. Recreation activities are relatively balanced among picnickers, swimmers, boaters, sightseers, and fishing. With the closing of Central Ferry State Park in 2012, developed camping is only available at Boyer Park. Attempts were made to keep Central Ferry State Park open under private operations, but park revenue was not enough to sustain operations of the park. Closing of Central Ferry State park reduced available camping sites by 50 percent. Table 2-6 shows the distribution of recreation activities for visitors to the Little Goose Project and other nearby Corps projects. However, as previously stated, this data is not completely accurate due to the lack of trail and vehicle counters at most of the Project HMUs.

Table 2-6. Distribution of Recreation Use by Activity for Snake River Basin Reservoirs and River Reaches

Reservoir	Fishing	Camping	Boating	Swimming	Picnicking	Hunting	Sight-seeing	Other	Water-Based Visitation
Clearwater River and Dworshak Dam and Reservoir	36%	13%	6%	5%	5%	1%	17%	17%	47%
Lower Granite Dam and Lake	13%	1%	7%	13%	9%	0%	11%	45%	33%
Little Goose Dam and Lake Bryan	**14%**	**4%**	**17%**	**15%**	**15%**	**1%**	**13%**	**20%**	**46%**
Lower Monumental Dam and Lake Herbert G. West	19%	15%	14%	7%	10%	1%	8%	26%	40%
Ice Harbor Dam and Lake Sacajawea	27%	2%	13%	11%	14%	0%	13%	21%	51%

*Water based visitation is the combination of fishing, boating, and swimming.

2.9. REAL ESTATE AND ACQUISITION POLICY

2.9.1. Land Acquisition History

Under Public Law 79-14, Congress authorized the construction of dams on the Snake River land in 1945 to support the primary purposes of navigation and irrigation, with authority for power development where determined appropriate. Separate legislation has authorized other project purposes, including recreation and fish and wildlife habitat. The Corps routinely analyzes lands for its needs in relation to the Project, and approximately 2,187 acres of land designated as no longer needed for the Project have been disposed.

The U.S. Government currently owns 10,505 fee acres within the Project boundary, which includes acreage that are submerged under Lake Bryan due to the dam's construction and are not included in the number of acres classified in this Master Plan (5,782 acres). Additionally, the U.S. Government has easements and reservation rights on 1,110 acres. Most of the Project lands are centered along the shorelines of the Snake River, with some larger parcels of land that stretch inland. The Corps has management rights and responsibilities on these U.S. Government owned lands. Of these lands, 288 acres were purchased under the LSRFWCP as mitigation for lost habitat and hunter opportunity from construction of Lower Snake River dams.

2.9.2. Outgrants

The purpose of an outgrant is to allow other agencies or individuals use of project lands. These outgrants are issued by easement, permit, license, or lease. Additionally, an outgrant may be reserved in the Corps' acquisition of the property and is codified in the conveyance document. Outgrants are issued if the land is available, and if the proposed use is consistent with operational needs and resource management objectives. Other outgrants may be issued and existing ones terminated or amended, as circumstances warrant. There are currently 52 outgrants on Project lands. The Real Estate Division of the Corps, Walla Walla District maintains all current information on outgrants and reservations.

2.10. PERTINENT PUBLIC LAWS, REGULATIONS, AND POLICIES

Rules and regulations governing the public use of water resources development projects administered by the Corps are contained in 36 CFR § 327. Other authorities specifically related to the management of recreation and public access are found in statutes, public laws, federal regulations; EOs; and the Corps ERs, Engineer Manuals (EM), and EPs. They include, but are not necessarily limited to, those listed in Appendix A. A list of applicable Federal statutes is included in Appendix B.

The treaties between the United States and the Nez Perce Tribe document agreements reached between the Federal Government and the Tribe. In exchange for the Nez Perce Tribe ceding much of their ancestral land, the Government established reservation lands and treaty rights, including fishing and hunting rights. These treaties, as well as statutes, regulations, and national policy statements originating from the executive branch of the Federal Government provide direction to Federal agencies on how to formulate relations with Native American Tribes and people. Treaties with the Nez Perce (Treaty of June 11, 1855, Treaty with the Nez Perce, 12 Stat. 957 [1859]; Treaty of June 9, 1863, Treaty with the Nez Perce, 14 Stats. 647 [1867]) explicitly reserved unto the Tribe certain rights, including the exclusive right to take fish in streams running through or bordering reservations, the right to take fish at all usual and accustomed places in common with citizens of the territory, and the right of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed lands. These reserved rights include the right to fish within identified geographical areas.

2.11. ENVIRONMENTAL CONSIDERATIONS

The Master Plan is intended to deal in concepts, not in details of design or administration. Detailed management and administration functions are addressed in the OMP, which implements the concepts of the Master Plan into operational actions. Implementation of

individual actions from the OMP may require separate environmental compliance evaluations. The EA conducted as part of the development of the 2020 Master Plan is included in Appendix B, which will likewise focus on potential effects associated with changes to Project land use classifications.

3. Resource Objectives

Resource use goals provide the overall framework that guides the use of resources administered by the Corps at a project site. The goals and objectives in the Little Goose Master Plan are specific to Little Goose Project and its individual areas and specify attainable options for resource development and management. These goals have been developed through study and analysis of regional and local needs, public input, resource capabilities, and resource potential, and they are formulated to guide and direct the overall resource management program.

3.1. RESOURCE GOALS

The resource goals are included within four categories, as indicated below:

Project Operations

- Continue to safely, effectively, and efficiently provide benefits to the public in the areas of recreation and fish and wildlife, consistent with authorized Project purposes.

Natural and Cultural Resources Management

- Allow public access and use of Corps-owned land, as appropriate.
- Protect and preserve archeological and historical sites.
- Protect and enhance fish and wildlife habitat.
- Promote biological diversity and ecological system function.
- Control noxious weeds and other undesirable weed species.

Recreation and Interpretation

- Provide high quality, safe recreational facilities year-round to a wide segment of the public, including individuals with disabilities.
- Minimize conflicts between user groups and Corps operational requirements.

Coordination

- Maintain communication and coordination with appropriate Indian Tribes; Federal, State, and local agencies; and citizen groups and organizations for management of the manmade and natural resources at the Project.

3.2. RESOURCE OBJECTIVES

Resource Objectives are clearly written statements that respond to identified issues and specify measurable and attainable activities for resource development and/or management of the lands and waters under jurisdiction of the Walla Walla District at Little Goose Project. The objectives stated in this Master Plan support the goals of the Master Plan and the following Environmental Operating Principles:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all Corps activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic, and social knowledge to understand the environmental context and effects of Corps actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.

The objectives are consistent with authorized Project purposes, Federal laws and directives, and they take into consideration regional needs, resource capabilities, the Washington SCORP, cultural and natural resources significant to regional Tribes, and public input. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan.

To address specific management needs, the Resource Objectives discussed in this chapter are divided into three categories—General, Recreation, and Environmental Stewardship.

3.3. GENERAL RESOURCE OBJECTIVES

3.3.1. Safety and Security

Objective: Provide use areas and facilities that are safe and provide the public with safe and healthful recreational opportunities.

Discussion: Developed areas designated for recreation use will be evaluated regularly for safety. Any conditions that have been determined unsafe will be evaluated, and feasible

corrective actions will be implemented in accordance with EM 385-1-1, Safety and Health Requirements.

3.3.2. Aesthetic Resources

Objective: Plan all management actions with consideration given to landscape quality and aesthetics.

Discussion: Corps regulations and guidance requires that the Corps considers and provides an aesthetically pleasing environment for the public. Visitors are attracted to the vistas, rugged terrain, and water bodies that create high visual quality at the Project. In order to create a quality recreation experience, it is important that planned improvements be designed and maintained so that visual resources associated with the Project will be protected, preserved, and maintained to the maximum extent possible.

3.3.3. Facility Management

Objective: Ensure all current and future facilities are maintained and meet applicable design standards.

Discussion: All new or remodeled facilities will meet current standards. Upgrade and replacement of existing facilities will comply with Corps policy.

3.3.4. Real Estate Management

Objective: Prevent unintentional trespass and negative impacts associated with encroachments on Government property while allowing State, County, municipal, and private entities opportunities to provide public recreation services.

Discussion: Periodic boundary inspections will be conducted, and encroachments and trespasses resolved at the lowest level possible. Unmarked monument boundaries and fence monument boundaries will be surveyed where feasible. Real estate proposals and requests will be compatible with Project purposes and minimize impacts to environmental and cultural resources. Lease agreements will comply with lease terms and conditions, including Corps policies, federal and state laws, health and safety codes, and environmental protections.

3.4. RECREATION RESOURCE OBJECTIVES

3.4.1. Land and Water Universal Access

Objective: Provide use areas and facilities that are accessible for all Project visitors.

Discussion: Developed areas designated for recreation use will be evaluated regularly for accessibility. When developing new or rehabilitating existing recreation facilities/opportunities, effort should be made to comply with reasonable Americans with Disabilities Act (PL 101-336) accommodations. In addition, special emphasis should be placed on programs that increase participation in outdoor activities for people with physical, developmental, and sensory disabilities.

3.4.2. Interpretive Services and Outreach Program

Objective: Interpretive service will focus on agency, District, and Project missions, benefits, and opportunities. Interpretive services at the Project will be used to enhance public education and safety through promoting public awareness, understanding, and appreciation of the Project and its resources.

Discussion: The Little Goose Interpretive Services and Outreach Program includes the management of public affairs, community relations, marketing, publications, tourism, and special events. The Project will provide community outreach by participating in fairs and public events; providing interpretive displays and programs, day-use areas, community organizations, and the Chamber of Commerce; and releasing information to the press. Interpretive displays and programs should highlight several of the following subjects:

- The Corps.
- Land use classifications.
- History.
- Natural history.
- Project authorized purposes and public benefits.
- Impacts of the Project (historical, cultural, ecological).
- Historical and traditional uses of the area by regional Tribes.
- Recreation opportunities.
- Wildlife and fish associated with Project lands and waters, and opportunities to passively and actively use these resources.
- Water safety.
- Ongoing management activities.
- Challenges and possible solutions.

Opportunities exist to partner with local Tribes and other groups in the development of these displays and programs.

3.4.3. Recreation Optimization and Sustainability

Objective: Use leveraged resources when possible to maintain and improve recreation facilities that reduce operations and maintenance costs while meeting public demand.

Discussion: Project staff will promote community involvement through stakeholder meetings. Challenge cost share and cooperative agreements will be used to leverage additional resources, and a robust volunteer program will be maintained to accomplish additional work.

3.4.4. Quality Outdoor Recreation in Rural Settings (Low Density Use)

Objective: Operate and maintain multipurpose facilities, as well as develop new facilities, that meet public demand and provide opportunities for multiple user groups in a rural setting.

Discussion: Continue efforts to provide dispersed recreation allowing visitors to participate in activities such as boating, primitive camping, fishing, hunting, horseback riding, hiking, nature study, bird watching, and wildlife photography. Managing user expectations and developing creative solutions in low density recreation areas will remain important as visitor use continues to increase. To enhance the quality of recreation opportunities, Project staff will continue to enforce 14-day camping limits (within a 30-day period) to prevent habitation per 36 CFR § 327.

3.5. ENVIRONMENTAL STEWARDSHIP RESOURCE OBJECTIVES

3.5.1. Riparian and Wetland Protection

Objective: Protect and limit impacts to wetlands and riparian corridors on the Project in conjunction with Project missions, water quality, and fish and wildlife benefits.

Discussion: Wetlands and riparian habitat are of high ecological importance within the watershed. The Corps ENS mission and the LSRFWCP have always focused a lot of effort on habitat development and maintenance of riparian species and habitat types. This can be seen in areas on Lake Bryan such as New York Bar, Swift Bar, and Ridpath HMUs. Additionally, riparian and wetland areas are often the subject of targeted nuisance species control under the District's IPMP, to maintain and enhance these habitats. No unnecessary removal or alteration of the systems will be promoted.

3.5.2. Fish and Wildlife Habitat Management

Objective: Conserve, protect, restore, and enhance habitat and habitat components important to the survival and proliferation of threatened, endangered, special status, regionally important, and LSRFWCP habitat and species on Project lands.

Discussion: Over the life of the Project, improvements have been made to enhance fish and wildlife habitat. Maintenance of existing and future habitats is critical to sustain a healthy ecosystem now and in the future. This includes extensive effort for invasive and nuisance species management along with other habitat enhancement the Corps has performed, to improve and increase wildlife sustainability for all forms of recreation. Emphasis will be placed on integration and use of native plant species whenever possible.

3.5.3. Cultural Resources Management

Objective: Inventory, record, and evaluate cultural resources per legal requirements of NHPA. Preserve resources as per Archaeological Resources Protection Act of 1979 (PL 96-95), Native American Graves Protection and Repatriation Act (PL 101-601), and Treaty responsibilities. Pursue enforcement actions under Title 36, or through local law enforcement, in the event of destruction, injury, defacement, removal or any alteration of public property, including historical and archaeological features (36 CFR § 327.14).

Discussion: Planning and development will include considerations to protect and preserve culturally sensitive sites. Archaeological collections and records will be preserved for future generations, and managed for study by qualified researchers. Cultural resource review will be coordinated with District specialists, who will follow laws and guidelines for cultural review according to Federal law and consult with SHPO and Tribal Historic Preservation Offices/Tribes as required. Convey importance of cultural resources and proactive planning to Project staff through planning documents and the Historic Properties Management Plan (Hicks 2000), and update those documents as appropriate.

3.5.4. Integrated Pest Management

Objective: Minimize negative impacts to native flora and fauna and damage to Government facilities by reducing and/or eradicating invasive and nuisance species on Project lands.

Discussion: Reducing and restricting the spread of invasive and nuisance species will be achieved by monitoring, assessment, and an integrated pest management approach to treatment according to the District's IPMP. This includes the use of chemical, mechanical, and biological control methods, as well as reseeding and planting with native plant species.

3.5.5. Fire Management

Objective: Minimize the negative effects of wildfires, including impacts to Federal property and the recreating public.

Discussion: Minimize the threat of wildland fire by enforcing the fire ban and reducing fuel load through mowing, and establishing native grasslands to offset the change in fire cycle due to invasive plant species. Native plant communities, which are less conducive to burning, are diminished by more frequent fires. Efforts will be made to restore lands damaged by wildland fire back to native grasslands. Project personnel will be working on a prescribed burning plan that can be used as a tool to enhance wildlife habitat using methods such as prescribed burning and mowing.

4. Land Allocation, Land Classification, and Project Easement Lands

This chapter identifies and describes the land allocation categories and the land classifications at Little Goose Project under this 2020 Master Plan, including the number of acres and the primary and secondary uses for each classification. It also contains a summary of changes to land classifications since the 1969 Little Goose Master Plan.

4.1. LAND ALLOCATION

Land allocation refers to categorizing lands according to the congressionally authorized purposes for which Project lands were acquired. Chapter 3 of EP 1130-2-550 defines these categories as Operations, Recreation, Fish and Wildlife, and Mitigation, as described below:

- Project Operations – These are lands acquired for the congressionally authorized purpose of constructing and operating the Federal Project for the purposes of hydropower, navigation, and incidental irrigation.
- Recreation – These are lands acquired specifically for the purpose of recreation.
- Fish and Wildlife – These are lands acquired specifically for the purpose of managing or protecting fish and wildlife.
- Mitigation – These are lands acquired or designated specifically for the congressionally authorized purpose of offsetting losses associated with development of the Project.

Lands associated with Little Goose Project were originally purchased under the Project Operations allocation. In subsequent years, some lands were also purchased and allocated under Mitigation and Fish and Wildlife.

4.2. LAND CLASSIFICATION

All lands acquired for the Project are further classified to provide for development and resource management consistent with authorized purposes and other Federal laws. Land classification designates the primary use for which Project lands are managed. The classification process considers public input, regional and Project specific resource requirements, and suitability. Land classifications established in EP 1130-2-550 include the following six categories:

- Project Operations.
- High Density Recreation.

- Mitigation.
- Environmentally Sensitive Areas.
- Multiple Resource Management Lands.
- Water Surface.

Chapter 4.2.1 provides a brief overview of the land classification changes that have occurred from 1969 to 2019 under the old land classification nomenclature. Chapter 4.2.2 shows how the Project land is classified under the 2020 Master Plan using the new land classification nomenclature. It also discusses the management and use of the lands assigned to each land classification, in connection with the appropriate resource objectives identified in Chapter 3.

4.2.1. Land Classification Changes from 1969 to 2019

Little Goose Project land classifications have undergone several changes since the original Master Plan was developed in 1969. Table 4-1 identifies the total acres for each classification that has changed between 1969 and 2019, under the old land classification nomenclature. Figure 4-1 is a visual representation of the information provided in Table 4-1. The large-scale changes in land ownership and use over 50 years throughout the Project, along with the nomenclature changes, should have been documented in a Master Plan revision or supplement before now. However, funding for Master Plan updates is difficult to obtain, especially under the District's unique joint funding arrangement that requires BPA matching funds for appropriated dollars.

There were some large land disposals to the Great Northwestern Railroad for railroad relocation, and to the Ports of Whitman County and Garfield County between 1969 and 2019, along with myriad smaller disposals, resulting in a net decrease in total Project acres. Land was also acquired during this time, mostly to meet mitigation requirements under the LSRFWCP. These changes were never included in a master plan update or supplement.

In 2013, a supplement to the 1969 Master Plan was approved. The supplement was completed to document land classification changes at Central Ferry Park and Penawawa. At Central Ferry, 211 acres was reclassified from Recreation to Wildlife Management General, after both Washington State Parks and privately-owned Northwest Land Management relinquished leases to operate Central Ferry Park. The District analyzed the situation and determined that the best course of action was land reclassification. At Penawawa, 110 acres were reclassified from Recreation to Wildlife Management General to align with Corps management of the site for more than 20 years. Prior to impoundment, the Port of Whitman County partially constructed a boat basin and ramp, but the boat basin soon silted in and the park was never finished.

The 2013 supplement was the only approved supplement to the 1969 Master Plan. Land acquisitions, disposals, and reclassifications through the years of operation that were never documented in an approved Master Plan or supplement are detailed in Appendix E. The 2020 Master Plan is an opportunity to document these changes and to ensure that the public record accurately reflects the management of lands in the Project.

Table 4-1. Land Classification Changes from 1969 to 2019

LAND CLASSIFICATION NOMENCLATURE	1969 ACRES	2019 ACRES
Not Classified	294.2	300.2
Project Operations	500.5	500.5
Public Port Terminal	35.8	13.8
Industrial Use and Access	424.8	121.9
General Access	2992.5	2477.5
Initial Development	434.3	223.8
Future Development	329.0	281.9
Group Camping	362.6	362.6
Wildlife	574.9	1646.7
To be Transferred	805.4	0.0
Special	60.1	60.1
TOTAL ACRES	**6814.0**	**5989.1**

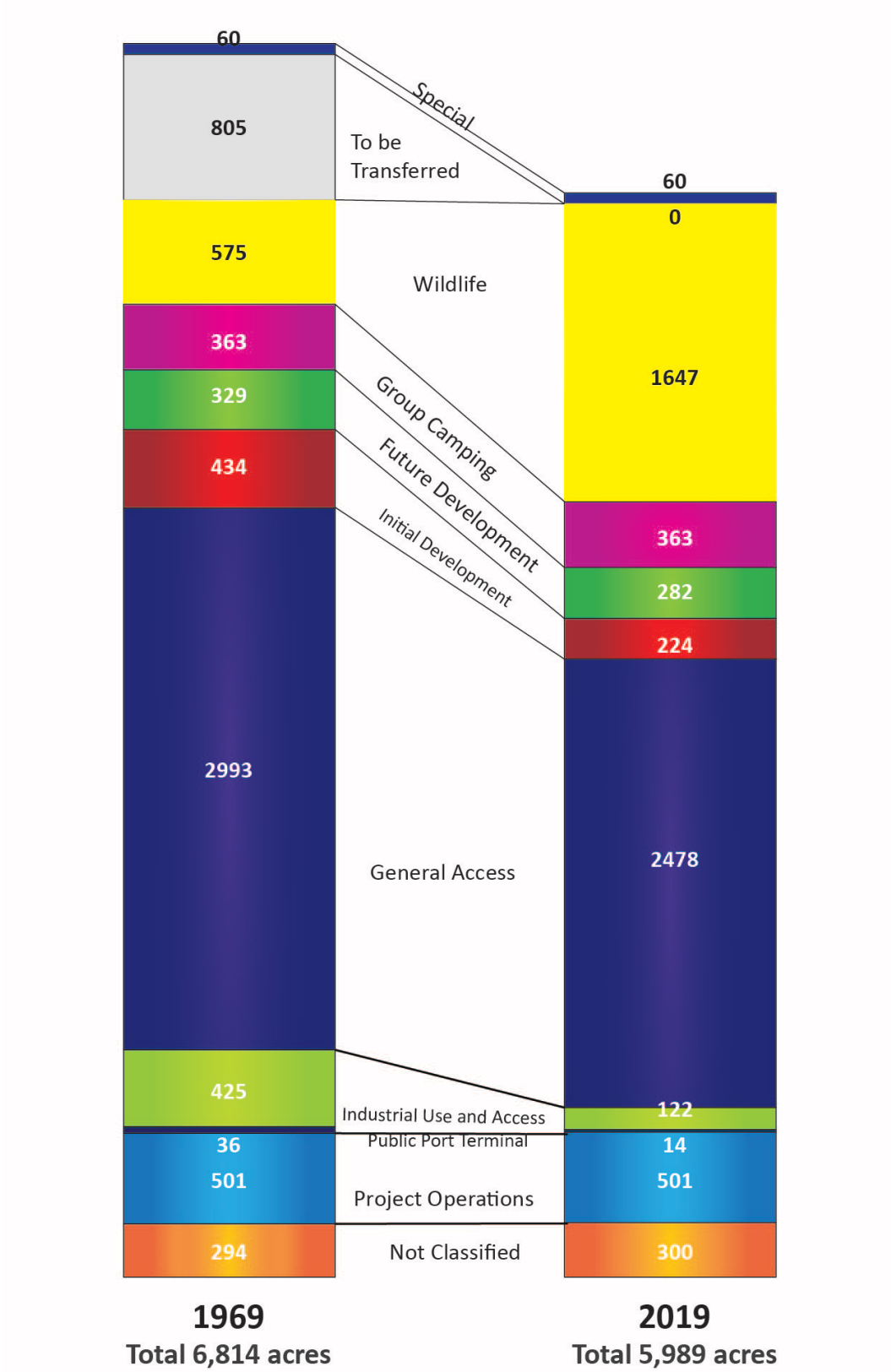


Figure 4-1. Changes in Acreage per Land Classification from 1969 to 2019

4.2.2. Proposed Land Classifications for the 2020 Master Plan

An interdisciplinary team evaluated Project operations, resource capabilities, and public input to determine the land classifications for the revised Master Plan for Little Goose Project. In order to revise the MP, the team needed to translate the old land classifications to the currently authorized land classifications under EP 1130-2-550. Table 4-2 below is a rough translation between the two different classification nomenclatures.

Table 4-2: Old Land Classification Nomenclature and New Land Classification Nomenclature

OLD LAND CLASSIFICATIONS	NEW LAND CLASSIFICATIONS
Project Operations Public Port Terminal Industrial Use and Access	Project Operations
Recreation General Access Initial Development Group Camping	High Density Recreation
----- ----- Future Development Wildlife Special	Multiple Resource Management Low Density Recreation Future and Inactive Recreation Areas Wildlife Management Vegetative Management
To be Transferred	-----
Not Classified	-----
-----	Mitigation

Using the information in Table 4-2 and current management strategies for each land management unit, the team classified lands for the 2020 Master Plan using the currently authorized land classification nomenclature.

This subchapter identifies how lands are classified under the 2020 Master Plan and provides an explanation for each of the land classifications, including the applicable primary and secondary uses. Table 4-3 identifies each of the land classifications and the number of acres at the Project. Appendix C contains the maps for these classifications. Tables E-1 and E-2 (Appendix E) identify the specific land classification changes by management area between 2019 and the 2020 Master Plan.

Table 4-3. Proposed Land Classifications for the 2020 Master Plan

LAND CLASSIFICATION	ACRES
Project Operations	128.3
High Density Recreation	105.5
Mitigation	3781.5
Environmentally Sensitive Areas	58.5
MRM – Low Density Recreation	55.0
MRM – Wildlife Management	1716.3
MRM – Future or Inactive Recreation Area	91.3
MRM – Vegetation Management	57.8
TOTAL ACRES	**5993.9**

4.2.3. Project Operations

Lands required for the operation and maintenance of the dam and reservoir, associated structures, administrative offices, maintenance compounds, and other areas are classified as Project Operations. Where compatible with the operational requirements, this land may be used for wildlife habitat management and low-density recreational uses. Licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements. Some Project Operations lands are closed to public access for safety or security reasons, while other areas may be subject to closure for operational requirements or other purposes. Table 4-4 contains a listing of primary and secondary uses on lands classified under Project Operations.

Table 4-4. Project Operations, 128.3 Acres

Primary Use	**Secondary Uses***
Manage land required for the operation and maintenance of the dam and reservoir.	Wildlife Management -Ecological restoration projects -Other similar activities Low Density Recreation -Hunting/Fishing -Hiking -Picnicking -Sightseeing and nature observation -Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

4.2.4. High Density Recreation

Lands developed for intensive recreational activities by the visiting public are included in the High Density Recreation land classification. Low density recreation and wildlife management activities that are compatible with intensive recreation use are acceptable. No agricultural uses are permitted on these lands except on an interim basis for the maintenance of scenic or open space values. Licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with recreation use. Hunting is not allowed on land classified as High Density Recreation, although fishing is an appropriate non-conflict recreational activity. Table 4-5 contains a listing of primary and secondary uses on lands classified under High Density Recreation.

Table 4-5. High Density Recreation, 105.5 Acres

Primary Uses	**Secondary Uses***
Manage land for developed recreation sites. -Picnicking -Swimming -Fishing -Sightseeing and nature observation -Nature/Interpretive trails -Hiking -Bicycling -Horseback riding -Playgrounds/Games/Sports/Other -Boat ramps	Wildlife Management -Ecological restoration projects Low Density Recreation -Non-motorized trails -Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

4.2.5. Mitigation

Only land identified, acquired, or designated specifically for Mitigation can be included under the Mitigation land classification. It is specifically designated to offset losses associated with the development of a project. At the Project, Mitigation lands are associated with wildlife habitat purchased and developed under the LSRFWCP, and on lands designated as mitigation HMUs that were not specifically purchased to meet LSRFWCP requirements. Development of recreation facilities in Mitigation areas may be limited or prohibited to ensure that the lands are not adversely impacted. Table 4-6 contains a listing of primary and secondary uses on lands classified under Mitigation.

Table 4-6. Mitigation, 3,781.5 Acres

Primary Use	**Secondary Uses***
Manage habitat under the LSRFWCP.	Wildlife Management -Ecological restoration projects -Other similar activities Low Density Recreation -Non-motorized trails -Hunting/Fishing -Hiking -Picnicking -Sightseeing and nature observation -Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

4.2.6. Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESA) are areas identified with scientific, ecological, cultural, or aesthetic features, or that are otherwise protected by laws; this classification is not limited to just land. Typically, limited or no development for public use is allowed. Activities designed to promote and improve special features identified in the area are allowed, along with education and interpretation. Development of recreation facilities in ESAs may be limited or prohibited to ensure that the lands are not adversely impacted. Table 4-7 contains a listing of primary and secondary uses on lands classified under ESA.

Table 4-7. Environmentally Sensitive Areas, 58.5 Acres

Primary Use	**Secondary Uses***
Manage land to protect unique and sensitive resources. -Scientific -Cultural -Ecological -Aesthetic	Wildlife Management -Ecological restoration projects -Other similar activities Low Density Recreation -Nature observation -Education/Interpretation

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

4.2.7. Multiple Resource Management Lands

The Multiple Resource Management (MRM) Lands classification allows for designation of a predominant use with the understanding that other compatible uses may also occur in the classification. Total MRM Lands for the Project is approximately 1,917.2 acres and is divided into subclassifications of Low Density Recreation, Wildlife Management, Vegetation Management, and Future or Inactive Recreation Areas.

MRM–Low Density Recreation

Land in the MRM–Low Density Recreation (LDR) subclassification provides opportunities for dispersed and/or low-impact recreation. Emphasis is on minimal development of infrastructure that might support sightseeing, wildlife viewing, nature study, hiking, biking, horseback riding, and picnicking. Consumptive uses of wildlife (i.e., hunting, fishing) are allowed when compatible with the wildlife objectives for a given area and with Federal, State, and Tribal fish and wildlife laws and regulations.

Facilities may include boat ramps, boat docks, trails, parking areas, vault toilets, picnic tables, and fire rings. Manmade intrusions (power lines, non-Project roads, and water and sewer pipelines) may be permitted under conditions that minimize adverse effects on the natural environment. Vegetation management that does not greatly alter the natural character of the environment is permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. Table 4-8 below contains a listing of primary and secondary uses on lands classified under MRM–LDR.

Table 4-8. MRM-Low Density Recreation, 55 Acres

Primary Uses	**Secondary Uses***
Manage land for low density, low impact recreation opportunities. -Hunting/Fishing -Hiking -Bicycling -Horseback riding -Campgrounds <15 sites -Primitive camping (designated sites) -Picnicking -Swimming -Sightseeing and nature observation -Motorized access trails and roads -Boat ramps -Non-motorized trails -Other recreation activities of a primitive nature	Wildlife Management -Ecological restoration projects -Other similar activities

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

MRM–Wildlife Management

Land in the MRM–Wildlife Management (WM) subclassification is designated for stewardship of fish and wildlife resources in conjunction with other land uses. Habitat maintenance and/or improvements are for a designated species, group of species, and/or a

diversity of species. These areas may be administered by other public agencies under a lease, license, permit, or formal agreement. Licenses, permits, and easements are normally not allowed for manmade intrusions such as pumping plants, pipelines, cables, transmission lines, or for non-Corps maintenance or access roads. Exceptions to this policy are allowable where necessary to serve a demonstrated public need in those instances where no reasonable alternative is available, or other reasons deemed important by the Corps.

MRM-WM land is available for sightseeing, wildlife viewing, nature study, hiking, biking, horseback riding, and primitive camping. Consumptive uses of wildlife (i.e., hunting, fishing, and trapping) are allowed when compatible with the wildlife objectives for a given area, as well as with Federal, State, and Tribal fish and wildlife laws and regulations. Table 4-9 contains a listing of primary and secondary uses on lands classified under MRM–WM.

Table 4-9. MRM - Wildlife Management, 1,716.3 Acres

Primary Uses	**Secondary Uses***
Manage land for stewardship of fish and wildlife resources. -General forest health -Habitat enhancement projects -Ecological restoration projects -Protection of specific habitat areas / components (i.e., denning sites, calving sites, nests and wallows, etc.) -Other similar activities	Low Density Recreation -Hunting/Fishing -Hiking -Horseback riding -Campgrounds <15 sites -Primitive camping (designated sites) -Picnicking -Swimming -Sightseeing and nature observation -Motorized access trails and roads -Boat ramps -Non-motorized trails -Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

MRM–Vegetation Management

Activities in areas under the MRM–Vegetation Management (VM) subclassification focus on the protection and development of vegetative cover and habitat types, such as prairie, shrub-steppe, and other native vegetation. All Project land is managed to protect and develop vegetative cover in conjunction with other land uses within the MRM Lands classification. Licenses, permits, and easements are normally not allowed for manmade intrusions such as pumping plants, pipelines, cables, transmission lines, or for non-Corps maintenance or access roads. The primary emphasis in managing these lands is invasive species control and boundary monitoring. Vegetative management land is available for

sightseeing, wildlife viewing, nature study, and hiking. Consumptive uses of wildlife (i.e., hunting, fishing, and trapping) are also allowed when compatible with the wildlife objectives for a given area, as well as with Federal, tribal, and/or state fish and wildlife laws and regulations. Table 4-10 contains a listing of primary and secondary uses on lands classified under MRM–VM.

Table 4-10. MRM - Vegetation Management, 57.8 acres

Primary Uses	**Secondary Uses***
Protection and development of vegetative cover and habitat types.	Wildlife Management -General forest health -Ecological restoration projects -Other similar activities Low Density Recreation -Hunting/Fishing -Hiking -Bicycling -Horseback riding -Campgrounds <15 sites -Primitive camping (designated sites) -Picnicking -Swimming -Sightseeing and nature observation -Motorized access trails and roads -Non-motorized trails -Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

MRM–Future or Inactive Recreation Areas

The MRM - Future or Inactive Recreation Areas (FIRA) subclassification consists of lands for which recreation areas are planned for future development or lands that contain existing recreation areas that have been temporarily closed. Table 4-11 contains a listing of primary and secondary uses on lands classified under MRM–FIRA.

Table 4-11. MRM - Future or Inactive Recreation Areas, 91.3 Acres

Primary Uses	**Secondary Uses***
Manage land that will not limit the ability to develop or maintain an area as a recreation area.	Wildlife Management -General forest health -Ecological restoration projects -Other similar activities Low Density Recreation -Hunting/Fishing -Hiking -Bicycling -Horseback riding -Campgrounds <15 sites -Primitive camping (designated sites) -Picnicking -Swimming -Sightseeing and nature observation -Motorized access trails and roads -Non-motorized trails -Other recreation activities of a primitive nature

*Project lands have information signs for visitors if there are any deviations from primary or secondary uses of the lands.

4.2.8. Water Surface

The Project manages 9,939.3 acres of surface water. The water surface acreage at the Project is divided into the following zones to support public safety and security:

- Restricted – Water areas restricted for Project operations, safety, and security purposes.
- Designated No-Wake – To protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and/or public safety.
- Fish and Wildlife Sanctuary – Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.
- Open Recreation – Those waters available for year-round or seasonal water-based recreational use.

4.3. PROJECT EASEMENT LANDS

The Corps holds an easement interest, but not the fee title to this land, and has the right to enter the property in connection with the operation of the Project. In most cases, the Corps has the right to occasionally flood these properties. Planned use and management are in strict accordance with the terms and conditions of the easement estate acquired for the

project. The Corps has acquired or reserved easements on approximately 1,110 acres of land adjacent to the Little Goose Project.

4.3.1. Operations Easement

Operations easements were purchased by the Corps for the purpose of Project operations. Five acres were acquired for activities to include roads and pipeline rights-of-way.

4.3.2. Flowage Easement

These are easements purchased by the Corps or reserved as part of Corps disposal of fee lands, giving the right to flood private land during flood risk management operations. There are 1,105 acres of flowage easement land located near the Project. These easements are most commonly found near the river shores.

4.4. LAND CLASSIFICATION SUMMARY

Table 4-12 summarizes the land classification changes from the 2019 acreage to the acreage for the 2020 Master Plan, converting the 2019 classifications to the new classifications in EP 1130-2-550. Appendix C provides the new land classification maps for the 2020 Master Plan. A full list of land classification changes for each management area within the Project and the reasons for those changes is provided in Appendix E.

Table 4-12. Land Classification Changes from 2019 to 2020

LAND CLASSIFICATION NOMENCLATURE	2019 ACRES	2020 ACRES
Project Operations	636.2	128.3
High Density Recreation	2701.4	105.5
Mitigation	--	3781.5
Environmentally Sensitive Areas	--	58.5
MRM-Low Density Recreation	362.6	55.0
MRM-Wildlife Management	1646.7	1716.3
MRM-Future or Inactive Recreation Area	284.2	91.3
MRM-Vegetation Management	--	57.8
Special	57.8	
Not Classified	300.2	
	5989.1	**5993.9**

5. Resource Plan

Building on Chapter 4, which provided more general land classification descriptions and acreage for each of the classifications at Little Goose Project, Chapter 5 provides information on how the management areas (such as recreation areas, HMUs, etc.) within each of the land classifications will be managed. The management areas identified are presented in broad terms. A more descriptive plan for managing these lands will be refined in the Little Goose OMP. Management tasks described in the OMP must support the resource objectives, land classifications, and resource plan set forth in this Master Plan. Numbers of acres listed under land classification categories were summarized using the Corps geographic information system (GIS) database and may be off by several tenths of an acre at each site.

5.1. PROJECT OPERATIONS

Project Operations lands are managed to support the operation and maintenance of the dam and reservoir, associated structures, administrative offices, maintenance compounds, and other areas that are classified as Project Operations. There are a total of 128.3 acres designated under the Project Operations land classification. This is a reduction in acreage from 636.2 to 128.3 acres in the 2020 Master Plan. Management of the Project after construction of Little Goose Lock and Dam requires fewer lands in this category, so lands were moved to more appropriate classifications based on the resource needs of the areas. The management areas in this land classification are shown in Table 5-1.

A total of 521.4 acres moved out of the Project Operations land classification from 2019: 2 acres moved into ESA, 5.5 acres moved into High Density Recreation, 246.7 acres moved into Mitigation, 2.8 acres moved into MRM–FIRA, 34.1 acres moved into MRM–LDR, and 230.2 acres moved into MRM–WM. A total of 13.5 acres moved into Project Operations from other land use classifications: 3.3 acres from High Density Recreation, and 10.2 acres not previously classified. Detailed tables showing land classification changes by management area are provided in Appendix E.

Table 5-1. Project Operations Lands

MANAGEMENT AREA	ACRES
Illia Housing Area	15.5
Little Goose Dam	73.6
Little Goose Juvenile Fish Facility	2.4
Little Goose Lock and Dam State Airport	23.4
Little Goose South Shore Storage	2.0
Lower Granite State Airport	9.0
South Shore Maintenance Facility	2.4
TOTAL	**128.3**

Illia Housing Area. Illia Housing is a government housing area on Little Goose Project lands, for Lower Granite employees and volunteers. This area is in Little Goose Project due to an available house and roads, flat land, and proximity to Lower Granite Dam. The housing area was planned during the construction of the dam for power plant operators to live in the government houses built there. The dam also purchased the adjacent farmhouse and outbuildings. The government houses were eventually sold and moved off the property due to lack of interest by government employees to live onsite. The farmhouse was lived in until it became unsuitable and was demolished. Concrete pads were constructed to accommodate employees living onsite in campers and other mobile homes. Later, a few sites were set aside for the seasonal volunteers who worked in the Lower Granite Visitor Center. Currently Illia Housing Area has a total of 19 sites.

Little Goose Dam. This area is the operations and maintenance area around Little Goose Lock and Dam. It has multipurpose facilities and assets including the powerhouse, navigation lock, fish ladder, and juvenile fish bypass system and facility. Construction started in 1963. The dam was completed in 1970 and the filling of Lake Bryan began February 16, 1970; the reservoir reached full pool level of 638 feet mean sea level during December 1970. The installation of power generating units one through three was completed, and the first unit began producing power in March 1970. Additional power units four through six were installed and power for those units came online in July 1978. The dam currently has six 135,000-kilowatt units for total powerhouse capacity of 810 megawatts. During fiscal year 2011, 2.9 billion kilowatt hours of electricity were produced.

Visitors frequently try to fish at the upstream end of the navigation lock, but due to the inability of anglers to reach the water's edge to release wild salmon, steelhead, or sturgeon while keeping them in the water, this is prohibited by state fishing regulations. This is also a

safety concern and has been an ongoing issue for rangers and project staff. There are incidental operation and maintenance costs associated with this issue, such as portable toilet rentals. Project staff continue to educate the public on these issues.

Figure 5-1. Little Goose Lock and Dam

Little Goose Juvenile Fish Facility. The juvenile bypass facility became operational in 1970. This system was modified several times. During 2015, about 2.2 million out migrating juvenile salmon and steelhead were collected at the Juvenile Fish Facility (JFF). 477,086 fish were bypassed back into the river, and about 1.8 million were transported for release below Bonneville Lock and Dam. In 2009, a spillway weir was installed to improve conditions for juvenile salmon passage at the dam. A passive integrated transponder (PIT)-tag monitoring system was completed prior to the 2009 fish passage season. This system improved detection of downstream migrating PIT-tagged juveniles.

Figure 5-2. Little Goose Juvenile Fish Facility

Little Goose Lock and Dam State Airport. The Little Goose Lock and Dam State Airport is located on the south shore just above Little Goose Lock and Dam, and about 10 miles northeast of Starbuck, Washington (Figure 5-3). The airport is outgranted to the Washington State Department of Transportation (WSDOT). It is open year-round and used by the public for recreational aircraft, though there may be snow on the runway during winter months. The airstrip was built to support the construction of Little Goose Lock and Dam, but is now a lightly-used landing strip for the visiting public and beneficial for emergency situations.

Figure 5-3. Little Goose Lock and Dam State Airport. Source: WSDOT

Little Goose South Shore Storage. This 2-acre area is where debris from trash raking are stored until disposal. Large woody debris (e.g., logs) is washed downstream from tributaries, especially during the spring melt. This debris is collected in a trash rack to prevent it from entering dam intakes. The debris is cleaned out periodically (trash raking) and moved to this area for storage.

Lower Granite State Airport. The Lower Granite State Airport is located below Lower Granite Dam on the north shore 14 miles south of Colfax, Washington, on Little Goose Project Lands. The airport is outgranted to WSDOT. It is open year-round and used by the public for recreational aircraft, though caution is advised during winter months due to the potential for snow on the runway. The landing strip is in a fairly narrow portion of the canyon. The occasional VIP visitor to the dam will use the airport. It is also beneficial for emergency situations.

Figure 5-4. Lower Granite State Airport. Source: WSDOT

South Shore Maintenance Facility. Located downstream from Lower Granite Dam on the south shore in Garfield County, Washington. The area is gated off and used for storage for Lower Granite Dam equipment and other storage needs.

5.2. HIGH DENSITY RECREATION

There are 105.5 acres managed under the High Density Recreation land classification. Some areas classified as High Density Recreation are leased to other organizations for operation and management. The Corps does not provide any maintenance within any of these leased locations, but there are times when the Corps provides support to the managing agency by reviewing requests for modifications to ensure they meet applicable laws and regulation for proposed activities. The goal is to work with Corps partners to ensure recreation areas are being managed in accordance with resource objectives identified in Chapter 3.

The acreage for the High Density Recreation land classification was reduced from 2701.4 to 105.5 in the 2020 Master Plan. This is due in large part to the movement of lands from recreation to mitigation, such as the acreage at Central Ferry and Penawawa documented in the supplement to the 1969 Master Plan (Corps 2013). Several recreation areas were planned to be much larger (e.g., Illia, Willow Island/Landing). Additionally, group camping sites were planned at Swift Bar, Schultz Bar, and on the South Shore at RM 98; these areas were never developed, and public roads did not exist to these areas at the time of the 1969 Master Plan. The lack of development was due in parts to lack of funding, lower visitation/demand than expected, and the need for mitigation for fish and wildlife habitat. The management areas in this land classification are shown in Table 5-2.

A total of 2,623.6 acres moved out of the High Density Recreation land classification from 2019: 1.5 acres moved into ESA, 1,501.1 acres moved into Mitigation, 6.5 acres moved into

MRM–FIRA, 17.3 acres moved into MRM–LDR, 1,093.9 acres moved into MRM–WM, and 3.3 acres moved into Project Operations. A total of 28.3 acres moved into High Density Recreation from other land use classifications: 5.4 acres from Project Operations, and 22.9 acres not previously classified. Detailed tables showing land classification changes by management area are provided in Appendix E.

Table 5-2. High Density Recreation Areas and Area Managing Agencies

MANAGEMENT AREA	TOTAL ACRES	MANAGEMENT AGENCY
Boyer Park and Marina	68.8	Port of Whitman County
Illia Landing	11.1	Corps
Little Goose Esplanade	2.9	Corps
Little Goose Landing	11.9	Corps
Willow Landing	10.8	Corps
TOTAL	**105.4**	

Boyer Park and Marina. Boyer Park and Marina is an outgranted multipurpose recreation area that is located at Snake RM 105.5 on the north shore in Whitman County, Washington, 2 miles downstream of Lower Granite Dam. The area is leased to the Port of Whitman County. Visitors may access Boyer by vehicle via State Route 194 and Almota Road, 26 miles south of Pullman, Washington and 35 miles southwest of Moscow, Idaho. The area features a boat ramp, marina, swimming beach, primitive and full hookup campsites, rental cabins, waterborne restrooms with showers, a playground, picnic sites, a small camping supplies store, and restaurant. Visitors may purchase gasoline and diesel there, and overnight moorage is available. It is a lush oasis for the surrounding area, with plenty of irrigated grass and trees for shade. Boyer Park and Marina is open year-round, with highest visitation during the warm summer months.

Figure 5-5. Boyer Park and Marina. Source: Nepalese Student Association, WSU

Illia Landing. Illia Landing is a multipurpose recreation area located at Snake RM 103 on the south shore in Garfield County, Washington. Visitors can access by vehicle along Almota Ferry Road, 3 miles west of Lower Granite Dam. It is the nearest boat launch facility to the Pomeroy area. Illia Landing is surrounded by Illia Dunes, Illia HMU, and the Illia Housing Area (housing for Lower Granite Dam employees). The area features a one-lane boat ramp, picnic tables, fire rings, and a vault restroom. The primary recreation activities are camping, boat launching, fishing, and picnicking. During the fall hunters use this site as a staging area.

Little Goose Esplanade. Little Goose Esplanade is a day use area located at Snake RM 70 on the south shore in Columbia County, Washington. Vehicle access is along Little Goose Dam Road 9 miles northeast of Starbuck, Washington. This area has a popular fishing area known as the "The Wall" which is very active during salmon and steelhead seasons. The area also features a fish cleaning station, waterborne restrooms, and interpretive signage. The area is surrounded by the JFF, powerhouse, navigation lock, and fish ladder. The primary recreation activities are fishing, picnicking, and sightseeing.

Figure 5-6. Little Goose Esplanade

Little Goose Landing. Little Goose Landing is a multipurpose recreation area located at Snake RM 72 on the south shore in Columbia County, Washington. Vehicle access is available along Little Goose Dam Road, 1.2 miles east of Little Goose Dam. The area is located just upstream of Little Goose Dam and is bordered by the Little Goose Lock and Dam State Airport. Little Goose Landing offers scenic views up and down the Snake River. The area features primitive campsites, a primitive group campsite, fire rings, picnic sites, a boat ramp, and a vault restroom. The primary recreation activities are camping, fishing, picnicking, boating, and sightseeing.

Figure 5-7. Little Goose Landing

Willow Landing. Willow Landing is a multipurpose recreation area located at Snake RM 88 on the south shore in Garfield County, Washington. Visitors can access this area by vehicle off State Highway 127, then four miles east on Deadman Road, then five miles north on

Hasting Hill Road. This area features a one-lane boat ramp, picnic tables, fire rings, and a vault restroom. The area is fairly remote and attracts many seeking solitude. Large multi-generational families use the area during holiday weekends, and large hunting parties gather there in the fall to hunt pheasant. The primary recreation activities are fishing, camping, picnicking, and hunting.

5.3. MITIGATION

There are 3,781.5 acres of land designated for Mitigation within the Project area, with Phalen Gulch, Rice Bar, Illia, and Central Ferry HMUs making up the largest parcels. This is an increase in acreage from 0 to 3,781.5 in the 2020 Master Plan; Mitigation was not an approved land use under the old land classification system. Some Mitigation lands were acquired specifically to meet the requirements of the LSRFWCP, but the majority of Mitigation acres were reclassified from other land uses, primarily High Density Recreation and MRM–WM.

A total of 1,501.1 mitigation acres were previously classified as High Density Recreation, 261.8 acres as MRM–FIRA, 354.3 acres as MRM–LDR, 1,395.1 acres as MRM–WM, 246.7 acres as Project Operations, and 22.4 previously unclassified acres. The management areas in this land classification are shown in Table 5-3. Detailed tables showing land classification changes by management area are provided in Appendix E.

These lands were designated as Mitigation as part of the LSRFWCP, authorized in 1976 to mitigate for lost hunting and fishing opportunities as a result of the construction of the four lower Snake River dams. Wildlife management strategies were agreed upon with the Corps, USFWS, and the Washington Department of Fish and Wildlife (WDFW).

The Corps completes mitigation through the establishment of HMUs. Acquisition, establishment, and development of the HMUs has occurred since the early 1970s, with the bulk of the work being done in the 1980s and early 1990s.

The 1979 supplement (Corps 1979) recommended 54 management units for classification as wildlife lands with associated management across the Lower Snake River projects. There were three levels of development: intensive, moderate, or none. Ten units were originally recommended for intensive development, 25 units for moderate development, and 19 units for no/limited development. Of those, in the Little Goose Project, 4 were classified as intensive, 12 as moderate, and 5 as none/limited development.

The supplement described intensively developed sites as those that incorporated the habitat components of “trees and shrubs, meadows, pastures, fence associations, fields, annual food plots, water guzzler complexes, and nest structures.” This development includes irrigation. These sites selected for intensive management were chosen for

mitigation because they were large; had potential for farming both grasses and legumes; boasted a network of trees and shrubs; and had sufficient land immediately adjacent to a water source to pasture Canada geese. The Corps is currently working to reduce irrigation needs in HMUs and to transition to native species. HMUs with moderate development included dryland development (planting annual crops, fertilization, and mowing), wildlife water guzzlers (guzzlers), nest platforms or boxes, and fencing. The HMUs categorized as no/limited development have remained largely undeveloped, with some sites adding guzzlers and reseeding with native species over time.

The LSRFWCP mitigation strategy was originally based on "substantial comprehensive development of project and non-project lands" and the "maintenance of habitat and production of game animals which will sustain the hunting pressure, appreciative use which would have occurred if the Project had not been constructed, and the maintenance of nongame animals at pre-project levels" (Corps 1975).

This strategy was implemented without specific and measurable objectives, so, in 1989, a letter of agreement between the Corps, USFWS, and Washington Department of Wildlife (WDW, which is now WDFW) modified the strategy to develop habitat-based compensation objectives. These objectives were established using an agreed-upon Habitat Evaluation Procedures (HEP) analysis for identifying pre-Project conditions, and for then measuring progress toward the habitat objectives. The HEP analysis used several "indicator" species' biological requirements and cover types as indicators of the habitat quality to obtain habitat units, which were then compared to the objectives to measure success.

Table 5-3. Mitigation Lands

MANAGEMENT AREA	ACRES	MANAGEMENT CLASSIFICATION
New York Bar HMU	230.0	Intensive Development
Rice Bar HMU	328.0	Intensive Development
Ridpath HMU	143.7	Intensive Development
Swift Bar HMU	140.4	Intensive Development
TOTAL INTENSIVE DEVELOPMENT	**842.1 ACRES**	
Central Ferry East HMU	285.7	Moderate Development
Central Ferry West HMU	210.7	Moderate Development
Hangar-Dry Gulch HMU	145.2	Moderate Development
Illia HMU	322.5	Moderate Development
Little Goose Landing HMU	179.6	Moderate Development
Lower Deadman HMU	372.9	Moderate Development
New York Gulch HMU	202.9	Moderate Development
Phalen Gulch HMU	60.8	Moderate Development
Purrington HMU	76.7	Moderate Development
Schultz Bar HMU	130.8	Moderate Development
Swift Bar HMU	212.8	Moderate Development
Willow Bar HMU	150.6	Moderate Development
TOTAL MODERATE DEVELOPMENT	**2351.2 ACRES**	
Beckwith Bar HMU	118.4	Limited Development
Browns Gulch HMU	83.1	Limited Development
Flagpole Gulch HMU	248.6	Limited Development
New York Island HMU	51.7	Limited Development
Penawawa HMU	86.5	Limited Development
TOTAL LIMITED DEVELOPMENT*	**588.2 ACRES**	

*"Limited development" is referred to as "no development" in various LSRFWCP documents. The term "limited development" more clearly describes habitat enhancement activities that occur in these sites, such as installation of wildlife guzzlers, reseeding with native species, dryland vegetation enhancement if necessary.

5.3.1. Mitigation – Intensive Development

New York Bar HMU. New York Bar HMU is located from RM 79 to 83 on the south bank and is accessible only by boat. Like other intensive development HMUs, this HMU includes irrigation and features shrub and tree plots, meadows, pastures, fields, and annual food plots, fence associations, guzzler complexes, and nest structures. Irrigated and non-irrigated improved pasture is planted in many intensively developed HMUs to provide food and nesting habitat for waterfowl and deer. The second largest of the "big gun" (high volume, large area irrigation system) irrigation sites, New York Bar features more than 6 acres of wildlife food plots. In addition, there are more than 22 acres of wildlife tree and shrub plots, more than 104 field acres, 7 acres of irrigated pasture, 60 big gun irrigation risers, 3 guzzlers, and 3 goose nesting structures. New York Bar HMU is primarily used by the public for upland game bird, waterfowl, and deer hunting.

Figure 5-8. New York Bar HMU

Rice Bar HMU. Rice Bar HMU is located from RM 90.5 to 96 on the south bank and is accessible approximately 23 miles off U.S. Highway 12. This irrigated HMU features 5 wildlife food plots totaling 9 acres. In addition, there are more than 28 acres of irrigated shrub and tree plots, 282 acres of fields, 217 small irrigation risers, and 8 goose nesting structures. An artificial slough wetland type area has been created that is now registered on the real property inventory. Another major habitat improvement involves large-scale earth movement to better accommodate recently added non-irrigated plantings. Rice Bar HMU is primarily used for upland game bird, waterfowl, and deer hunting, as well as fishing access. Rice Bar is especially popular with pheasant hunters, as large numbers have been historically found in the area. In addition, Rice Bar is an official pheasant release site for WDFW.

Figure 5-9. Rice Bar HMU

Ridpath HMU. Ridpath HMU is a boat-accessible site which spans from RM 76 to 78.5. It includes irrigation and features meadow, mixed pasture, fence associations, and nesting structures. The smallest of the big gun irrigation sites, Ridpath has nearly 3 acres of annual wildlife food plots. In addition, there are 13 acres of wildlife shrub and tree plots, 3 acres of irrigated pasture, 28 field acres, 18 big gun irrigation risers, 1 guzzler, and 6 goose nesting structures. Upland game bird, waterfowl, and deer hunting are the main visitor activities at this site.

Figure 5-10. Ridpath HMU

Swift Bar HMU. Swift Bar HMU is located from RM 94 to 97.5 on the north bank and is accessible only by boat. Swift Bar HMU is by far the largest of the intensively managed sites in the Project. The HMU has acreage has acreage classified as intensive development and as moderate development, but it is managed overall as one habitat unit. This HMU features 17 wildlife food plots totaling over 27 acres. In addition, there are almost 52 acres of shrub and

tree plots, 185 acres of fields, 16 acres of irrigated pasture, 64 big gun irrigation risers, 7 goose nesting structures, and 6 guzzlers. Swift Bar HMU is primarily used for deer, waterfowl, and upland game bird hunting.

Figure 5-11. Swift Bar HMU, Irrigated Pasture for Wildlife and Waterfowl Use

5.3.2. Mitigation – Moderate Development

Central Ferry East HMU. Central Ferry East HMU has acreage in both Mitigation and MRM–WM, all managed as one habitat unit. It features 200 acres of field and grassland, 3 guzzlers, 3 habitat brush piles, and a gravel lot with information kiosk for visitors. It is easily accessible, just off State Highway 127. Activities at Central Ferry HMU include turkey, upland game bird, and deer hunting.

Figure 5-12. Central Ferry East HMU

Central Ferry West HMU. Central Ferry West HMU is a former state park. However, since reclassification as an HMU, almost all infrastructure and pavement have been removed and extensive plantings and habitat improvements have taken place. This unit features a 5-acre wildlife food plot, a vault toilet, thousands of shrub and tree plantings, and 12 goose nesting structures. Activities include fishing access, and upland gamebird, waterfowl, and deer hunting. Hunting is limited to shotgun and archery only.

Hanger-Dry Gulch HMU. Hanger-Dry Gulch HMU has land in both mitigation and MRM–WM, but it is managed as one habitat unit. It is located on the south bank at RM 96 and is only accessible by boat. The unit features goose nesting structures and a drip irrigation system which has resulted in greater success for the shrub and tree plantings in the HMU. Primary activities at Hanger-Dry Gulch HMU include upland gamebird, waterfowl, and deer hunting, as well as fishing access.

Figure 5-13. Aerial View of Hanger-Dry Gulch HMU

Illia HMU. Illia HMU is located 4.5 miles from Lower Granite Dam on the south shore. This site features a drip irrigation system for its wildlife shrub and tree plots, as well as 2 guzzlers. Activities include fishing access, and upland gamebird, waterfowl, and deer hunting. Habitat in this HMU has been affected and damaged in the past by extremely large gatherings/parties in the summer months that extend into the HMU from the adjacent Illia Dunes Recreation Area. This is further detailed in the descriptions for the Illia Dunes Recreation Area and in Chapter 6.4, Illia Dunes. Current and future management will take this into consideration.

Figure 5-14. Illia HMU in the Winter

Little Goose Landing HMU. While Little Goose Landing HMU has acreage set aside for both mitigation and MRM–WM, it is managed as one habitat unit. The site includes native plantings, 2 water guzzlers, 6 nesting structures, and 2 maintained brush piles which add habitat for birds and small mammals. It is located on the south bank from RM 70.5 to 75 and is accessible on Little Goose Dam road just upstream of Little Goose Dam. Activities include fishing access, and upland gamebird, waterfowl, and deer hunting. This area is especially attractive to visitors due to its proximity to Little Goose Landing recreation area. This area has also been a testing ground for some promising techniques in battling the increasing problem of invasive common rye.

Lower Deadman HMU. Lower Deadman HMU features a 3-acre food plot, 2 goose nesting structures, and has been the site of extensive native tree and brush plantings. Activities include fishing access, and upland gamebird, waterfowl, and deer hunting. The site is especially desirable to waterfowl hunters due to its shallow inlets and sheltered location off the main channel of the Snake River.

Figure 5-15. Lower Deadman HMU

Phalen Gulch and New York Gulch HMUs. Phalen and New York Gulch HMUs can be categorized as moderately managed HMUs. They feature 2 guzzlers, 7 goose nesting structures, and a drip irrigation system which uses a well with electrical service. Due to the present electric well pump, there is great potential for expanded irrigated plantings in this area. Activities include fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-16. Phalen Gulch HMU

Purrington HMU. While Purrington has acreages set aside for both mitigation and MRM-WM, it is managed as one habitat unit. The area does feature 2 water guzzlers, 4 goose

nesting structures, many acres of wildlife shrub plantings, and a gravel parking lot for visitors that includes an information kiosk. It is located on the north bank from RM 84.75 to 86, and from RM 87 to 89 with the further upstream section accessible by boat only. Activity at Purrington HMU includes fishing access, and upland gamebird, waterfowl, and deer hunting. This area boasts a high hunting success rate, due to its attractive location for waterfowl, and limited hunting pressure.

Schultz Bar HMU. Schultz Bar HMU features a well vegetated shoreline with a healthy tree over story component. The HMU also has several acres of wildlife shrub and tree plantings, three goose nesting structures, and a guzzler. It is located on the north bank from RM 99.2 to 101. This unit is only accessible by boat. Activity at Schultz Bar HMU include fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-17. Schultz Bar HMU

Swift Bar HMU. Management of this HMU is described in the Intensive Development narrative above.

Willow Bar HMU. Willow Bar HMU is managed as one habitat unit, though it has acreage in both Mitigation and in MRM–WM. It features a drip irrigation system for a wildlife shrub and tree plot, 314 field acres, 19 acres of wildlife food plots, and 10 goose nesting structures. Activities include fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-18. Willow Bar HMU

5.3.3. Mitigation – Limited Development

Beckwith Bar HMU. Beckwith Bar HMU features multiple draws with a healthy tree over story component, several acres of wildlife shrub and tree plantings, and 7 goose nesting structures. Activities at Beckwith Bar HMU include fishing access, and upland gamebird, waterfowl, and deer hunting. This area has an especially strong draw for upland gamebird hunters due to its high resident pheasant population.

Figure 5-19. Beckwith Bar HMU

Browns Gulch HMU. Browns Gulch HMU is an example of a boat access only unit with limited development. This management strategy was intentional in the development of LSRFWCP HMU sites. Similar sites include Flagpole, Schultz, Almota, and Beckwith. The emphasis at these sites is invasive species control and fence maintenance. The primary

visitor activities at this unit include fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-20. Browns Gulch HMU

Flagpole Gulch HMU. Flagpole Gulch HMU is an example of a boat access only unit with limited development. Some of the larger draws feature the recent planting of hundreds of habitat improvement shrubs and trees. The primary visitor activities at this unit are fishing access, and upland gamebird, waterfowl, and deer hunting. There are several ponds separated from the river by the railroad that draw warm-water game fish.

Figure 5-21. Flagpole Gulch HMU

New York Island HMU. New York Island HMU is an approximately 52-acre island between RM 78 and 79. It is equipped with several goose nesting structures as well as hundreds of wildlife plantings. A unique feature of this island HMU is its unusually high rabbit

population. This is one of the rare areas that boasts a boat-in camping site. However, camping is closed every year until June 1 to protect sensitive waterfowl nesting habitat.

Figure 5-22. New York Island HMU

Penawawa HMU. Penawawa HMU is located at RM 93 on Penawawa Road off Highway 127, and part of the HMU is only accessible by boat. This area was originally designated as a recreation area, with a navigable inlet, boat ramp, and docks. The area has long since silted in all the way to the river and now boasts the largest unirrigated hardwood over story habitat on Lake Bryan. This unit also features a permanent stream on which the Whitman Conservation Corps has implemented several improvement structures. The primary visitor activities at this unit are fishing access, and upland gamebird, waterfowl, and deer hunting. There is a gravel parking lot and information kiosk for visitors. This is also a rare area where camping is allowed in the gravel lot during peak hunting seasons.

Figure 5-23. Penawawa HMU

5.4. ENVIRONMENTALLY SENSITIVE AREAS

ESAs are managed to protect the scientific, ecological, cultural, or aesthetic features, of the lands. Typically, limited or no development for public use is allowed. Manmade intrusions (power lines, non-Project roads, and water and sewer pipelines) are not permitted on lands classified as ESAs. Activities designed to promote and improve special features identified in the area are allowed, along with education and interpretation. There are 58.5 acres designated under the ESA land classification. This is an increase in acreage from 0 to 58.5 in the 2020 Master Plan – ESA was not an approved land classification under the old nomenclature. A total of 1.5 acres were previously classified as High Density Recreation, 5.2 acres as MRM–FIRA, 47.8 acres as MRM–WM, 2 acres as Project Operations, and 2 acres previously unclassified. The management areas in this land classification are shown in Table 5-4. Detailed tables showing land classification changes by management area are provided in Appendix E.

Table 5-4. Environmentally Sensitive Areas

MANAGEMENT AREA	TOTAL ACRES
Almota Creek ESA	3.9
Lower Deadman Creek ESA	12.3
Meadow Creek ESA	6.4
Penawawa ESA	30.3
New York Bar ESA	5.6
TOTAL	**58.5**

Almota Creek, Lower Deadman Creek, Meadow Creek, and Penawawa ESAs. These ESAs were designated due to their proximity to Endangered Species Act-listed-fish bearing streams and wetlands.

New York Bar ESA. The ESA in New York Bar HMU was designated to protect scientific and cultural value. The dune environment is eroding due to wind and wave action. The Corps has conducted dune stabilization activities in this area in the past using funds from the FCRPS Cultural Resources Program, and those activities may continue in the future as needed.

5.5. MULTIPLE RESOURCE MANAGEMENT

This MRM Lands classification allows for designation of a predominant use with the understanding that other compatible uses may also occur in the classification, to include Low Density Recreation, Wildlife Management, and Future or Inactive Recreation Areas.

Total MRM Lands for the Project is approximately 1920 acres. This is a reduction in acreage from 2,293.5 to 1,920.2 in the 2020 Master Plan. The management areas in this land classification are shown in Table 5-5, organized by subclassification.

The following changes were made to the MRM lands classification: there were 20 land changes where land moved from MRM lands into other classifications (2,064.3 acres), and 35 changes where land moved from other classifications into MRM lands (1,690.9 acres). These changes are described in the MRM subclassification introductions, and detailed tables showing land classification changes by management area are provided in Appendix E.

Table 5-5. MRM Lands by Land Use Subclassification

MANAGEMENT AREA	TOTAL ACRES
MRM – LOW DENSITY RECREATION	
Central Ferry Recreation Site	14.5
Illia Dunes Recreation Area	11.0
Lambi Creek Recreation Area	1.7
Little Goose North Shore Tailrace Rec Area	17.8
Little Goose South Shore Area – Navlock Road Site	5.9
Little Goose South Shore Area – Powerlines Site	1.3
Rice Bar Recreation Area	2.8
TOTAL	**55.0**
MRM – VEGETATION MANAGEMENT	
WSU Research Farm	57.8
MRM – WILDLIFE MANAGEMENT	
Almota HMU	112.9
Beckwith HMU	167.4
Central Ferry East HMU	18.7
Central Ferry West HMU	135.0
Flagpole Gulch HMU	30.9
Hangar-Dry Gulch HMU	92.9
Illia HMU	177.3
John Henley HMU	48.1
Little Goose Landing HMU	188.7
Lower Deadman HMU	58.6

Penawawa HMU	28.1
Purrington HMU	81.3
Rice Bar HMU	102.0
Texas Rapids HMU	165.4
Willow Bar HMU	308.9
TOTAL	**1716.3**
MRM – FUTURE OR INACTIVE RECREATION AREA	
Boyer Development Zone	88.5
Serpentine Road	2.8
TOTAL	**91.3**

5.5.1. MRM – Low Density Recreation

MRM–LDR are lands with minimal development or infrastructure that support passive public recreation use (e.g., primitive camping, fishing, hunting, trails, wildlife viewing, etc.). A total of 362.6 acres moved out of the MRM–LDR land classification from 2019: 354.3 acres moved into Mitigation, and 8.3 acres moved into MRM–WM. A total of 55 acres moved into MRM–LDR from other land use classifications: 17.3 acres from High Density Recreation, 2.5 acres from MRM–WM, 34.1 acres from Project Operations, and 1.1 acres not previously classified. Detailed tables showing land classification changes by management area are provided in Appendix E.

There are 7 sites under this classification encompassing approximately 55 acres.

Central Ferry Recreation Site. Central Ferry is a land access point located off Washington State Route 127. Formerly, the area was a full-service state park. It was relinquished in 2003 and leased to a private concessionaire until 2010. In 2010 it was once again turned back to the Corps as operation costs were too high relative to revenue. After failing to find a manager with the finances and experience to operate the park, most of the land was re-classified to wildlife management in 2013. This area provides a parking lot, information kiosk and vault restroom, which supports hiking, wildlife viewing, fishing, and hunting occurring at Central Ferry HMU.

Illia Dunes Recreation Area. Illia Dunes is a land access site located at RM 102 on the South Shore of Garfield County, Washington. Visitors can access by vehicle along Almota Ferry road, 5 miles west of Lower Granite Dam. The area was originally classified as Wildlife Management in the 1969 Master Plan, but 10.95 acres were set aside for recreation purposes in the 2020 Master Plan revision. The unique area features a large natural beach

and sand dunes which draw heavy recreational use during the summer months. The area also has 3 vault restrooms and an information kiosk. Recreation activities include swimming, boating, picnicking, sunbathing, and beach partying. During the fall and winter, the upstream parking lot and associated vault toilets are closed. Hunters seeking upland game birds will use this area during the fall and winter.

Figure 5-24. Illia Dunes Recreation Area

Lambi Creek Recreation Area. Approximately 1.7 acres, Lambi Creek is a multipurpose recreation area located at RM 101.5 on the south shore in Garfield County, Washington. Vehicle access is along Almota Ferry road, 6 miles west of Lower Granite Dam. The area features primitive campsites, fire pits with grills, picnic tables, and a vault restroom. The primary recreation activities are camping, picnicking, and fishing, plus staging for hunting in the appropriate season. It is one of the few spots along Lake Bryan with trees that offer shade. This area is located right on the banks of the Snake River, providing river views of wildlife, river traffic, and fishing access.

Little Goose North Shore Tailrace Recreation Area. Little Goose North Shore Tailrace is a multipurpose recreation area located at RM 70 on the north shore in Whitman County, Washington. Visitors can access the area by vehicle from the north along Little Goose Dam Road, and limited access due to security from the south across Little Goose Dam. The area features primitive campsites, fire pits, picnic tables with small shelters, and a vault restroom. This site is one of the more popular salmon and steelhead fishing spots during May and October. The primary recreation activities are fishing and camping.

Figure 5-25. Little Goose North Shore Tailrace Recreation Area

Little Goose South Shore Area – Navlock Road Site. The Navlock Road site is a multipurpose recreation area located at RM 68 on the south shore in Columbia County, Washington. Access is by vehicle along Little Goose Dam Road just downstream of Little Goose Dam. The area has a primitive campsite, picnic table, and a vault restroom. This area is a popular spot for salmon and steelhead fishing during May and October. It is important to note that fishing is not authorized at the navigation lock itself due to WDFW regulations. The primary recreation activities are fishing and camping.

Little Goose South Shore Area – Powerlines Site. The Powerlines site is a multipurpose recreation area located at RM 67 on the south shore in Columbia County, Washington. Access by vehicle along Little Goose Dam Road just downstream of Little Goose Dam, near the Navlock Road site. The area is limited to a parking lot, information kiosk, and shoreline access. The primary recreation activity is fishing.

Rice Bar Recreation Area. Rice Bar is land access point located at RM 92.3 on the south shore in Garfield County, Washington. This area provides a parking lot, information kiosk, and vault restroom which supports hiking, wildlife viewing, fishing, and hunting occurring at Rice Bar HMU.

5.5.2. MRM – Wildlife Management

MRM–WM lands are designated for stewardship of fish and wildlife resources in conjunction with other land uses. Habitat maintenance and/or improvements are for a designated species, or group of species. A total of 1,445.4 acres moved out of the MRM–WM land classification from 2019: 47.8 acres moved into ESA, 1,395.1 acres moved into Mitigation, and 2.5 acres moved into MRM–LDR. A total of 1,515 acres moved into MRM–WM from other land use classifications: 1,093.9 acres from High Density Recreation, 17.4

acres from MRM–FIRA, 8.3 acres from MRM–LDR, 230.2 acres from Project Operations, and 165.2 acres not previously classified. Detailed tables showing land classification changes by management area are provided in Appendix E.

There are 15 sites under this classification encompassing approximately 1,716 acres. Many of the MRM-WM HMUs are paired with HMUs of the same name but classified as Mitigation. The Corps uses these lands to meet the ENS mission and provide fish and wildlife habitat, and in some cases, they can be credited to the mitigation requirements of the LSRFWCP. These "sister" HMUs are typically managed in a similar or even identical fashion, and it would be redundant to describe that management in two places in this document. For descriptions of the following HMUs, please see Chapter 5.3: **Central Ferry East, Flagpole Gulch, Hangar-Dry Gulch, Little Goose Landing, Lower Deadman, Penawawa**, and **Purrington** HMUs.

Figure 5-26. Little Goose Landing HMU

Almota HMU. Almota HMU is a narrow strip of land located on the north bank from RM 103 running upstream to Lower Granite Dam. It is a unit with limited habitat development. Similar sites include Flagpole Gulch, Schultz, Browns Gulch, and Beckwith. The emphasis at these sites is invasive species control and fence maintenance. The primary visitor activity at this unit is fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-27. Almota HMU

Beckwith HMU. The MRM-WM portions of Beckwith HMU are split in the middle of the HMU by an area classified as Mitigation. It can be categorized as an area with limited habitat development. Management of the entire HMU is described in the mitigation section.

Central Ferry West HMU. Central Ferry West HMU can be categorized overall as an area with moderate habitat development; the full HMU description can be viewed in the mitigation section. However, the section of Central Ferry West designated for MRM-WM is better described as limited development, with an emphasis on invasive species control and fence maintenance. Central Ferry West HMU is primarily used by visitors for fishing access, and upland gamebird, waterfowl, and deer hunting. There are several ponds separated from the river by the railroad that draw warm-water game fish. The 2013 supplement to the 1969 Master Plan stated that the boat ramp would remain open to the public, however, in later years a gate was added near the road which cuts off access to the boat ramp for the public. Boaters can access the dock from the water, and anglers can use the area by walking.

Figure 5-28. Central Ferry West HMU

Illia Upstream HMU. Illia HMU can be categorized overall as an area with moderate habitat development; the full HMU description can be viewed in the mitigation section. However, the section of Illia designated for MRM is better described as limited development, with an emphasis on invasive species control and fence maintenance. Primary activities at Illia HMU include fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-29. Illia HMU

John Henley HMU. This HMU features 3 wildlife food plots, totaling almost 11 acres. John Henley also features more than 23 acres of wildlife shrub and tree plots that are irrigated by a large 491 riser system, 244 acres of maintained native grasses and fields, 4 guzzlers, 4 wildlife habitat brush piles, and 2 gravel visitor parking lots with information kiosks. John Henley is primarily used for fishing, hiking, upland game bird and deer hunting, bird watching, and wildlife viewing. Vault toilet and primitive camping are available nearby at Riparia recreation area. Shotgun and archery only on south side of county road; rifle

hunting is permitted on north side of county road. John Henley is also particularly attractive to pheasant hunters as it is an official pheasant release site for WDFW. This HMU is split between Little Goose Project (48.1 acres) and Lower Monumental Project (919 acres of intensively developed mitigation).

Figure 5-30. John Henley HMU

Rice Bar HMU. Rice Bar HMU can be categorized overall as an area with intensive habitat development; the full HMU description can be viewed in the mitigation section. However, the section of Rice Bar designated for MRM is better described as limited development, with an emphasis on invasive species control and fence maintenance. Primary activities at Rice Bar HMU include fishing access, and upland gamebird, waterfowl, and deer hunting.

Texas Rapids HMU. Texas Rapids HMU features a guzzler, 2 wildlife habitat brush piles, areas of native wildlife plantings, and is located next to Texas Rapids Recreation Area. The primary visitor activities at this unit include fishing access, and upland gamebird, waterfowl, and deer hunting. The popularity for hunting visitation is boosted by the nearby recreation amenities offered such as camping, vault toilets, and a lighted boat ramp. This HMU is split between Little Goose Project (165.4 acres) and Lower Monumental Project (80.6 acres in MRM-WM).

Figure 5-31. Texas Rapids HMU

Willow Bar HMU. Willow Bar HMU can be categorized overall as an area with moderate habitat development; the full HMU description can be viewed in the mitigation section. However, the section of Willow designated for MRM-WM is better described as limited development, with an emphasis on invasive species control and fence maintenance. It is located on the south bank from RM 84.5 to 90.5. Primary activities at Willow Bar HMU include fishing access, and upland gamebird, waterfowl, and deer hunting.

Figure 5-32. Willow Bar HMU

5.5.3. MRM – Vegetative Management

The **Washington State University (WSU) Research Farm** is the only land management unit designated as MRM-Vegetation Management. This area was previously classified as "Special," which is no longer an approved classification. The area is outgranted to the USDA-Agricultural Research Service for agricultural research and provides suitable climate conditions for seed production by the Western Regional Plant Introduction Station.

Figure 5-33. Plots at the WSU Research Farm

Figure 5-34. WSU Research Farm

5.5.4. MRM – Future or Inactive Recreation Areas

There are two areas under the Future or Inactive Recreation Areas classification, encompassing approximately 91 acres. These areas were identified as compatible for future recreational development. Until there is an opportunity to further develop these areas, this land will be managed under the MRM–FIRA classification.

A total of 284.4 acres moved out of the MRM–FIRA land classification from 2019: 5.2 acres moved into ESA, 261.8 acres moved into Mitigation, and 17.4 acres moved into MRM–WM. A total of 91.3 acres moved into the MRM–FIRA land classification from other land use classifications: 6.5 acres from High Density Recreation, 2.8 acres from Project Operations, and 82 acres not previously classified. Detailed tables showing land classification changes by management area are provided in Appendix E.

Boyer Development Zone. This area is to the west of Lower Granite dam on the north shore of Whitman County Washington. It is part of the Boyer Park and Marina outgrant to the Port of Whitman County. The area is primarily vegetation and is located on the east of the campground, surrounding the air strip which is outgranted to Washington State Department of Transportation Aviation Department.

Serpentine Road. The Serpentine road is an area east of Little Goose Dam on the south shore in Columbia County, Washington. This area is used as a simple staging area for anglers, who will park along the roadway waiting for the Little Goose Esplanade to open. This prevents anglers from blocking the access road to the dam.

5.6. WATER SURFACE ZONING

Water surface zoning throughout the Project is used to support public safety and security. The water surface on Lake Bryan includes the following zones: Restricted, Designated No-Wake, and Open Recreation. Open Recreation allows for recreation activities such as wading, swimming, paddling, sailing, motorboating, and fishing. There are 9,758 acres of water surface designated for Open Recreation. Water Surface acreage was not quantified in the 1969 Master Plan.

At Little Goose Lock and Dam, boat restricted zones (BRZ) have been set up below and above the dam to allow for Project operations, safety, and security. The waters are restricted to all vessels, except government vessels. The BRZ is described as “all waters commencing at the upstream of the navigation lock guidewall and running in a direction of 60°37′ true for a distance of 676 yards; thence 345°26′ true for a distance of 494 yards; thence 262°37′47″ true to the dam embankment shoreline. The downstream limits commence 512 yards downstream and at right angles to the axis of the dam on the south shore; thence parallel to the axis of the dam to the north shore. Signs designate the restricted areas (33 CFR § 207.718). There is also a boat restricted zone at Boyer Park Swim Beach. There are 155.9 acres of Restricted waters.

Zones near boat ramps are Designated No-Wake to protect recreational water access from disturbance and for public safety. The largest designated no-wake zone is in the vicinity of Boyer Park Marina Harbor. There are 25.4 acres of waters in Lake Bryan Designated No-Wake.

6. Special Topics, Issues, and/or Considerations

This chapter discusses the special topics, issues, and considerations identified as important to the future management of Little Goose Project. Special topics, issues, and considerations are defined in this context as any problems, concerns, and/or needs that could affect or are affecting the stewardship and management potential of the lands and waters under the jurisdiction of the Walla Walla District, Little Goose Project.

6.1. LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN

The LSRFWCP has been discussed previously in several areas in this Master Plan. It was a negotiated mitigation settlement developed and implemented to provide compensation for hunting and fishing opportunity losses resulting from the construction and operation of the four lower Snake River dams (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite), which impounded approximately 140 miles on the lower Snake River in Washington and Idaho. The LSRFWCP, published in June 1975, was authorized by the Water Resources Development Act of 1976, amended in WRDA 1986 to increase the project cost limit, and again in WRDA 2007 to add woody riparian restoration (Table 6-1). This plan, and its implementation strategies were developed by the Corps, in consultation with USFWS, to assure compliance with the Fish and Wildlife Coordination Act.

Table 6-1. Lower Snake River Fish and Wildlife Compensation Plan Authorizations

AUTHORIZATION	DATE
Original authorization by the Water Resources Development Act (WRDA) of 1976, Section 102, PL 94-587	October 22, 1976
amended by WRDA 1986, Section 856, PL 99-662	November 17, 1986
amended by WRDA 2007, Section 3165, PL 110-114	November 8, 2007

The plan as originally authorized was divided into two parts: fisheries compensation and wildlife compensation. Fisheries compensation centered on fish propagation facilities and providing fisherman access along tributary streams. The wildlife compensation involved on-Project lands habitat development, off-Project habitat acquisition, and the purchase and release of game farm birds (pheasants). Table 6-2 lists the primary accomplishments of the LSRFWCP from its inception in 1976 to the present.

The off-Project land acquisition was combined with the fisherman access to form the three components of the off-Project land acquisition program, described as X, Y, and Z lands in published documents. The original intent of the program was to acquire 8,400 acres of upland game habitat and hunting lands (X lands), 15,000 acres of chukar habitat and

hunting lands (Y lands), and 750 acres of fisherman access (Z lands). The acquisition of X, Y, and Z lands were completed in 1994, which included fishing and hunting access points. The game farm alternative was completed in 2007 after operating for several decades.

Hatchery construction and transfer to USFWS for long term operation and maintenance were completed in 2000, and the fishery satellite and acclimation facilities were completed in 2010. The on-Project lands habitat development has been ongoing, with ten of the twelve habitat indicator species habitats completed in 2012. The remaining habitats and species were scheduled to be completed in 2019. After 2019, construction general funds will no longer be appropriated, but the District will continue to use the O&M program to maintain and achieve LSRFWCP habitat goals and objectives. The long-term O&M program will be managed under the Operations Division.

Table 6-2. Summary of LSRFWCP Fisheries and Terrestrial Wildlife Accomplishments

ACCOMPLISHMENTS	DATE
Acquisition of XYZ Lands (Off-Project)	1994
Fishing Access	1994
Hunting Access	1994
Hatchery Construction/Transfer	2000
Habitat Development and Evaluation for 10 of 12 indicator species	2002
Game Farm Alternative	2007
Fish Acclimation Facility Construction/Transfer	2010
Habitat Evaluation Procedure/Gap Analysis	2013
Remaining 2 indicator species- riparian habitat developed	2019

A total of 54 management units were classified as wildlife lands along the impounded area of the Snake River. Ten HMUs were identified to be intensively developed (irrigation systems and plantings), 25 HMUs were to be moderately developed (dryland development with water guzzlers and fencing), and the remaining 19 units were to remain undeveloped or with limited development. Some of the wildlife units that were slated to remain undeveloped have had wildlife water guzzlers installed over the years. There are 21 sites of the 54 that are reserved for mitigation (Table 6-3) on Project lands.

Habitat restoration in the early stages of the LSRFWCP included planting non-native species—such as Russian olive—that grew aggressively, quickly creating food and cover for birds and wildlife. Plantings have since evolved into a more sustainable, native species-focused approach.

Recent plantings have focused on palustrine forest and palustrine scrub-shrub habitat re-establishment, which are cover types that were not historically abundant in the Project area. Orchards in lowlands became common in the early 20th century, up until the Project was constructed. Construction of the Project virtually eliminated these orchards and the limited amount of natural palustrine forest that remained.

HMUs that are affiliated with the Project include lands shown in Table 6-3. These lands were developed and/or purchased to provide hunting and fishing opportunities and are classified as Mitigation lands under this Master Plan in order to protect their status.

Table 6-3. Mitigation Areas under the LSRFWCP within Little Goose Project Lands and Their Corresponding Development Levels

MANAGEMENT AREA	ACRES	MANAGEMENT CLASSIFICATION
New York Bar HMU	230.0	Intensive Development
Rice Bar HMU	328.0	Intensive Development
Ridpath HMU	143.7	Intensive Development
Swift Bar HMU	140.4	Intensive Development
Central Ferry East HMU	285.7	Moderate Development
Central Ferry West HMU	210.7	Moderate Development
Hangar-Dry Gulch HMU	145.2	Moderate Development
Illia HMU	322.5	Moderate Development
Little Goose Landing HMU	179.6	Moderate Development
Lower Deadman HMU	372.9	Moderate Development
New York Gulch HMU	202.9	Moderate Development
Phalen Gulch HMU	60.8	Moderate Development
Purrington HMU	76.7	Moderate Development
Schultz Bar HMU	130.8	Moderate Development
Swift Bar HMU	212.8	Moderate Development
Willow Bar HMU	150.6	Moderate Development
Beckwith Bar HMU	118.4	Limited Development
Browns Gulch HMU	83.1	Limited Development
Flagpole Gulch HMU	248.6	Limited Development
New York Island HMU	51.7	Limited Development
Penawawa HMU	86.5	Limited Development

6.2. INVASIVE SPECIES

The issue of invasive species, while not a new issue, has been a specific area of focus for the Corps in the last 10 years. Compliance with Corps regulations and the Endangered Species Act led to the development of a District-wide IPMP, which was put into full effect in 2012. Approved pesticides, buffers from water, best management practices, and standardized pest management reporting were all presented in the comprehensive plan in 2012.

The Corps has also been working with NMFS and USFWS to complete Endangered Species Act consultations on the Aquatic Pest Management Program (the aquatic portion of the IPMP) since 2009, and consultations were completed in 2019. The Corps is working toward reintegration of treating aquatic invasive plant species into routine operations and

maintenance. Because treatments have not occurred since 2009, the Corps faces some challenges and large infestations, and anticipates the need for some focused efforts to bring the invasive species back under control.

Additionally, the Corps has been engaged on a national level to help prevent the spread of invasive species with watercraft inspection stations (cost-share programs) and through education on zebra and quagga mussels. The Corps performs annual sampling and visual monitoring for adult zebra and quagga mussel at the dam. Monitoring occurs at various locations within the JFF system at points determined to be of high risk of introduction. This informational data is shared within the region and with the 100th Meridian Initiative Columbia River Basin Team (an aquatic invasive species prevention organization) to inform future monitoring and sampling.

6.3. ENCROACHMENTS

Vegetation and livestock grazing encroachments are common violations on Corps-managed lands. This is primarily due to the rural and remote location of Project lands and the fact that property surrounding these lands are managed for agriculture and/or livestock. Figure 6-1 illustrates how trails can impact wildlife lands to include erosion and soil loss.

Figure 6-1. Hiker at Hells Gate HMU Trails; Effects of Trails on Soil

The Corps Natural Resources Management mission is to manage and conserve natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations. Encroachments on Corps-managed Federal lands directly conflict with that mission. The Corps is, therefore, committed to resolving encroachments by the most expedient and effective means available. It is the intent of the District to recapture use of encroached upon

public lands for Federal project operating purposes and general use and enjoyment of the public.

The general policy is to require removal of encroachments, restore the premises, and collect appropriate administrative costs and fair market value for the term of unauthorized use. Policies and procedures are described in the references specified in Northwestern Division Walla Walla District Office Memorandum 1130-1-9, Encroachment Action Handbook (Corps 2018). Exceptions to this general policy are set forth in ER 405-1-12, Real Estate Handbook, Chapter 8 (Corps 1999).

The purpose of the Encroachment Action Handbook is to prescribe policies and procedures for surveillance and safeguarding of Corps-managed lands and easements in order to prevent potential encroachments and to prescribe the actions necessary to remove or resolve existing encroachments. This handbook establishes a program to protect all resources on operating project lands.

6.4. ILLIA DUNES

Illia Dunes Recreation Area is located near RM 102 and features a large natural beach and sand dunes (unique to the Project area) which draw heavy recreational use during the summer months. The area has three vault restrooms and an information kiosk. This area has long been a hot spot for weekend gatherings, usually including students from Washington State University and the University of Idaho (Figure 6-2, Figure 6-3). Many visitors use this area to consume alcohol and gather along the banks and in the river. Glass containers are prohibited under Corps regulations, and this information is posted at the bulletin board in the recreation area. Corps park rangers spend a fair amount of time informing the public of these regulations and issuing citations as needed. Additionally, the influx of visitors, especially on holiday weekends, creates issues with visitors parking in prohibited areas, including along the highway (Figure 6-4), leaving large amounts of trash (Figure 6-5), and sometimes damaging Corps property (e.g., graffiti in the restrooms). On multiple occasions, the Corps has had to close the area until the trash can be collected, and the area made safe for the public. We used these occasions to raise public awareness of this issue and ask for cooperation in treating the area with respect.

The Corps reclassified the area from MRM–WM to MRM–LDR to adapt to the desired use by the public and to provide for a more frequent patrol presence. Frequent patrols, especially on holiday weekends, can help to prevent further damage to the area and gain early control of challenging visitor behavior. Visitor use and behavior will be monitored to determine if this land reclassification was beneficial, and if an alcohol ban needs to be implemented.

Figure 6-2. Large Groups of College Students

Figure 6-3. Large Crowds of College Students, Illia Dunes. Photo by Spokane Spokesman Review, August 28, 2012

Figure 6-4. Illegal Parking at Illia Dunes

Figure 6-5. Trash Left at Illia Dunes after Holiday Weekend

6.5. SEDIMENT DEPOSITION ISSUES

Since construction of Little Goose Dam, sediment deposition has become a maintenance issue at the Corps-owned recreation sites at locations such as boat basins, boat ramps, and water intakes for irrigation in HMUs. The Programmatic Sediment Management Plan (PSMP) is a plan developed by the Corps to build a framework to address many of these issues.

The PSMP must provide a long-term plan to manage, and prevent if possible, the accumulation of sediment in area of the lower Snake River reservoirs that interferes with authorized Project purposes. Sediment accumulation interferes with the following authorized purposes of the lower Snake River projects:

- Recreation by limiting water depth at boat basins to less than original design dimensions.
- Fish and wildlife conservation by interfering with irrigation water intakes at HMUs.

The District recently received funding to pursue NEPA compliance under the PSMP for sediment management in various recreational boat basins across several Lower Snake projects, including the Project area. Boat basins in the Project which are slated for future sediment management work could include: Little Goose Landing, Central Ferry, Willow Landing, and Illia Landing.

7. Agency and Public Coordination

This Chapter provides information on the public involvement and extensive coordination within the Corps and other affected agencies and organizations, which is a critical requirement in the development or revision of a project Master Plan.

7.1. SCOPING

A public scoping process for the Little Goose Master Plan revision was initiated in August 2019. Approximately 95 letters and emails were sent to stakeholders (community groups, elected officials, government agencies, interested parties) inviting them to come to the public meetings and comment on the Master Plan update.

The Corps conducted two public scoping meetings to support an update to the Master Plan: one in Dayton, Washington, on August 20, 2019, and one in Pasco, Washington, on August 21, 2019. The scoping process was an opportunity to get input from the public and agencies about the vision for the Master Plan update and the issues that the Master Plan should address, where possible. Fewer than 10 people attended the meetings. During the scoping period, the Corps received about 140 suggestions and comments related to management issues and recreation at the Project. Most comments focused on the following:

- Recreational opportunities.
- Protection of resources important to Tribes, including cultural resources, limiting development, restoration of native species, and development of interpretative content.
- Dam removal.

Comments compiled from attendees at the public scoping meeting and other sources were used to prepare the draft Master Plan.

7.2. TRIBAL COORDINATION

On August 5, 2019, the Corps sent a letter offering government-to-government consultation and an invitation to public meetings to Colville, the CTUIR, the Yakama, the Wanapum Band, and the Nez Perce Tribe. The Colville and the CTUIR provided written comments. In their written scoping comments, CTUIR asked for a meeting with Corps staff to address their comments. That meeting was held on January 30, 2020 at CTUIR Headquarters in Mission, Oregon.

The Colville provided comments on the text of the 1969 Master Plan and supplement. There were quite a few comments, and not all can be mentioned here, but they included requests

to update the text regarding communication with Tribes, to add reference to TCPs, that replanting activities should use native plant species, and Tribal development, placement, and review of interpretative signage.

The Corps sent letters to the Colville, CTUIR, Yakama, the Wanapum Band, and the Nez Perce Tribe requesting review and comment on the draft Little Goose Master Plan, draft Finding of No Significant Impact (FONSI), and EA.

7.3. AGENCY INVOLVEMENT AND COORDINATION

All development will be coordinated with appropriate Federal, State, and local agencies throughout the planning process. Because Little Goose Dam affects interstate runs of anadromous salmonids (Pacific salmon and steelhead trout), valued both as commercial and sport fish, many Federal and state fish and wildlife agencies have taken part in the assessment and recommendation of compensatory measures for losses of fish resources resulting from the Project. These agencies are NMFS, USFWS, and WDFW.

7.4. THE U.S. ARMY CORPS OF ENGINEERS WEBSITE

The Corps developed a webpage (https://www.nww.usace.army.mil/Locations/District-Locks-and-Dams/Little-Goose-Lock-and-Dam/Little-Goose-Master-Plan/) to provide information, updates, and collect comments for the Master Plan update. The draft Master Plan with associated documents were placed on this webpage for the public to view.

7.5. THE DRAFT 2020 MASTER PLAN AND ENVIRONMENTAL ASSESSMENT

Comments received from review of the draft Master Plan, draft FONSI, and EA will be summarized with comment responses and included in Appendix F of the final 2020 Master Plan and in the final FONSI. The Master Plan and EA will then be finalized and submitted for approval.

8. Summary of Recommendations

This Chapter provides the recommended land classifications for the updated Little Goose Master Plan at a detailed level (by each management area) and includes a list of recommendations for recreation, natural resources, and public outreach.

8.1. GENERAL

This updated Little Goose Master Plan presents an inventory of land resources and how they are classified, existing park facilities, analysis of resource use, anticipated influences of Project operation and management.

This Master Plan is a living document establishing the basic direction for management and development of the Project in agreement with the capabilities of the resource and public needs. The plan is flexible to allow for supplementation if changes are needed before the next Master Plan update. The Master Plan will be periodically reviewed to facilitate the evaluation and use of new information as it becomes available.

The Little Goose Master Plan will guide the use, development, and management of the Project in a manner that optimizes public benefits within resource potentials and the authorized function of the Project while remaining consistent with Corps policies, regulations, and environmental operating principles.

8.2. RECOMMENDATIONS

8.2.1. Proposed Land Classification Changes

The proposed land classifications for the 2020 Master Plan are summarized in the table below. Appendix E provides a full list of land classification changes for each management area within the Project and the reasons for these changes. Figure 8-1 provides a visual representation of the land classification changes between 2019 and 2020.

Figure 8-1. Visual Representation of Land Classification Changes between 2019 to 2020

8.2.2. Recreation Recommendations

The following recreation recommendations have been identified:

- Conduct regular surveys, counts, and other methods to collect data and monitor trends to determine user capacity and environmental sustainability.
- Continue to explore and utilize energy saving options such as solar and LED lighting.
- Improve visitor information through updating interpretive panels and kiosks, and updating website information using innovative technology (e.g., virtual tours).
- Address sediment deposition in boat basins, including at Little Goose, Willow, and Illia Landings and at Central Ferry, according to the PSMP as funding becomes available, to maintain access to public lands.

8.2.3. Natural Resource Recommendations

The following natural resource recommendations have been identified:

- Invasive plant species can significantly degrade aquatic and wildlife habitat, increase soil erosion, and outcompete native species that fish and wildlife depend upon and that are culturally significant to Tribes. Species should be controlled using tools provided in the IPMP.
- Continue to enhance riparian and upland biodiversity through vegetation enhancement projects that focus on planting native trees, shrubs, and groundcovers.
- Persist in addressing encroachments in accordance with the guidance in the District Encroachment Action Handbook. It is Corps policy to use the minimum level of recourse necessary to gain voluntary compliance and achieve resolution of encroachments, and to employ the most efficient and cost-effective means of resolving encroachments.
- Continue collaboration with WDFW on habitat protection and improvement of LSRFWCP mitigation lands and ENS lands.
- Pursue funding for boundary surveys while navigating the complex issues surrounding joint funding (appropriated funds from Congress with BPA approval of matched funding). Well documented boundaries are essential to the effort to address encroachments on federal land.
- Keep providing public access to federal lands for hunting, fishing, hiking, and other nature-related activities.

8.2.4. Education, Information, and Public Safety Recommendations

The following education, information, and public safety recommendations have been identified:

- Visitor safety and facility security are of the highest priority in Corps parks. Common issues stem from unsupervised juveniles and an increasing transient population. Alcohol, drug use, and mental health issues typically are catalysts for crime being perpetrated in Corps parks. Project staff will continue to provide visitor assistance patrols and work with local law enforcement partners. Additional security measures that may be taken include increased contracting with local law enforcement for additional patrols, installing gates on parks to control access during periods of darkness, and placing security cameras in high incident areas.

- Use social media and other means of communication so users can access information that is pertinent to the Project (e.g., trail closures, hunting season, current conditions, special events). Keep up to date on emerging communication methods.

- Seek opportunities to partner with regional Tribes, local youth organizations, volunteers, and other organizations to provide educational and interpretive signs, activities, and programming.

- Lower Granite South Shore Visitor Operations should continue to schedule and provide tours of Little Goose Lock and Dam to the public upon request.

- Pursue public outreach opportunities such as the outdoor shows, county fairs, and other events to educate the public on recreation and hunting and fishing opportunities available on Corps lands.

- Add educational and interpretive information to kiosks in parks and HMUs, such as adding lists of bird species specific to the area from Engineer Research and Development Center surveys, or other wildlife/plant species of interest.

- Continue to use social media and kiosks to post relevant visitor safety information ("Know Before You Go"), such as warnings to avoid rattlesnakes, to bring plenty of water, sunscreen, and bug protection, and to let people know your whereabouts. Boaters should also be sure to have a float plan and to let someone know when to expect them back in case of trouble. Many of the parks and HMUs in this Project are isolated with poor cell phone coverage so it is very important that visitors are prepared.

8.3. FUTURE DEMANDS

Recommendations in this Master Plan reflect current inventory data, recreation trends, and forecasts. As technology and public demand change and new recreational opportunities arise, Corps staff will investigate the feasibility of new activities and evaluate proposed changes and additions to this Master Plan for potential conflicts, opportunities, and environmental impacts.

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