

Grants Pass Project

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The Grants Pass Project

In some ways the Grants Pass Project—or more specifically Savage Rapids Dam, the primary project feature—is highly unique. Originally built in 1921 by the Grants Pass Irrigation District and rehabilitated by the United States Bureau of Reclamation in the 1940s, Savage Rapids Dam included fish ladders to aid migration and a fish screen structure to keep fry out of the turbine and pump intakes. At the time of the dam’s construction the issue of fish in the Pacific Northwest did not receive much attention or consideration, making inclusion of a fish screen structure and fish ladders all the more noteworthy. Fish ladders were left off of Grand Coulee Dam in the 1930s due to economic and technical considerations, though they were included on Bonneville Dam built during the same time period. Unfortunately the fish screen structure proved ineffective and was removed after a single irrigation season. Reclamation installed a new fish screen structure after rehabilitating the dam. On the other hand, the original fish ladders continue to operate effectively. While not the focus of the project, these fish friendly features, primarily because of their early date of construction, are what sets the project apart and makes it distinctive. The Grants Pass Irrigation District must be commended for their foresight.

Project Location

The Grants Pass Project lies within the Rogue River basin in southwest Oregon. Lands of the Grants Pass Irrigation District surround the town of Grants Pass and extend along both sides of the river from the village of Rogue River west to the junction of the Rogue and Applegate rivers. The foothills of the Umpqua Mountain Range provide the northern boundary and the Siskiyou Mountains provide the southern boundary for the project lands.

Principal project features include, the Savage Rapids Dam (otherwise known as the

Savage Rapids Diversion Dam), and associated irrigation facilities such as pipelines, pumping plants, canals, and laterals. The project facilities, with the exception of the anadromous¹ fish passage facilities, were privately constructed by the Grants Pass Irrigation District and later rehabilitated by Reclamation. Savage Rapids Dam spans the Rogue River, roughly five miles east of the town of Grants Pass, Oregon, in Josephine and Jackson Counties. Project facilities irrigate roughly 10,000 acres of land.²

Historic Setting

Prehistoric Setting

Because the Rogue River Basin Project crosses the Cascade Mountain range, its historic setting encompasses two distinct native cultures. The project covers both the Northwest Coast area, as well as the Great Basin region.

Archaeological evidence shows that parts of the Northwest Coast have been inhabited—or at least visited—for an estimated 13,000 years. The Northwest Coast region consists of the coastal region reaching from southern Oregon north through British Columbia and just touching the southern tip of Alaska—a length of approximately 1,500 miles. The Cascade and Coast mountain ranges provide the eastern border, giving the region a width of only about 200 miles.

Archaeologists speculate that the earliest inhabitants were the coastally adapted peoples who followed the edges of the glaciers south. Over time, many distinct tribes and cultures made their homes within this larger region. Along the Oregon coast alone the inhabitants can be split into

1. Anadromous fish hatch in freshwater, migrate to the ocean where they mature, and then return to freshwater to spawn. Species in the Columbia River system include: salmon, steelhead, rainbow trout, smelt, and lamprey. For more information on the anadromous fish in the Columbia River system, see Lisa Mighetto and Wesley Ebel, *Saving the Salmon: A History of the U.S. Army Corps of Engineers' Efforts to Protect Anadromous Fish on the Columbia and Snake Rivers* (Seattle, Washington: Historical Research Associates, Inc., 1994).

2. United States Department of the Interior, Water and Power Resources Service, *Project Data*, (Denver: United States Government Printing Office, 1981), 521, 523; Grants Pass Project, Savage Rapids Dam, Definite Plan Report, 1.

three distinct cultures; the geological division between the Coast Range and the Klamath Mountains provides the boundary between two of them.

As with most native cultures, the Northwest coast tribes were largely nomadic, however, many made camp during the winter months because of the weather. Each tribe had its own language and culture though there were similarities between tribes that roamed nearby. Even within tribes there existed distinct languages. The Athapaskans, who occupied the project area, spoke four different languages with varying dialects within those languages.³

The archeological record places various native dwellers in the Great Basin approximately 12,000 years ago. The Great Basin region—eastern Oregon, southern Idaho, Nevada, Utah, and portions of California, Wyoming, and Colorado—provided homes for many different, mostly nomadic inhabitants. The culture of these residents remained relatively contiguous and largely free of outside influence. Eventually, perhaps thousands of years later, these nomadic groups settled into particular areas and established distinct cultures and bands. Over time these early cultures gradually adopted similar languages, allowing them to communicate with each other but yet retain their individual lifestyles. Despite their unique cultures archaeologists classify these linguistically connected bands together as a single tribe, the Northern Paiute.⁴

Historic Setting

The Northern Paiute settled throughout eastern Oregon and western Nevada about one-thousand years ago. At the time of European contact the Paiute consisted of several culturally and politically distinct cultures bound linguistically, all speaking the Northern Paiute language.

3. Wayne Suttles, editor, *Northwest Coast*, in *Handbook of North American Indians*, Volume 7, William C. Sturtevant, editor (Washington, D.C.: Smithsonian Institution, 1990), 14, 15, 554, 580-7; Phillip Kopper, *The Smithsonian Book of North American Indians: Before the Coming of the Europeans* (Washington, D.C.: Smithsonian Books, 1986), 201-17.

4. Warren L. D’Azevedo, editor, *Great Basin*, in *Handbook of North American Indians*, Volume 11, William C. Sturtevant, editor (Washington, D.C.: Smithsonian Institution, 1986), 121, 124.

These early tribes were semi-nomadic and traversed the region in small bands hunting, gathering, and fishing.

Life changed rather dramatically for portions of the Northern Paiute, principally those living in eastern Oregon, during the late eighteenth century when the horse, originally brought to the Americas by Spanish conquistadors and readily taken up by the Plains tribes, made its way to the northern reaches of the Great Basin. The acceptance of the horse by the Plains tribes accelerated the horse's migration throughout the west. The first group of Northern Paiute to adopt the horse radically altered their culture in response; after traveling with their Northern Shoshone neighbors for many years this portion of the tribe became known as the Bannocks.

Not all the Northern Paiute adopted the horse as readily as the Bannocks. Peter Skene Ogden of the Hudson's Bay Company documented in detail his travel throughout the region as a trapper, including descriptions of the various inhabitants he encountered. Ogden's 1826 account included a description of a group of Northern Paiute living in north central Oregon near the Deschutes River. This particular band of Northern Paiute that Ogden encountered either used few horses or none at all. Instead the majority of the Northern Paiute continued their traditional means of subsistence, fishing, gathering, and hunting. Many of the trappers and explorers documented the existence of horses throughout the Great Basin and the apparent choice by the Northern Paiute not to integrate the animal into their established cultures.

As the Euro-American presence in the West increased through migration and settlement so did the outside influences on the native inhabitants. Not surprisingly local acceptance and use of the horse coincided with the marked increase in traffic west through the Northern Paiute country during the late 1840s and 1850s. With the arrival of the horse many Paiute hunters consolidated into mounted raiding groups targeting the migrating settlers which escalated already

hostile relations between the two entities.⁵

Contact between the Northwest coast tribes, specifically the Athapaskan, and Anglos date back to 1788 when Robert Gray viewed several of their populous coast villages. Gray began trading with Athapaskans in spring of 1792. More regular contact between settlers and tribes of the Northwest coast began in the 1820s with the establishment of Fort Umpqua.⁶

The first lengthy explorations of the Rogue River Valley began as early as 1825, when Jedediah Smith of the Rocky Mountain Fur Company traversed the area as he journeyed from his post on the American River to Vancouver where he planned to sell \$40,000 worth of furs to the Hudson's Bay Company. En route, Native Americans along Umpqua river destroyed his party, however the Hudson's Bay Company was able to recover his furs. In 1828 the Hudson's Bay Company sent Alexander McLeod and Joe McLaughlin to further explore the area. Their reports prompted further investigations and eventually settlement. In 1838 a group of independent trappers guided Ewing Young and seven or eight hundred head of cattle through the valley destined for the Willamette Missions. In 1841 the government became interested in the area and sent Lieutenant Emmons and J. D. Dana, a noted geologist, to explore the valley.⁷

Anglo migration west devastated the Paiute culture. The California Trail passed through the center of Paiute territory disrupting traditional Paiute subsistence patterns. Many Paiute responded to the invasion of their native lands by moving further north into Oregon; the Oregon Trail touched only a small part of Paiute territory in the far north. Others chose to capitalize on

5. United States Department of the Interior, Bureau of Reclamation, "Annual Project History, Rogue River Basin Project—Oregon, Grants Pass Project—Oregon," Volume I, 1956, 1-2, in RG 115, Records of the Bureau of Reclamation, Project Histories, National Archives and Records Administration, Rocky Mountain Region, Denver, Colorado; hereafter cited as RG 115.

6. Sturtevant, Vol. 7, 182-5, 586.

7. "Annual Project History, Rogue River Basin Project—Oregon, Grants Pass Project—Oregon," 1956 1-2, in RG 115, Project Histories.

the situation and found new means for subsistence in the wagons and stock traveling west to California in search of gold.⁸

The California gold rush did more to Oregon than just devastate the native landscape and inhabitants. Overland westward migration also brought settlement to the Oregon territory, then comprising most of Oregon and Washington as well as part of Idaho; Oregon officially became a territory in August of 1848. Previous attempts to settle the region, primarily missionary endeavors, made little overall impact on the region, however, the massive western migration undertaken after 1848 provided the impetus needed to actually settle parts of the region. Many of these early settlements logically occurred on the western side of the Cascade Mountains, the east retaining its distinction of being part of the “Great American Desert.”

The same year that settlement of the Oregon territory began in earnest, 1859, prospectors discovered gold and silver and in Northern Paiute territory; the Virginia Range in western Nevada and the Owyhee basin in Oregon and Idaho. The promise of mineral wealth brought prospectors and businessmen to the region, joining the farmers and missionaries already there. The Northern Paiute, for the most part mounted on horseback by this point, responded to this new influx of settlers with increased hostility. In an attempt to forestall any further damage to their native lands the Paiute chose to attack various encampments throughout the region.

Actual settlement of the Rogue River Valley began in 1851, after the defeat of the Native Americans by General Phil Kearney and establishment of Fort Lane at the mouth of Bear Creek. That summer many settlers entered the valley and settlements sprang up at Phoenix, Talent, Ashland, Willow Springs, and throughout the rest of the valley. These early settlements were primarily agricultural. The same year several prospectors discovered gold to the west of the

8. Sturtevant, Vol. 7, 126, 435, 436, 455, 456.

Illinois River in a creek below Kerbyville, a short distance from the current city of Grants Pass. The news of the discovery spread quickly to the mining camps of California and miners began flocking to the area. Many who came to the mines chose to stay within the valley and precipitated the founding of Josephine and Jackson counties.⁹

As with the majority of the western tribes, the gold rush shattered the Athapaskans and the neighboring tribes. The local gold rush began in January of 1852, with the discovery of gold on Jackson Creek in the Rogue River drainage. The subsequent rush for resources led to conflict between the new, mostly male Anglo, population and the tribes. Oftentimes the new mining population formed companies of volunteers. In 1853-1854 these volunteers massacred the Takelma, Shasta, Chetco, and Lower Coquille Indians. A slight military presence at Fort Oxford and Fort Lane, both established in 1853, did little to deter the hostilities.

Outright massacre was not the only method the miners employed to drive the native tribes from the area. Though inadvertent, the flood of mining debris took a significant toll on several important fisheries. Miners drove the tribes from their established villages on the stream terraces. These activities combined reduced several tribes to starvation. In some instances, children were enslaved as “pet” Indians, women raped, and men murdered. Hunger, deception, a sense of desperation, and anger drove the tribes to fight back.

In October of 1855, the final Rogue River War erupted after a company of volunteers attacked a peaceful camp near the Table Rock Reservation. Fearful of further attacks the Takelmas fled the reservation for the canyons of the Rogue River. Volunteer soldiers followed and assailed the refuges for the next several months. The U.S. Army brought an end to the

9. “Annual Project History, Rogue River Basin Project—Oregon, Grants Pass Project—Oregon,” 1956, 1-2, in RG 115, Project Histories.

hostilities in June of 1856 when it defeated the various bands at the Big Bend of Rogue River. All told, several hundred Native Americans and approximately fifty settlers and miners perished during the conflict. The final resolution to the conflict was the forced removal of all the remaining Native Americans to distant reservations.¹⁰

The hot dry Oregon summers, coupled with the necessity of keeping livestock close to the settlements, emphasized the need for irrigation. Residents addressed this need with simple stream diversions. Gradually the lands under cultivation grew until residents appropriated the flow of all tributary streams in the area and further development of both land and water was beyond the means of individual resources. Several decades passed before local water users organized into a coordinated group with the purpose of fully developing the area.

For the most part, residents confined their early agricultural attempts to raising grain for fattening livestock, though a few planted home orchards. Peter Britt brought the first fruit trees to Jackson County in 1859. The Britt Orchard, located near Jacksonville, boasted pears, plums, prunes, and apples, as well as a small vineyard with many grape varieties. Other residents followed in Britt's footsteps and attempted to cultivate other orchards, but a shortage of water and lack of market and available transportation eventually doomed many of these endeavors. However, these early attempts laid the foundation for the later fruit industry in the region. With completion of the railroad in 1887, the fruit growing potential of the valley became known to those outside the valley and commercial orchards were planted around Ashland. Unfortunately, erratic summer water supplies doomed the venture, unless late season requirements could be met.¹¹

10. Sturtevant, Vol. 7, 182-5, 586.

11. "Annual Project History, Rogue River Basin Project—Oregon, Grants Pass Project—Oregon," 1956, 1-2, in RG 115 Project Histories; "Annual Project History, Rogue River Basin Project—Oregon," Volume 9, 1963-1964, 2; (continued...)

In 1906, out of necessity, irrigators in the vicinity of Grants Pass began a cooperative effort to construct canals along both sides of the Rogue River. Irrigators planned to pump water from the old Gold Drift Dam. After operating for a short amount of time, the force of the river overtook the pumps and they were lost in the river. Loss of the pumps made using this source of water unfeasible.

Nearly another ten years passed before residents began calling for another organized irrigation effort. In January of 1917, these efforts proved successful and local residents formed the Grants Pass Irrigation District. As its first official action, the district contracted for surveys to determine the best method of obtaining supplemental irrigation water. After several months of work, the survey engineers determined that a proposed Highline Canal from Gold Hill was too costly. The district then ordered an investigation of a lower route. In June the Oregon State Engineer John Lewis visited the project and advised cooperation with the nearby Gold Hill Irrigation District. Accordingly, on July 1, 1917, the Grants Pass Irrigation District contracted with a new engineer to complete the necessary surveys. The plan of enlarging and extending the Gold Hill System proved to be cost prohibitive and the district abandoned the idea.

In early 1919 the board of directors of the irrigation district adopted a plan to irrigate the project by diverting water from the Rogue River. The plan proposed the diversion of water from the Rogue River, just below the town of Rogue River, Oregon. In the meantime to meet immediate needs, in October of 1919, the district awarded a contract for construction of the Main Canal from Fruitdale Creek to the Crescent City Highway. At the same time, investigations

11. (...continued)

RG 115, Project Histories; United States Department of the Interior, Bureau of Reclamation, "Project History, Grants Pass Project—Oregon," volume 1, 1949-1954, 1, in RG 115 Records of the Bureau of Reclamation, Project Histories, National Archives and Records Administration, Rocky Mountain Region, Denver, Colorado; hereafter cited RG 115.

continued on a gravity system as a long term solution.

In late January of 1920, A. J. Wiley, consulting engineer to the project, outlined plans for installation of a temporary pumping system to serve lands in need of irrigation water. The pumping system called for construction of a pumping plant and pipeline to supply the South Side Canal. The South Side Canal was being built to connect with the Main Canal (under construction) at Fruitdale Creek. In addition, the plan called for construction of an extensive system of laterals and several pumping plants. The plan was later modified to include water delivery to lands on the north side of the river, west of Grants Pass. In February of 1920, the board of directors contracted with the Shattuck Edinger Co., of Los Angeles and San Francisco, California, for construction of the pumping plants and laterals. Work actually began in March and was completed at the end of June as planned. Water deliveries began in late May and early June, in time for the 1920 irrigation season.

On May 14, 1920, the irrigation district received a report from the consulting engineers on the gravity system, the proposed long term solution to the irrigation problem in the area, previously under investigation. The report called for construction of a hollow concrete dam, with a moveable crest to allow for flood control, to divert water into a gravity canal. The dam would also provide sufficient head to generate hydroelectricity to pump water into a High Line Canal on each side of the valley. The report also advocated construction of an extensive water distribution system and additional pumping plants to service project lands throughout the area. The irrigation district accepted the proposal. On June 26, 1920, the irrigation district awarded a contract to Shattuck Construction Company for construction of the features outlined in the gravity system report. The contractor began work on Savage Rapids Dam on the Rogue River in early July of the same year; at the same time work began on the associated canals, laterals, and pumping

plants.

Construction of Savage Rapids Dam progressed rather rapidly. The diversion of the Rogue River from its old channel occurred on July 26. By the end of September the contractor had completed the cofferdam and began excavation of the foundation. Concrete placement began October 19. A series of floods on the Rogue River, beginning in mid-November, forced a temporary shutdown of work on the project. Work resumed after the second flood in late November, however a fourth extended flood at the end of December, lasting through the beginning of January, forced the cessation of work on the dam until after the end of the high water period in June. A third smaller flood had occurred in early December.

Work on Savage Rapids Dam resumed on June 17, 1921. The contractor repaired flood damage to the cofferdam and on July 9, resumed concrete placement in the powerhouse. Final construction activities began in early September. On November 5, 1921, the Grants Pass Irrigation District held dedication ceremonies for the Savage Rapids Dam and other project features. Minor work remained on the distribution system, but construction was completed in time for the 1922 irrigation season.

Over the next thirty-years, the number of project features remained reasonably stable, and few modifications to the project works were necessary. During the same period the acreage under cultivation gradually decreased. Eventually general wear and deterioration of project features, coupled with flood damage, necessitated the replacement or rehabilitation of several structures. Part of the deterioration of the project stemmed from the lack of funds for general maintenance during the Depression. By the mid-1940s the irrigation district's financial situation had improved and it resumed a regular program of repair and maintenance of canals and other small structures on the project. In 1947, the irrigation district launched an improvement program

under a match-money agreement with the Reconstruction Finance Corporation. Two years later, the irrigation district contracted with the Bureau of Reclamation for reconstruction of the Northwest pipeline, beginning Reclamation's involvement with the project.¹²

Project Authorization

The Interior Department Appropriation Act of 1950 appropriated funds for the emergency reconstruction of the Northwest Unit pipeline of the Grants Pass Irrigation District. Congress appropriated funds for the rehabilitation of Savage Rapids Dam July 9, 1952, in the Department of the Interior Appropriation Act of 1953. The Reclamation Development Act of 1974, authorized anadromous fish passage improvements to Savage Rapids Dam. The appropriations for the project constitute its authorization. Because of the emergency nature of the initial appropriation, the finding of feasibility for the project as a precedent to the expenditure of funds did not apply.¹³

Construction History

Construction activities on the Grants Pass Project began less than a month after Congress appropriated funds for the rehabilitation of the Northwest Unit pipeline, the first feature reconstructed on the Project. The *Reclamation Era* lauded the effort and claimed that Reclamation set some sort of record for “getting a job started in a hurry.” Addressing the need for adequate irrigation water during the 1950 irrigation season required Reclamation finish construction activities in early to mid-spring. At the same time, because part of the reconstruction activities included building a new river crossing across the Rogue River, which

12. “Annual Project History, Grants Pass Project—Oregon,” volume 1, 1949-1954, 1-7, 9, 11, 12, RG 115, Project Histories.

13. *Project Data*, 523; United States Department of the Interior, Bureau of Reclamation, *Federal Reclamation and Related Laws Annotated*, Volume II of III, through 1958, Richard K. Peltz, editor, (Washington, D.C.: United States Government Printing Office, 1972), 976, 1093.

had to be accomplished prior to the start of the high water season in December, Reclamation needed to begin work immediately.

Reclamation opened bids for construction of the Northwest Unit pipeline on October 11, 1949. The lowest of the nine bids received exceeded the appropriated funds by \$12,530. After consulting with the irrigation district, Reclamation negotiated a contract with Ramsey Construction Company of Corvallis, Oregon, for portions of the original contract that had to be completed by the high water season and an additional 3,300 feet of the pipeline. Reclamation also changed the specification from pipe embedded in concrete to cylinder pipe, to further bring down the cost of the project. These measures successfully brought the costs to within the appropriated amount and the contractor and Reclamation signed the contract on October 28, 1949. Less than a week later the contractor began work on the pipeline. The contractor successfully completed the project in time for the 1950 irrigation season.¹⁴

Rehabilitation of Savage Rapids Dam

Beginning in the fall of 1950, Reclamation surveyed the project features to determine rehabilitation requirements. The following August Reclamation issued a special report outlining the rehabilitation and betterment of Savage Rapids Dam; the final report was issued in February of 1952. The report stated that Savage Rapids Dam had substantially deteriorated. The primary area of concern were the spillway gates.

The original spillway gates at Savage Rapids Dam were of a radial or segmental type equipped with hydraulic hoists. The gates could be raised or lowered depending on seasonal needs—lowered during flood season to allow free passage of the river and raised during irrigation season to increase the hydraulic head of the river, allowing for gravity diversion and pumping of

14. "The Bureau Meets An Emergency," *Reclamation Era*, 36, No. 2 (February 1950): 37.

water. Over a period of time the gates became inoperative and by the start of the 1950 irrigation season only six of the original sixteen gates functioned as designed. Vibrations resulting from high overflows and collisions of floating and particularly submerged debris damaged the spillway gates and hoists. In preparation for the 1953 irrigation season, the irrigation district replaced the gates with timber stop logs which had to be installed and removed by cableway, a difficult and dangerous process.

In the spring of 1952, Congress appropriated funds to rehabilitate the structure, based upon information contained in the survey reports. The reports recommended the reconstruction of the spillway gate system, installation of a new cableway and hoist for the new gates, and repair of the spillway apron, sluiceway, and the right tailrace wing wall. The irrigation district preformed the necessary repairs to the pumping plant and equipment. In December of 1952, Reclamation issued specifications for the project and the chief engineer in Denver assigned administrative responsibilities for rehabilitation of Savage Rapids Dam to the construction engineer at the Deschutes Project, in Bend, Oregon.

Reclamation awarded the contract for rehabilitation of Savage Rapids Dam to Young and Smith Construction Company of Salt Lake City, Utah, on March 9, 1953. Less than a week later, and still a couple days prior to receipt of notice to proceed, the contractor began constructing an office and warehouse near the project facilities.

After establishing the project office, the contractor began work on an upper cofferdam parallel to the dam on the upstream side. After completion of the cofferdam work began on concrete placement in the overflow gravity section of dam. In late May of 1953, excessive rainfall caused an unprecedented late spring river flood at the dam. The high water breached the cofferdam, took out a new section of pipe being installed in the dam, stopped delivery of

irrigation water, and halted concrete placement in the overflow gravity section of the dam. As soon as the flood waters subsided the first of June, the contractor started reconstructing the cofferdam. This time, the contractor used concrete building piers from a nearby military establishment to form the foundation of the structure. As the reconstruction of the dam neared completion at the end of June, stop logs were placed in the dam to raise the reservoir elevation and permit the delivery of irrigation water to project lands.

At the end of the irrigation season on October 2, 1953, the contractor began removal of the upper cofferdam, and used the materials to construct a lower cofferdam. After completing the lower cofferdam, concrete placement began on the spillway apron in mid-November. Not long after the start of concrete placement on the apron the Rogue River again flooded, forcing all construction activities to stop. This time the lower cofferdam washed out and the contractor opted to wait until the October of the following year to replace the structure.

Work on other project features resumed shortly thereafter. The contractor started modifying the piers on the dam to accommodate metal stop logs on November 30. This portion of the project was completed in March of 1954, allowing for the use of metal stop logs during the 1954 irrigation season.

In September, just prior to the close of the irrigation season, the contractor began installing the new radial gates on the dam structure. In October the cofferdam was reconstructed, the stop logs removed, and the river diverted through the outlet works permitting completion of the work on the apron. On February 22, 1955, Reclamation accepted all work as complete on this portion of the project.¹⁵

15. United States Department of the Interior, Bureau of Reclamation, *Unit Record of Construction, Savage Rapids Dam Rehabilitation*, Grants Pass Project, Oregon, (Boise, Idaho: February 1955), 2-3, 7-8, 15, 16-7.

Installation of Savage Rapids Dam Fish Screen Structure

When constructed, Savage Rapids Dam blocked the migration route of salmon and steelhead on the Rogue River. To mitigate the effects of the dam, as part of the original construction the irrigation district constructed fish ladders on both the right and left banks of the dam, using part of the gravity feed canal to force fish into the bypass system. These structures proved to be efficient and still operate successfully; the Oregon State Game Commission oversees the operation of fish ladders, in conjunction with the irrigation district. The fish ladders, however, did not entirely solve the problem. In the mid-1920s, the State of Oregon constructed fish screening facilities across the combined turbine and pump intakes on the right bank of the dam. Unfortunately, the screens failed to function properly and the state removed them after only part of the first irrigation season. Without the protective facilities, a large number of the downstream migrating fingerlings or salmonoids were destroyed because they passed through the turbines and pumps of the irrigation system. If not destroyed in the pumps and turbines, fish might end up in the irrigation canals, leaving them no opportunity to return to the river system.

When Reclamation rehabilitated Savage Rapids Dam, it identified the need for new fish protective facilities on the turbine and pump intake structure. The initial appropriation of funds for rehabilitation of the dam did not include a provision for constructing fish screens as non-reimbursable items and the water users did not want to underwrite the cost of these facilities. In the summer of 1956 Congress passed and the president signed the 1957 Public Works Appropriation Act. This Act included a provision for the construction of fish protective facilities at Savage Rapids Dam with non-reimbursable funds.

On August 27, 1957, Reclamation opened bids for construction of the Savage Rapids

Dam Fish Screen Structure. The contract was awarded to Peter Kiewit Sons' Company, Medford, Oregon, on September 10, 1957. Six days later the contractor began construction on the project, prior to receipt of notice to proceed. On the first of October at the end of the irrigation season, the contractor unwatered the irrigation site by constructing cofferdams above and below the pump and turbine intakes. A couple of weeks later, concrete placement began in the sluiceway floor.

On November 13, 1957, the first high river flow of the season breached the cofferdams and interrupted work on the structure walls. Work resumed rather quickly after the high water abated nearly a week later and the cofferdams repaired. A second flood occurred in mid-December, and water again overtopped the cofferdams. This time the contractor opted to wait until late-January to repair the damage. Instead, as a safety precaution, two steel stoplogs were set across the portion of the dam nearest construction activities to prevent workmen from being swept over the dam. The contractor placed the final concrete in the parapet walls in mid-January of 1958, and was finished early the next year. In the meantime, Reclamation decided to use screens salvaged from the Delta-Mendota Canal on the Central Valley Project in California, instead of furnishing new screens. On March 20, 1958, the contractor started installing the traveling water screens. A week later the upstream cofferdam was leveled out. The same day the 1958 irrigation season began, April 28, 1958, and a full year prior to the contract completion date, Reclamation accepted all work under the contract as complete.

Just after the gates went into operation in late April for the 1958 irrigation season, the irrigation district noticed that there was insufficient clearance between the screens and the concrete deck below. To solve the problem, at the close of the irrigation season, the concrete

deck was chipped out and rebuilt to better accommodate the screens.¹⁶

The Savage Rapids Dam, a combination concrete and multiple arch structure, spans the Rogue River at a point roughly five miles east of the town of Grants Pass, Oregon. In 1955 Reclamation rehabilitated the structure originally constructed in 1921. As presently constructed, the dam extends 456 feet across the river with a maximum height of thirty-nine feet. The crest is comprised of a sixteen bay spillway section and a hydraulically-driven pumping plant section at the right abutment. The first seven bays at the right end of the dam are multiple arches with buttresses on twenty-five foot centers. The remaining nine bays have a concrete gravity section below the gates. The spillway uses metal stoplogs to control and divert water flow during the summer irrigation season; prior to rehabilitation work the bays contained wooden-faced radial gates. A single double-gated outlet with a capacity of 6,000 cfs [cubic feet per second] occupies the center of the spillway structure. The fish screen structure, just upstream from the pump and turbine intakes on the right abutment of the dam, rises forty-three feet from the sluiceway floor to the operating deck.

The main pumping plant is located at Savage Rapids Dam. The plant contains two turbine units. One turbine, and its associated pump, supplies water to the South Highline Canal. The other turbine supports two pumps and supplies water to the Tokay Canal. Four smaller pumping plants along the canal system, supply water to laterals at Allen Creek, Demaray Lateral, Dowell Road, and Jerome Prairie.

From Savage Rapids Dam, the Main Canal extends westward on the south side of the Rogue River for almost ten miles. This canal can divert up to 100 cfs. At about mile six, the

16. United States Department of the Interior, Bureau of Reclamation, *Final Construction Report on Savage Rapids Dam, Fish Screen Structure*, Grants Pass Project, Oregon, Rogue River Basin Project Office, (Camp White, Oregon: July 1959), 1-2, 4, 5, 8, 9, 10, 14, 16; "Annual Project History, Rogue River Basin Project—Oregon, Grants Pass Project—Oregon," Volume 2, 1956, 125-7, in RG 115, Project Histories.

Northwest Unit pipeline, serving an area north of the river, branches off the Main Canal. The South Highline Canal extends westward from the dam on the south side of the valley above the Main Canal. This canal is fourteen miles long with a diversion capacity of seventy cfs. The Tokay Canal extends westward from the dam on the north side of the river a few miles past the town of Grants Pass. This canal runs twelve and a half miles with a diversion capacity of forty cfs. Other highline canals, including one on each side of the river extending to Evans Creek, increase the total length of the canals to sixty-seven miles. An associated system of laterals deliver water directly to project lands.

Savage Rapids Dam diverts water from the Rogue River into the South Main Canal which serves the lowlands on the south side of the river. The main pumping plant pumps water from the reservoir behind the dam to the Tokay Canal and the South Highline Canal. The Tokay Canal provides water to lands on the north side of the river while the South Highline Canal irrigates lands above the gravity-type South Main Canal. The smaller pumping plants pump water from the canals into the lateral system for delivery to project lands.¹⁷

Post-Construction History

In late 1971, the Grants Pass Irrigation District contacted Reclamation about the possibility of obtaining a federal loan to alleviate new maintenance problems on their distribution facilities. Congress authorized a feasibility study of the Rogue River Basin Project, Grants Pass Division, Oregon on December 15, 1971. In accordance with a Senate Committee report on the project, the feasibility investigation involved a study of the fishery problems at Savage Rapids Dam, on the Grants Pass Project and a study of the Grants Pass Irrigation District's existing

17. *Project Data*, 521, 523; Project Data Web, "The Grant Pass Project," <http://dataweb.usbr.gov/html/grantspass> (accessed April 18, 2000).

irrigation system and the feasibility of irrigating additional lands on the Grants Pass Project.

After receiving funding in November of 1972, Reclamation and the Bureau of Sport Fisheries and Wildlife began investigations on the fisheries issues. At the same time, an eight month deadline was set on the project. Because of the short time frame, the focus changed from a comprehensive study to one looking at solving the problem in the interim. The two agencies forwarded a draft report entitled “Anadromous Fish Passage Improvements, Savage Rapids Dam, Rogue River Basin Project, Grants Pass Division, Oregon,” to the commissioner in July of 1973. The final report was completed in March of 1974. In October of 1974, the Reclamation Development Act authorized the construction of necessary facilities at Savage Rapids Dam to provide for improved anadromous fish passage.¹⁸

Reclamation received funding for the second part of the feasibility study during fiscal year 1974. Work continued on the feasibility study for another year, but with little progress. In 1976, Reclamation contracted with the irrigation district to do modification work on the gravity canal. The following year, Reclamation contracted with the State of Oregon to provide fish passage improvement work at Savage Rapids Dam. These modifications made the construction and rehabilitation activities on the Grants Pass Project under the Rogue River Basin Project, Grants Pass Division unnecessary and the division was never authorized.¹⁹

Beginning in 1974, Reclamation opted to construct the proposed Anadromous Fish Passage Facilities at Savage Rapids Dam. Modifications and repairs to fishways on the south side of the river were made as part of the original project and not as an extension to the Rogue

18. United States Bureau of Reclamation, Pacific Northwest Region, *Anadromous Fish Passage Improvements, Savage Rapids Dam* (Boise, Idaho: Bureau of Reclamation, 1976).

19. “Project History, Grants Pass Project–Oregon,” volume 7, 1972-1973-1974, N-2, in RG 115, Project Histories; “Project History, Grants Pass Project–Oregon,” volume 8, 1975-1976-1977, N-2, in RG 115, Project Histories.

River Project. After the 1978 irrigation season, workers removed the existing north fish ladder and constructed a new fishway. The new fishway can accommodate a large range of streamflow variations without adjustment.²⁰

Settlement of the Project

Settlement of the lands in the vicinity of the Grants Pass Project began as early as 1851. The area was essentially settled and under cultivation by the 1930s. As a result of the previous settlement activities and the rehabilitative nature of the project, Reclamation did not withdraw any additional lands for settlement under the project. As such, there are no, “project lands” associated with the project.²¹

Uses of Project Water

The Grants Pass Project provides irrigation water to just over 10,000 acres of existing agricultural development. Principal crops include, hay and pasture for the local livestock industry. In addition, the project provides minimal municipal and industrial water to the town of Grants Pass.²²

Conclusion

The Grants Pass Project does not number among Reclamation’s well known accomplishments like the Columbia Basin Project, the Boulder Canyon Project, the Central Valley Project, and the Colorado Big-Thompson Project. At the same time, it does not constitute a failure either. The project fixed the problems that needed to be fixed, provided for safe fish passage through the structure, and now irrigates the land it needs to irrigate. By those standards, the project achieved its purpose, even if it is not one of the more well-known projects.

20. “The Grant Pass Project.”

21. *Project Data*, 524.

22. *Project Data*, 524; “Project History, Grants Pass Project–Oregon,” volume 7, 1972-1973-1974, iii, in RG 115, Project Histories.

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