



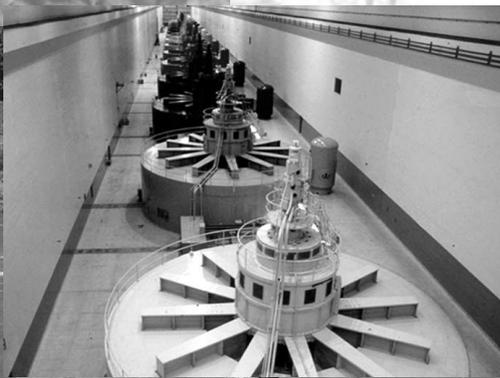
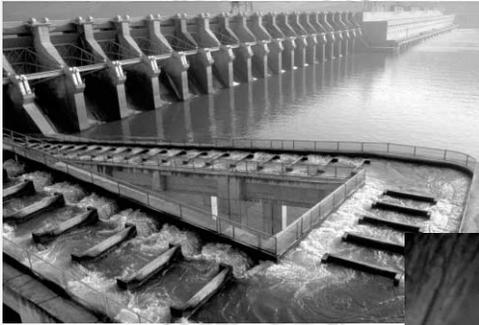
US Army Corps  
of Engineers®  
Portland District

# Salmon Recovery through John Day Reservoir

## John Day Drawdown Phase I Study

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## Cultural/Tribal Resources Technical Appendix



September 2000

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## **SECTION 1. Introduction**

This technical appendix documents the results of the cultural resources evaluation for the John Day Drawdown Phase I Study. This Phase I Study is a reconnaissance-level evaluation of the potential consequences and benefits of the proposed drawdown of the John Day Reservoir. This technical appendix supplements the main report, which describes more fully the alternatives, purpose, scope, objectives, assumptions, and constraints of the study.

## **SECTION 2. Background of the Project**

In 1991, the National Marine Fisheries Service (NMFS) proposed that Snake River wild sockeye, spring/summer chinook, and fall chinook salmon be granted “endangered” or “threatened” status under provisions of the Endangered Species Act. Natural resource agencies believe that the drawdown of the 76-mile John Day Reservoir may provide substantial improvements in migration and rearing conditions for juveniles by increasing river velocity, reducing water temperature and dissolved gas, and restoring riverine habitat. It is also speculated that drawdown may improve spawning conditions for adult fall chinook by restoring spawning habitat and the natural flow regimes needed for successful incubation and emergence.

As a result, the NMFS Reasonable and Prudent Alternative Action #5 of its’ Biological Opinion on Operation of the Federal Columbia River Power System (FCRPS), and subsequent reports recommended that USACE investigate the feasibility of lowering John Day Reservoir. In compliance with appropriation conditions, only two alternatives were to be evaluated: reduction of the current water surface elevation 265 National Geodetic Vertical Datum<sup>1</sup> (NGVD) to the level of the spillway crest that would vary between elevations 217 and 230, or reduction to natural river level elevation 165. Both alternatives were proposed by NMFS. These two alternatives were then expanded to consider each alternative with 500,000 acre-feet of flood storage and without such storage. Flood storage and hydropower are the current approved authorizations for the John Day project.

## **SECTION 3. Description of the Study Area**

The Columbia River originates in Canada and flows for 300 miles through eastern Washington to Oregon and continues west to the Pacific Ocean, as shown in [Figure 1](#). The adjoining region is mostly open country, with widely scattered population centers. The climate of the region is semiarid. Agriculture, open space, and large farms are prevalent. Lands adjacent to the reservoir are used to grow grains and other crops. The reach of the Columbia River under consideration in this report extends from John Day Lock and Dam at river mile (RM) 215.6, to McNary Lock and Dam RM 291. The body of water impounded by John Day Dam, Lake Umatilla, is referred to as the John Day Reservoir throughout this report. The John Day is the second longest reservoir on the Columbia River, extending 76 miles upstream to McNary Dam.

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<sup>1</sup> All elevations referred to in this Phase I Study are referenced in feet to the National Geodetic Vertical Datum.

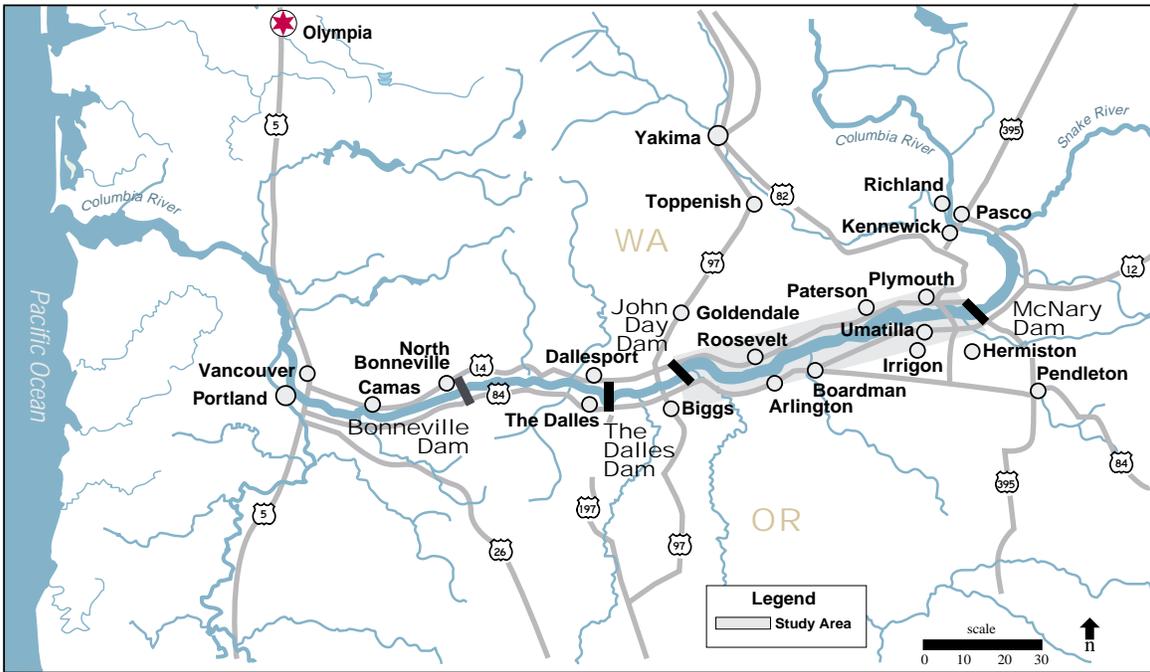


Figure 1. John Day Drawdown Phase 1 Study Area

John Day Dam and Reservoir are part of the Columbia-Snake Inland Waterway. This shallow-draft navigation channel extends 465 miles from the Pacific Ocean at the mouth of the Columbia River to Lewiston, Idaho. The entire channel consists of three segments. The first is the 40-foot-deep water channel for ocean-going vessels that extends for 106 miles from the ocean to Vancouver, Washington. The second is a shallow-draft barge channel that extends from Vancouver to The Dalles, Oregon. Although this section is authorized for dredging to a depth of 27 feet, it is currently maintained at 17 feet. The third section of the channel is authorized and maintained at a depth of 14 feet and extends from The Dalles to Lewiston. In addition to the main navigation channel, channels are dredged to numerous ports and harbors along the river.

The middle Columbia River area is served by a well-developed regional transportation system consisting of highways, railroads, and navigation channels. Railroads and highways parallel the northern and southern shores of the reservoir. Interstate 84 (I-84), a divided multilane highway, runs parallel on the south shore with the Columbia River from Portland, Oregon, to points east. Washington State Route 14 (SR-14) also parallels the Columbia River from Vancouver to McNary Dam on the north shore. Umatilla Bridge at RM 290.5, downstream from McNary Dam, is the only highway bridge linking Oregon and Washington across the Columbia River in the John Day Reservoir.

The study area includes lands directly adjacent to the reservoir as well as those directly and indirectly influenced by the hydrology of the reservoir (e.g., irrigated lands). It includes the reservoir behind the John Day Dam, and adjoining backwaters, embayments, pools, and rivers.

## **SECTION 4. Alternatives**

The Phase 1 Study includes a preliminary evaluation of the impacts of the drawdown scenarios relative to the “without project condition,” which is defined as the condition that would prevail into the future in the absence of any new federal action at John Day. The four alternatives are summarized below. One of the most important constraints on the alternatives is the requirement to pass fish for river flows up to the 10-year flood flow of 515,000 cfs. Under the four alternatives, John Day Reservoir would be drawn down at a rate of one foot per day. For greater detail, please refer to the main report, *John Day Drawdown Phase 1 Study*, and *John Day Drawdown Phase 1 Study, Engineering Technical Appendix, Structural Alternatives Section*.

### **4.1 Spillway Drawdown without Flood Control (Alternative 1)**

The first drawdown alternative is based on requirements for improved downstream fish passage conditions during both low and flood flow conditions on the Columbia River. The existing 20-bay spillway will be operated differently from current operations, but without any structural modifications. All project inflows will be directly passed through the dam spillway with the spillway gates fully opened in free overflow condition, resulting in a pool elevation that will vary from elevation 217 to 230. Impacts downstream from John Day Dam were not studied.

## **4.2 Spillway Drawdown with Flood Control (Alternative 2)**

The second study alternative is based on requirements for improved downstream fish passage conditions during low flow periods, while maintaining authorized flood control for the John Day Project. The existing 20-bay spillway will be operated differently from current operations, but without any structural modifications. During low flow periods, project inflows will be directly passed through the dam spillway with the spillway gates set in fully open, free overflow condition. During a flood event, however, the spillway gates will be controlled to reduce downstream flood flows based on using 500,000 acre-feet of allocated project storage space. Ponding will occur upstream from the dam.

## **4.3 Natural River Drawdown without Flood Control (Alternative 3)**

The third study alternative is based on a natural river drawdown for fish passage “without flood control” condition. Natural river conditions pertain to an opening at the John Day Dam that permits acceptable upstream fish passage conditions. The size of the total dam opening must conform to two criteria based on an invert elevation at the dam of 135. The first criterion is that the opening must be sufficiently large to meet maximum allowable stream velocity criteria for sustained swim speed for the weakest salmon species, which is estimated to be 10 feet per second (fps). The second criterion is that fish passage for this opening must correspond to the 10-year annual flood peak (515,000 cfs). This alternative will require extensive modifications to John Day Dam even beyond modification of the 1,228-foot long spillway structure.

## **4.4 Natural River Drawdown with Flood Control (Alternative 4)**

This fourth study alternative is based on natural river conditions for fish passage and includes the “with flood control” condition. It requires natural fish passage conditions for both upstream and downstream directions at the dam and includes a requirement for full authorized flood control. The calculated width of the total dam opening will correspond to that previously calculated for natural river conditions without flood control (Alternative 3).

# **SECTION 5. Cultural Resources Overview**

Human occupation of the region spans at least the past 12,000 years. Archeological investigations have revealed the presence of prehistoric groups in this portion of the Lower Columbia River valley since the close of the Pleistocene Epoch 10,000 to 12,000 years ago, and most Tribal oral traditions speak of being along the river since “time immemorial”. Occupation by Native Americans was continuous into historic times and many types of sites; large villages, fishing sites, burial grounds, rock art, sacred sites, and others are found along the river margins. Early explorers such as Lewis and Clark, settlers, clergymen, miners, and railroad workers from many ethnic groups also left sites along the river and many sites with historic components are present.

Project impacts to be considered include effects on Native American traditional cultural values, properties and practices and effects on archeological sites, or historic properties listed in or potentially eligible for the National Register of Historic Places.<sup>2</sup>

Cultural resource sites within the reservoir have been recorded by archaeologists since the 19<sup>th</sup> century, but the bulk of investigations commenced with the River Basin Survey projects (Shiner, 1950) and archaeological site assessment work; Traditional Cultural Properties recordation is currently being conducted. Earlier survey, testing, and archaeological assessment work was far from complete, especially by modern standards, and the number of sites inundated was grossly underestimated. Based on older and updated survey data, there are between 209 to 254 recorded sites within the project area, with at least 70 of these inundated by the present reservoir. Accuracy concerning the total number of cultural resources sites suffers from several problems. Sources suggest that that unrecorded sites may be exposed due to ongoing impacts at the operating project. Unresolved problems in site inventory records concerning site identification numbers, descriptions, and precise locations makes it unclear if new sites are emerging or older sites have been altered so much, that they no longer match their original descriptions. Oral histories and place names are only now being gathered, so some Traditional Cultural properties have not been listed. Though there have been excavations at many sites, few have been formally evaluated for National Register eligibility; one was determined eligible, two have been nominated to the Register and two are listed. The vast remainder of the recorded sites is still potentially eligible for inclusion in the Register.

There is evidence that archaeological sites of both the prehistoric and historic periods are more numerous, generally larger, and more complex, as one descends into the river valley to the former river margins. Therefore progressively lower drawdowns would potentially expose greater numbers of sites.

Modern impacts to known sites from fluctuating pool levels, changes in groundwater and soil conditions, slumping, wash from watercraft, and artifact looting have been documented at the John Day reservoir, and these types of impacts would occur in the zone of vulnerability of newly uncovered lands following drawdowns. Computer modeling and experience with other reservoir drawdowns has also shown that severe impacts to formerly inundated cultural resources can be expected in many types of topographic settings extant in the project area. Formerly inundated areas would be devoid of protective vegetation, experience some loss of mantling soils and make very obvious exposure of artifacts, archaeological materials and sites, rendering them targets for illegal artifact collectors, and making them more prone to damage by erosion.

Numerous archaeological contractors working in teams would have to be assembled to record and assess sites as a drawdown is implemented and make rapid assessments of their potential and conditions. Sites which are potentially eligible for the National Register which have not been evaluated as to eligibility are required to be protected under the NHPA. Some provision would need to be made for the protection of the exposed sites by law enforcement, by hiring

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<sup>2</sup> Federal agencies are required to address the impacts of a federal undertaking on such resources under the requirements of the National Historic Preservation Act (NHPA), the Archeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and other relevant legislation.

personnel or providing funding to policing agencies for a period of several years. Increased support and training for prosecuting cases under the Archaeological Resources Protection Act would be required.

The Four Treaty Tribes (Warm Springs, Yakama, Umatilla and Nez Perce), and other Native American groups would need to be consulted. One opportunity is through the Wana-pa Koot Koot cultural resources work group, comprising the Treaty Tribes, the Portland District Corps, Bonneville Power Administration, the State Historic Preservation Officers of Oregon and Washington, and other federal agencies with jurisdictional concerns within the Columbia River Gorge. However, specific Memoranda of Agreement and Programmatic Memoranda of Agreement on cultural resources would have to be entered into by the Corps, the tribes and the SHPOs. An undertaking this large would also require initial review and comment by the Advisory Council on Historic Preservation under the new regulations implementing Section 106 of the National Historic Preservation Act, which went into effect in June 1999.

It is a virtual certainty that greater numbers of cultural resources than are presently known will be found during a drawdown, but their integrity, and scientific and sacred importance (which would bear upon such sites' eligibility for the National Register) are unknown due to the unpredictable effects of inundation. Therefore, accurate estimates of the costs associated with surveying for and evaluating sites for eligibility is difficult, but absolute minimums for survey can be approximated. Estimation of the costs for modification are even harder to assess since modification measures must be formulated by examining the entire suite of cultural resources to be impacted by a project and in consultation with the various affected parties. Given the uncertainties of conditions, for the purposes of this project, it is recommended that the authorization under the Moss-Bennett Act of 1974 to expend up to one percent of project costs for the purposes of cultural resources modification be used as a planning estimate.

The cultural resources portion of the Phase 1 Study attempts to identify and analyze the impacts of the drawdown alternatives, spillway crest, and natural river levels, both with and without flood control. Existing data has been used to form a comprehensive overview about cultural resources in the John Day reservoir, including identifying the limitations of current knowledge. Much of the following presentation has been taken from earlier cultural resources management sections of documents produced by federal agencies in the Columbia River Basin. Information in the overviews was adapted from the *Cultural Resources Management Plan, John Day Project*. Presentations in sections on the definition of cultural resources, Native American perspectives and consultation about such resources, and procedures for their treatment were largely adapted from the *Columbia River System Operation Review Final Environmental Impact Statement, Cultural Resources Appendix D*, as well as other documents. These sources are valid for the present study as they contain much information about the nature of cultural resources management in the Middle Columbia River region. Specific alternate sources within those portions are cited within the text and listed in the bibliography, as they are in other sections.

All the alternatives would impact cultural resources in similar ways. All the drawdown alternatives would expose sites that have been inundated for decades and introduce a new suite of sites into the reservoir fluctuation zone. The alternatives, which include flood control measures, would be somewhat more deleterious, in that they incur more frequent fluctuation of pool levels over a wider zone of fluctuation, which would increase the impacts to cultural

resources. Impacts due to wave wash, surface erosion, slumping along riverbanks and hill slopes, mass wasting, lateral displacement, artifact looters and vandals are certainly expected. Proposed actions under this study would potentially impact cultural and historic properties in a number of ways.

## **SECTION 6. Tribal Cultural Resources Perspectives**

Tribal perspectives on cultural resources are characterized by a holistic view treating virtually all elements and features of nature as cultural resources possessing significance for Native American communities. By contrast, federal agencies working under federal law definitions of historic properties with agency archaeologists, engineers, and planners who typically have academic backgrounds tend to emphasize identification and evaluation of physical sites and artifacts with defined boundaries over traditional cultural properties in management decisions. Although tribes, their elders and community leaders acknowledge the importance of historic properties, they assert that their definition of cultural resources is much broader with an appropriate focus on traditional cultural properties. Many tribal members have a sense of place and belonging tied to the John Day reservoir area, having learned their living heritage through participation in fishing, gathering, playing and participating in religious and social customs within the context of this environment. These and other places of the heart spoken of in oral traditions are remembered by elders and the re-telling merges into peoples' modern lives.

The complex mosaic of what tribal people consider as cultural resources are apparent in the statements of tribes collected and presented in the *Cultural Resources Appendix N*, Columbia River Systems Operations Review (SOR)(USACE, 1995). The river itself, the salmon, oral traditions, useful plants, and the resting places of ancestors are interconnected in the tribal worldview. Time and funds will need to be planned into the consultation process over cultural resources significance if traditional agency and traditional tribal views are to be reconciled.

The cultural resources work group, Wana-pa Koot Koot, which was formed during the System Operation Review (SOR), is an advisory body that will be useful in sounding out differences in cultural resource viewpoints. For example, tribal preferences on modification favor protection over data recovery compromises. Any tribal consultations and Memoranda of Agreement on cultural resources, however, will need to be carried out with the governing body of each tribe on a government-to-government basis.

Project manager, Stuart Stanger, and other Corps representatives held meetings on the John Day Drawdown Phase I study with tribal governing bodies and intertribal agencies on the following dates:

- March 16, 1999, Nez Perce
- March 18, 1999, CRITFC
- May 4, 1999, Yakama
- May 12, 1999, Umatilla
- June 8, 1999, Warm Springs

Several widespread concerns were aired at these meetings, including tribal concerns over historic properties, the possibilities that graves would be washed out exposing human remains, and looting of exposed artifacts. Also frequently mentioned were requests that any re-vegetation programs include native plants, and that the river should be directed into its former, pre-inundation channel. All tribes contacted requested reassurances that government-to-government consultations and tribal natural resources agencies are involved prior to further studies.

Since tribal cultural resources embrace such a broad spectrum of natural resources, the reader is directed to other appendixes of the present Phase I study, such as Wildlife, Water Quality, Anadromous Fish, Resident Fish and Tribal Economic Impacts to address those concerns. These sections will discuss how each of these resources is affected by the proposed alternatives. Exceptions will be the impacts and cost of replacements to the Treaty Fishing Access sites. If the John Day pool is drawn down, fishing access to the Columbia River for tribal fishers will need to be considered. Ten sites are located on the John Day pool: Railroad Island (North Shore) (WA); Le Page Park (OR); Sundale Park (WA); Roosevelt Park (WA); Pine Creek, (WA); Quesnel Park - (Three Mile Canyon) (OR); Crow Butte State Park (WA); Alderdale (WA); Pasture Point (WA), and the Boardman Park - Faler Road Site (OR).

Cost estimates are for total replacement of all sites. This will include modification of recently constructed Treaty Fishing Access sites located on the shoreline of the Columbia River on the John Day pool. [Table 1](#) lists the treaty access sites, [Figure 2](#) shows the location of each site.

**Table 1. Columbia River Treaty Fishing Access Sites**

Location	Facilities										Function
	Existing	Under Construction	Future Construction	Boat Ramp & Dock	Water Well	Public Water Supply	Fishing Access	Camping	State Location	River mile	
North Shore			X	X			X	X	WA	215.9	Separate Facility From Public Park
LePage			X	X			X		OR	217.8	Separate Facility From Public Park
Goodnoe			X				X		WA	225.4	
Pasture Point			X	X	X		X	X	WA	226.5	
Rock Creek			X				X		WA	227.5	
Sundale			X	X			X	X	WA	236.2	Replace Public Park
Roosevelt		X		X	X		X	X	WA	241	Separate Facility From Public Park
Moonay	X						X		WA	249	
Pine Creek		X		X			X		WA	250.2	
Alderdale		X			X		X	X	WA	257.5	Replace Public Park
Aldercreek	X						X		WA	258	
Three Mile Canyon			X	X			X	X	OR	255	
Faler Road		X				X	X	X	OR	267.5	Separate Facility From Public Park
Crow Butte			X	X	X		X	X	WA	262	Separate Facility From Public Park

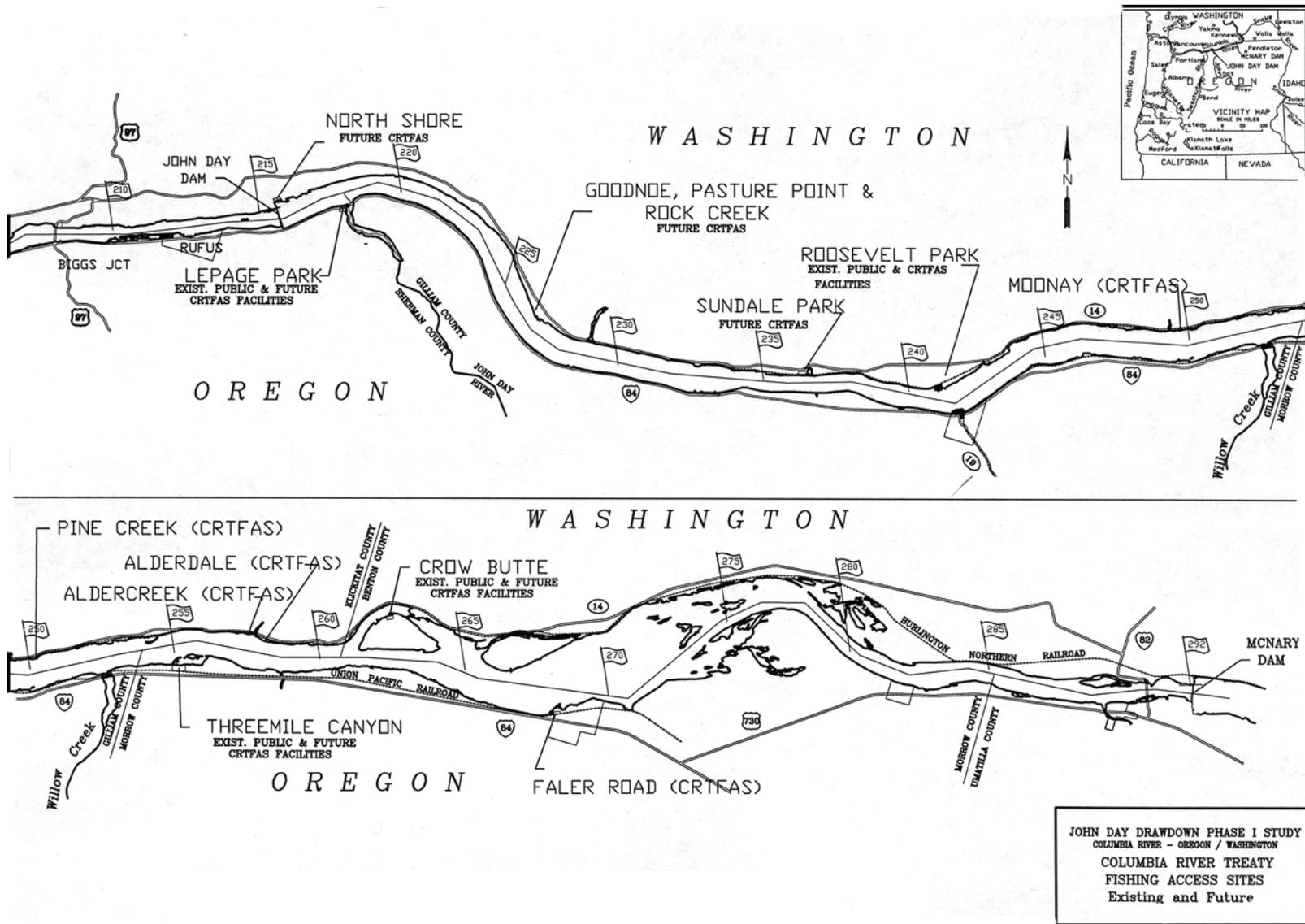


Figure 2. Existing and Future Columbia River Treaty Fishing Access Sites

## SECTION 7. Existing Cultural Resources Environment

Human occupation of the region spans at least the past 12,000 years. Changes in climate, floral and faunal assemblages, and geologic events during this time have necessitated adjustments in human adaptation. Thus, environmental factors have played a significant role in shaping human land use patterns. Archeological investigations reveal the presence of prehistoric groups since the close of the Pleistocene Epoch 10,000 to 12,000 years ago. Although knowledge of the earliest groups is quite limited, the evidence from artifact assemblages throughout the region documents the presence of peoples initially concentrating on big game hunting (Fluted Point Horizon) and later following a relatively unspecialized hunting and gathering way of life (San Dieguito-Windust-Milliken Horizon).

The Fluted Point Horizon artifact assemblage refers to a geographically widespread (throughout North America) and temporarily short-lived (11,500 to 10,000 years before present) occurrence of large fluted projectile points (Clovis and Folsom points) frequently associated with the remains of extinct mammals. The San Dieguito-Windust-Milliken Horizon refers to a grouping of three intergrading complexes of stone artifacts known from California to Nevada (San Dieguito), the Columbia Plateau (Windust), and British Columbia (Milliken). These complexes or assemblages consist of a variety of stone artifacts including large lanceolate projectile points (both stemmed and shouldered), leaf-shaped projectile points or knives, a variety of scraping tools, and occasionally milling stones. The dated range for this horizon is between 10,500 and 7,500 years before present. The later, more diverse and specialized stone tool complexes of the San Dieguito-Windust-Milliken Horizon reflect the changes in subsistence patterns noted above.

Beginning about 8,000 years ago, the archeological record in the Interior Plateau becomes more complex. Subsistence patterns show increasing specialization oriented towards the exploitation of the available natural resource. For the peoples of the Columbia Plateau, this specialization involved the exploitation of the resources of the Columbia River and its tributaries.

Archeological evidence from the last 8,000 years documented a shift from the earlier nomadic, unspecialized hunting, gathering, and collecting way of life to a semi-sedentary existence which depended on intensive utilization of anadromous fish and other riverine resources. The latter pattern continued up to ethnographic times.

The most detailed and nearly continuous cultural sequence available for the Plateau comes from the lower Snake River drainage. The Cascade phase, between 5,500 to 3,000 B.C., follows the Windust phase described above. The presence of fine flaked, medium-sized leaf-shaped Cascade points and edge ground cobbles distinguish this phase from the earlier Windust phase along with the first evidence of vegetal food processing (manos and small grinding stones). Also appearing during this phase are salmon bones and pit house architecture reflecting the beginning of a subsistence-settlement pattern, which characterizes ethnographic Plateau culture. Other traits appearing during the phase are flexed and extended burials with accompanying grave goods (Olivella shell beads), large lanceolate and triangular knives, polished stone atlatl weights, and a variety of small bone tools.

The next phase, Tucannon, spans 2,500 years between 3,000 and 500 B.C. Characteristic artifacts include triangular contracting-stemmed and corner-notched points, sinker stones,

small end and side scrapers, hopper mortar bases, and pestles. Relatively large amounts of river mussel shells and salmonid fish bones are present, along with bones of terrestrial mammals.

The following Harder phase, dated between 500 B.C. and A.D. 1300, is characterized by villages of semi subterranean earth lodges. Variation in projectile point size indicates the presence of the bow and arrow in addition to the earlier atlatl or spear thrower. Available evidence suggests the continuing importance of salmonids, and the domestic dog first occurs during this phase.

A late prehistoric phase, Piquin, characterized by small corner-notched and stemmed arrowpoints, composite harpoons, and matting needles (in addition to the Harder phase assemblage) and a protohistoric phase, Numipu, span the centuries between A.D. 1300 and historic times. The later phase provides evidence for the horse and abundant indication of Euroamerican contact.

Similar sequences are known from the lower and middle Columbia at Five Mile Rapids on the Oregon side and several Washington sites including Wakemap Mound near The Dalles Lock and Dam. At Five Mile Rapids, stone tools comparable to Windust assemblages are associated with vast amounts of salmon bones, indicating an even earlier reliance upon salmonid fishes than is recorded for the lower Snake River. At Wildcat Canyon, Mack Canyon, and other sites near the mouth of the John Day River, research dates pit house villages to the past 3,000 years. Also at Wildcat Canyon, stone tools including projectile points similar to those associated with the Windust phase suggest a range between 7,900 and 5,400 years B.C.

## **SECTION 8. Overview of Ethnology**

The ethnographic Plateau culture centered on the exploitation of salmon. Based on a bi-seasonal subsistence-settlement pattern, the Indians concentrated their villages in linear settlement patterns along the Columbia and Fraser Rivers and their tributaries. The major habitations along the river flood plains were occupied in the summer and winter and nearly abandoned in the spring and fall as the inhabitants moved to upland areas to hunt and gather camas, lily and kous roots. Salmon taken during the summer were stored for winter use.

Linguistic groupings comprised two distinct clusters. Salish speakers inhabited the northern Plateau and were thought to represent a late influx of peoples from the northernmost Plateau. In contrast, Penutian speakers are concentrated along the middle and upper Columbia Plateau to the coast and represent a long period of domination in these regions.

A major sub-grouping of Penutian languages, Sahaptin, was restricted to the Plateau. It consisted of Nez Perce and three dialect groups:

- Yakima, Kititas, Upper Cowlitz, Upper Nisqually, and Klikitat
- Wanapam, Walla Walla, Wawyukms, and Palouse
- Umatilla Rock Creek, John Day, Celilo, Tygh Valley, and Tenino

The latter groups centered on the middle Columbia. Other Penutian speakers on the Plateau included the Cayuse, Molala, and Klamath-Modoc. Salish peoples, as noted, ranged over the

north Plateau region where ethnologists recorded 15 different languages and dialects. Wenatchi speakers occupied the Washington side of the middle Columbia.

People living near The Dalles on opposite sides of the river spoke two closely related Chinookan languages, Wishram and Wasco. These are also Penutian languages, distinct from the neighboring Salish languages. The Wasco and Wishram specialized in large-scale production of dried salmon and differed from other Plateau groups on their emphasis on trade and hosting of trading fairs. The late prehistoric development of a pidgin language, Chinook Jargon, and the fact that neighboring Nez Perce and Sahaptin speakers were often bilingual, reflects the long-standing importance of trade relationships among these groups.

By the time Lewis and Clark reached the Plateau, the cultures of the region had been modified by the introduction of the horse; however, the basic patterns persisted. Winter survival depended upon stored foods, principally roots, which were made into flour, and salmon. Salmon was filleted, dried, and pounded; roots were baked before being pounded into flour. Both foods were stored in salmon skin-lined baskets and kept in storage houses or cache pits. Other stored foods included cakes of parched, pounded sunflower seeds and cakes of dried berries. Hunted game and fowl supplemented these basic foods.

Sociopolitical organization among Plateau cultures consisted of autonomous villages headed by village chiefs. To varying degrees, a social hierarchy existed, comprising wealthy and chiefly individuals, commoners, and slaves. Villages were composed of extended and multifamily groups occupying a single dwelling.

Yearly ceremonials included life cycle rites, first fruits ceremonies, spirit dances, and war dances. Feasting was often associated with these ceremonials, as with weddings and funerals. Religious beliefs centered on vision quests for guardian spirits. Shamans served judicial and curing functions within villages, often exercising more power than village chiefs.

Protohistoric and early historic times brought a number of changes to the aboriginal groups in the region. The introduction of guns and horses increased raiding between groups. Other characteristics such as more centralized political organization among Columbia River groups, increased trade, and takings of slaves appear to result from contact. The most dramatic influence came about as Euro-American settlers moved into the region. Introduced diseases greatly reduced the aboriginal populations, while alteration of the environment by mining, farming, and raising stock forced changes in subsistence patterns. Relations between whites and native Indian groups became increasingly antagonistic, leading to open hostilities by the mid-1800s.

The John Day reservoir lies within the Plateau culture area. Sturtevant (1998:3) identifies several tribes as having lived in the project area. These include the Cayuse, Umatilla, Walla Walla, Yakama and neighboring groups, and Western Columbia River Sahaptins (Tenino). Winter villages for the Umatilla, Cayuse, and Walla Walla were located along the Columbia River and several of its tributaries. In the summer, the tribes headed up into the mountains to hunt, fish, and gather roots, berries, and other plants.

Ray (1938:386) states the Umatilla tribe traditionally used the eastern portion of the project area, and the Tenino used the western portion. Suphan (1959; n.d.; 1974) and other researchers note that the Umatilla, Cayuse, Walla Walla, and Nez Perce used some of the same territory, often at the same time, for hunting, fishing, and gathering purposes. Consequently, strict political boundaries for these groups are almost impossible to determine with accuracy. Ownership of territory and specific resources had significant meaning only in close proximity to a winter village. Ownership and control became less recognizable the further a resource was from the village (Swindell, 1942). It was customary for the tribes to meet at various places during their summer travels for the purposes of trading and socializing.

## **SECTION 9. Overview of Area History**

Explorations of the region by Euro-Americans began with Lewis and Clark's journeys down the Columbia to the Pacific Ocean in 1805 and their return in 1806. Soon to follow (between 1810 and 1812) were employees of John Jacob Astor, the American fur magnate, who traveled along the Columbia in search of sites for fur trading posts. Following a brief period of control over the fur trade, Astor sold his Oregon interests to the Canadian-based North West Company in 1814. Seven years later, the Hudson's Bay Company bought out the North West Company and began an aggressive attempt to monopolize the fur trade and discourage American trappers. The Hudson's Bay Company continued these policies until about 1831. During the 1820s and 1830s, numerous trapping expeditions explored much of the region and recognized its grazing and agricultural potential. John C. Fremont explored and described the high hills south of the Columbia in 1843 before traveling overland through central Oregon to California. Fremont's published report did much to popularize the region and spread the word of its agricultural potential.

Beginning at the same time as Fremont's expedition, large numbers of settlers began the trek to the Willamette Valley over the Oregon Trail. This route paralleled the Columbia to the south on its way to The Dalles. From The Dalles, the emigrants rafted the Columbia to the northern end of the Willamette Valley. This route remained important until the 1860s when more direct routes to the Willamette Valley were established. The Methodists established a mission at The Dalles in 1838, and it remained the only permanent community in the region until the mining rushes of the 1860s. The site served as a major Indian trading center and rest stop for early emigrants.

The government established a military post at The Dalles in 1850 for protection against the Indians. In the early 1850s a few settlers moved into the area south of the Dalles. The 1860 census shows a population of 1,340 for the area around The Dalles and 6,057 acres of improved farmland. The 1860s produced several events that attracted settlers to the region. In 1862, gold was discovered at Canyon Creek, a tributary of the John Day River. The discovery brought thousands of prospectors, merchants, and camp followers. The influx of people stimulated road building and this greatly improved transportation in the region. In addition, the military reduced hazards posed by hostile Indian groups, while rising land prices in the Willamette Valley increased the appeal of the region east of the Cascades for stockmen and farmers.

Hostilities between settlers and Indians escalated in the late 1850s and 1860s as settler's demands for farm and range land and miners' search for precious metals increased. In 1855, the Treaty with the Walla Walla, Cayuse, and Umatilla Tribes was signed. The Treaty was ratified March 9, 1859 (12 Stat. 945). In the Treaty of 1855, the tribes ceded lands which include the John Day project, while retaining several rights to the ceded lands, including the "right of taking fish. . . at all other usual and accustomed stations." Through the treaty the government established the Warm Springs and Umatilla reservations. The Tygh, Wyam, Tenino and Dock-spus bands of the Walla Wallas and the Dog River, Ki-gal-twal-la and Dalles bands of the Wascos were removed to Warm Springs. Umatilla, Cayuse and other groups relocated to the Umatilla Reservation.

Raids by Paiute groups on the Warm Springs groups and later attacks on settlers led to a series of campaigns by the military lasting until the Bannock War in 1878, when the last major uprising was put down. Indian unrest during the 1860s and 1870s slowed growth in the region, but by the 1880s the Indians were restricted to the reservations and development by non-Indians quickened.

The open river improvements on the Columbia River by the Corps after 1867 facilitated the transportation of goods and people by steamboats. The completion of the railroad line along the south bank of the Columbia in 1882 by the Oregon Railway and Navigation Company finally opened the region for agricultural development and settlers poured in. Towns sprang up at Mosier, Biggs, Rufus, Blalock, and Arlington as shipping points along the railroad.

During the 1870's and 1880's, the open range cattle business dominated the region's agricultural economy. By the late 1880's competition between sheepmen and cattlemen and the influx of farmers hastened the end of the open range cattle enterprise. The 1890s were marked by peak wool production; however, overgrazing and reduced range allotments led to a decline in the sheep industry after 1900. Additionally, in the late nineteenth and early twentieth centuries, the fish canning industry flourished in The Dalles area. This enterprise seasonally employed many Chinese.

As stock raising declined in the region, dry land wheat production replaced it. Between 1910 and 1920, irrigation brought new lands into cultivation and regional growth continued. From the late 1890s to the 1920s, many new towns and post offices sprang up; however, some did not last, as the agricultural limit of the land was reached. Modern mechanized farming and extensive irrigation developments along the margins of the Columbia River, the latter expedited by the construction of reservoirs such as the John Day Dam, have increased the region's agricultural potential. While the construction of the multipurpose dams on the Columbia produced large amounts of electrical energy and benefited navigation and irrigation, they proved detrimental to the important anadromous fish runs of the river. Native American fishermen continue to exercise treaty fishing rights in the area.

## SECTION 10. Overview of Previous Cultural Resources Investigations

Few archaeological investigations took place in what would one day become the confines of the John Day Reservoir prior to the River Basin Survey Projects. However, as early as 1886 a report was published describing an private artifact collection which had been procured from near the mouth of the Umatilla River (Eels 1886; Andrefsky, 1992:2:10) Alex Krieger noted two sites on either side of the mouth of the John Day River during a brief survey of a large section of north-central Oregon (Krieger, 1938). Early site forms indicate that various researchers from the 1920s to 1940s were recording some archaeological sites in the area. Professional articles discussing types of burials and burial complexes along the Columbia River specifically mentioned Blalock Island (Perry, 1939) and Sundale, Washington, locations (Garth, 1952). Old Town Umatilla was first recorded in 1948 and then described in more detail in the original River Basin Surveys report in 1950.

Formal archaeological investigations centered on the John Day Reservoir project began with the original River Basin Survey Project, presented in a report by Joel Shiner (1950) on work conducted in June and July of 1950. The proposed reservoir was surveyed and 88 sites were found. He recommended 22 of these for excavation. Dr. Shiner was confounded by the complexity of separating sites, and defining site boundaries in the midst of the site densities encountered along this reach of the Columbia River, a problem which still perplexes researchers today. In reference to Blalock Island he stated, “no clear-cut decisions could be made as to the extent of any one site. The whole area including the adjacent mainland on the Washington side of the river might well be considered one gigantic site...” (Shiner, 1950:10-11).

The River Basin Survey project continued under administration by the National Park Service through contracts with the University of Oregon. Eight years later, Cole and Newman (1958) re-evaluated Shiner’s work and resurveyed the area with the exception of the islands. They relocated sites previously recorded by Shiner, and discovered seven new sites, but noted the same difficulty as Dr. Shiner had in assigning individual sites and site boundaries because “all along the river banks and on the beaches, evidence of human occupation can be found. The areas of heaviest concentration were listed as sites, but it is difficult to be certain that in each case a discrete site is represented. The Oregon side, above Boardman, is an area of mostly low dunes. Although there are several sites listed in this area, it seems probable that this was one continuous living area” (Cole and Newman, 1958:4). Cole and Newman chose five sites to excavate over two years. Between 1959 and 1968 Cole and various colleagues working out of the University of Oregon compiled 12 reports of work done at the reservoir (see Cole, 1963, 1964, 1965, 1966, 1967, 1968a, 1968b, Cole and Cressman, 1959, 1960, 1961, Cole and Leonhardy, 1964, and Cressman and Cole, 1962). These reports covered excavation at 17 different sites, inspection of two sites, and limited excavation or testing on 19 sites.

Most of the work above would perhaps best be described as descriptive archaeology undertaken during a period when early salvage archaeology efforts were taking place. The emphasis was on recording prominent sites, rich in artifacts and potential deposits. Research designs and research questions did not strongly drive the investigations and this is a function of the times under which these investigations were conducted. Historic period archaeological

sites appear to have been completely ignored. Analyses of recovered artifacts and other materials were incomplete, and in many cases, thorough analytical examination and documentation for these sites have yet to be achieved. Survey methods, site recording, and mapping data cannot be considered adequate by modern standards. Similarly, another salvage archaeology project was conducted at the Alderdale site (45KL5) which was excavated in 1965 for the Washington Department of Transportation (Kidd, 1965).

David Cole conducted an excavation at Old Town Umatilla in 1966. The Mid-Columbia Archeological Society, an amateur group, conducted excavations at Old Town Umatilla between 1970 and 1973 including nine excavations conducted in the area of the Umatilla Townsite (35UM1). Seven of these have been published in the Newsletter of the *Mid-Columbia Archeological Society*. There are two other reports, one on the historical archaeology of the site (Hudson, 1977) and the exhumation and reburial of 100 sets of human remains (Rice, 1978). Many of the collections from these operations were not thoroughly analyzed due to a lack of funding and are scattered in various states of curation. In 1979, the surface and depth of Old Town Umatilla was re-evaluated and this information used to assess the integrity of the site. (Schalk, 1980) Based on this information, shoreline protection work was initiated along the Columbia River shoreline 1986. Prior to initiating this work, Wildesen (1984) conducted construction related cultural resource evaluations.

In Brian Holme(1974) and then William Smith, et al (1977) surveyed the Crow Butte area. Smith located cultural deposits at Crow Butte, and recommended testing.

In 1982, GeoRecon International surveyed the John Day River arm of the John Day Pool and documented 30 archeological sites, 11 of which were evaluated. (Wilke et. al., 1983; Wilde, 1983; Draper, 1992) GeoRecon also surveyed, a proposed development property on the Washington shoreline near Plymouth, Wa.(Wilke, 1983)

Randall Schalk excavated the Morris site (35GM91) after it was severely impacted by a flood and much of it destroyed (Schalk, 1987). Documentation by Schalk indicates substantial information is still available from this site.

There has been some reassessment of earlier work performed in the John Day area. Dumond and Minor (1983) reanalyzed the data and collections made during Cole's nine years of excavations at the Wildcat Canyon site (35GM9). They were able to reach some conclusions about seasons of use at the site and elaborate on pithouse architecture. They also defined a projectile point typology, which they used to develop four prehistoric culture phases, and related these to changes in subsistence. The Philippi Phase, which spanned from 9000 to 7500 BP equates with Leonhardy and Rice's (1970) Windust Phase. The Canyon Phase, from 6500 to 5000 BP, is similar to Leonhardy and Rice's Cascade Phase and Nelson's (1969) Vantage Phase. The Wildcat Phase, which began 2500 years ago and ended circa 1000 BP is comparable to Leonhardy and Rice's Harder and Nelson's Cayuse Phases. Dumond and Minor's final culture phase was the Quinton Phase, beginning 1000 BP and ending around the historic contact period. It was during this latter period that they perceived a "shift in major network of communication from one with principal ties to the east and north to one with principal ties to the west" (Dumond and Minor, 1983:163).

Chance (1980) prepared a report under contract with the Corps wherein he generated archaeological research questions based on previous work. This was an effort to prepare future research design frameworks for potential cultural resources investigations and to aid in

the eventual production of a cultural resources management plan for the project. Chance made limited site visits, but performed no survey work.

Additional cultural resources surveys have been conducted since the impoundment of John Day Reservoir. Ellis and Chapin (1980) surveyed the area between the Umatilla Bridge and Boardman/Crow Butte under contract with the Corps. Two years later, more inventory work under a Corps contract was performed by Ellis and Chapin, along the Columbia River between River Miles 215.6 to 292 (Ellis and Chapin, 1982).

In 1986, Ellis surveyed the Umatilla National Wildlife Refuge holdings, adjacent to the John Day project. After completion of these surveys, the total number of sites recorded within the reservoir was up to 194, and more insights had been made into site distributions and their conditions. Ellis was able to demonstrate, from his sampling of both upland and near river settings during survey, that the vast majority of sites are found along the river. Observations made during these surveys also made it apparent that sites were being adversely affected by erosion and looting.

William F. Willingham made some field checks of sites, collected baseline data, and wrote most of the text for a management plan for cultural resources within the John Day Reservoir (Corps, 1985). The management plan contained information on environment, ethnography, archaeology, and history, proposed research questions and identified gaps in knowledge. It presents the first comprehensive attempt to gather all the site records and significance data known at the time, and to rank sites accordingly taking into account known impacts and the endangered status of sites. The plan is more than 14 years old and requires updating to meet current standards. Site forms are often missing precise location, elevation data, and information taken from original site forms lacks detailed descriptive information. It does indicate that, in addition to the two listed National Register sites, there are properties that have been partially evaluated, and numerous sites eligible for the National Register within the project. Recommendations for further survey and data gathering were implemented in the following decade, but few site stabilization or protection measures have ever been implemented.

The impacts that potential drawdowns of the John Day Reservoir would have on archaeological sites were explored in two reports written in 1992. Andrefsky (1992) examined selected sites in the fluctuation zone along the shoreline and impacts by erosion, sedimentation, and looting, and he indicated the degree of such impacts, observed cultural material, and provided recommendations. Andrefsky's recommendations primarily involved determining eligibility and protecting sites from adverse effects.

In 1991, as part of the Treaty Fishing Access Sites developments under Public Law 100-581, 19 locations on the Columbia River were inventoried for cultural resources. (Minor, 1991) Ten of these sites are located on the John Day pool: Railroad Island (North Shore) (WA); Le Page Park (OR); Sundale Park (WA); Roosevelt Park (WA); Pine Creek, (WA); Quesnel Park - (Three Mile Canyon) (OR); Crow Butte State Park (WA); Alderdale (WA); Pasture Point (WA) and Boardman Park - Faler Road Site (OR). Cultural resources were found at some of these sites and appropriate measures have been or will be taken to protect these locations as the Treaty Fishing development occurs.

Draper (1992) identified 209 sites in the John Day Reservoir, the work done on each, the artifacts and features found at each site, and the types of questions each site could answer. Draper lead field crews who monitored 32 selected sites along the John Day Pool shoreline to evaluate effects of pool operation on these site areas (1992:6.1). Based on this work and on work at other places on the Lower Granite and Little Goose projects (both on the Snake River), Draper recommended that future work include re-surveying the reservoir, gathering expanded and standardized data for each site, and determining the integrity and significance of a sample of sites within the conservation zone.

In a report dated November 1995, federal agencies that operate hydroelectric facilities on the Columbia River published a report describing the effects of project operations and options for revised operations on cultural resources. This report and the Environmental Impact Statement lead to an increased funding to deal with cultural resource matters. (Corps, Bureau of Reclamation, and Bonneville Power Administration, November, 1995)

In 1997, Paul Rushmore sampled sites within the John Day pool to determine the continuing effects of project operation. Based on a geomorphic model, 56 sites in the John Day pool were examined. The report documented erosion, looting, and two new site locations, bringing the total known for the reservoir to 209 (Burney and Rushmore, 1999).

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) re-examined sites studied by Rushmore, performed site mapping, and assessed the quality of site data known for the John Day. They noted many deficits in the archaeological data record, including possible errors in numbering sites, and poor quality of site descriptions, exact locations and elevations. Heavy impacts from erosion along shorelines were noted and the loss of significant portions of sites was documented.

## **SECTION 11. Known and Potential Cultural Resources**

There are 254 cultural resources sites recorded at John Day Reservoir. Most are prehistoric sites, ranging in size and complexity from stratified, multi-component, village sites such as 45UM1 to rock art sites such as those found on Telegraph Island. The present pool inundates over 70 archaeological sites.

Site data on precise locations, elevations, character, densities, and depths of deposit are not good for a great number of sites. As was pointed out during the last two cultural resources investigations performed at John Day (Rushmore, 1999, CTUIR, 1999) even the exact number of sites is uncertain, as some sites may have received more than one site number, some have been split, and others combined. Many sites are known from only older data descriptions and given that site loss from slumping in shoreline areas may be as high as one meter of lateral movement in a year (Stuemke, Personal Communication, Sept., 1999). The condition of some sites as recorded may not be reliable for prediction.

Early cultural resources investigators such as Shiner (1950) and Cole (Cole and Newman, 1958) noted that some dense site clusters were practically one large site. They represent a *palimpsest*, an area where an original site occupation has lain cultural deposits down over a broad area. This in turn, is obscured by subsequent natural and cultural disturbances, and is overlapped and overlaid by successive occupations. This makes it difficult to distinguish

discrete occupations or activities, and label, quantify, or interpret sites. This appears to be the case in some areas along the former river margins of the John Day Reservoir. Predictive modeling, under the conditions listed above, is not a reliable planning tool.

Soils over much of the area to be affected by the drawdown alternatives are highly susceptible to erosion, slumping and failure (SOR, Appendix N, 1995, pg. 3-8). For a more in-depth discussion, see the “Slope Stability” appendix of this Phase I study. During telephone conversations with Maureen Corcoran, a WES geomorphologist who has studied the John Day Reservoir area, she related that a one to one-half foot per day drawdown would definitely have deleterious effect on archaeological sites. Sites in any potential fluctuation zone would be severely impacted by wave wash and slumping as current conditions in the fluctuation zone at John Day attest.

All sites at the John Day Reservoir are within a zone of vulnerability from impacts by erosion, vandalism/looting, or both. Drawdowns will simply provide more sites in upland settings. The denuded and effectively sluiced areas of new exposure will invite collectors and vandals to freshly exposed sites. Virtually all archaeologists polled expect many new sites to be found following a drawdown. As the river is drawn down and approaches the former natural river level, where former populations were densest, the higher the expectation for site discovery. No reliable estimate for the numbers, types or sizes can be made given the existing data.

## **SECTION 12. Alternatives Impacts**

### **12.1 Spillway Crest**

A drawdown to spillway crest will expose 22,810 acres of formerly inundated land. Drawdown to spillway level will expose new sites and create impacts. Adding flood control to this alternative will increase impacts due to added frequency and elevation range in the fluctuation zone.

### **12.2 Natural River**

A drawdown to natural river will expose 30,625 acres of formerly inundated land. It is a virtual certainty that greater numbers of cultural resources than are presently known will be found during a drawdown, but their integrity, scientific, and sacred importance which would bear upon such sites’ eligibility for the National Register is unknown due to the unpredictable effects of inundation. Therefore, accurate estimates of the costs associated with surveying for and evaluating sites for eligibility is difficult, but absolute minimums for survey can be approximated. Estimation of the costs for modification are even harder to assess since modification measures must be formulated by examining the entire suite of cultural resources to be impacted by a project and in consultation with the various affected parties. Given the uncertainties of conditions, for the purposes of this project, it is recommended that the authorization under the Moss-Bennett Act of 1974 to expend up to one percent of project costs for the purposes of cultural resources modification be used as a planning estimate. A drawdown to natural river level will have the greatest impact on sites and will expose more new sites. Adding flood control to this alternative will increase impacts due to added frequency and elevation range in the fluctuation zone.

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