

Washoe Project

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2001

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The Washoe Project

The Washoe Project, with Prosser Creek Dam completed in 1962, was initially Reclamation's answer to irrigation and flood control needs in western Nevada and eastern California. A product of the Newlands Project of 1903, the project's first completed features, Prosser Creek and Stampede Dams, were originally planned to better regulate runoff from the Truckee and Carson Rivers, and store water for irrigation of the Nevada desert. Reclamation's goals for these first dams were revised for environmental considerations. Project features built later responded to environmental issues that arose at Pyramid Lake. Examination of the Washoe Project gives one a sense of the changes in public sentiment toward agriculture and the environment, and the chronic trials that can be associated with the distribution of water resources.

Project Location

The multi-faceted Washoe Project includes two dams built on rivers in the Sierra Nevada mountains of eastern California, and one dam and fishway built near Pyramid Lake in western Nevada. Completed in 1962, Prosser Creek Dam in Placer County was the first feature built within the Washoe Project. It is located on Prosser Creek in California, and is roughly one and one-half miles upstream from Prosser Creek's confluence with the Truckee River, and approximately four miles northeast of Truckee, California.¹ Stampede Dam, the second feature finished within the Washoe Project in 1970, is located on the Little Truckee River in California, approximately eight miles above the confluence of the Little Truckee and Truckee Rivers in Placer County.

Marble Bluff Dam and Pyramid Lake Fishway, both completed in 1975, lie on the

1. United States Department of the Interior, Bureau of Reclamation, "Mid-Pacific Region-Washoe Project-California and Nevada," Dataweb, Internet, <http://dataweb.usbr.gov/html/truckee.html>, accessed, 7/11/01.

Truckee River within the Paiute Reservation in Nevada. Marble Bluff Dam sits roughly three miles upstream from Nevada's Pyramid Lake. The Pyramid Lake Fishway, a channel which provides fish improved access to the Truckee River for spawning purposes, extends from Marble Bluff Dam and runs about three miles to Pyramid Lake.

In 1987, the Stampede Powerplant was finished to help alleviate the energy crisis of the 1980's. It is located in Sierra County, California, on the Little Truckee River, at the toe of Stampede Dam.²

These features regulate water runoff in 87,500 acres of the drainage basins of the Truckee and Carson Rivers in west central Nevada. The project's drainage areas are in west central Nevada and include the cities and towns of Reno, Sparks, Fallon, and Fernley, Nevada. A small section of lands in east central California are also included in the project's drainage area. These lands include the towns of Truckee, Tahoe City, and South Lake Tahoe. Pyramid Lake, north of Fernley, receives the project's water.³

The Truckee and Carson River basins lie within the arid desert climate of west central Nevada. Streams in this region are part of the larger Great Basin river system, which includes eastern California, Nevada, southern Oregon and Idaho, and western Utah. The Great Basin is surrounded by mountain ranges. These streams have no outlet to the sea, and instead flow until they either sink into the alkaline ground or empty into regional lakes like Pyramid Lake. Rainfall in this section of the Great Basin mainly comes in the moderately cold winter, creating shallow lakes in the valleys. These lakes exist until they evaporate with summer heat, which often reaches temperatures above 100 degrees. Because of the soil quality, lack of summer rainfall, and high summer temperatures, most warm weather flora in this area require irrigation

2. Dataweb, 7/11.

3. Dataweb; John M. Townley, *Turn This Water Into Gold: The Story of the Newlands Project*, 2d ed. (Reno: The Nevada Historical Society, 1998), 48.

to produce. Indigenous sagebrush and scrub greasewood are the only flora that surround Pyramid Lake in abundance.⁴

Water flow within the Washoe Project passes through Prosser Creek Dam on Prosser Creek, and feeds into the Truckee River. The Truckee River originates at Lake Tahoe to the south. Water proceeds through Stampede Dam on the Little Truckee River, passes through the Truckee Storage Project's Boca Dam, and then merges with the Truckee River. From here, project water continues to flow with the Truckee River eastward through Reno, Nevada and on to Fernley, Nevada, before changing course northward to Marble Bluff Dam. Here water passes through the dam, bypasses the Pyramid Lake Fishway flowing the opposing direction for fish spawning needs, and empties into Pyramid Lake.

Prehistoric Setting

The Washoe Project lands are part of a region that once encompassed the prehistoric Lahontan Lake, a lake that existed 7,000 years ago during the Pleistocene epoch. The lake was so large then, it would have taken a year to travel around it. Pyramid Lake is a remnant of this vast prehistoric Lahontan Lake, which no longer exists due to climactic changes over centuries. Human occupation likely occurred as long as 10,000 years ago, and settlements were established around Pyramid Lake as early as 2000 B.C., as evidenced by the prehistoric knives and fish scales found in what were once part of ancient lakeside fishing dwellings. Archaeologists believe these settlements were created by early Asian explorers; the Paiute tribe likely descended from these Asian peoples. They utilized the vegetation of the area to make sandals, baskets, and other household goods, and fished in Lahontan Lake and Pyramid Lake for the now extinct Lahontan

4. Martha C. Knack and Omer C. Stewart, *As Long As the River Shall Run: An Ethnohistory of Pyramid Lake Indian Reservation*, (Berkeley, Los Angeles, and London: University of California Press, 1984), 1-5; Ruth Hermann, *The Paiutes of Pyramid Lake: A Narrative Concerning a Western Nevada Indian Tribe*, (San Jose: Harlan-Young Press, 1973), 24.

cutthroat trout.⁵

Historic Setting

At European contact and before gold discoveries in California and Nevada, the inhabitants of the Truckee-Carson basin were the Northern Paiute Indians. They moved from ecosystem to ecosystem in the Great Basin in a seasonal pattern that maximized the various resources upon which they relied. (These Indians continue to inhabit the region on a 475,000 acre reservation federally designated in 1893.⁶) Due to the widely scattered game in the region and the dry desert climate, the Paiutes developed into a fishing society, not an agricultural one, using Pyramid Lake for subsistence purposes.⁷

Surveyor John Frémont brought a party of men through the Great Basin in 1845 in order to map the region for the army. Dubbing the lake he found “Pyramid Lake” upon seeing the triangular shaped tufa rock formation in its center, he fished, and enjoying the Lahontan cutthroat trout he caught there. He was likely one of the first whites to explore the area.⁸ When gold was discovered at John Sutter’s mill near Sacramento in 1848, white settlers from all over the country migrated to California, crossing through the Truckee-Carson basin. They established trading posts near the present day project, including Mormon Station in Genoa, Nevada (on the southwest side of Lake Tahoe) that were popular among emigrants headed to California. These people were the first whites that the Paiutes had encountered in many cases. Despite the influx of white migrants in the 1840’s, the arid Truckee-Carson basin remained largely open to

5. Knack, 7-13; Wheeler, Sessions S., *The Desert Lake: The Story of Nevada’s Pyramid Lake*, (Caldwell, Idaho: Caxton Printers, 1967), 16-20.

6. Townley, 10.

7. Knack, 5.

8. “John Fremont,” Internet, <http://www.spartacus.schoolnet.co.uk/USAfremont.htm>, accessed 7/19/01.

settlement, as many whites were merely passing through on their way to the California mines.⁹

Gold was found in 1859 at the head of Six-Mile Canyon, in what is now western Nevada, and the Truckee-Carson basin's tranquil setting became a thing of the past. This "Comstock Lode" near Washoe Lake, south of Reno, would forever alter the life of the Paiute Indians.¹⁰ Not only did early squatters find gold, but the blue-gray mud that affixed itself to the miners' equipment turned out to be an abundance of silver ore which put the Comstock Lode's Virginia City, Nevada on the map and eventually escorted the region into statehood in 1864.¹¹

An influx of people began settling in western Nevada due to silver and gold discoveries. A new emigrant road was completed across the Great Basin that reached Genoa, and helped speed settlement there. The gold-laden canyons of the Truckee-Carson basin happened to also be Paiute pine nut gathering areas, a food source crucial to the Paiute's diet. Consequently, interaction occurred between the Paiutes and the miners. Paiutes living in the Carson River Valley, a region east of Reno, adapted very quickly to white ways. They began wearing their white neighbor's clothing and even acquired some English.¹²

However, a series of events led to strained relations between the two groups. In 1860, two young Paiute girls were found abused at an outpost on the Carson River. The Paiutes thought the outpost's white proprietors were guilty, and killed them. This led to a bloody confrontation between the white settlers and the Paiutes, after the latter had formed a stronghold at Pyramid Lake. The event would later be known as the Pyramid Lake War of 1860. The Paiutes ultimately were able to force the white's retreat. A similar confrontation occurred nearly

9. Jo Ann Nevers, *Wa She Shu: A Washo Tribal History*, (Salt Lake City: University of Utah Printing Service, 1976), 38, 45.

10. Nevers, 52-3.

11. "History of Virginia City, Nevada and the Comstock Lode," Internet, <http://www.vcnevada.com/history.htm>, accessed on 6/19/01.

12. Gae Whitney Canfield, *Sarah Winnemucca of the Northern Paiutes*, (Norman: University of Oklahoma Press, 1983), 10-1.

a month later at the lake, with whites retreating again. The result of the two battles came in the form of a United States fort built on the Carson River called Fort Churchill. It was meant to provide protection from the Paiutes, and symbolized a great deal of mistrust between the two groups.¹³

As more settlers moved into the region, they began to see the Truckee River as an important source of water for the Truckee-Carson basin. A dam was constructed in 1870 at Lake Tahoe's outlet, Tahoe City, in order to control water flow to local residents' farms and towns downstream in Nevada; these downstream users initiated its construction. Settlers continued to move into the Truckee-Carson region, and it became clear that additional water storage would be needed in the Truckee region to meet the growing water demand. By the 1880's, Comstock discoveries grew scarcer, and the United States' economic depression period of the 1880's and 1890's forced many to turn to farming hay for the more persistent cattle industry that had developed in Nevada mid-century. However, a community was simultaneously becoming entrenched at Lake Tahoe, which began to appreciate the lake for its beauty. These competing interests created the first local water controversy in a long series of competing water interests in this region.¹⁴

At the turn of the century, Nevada farmers urged the Department of the Interior to devise a reclamation program that would provide them with irrigation and water storage under the terms of the Reclamation Act of 1902. Nevada senator Francis Newlands was committed to the idea of Nevada's future as an agricultural state. He proposed the creation of a network of reservoirs that would store the combined water of the Truckee and Carson Rivers to irrigate what he overestimated as 400,000 acres in western Nevada. (The project irrigates between 58,000 and

13. Canfield, 24-7.

14. *The Mountainous West: Explorations in Historical Geography*, William Wyckoff and Lary M. Dilsaver, eds, (Lincoln and London: University of Nebraska Press, 1995), 341.

73,000 acres.) Newlands surveyed potentially irrigable land in western Nevada, boosted interest in irrigation plans among current Nevada landholders, and then acquired tracts of land on the Carson and Truckee Rivers for potential water storage sites.¹⁵ His project, the Truckee-Carson Project, was authorized by Reclamation on March 14, 1903. The project was renamed the Newlands Project in 1919.¹⁶

Within the goals of the Newlands Project, Reclamation planned to cut a new outlet channel at Lake Tahoe, but D. L. Bliss and W. S. Tevis (both owners of adjacent lake-front property) tried to halt the digging of the proposed canal with injunctions. Bliss specifically had acquired extensive rights to lake water, and he argued that the lake should be used for its beauty alone. This argument is noteworthy in that it greatly predates the environmental movement of the 1960's and 1970's. The injunctions halted construction of the new channel. Meanwhile, a syndicate organized by W. P. Hammon bought all of the powerplants along the Truckee river under the name Truckee General Electric Company, and acquired control of the property and dam near Lake Tahoe's outlet. Reclamation offered to buy the dam and gates, but Hammon would only sell if he got 400 cubic feet of water per second for his power company.¹⁷

Despite the delay in progress at Lake Tahoe, plans were drawn for a diversion dam on the Truckee River to facilitate irrigation near Fernley, Nevada. Water and supply ditches were laid out, and Reclamation advertised the project lands to be sold and claimed they would be ready for farming in 1905. By June of 1903, work had begun on Derby Diversion Dam and the adjacent Truckee Canal, designed to connect the Carson and Truckee Rivers in order to irrigate Fernley. The Derby Diversion Dam would store no water, but would instead regulate the amount of flow

15. Townley, 16-20.

16. George and Bliss Hinkle, *Sierra Nevada Lakes*, (Reno: University of Nevada Press, 1987), 337.

17. Hinkle, 338.

diverted into the Truckee Canal for the Newlands Project.¹⁸ Construction snags postponed delivery of water to farms until February of 1906, but families poured into the project lands surrounding Fallon and Fernley, Nevada.¹⁹

As soon as farmers began extensively farming the reclaimed lands of Nevada after 1906, problems began to occur. Fields had to be leveled, the soil was found to be sandy and highly alkaline, a drought gripped the region, winds were so strong that they eroded the soil in many places, and the project farmers generally had little experience with irrigated farming. The combination of these issues gave Reclamation a bad reputation among farmers.²⁰

Meanwhile, plans for water allocation out of Lake Tahoe did not make any headway until 1909, when the new Secretary of the Interior, Richard Ballinger, reopened negotiations between Reclamation and Hammon. It was decided that Truckee General Electric Company would get legal title to the lake and river holdings, and the government would pay half of the construction costs for a new dam and dredging since it had control of the dams and gates. The most controversial item to come out of the resolution was the proposal to drain the lake to an elevation of 6,230 feet and use the water for surplus irrigation water. (Reclamation thought the water could be stored at this elevation without damaging the shoreline.) Lake-front property owners were opposed to this measure.²¹

Gifford Pinchot, then Chief Forester, felt the contract was illegal, since it allowed the government to grant a perpetual franchise to a private company that would consequently have control over public domain. Truckee General Electric Company would not only hold legal title to the lake and river holdings, but it would have the right to locate reservoirs and transmission

18. State of Nevada, Division of Water Planning, *Truckee River Chronology*, (1995), 95.

19. Townley, 24-7.

20. Townley, 27-9.

21. Townley, 39.

lines on public lands. President Taft appointed a commission, who deemed the contract to be legal. But the California legislature responded by enacting a law against depriving an owner of water resources for public use (in defense of the Lake Tahoe property owners).²²

With the contract drawn, the battle had begun between Nevada farmers and California Lake Tahoe property owners. Nevada claimed that Lake Tahoe belonged to the Great Basin region in general, and that it was an appropriate storage site for Nevada's water supply. California Lake Tahoe residents formed the Tahoe Protective Association, which maintained that Nevada farmers should be satisfied with the water they already got from the lake. The battle prevented Lake Tahoe's draining tunnel from being built.²³

Ultimately, Truckee General Electric Company used its title to Lake Tahoe water to lower the lake level fifty-one inches by widening the outlet channel. Then the California State Water Commission got involved by suggesting a suit against Nevada for an equitable appropriation of available water. In 1913, Secretary of the Interior, Franklin K. Lane, met with the California state representatives and Lake Tahoe shoreline landowners at Truckee, California to draw a compromise. The government and the power company would cooperate to build a new dam and gates, but no more than the normal flow of water would be taken from Lake Tahoe. (Normal flow was determined by taking an average of a series of river measurements over time.) When Reclamation failed to gain unlimited storage rights at Lake Tahoe, the water rights of those in the Truckee-Carson basin remained uncertain.²⁴

In 1912, Reclamation studied irrigation procedures in the Truckee Meadows and determined that project waters were being mis-allocated. Some project farmers were using more than their originally allotted amount of water. Ultimately, Reclamation reiterated that farmers on

22. Hinkle, 339.
23. Hinkle, 340.
24. Townley, 24.

the project lands would only be able to divert the previously contracted amount of water into their irrigation ditches. In 1913, the Federal Government filed the Orr Ditch case to limit Reno water diversions off of the Truckee River. With the Orr Ditch proposal, government water rights as well as the water rights of other owners would be determined. The government would have control of water distribution by setting the Floriston rates, or maintenance of a level of water flow to adequately irrigate cities upstream on the Truckee River or adjacent to it. (Since downstream users did not want to bear the costs of providing water to upstream users, a resolution for Orr Ditch was not agreed upon until 1944.)²⁵

These first bleak years of the Newlands Project resulted in farmers who were not producing and therefore could not pay their debts. Consequently, Reclamation extended their water repayment contracts from ten to twenty years. Reclamation built Lahontan Dam on the Carson River in 1914; its additional water storage solved some of the farmers' problems by providing additional irrigation waters. Out of necessity, farmers began to grow alfalfa in greater quantities since it could withstand the heat and alkaline soil. The completion of Lahontan Dam improved irrigation means, and crop values simultaneously rose during World War I.²⁶

By 1915, the Department of Interior had bought out Truckee General Electric Company's water rights for \$129,000, even though the electric company would still receive a certain amount of water. This resolution only made matters worse since it did not take lake-front property owners into consideration. Furthermore, Nevada farmers felt they were not getting their fair share of water storage in Lake Tahoe, and demanded that Reclamation stand by its original promises to adequately irrigate their lands. The problem was compounded in 1915, when Reclamation decided a drainage system would need to be built to remove alkali from the

25. Townley, 38-9, 49.

26. Townley, 56.

soil to improve its productivity. The government decided the cost to build and install it would have to be procured from the water users within their contracts. The dilemma reached a pinnacle in 1919 (the first year of a five year drought) when Nevada farmers confronted the Tahoe Protective Association at the lake and threatened to cut its rim in order to release more needed irrigation water. Secretary Lane had convinced Stone and Webster Corporation (which now controlled Truckee General Electric Company) to cooperate with the government to build a new dam and control gates at the lake, but work was called off due to the ensuing trouble. Furthermore, farm settlement in the area was growing as World War I veterans moved in with land preference initiatives. Reclamation began surveying the region for alternative storage sites during 1919.²⁷

In 1924, Reclamation commissioner Elwood Mead negotiated a new agreement between Will Bliss, one of the primary owners of riparian rights at Lake Tahoe, and the Truckee Meadows Conservation District, a Nevada farmers' organization. On December 31, 1926, full management of Newlands Project irrigation transferred to a local organization, the Truckee-Carson Irrigation District, after farmers determined that Reclamation was failing to grasp their agricultural troubles. This organization would prove to be the middle-man between the government and the local water users, and would also be better positioned to fix the mechanics of Truckee River water distribution. For six years, no water pumping occurred at the lake, and nothing was done to disturb the lake's rim since negotiations between Lake Tahoe residents and Nevada farmers had stalled. By 1930, pumping had resumed, and the lake level grew alarmingly low. Threats came from Nevada farmers to cut its rim in order to release more needed irrigation water from the lake.²⁸

27. Hinkle, 341; Townley, 56.

28. Hinkle, 342; Townley, 42-8.

Despite the state of the economy at the time due to the Great Depression, Lake Tahoe was becoming an increasingly popular tourist spot for its natural aesthetic beauty. Lake-front residents were staunchly opposed to any Reclamation decision that marred the beauty of the area. But in the early 1930's, Nevada farmers were refusing to plant crops due to the drought that accompanied the Great Depression. It was imperative that a permanent resolution be obtained.²⁹ Secretary of the Interior Harold Ickes ordered his own representatives, as well as representatives from the Lake Tahoe Water Conference Committee, Truckee General Electric Company, Truckee-Carson Irrigation District, and the Washoe County Water Conservation District (the Truckee Meadows water users) to come to some sort of consensus. The written agreement contained various resolutions that provided for the building of the Truckee Storage Project's Boca Dam to take storage needs off of Lake Tahoe. On July 1, 1935, the resolution was approved and dubbed the Truckee River Agreement. Boca Dam was authorized the following year.³⁰

In the 1940's, Nevada farmers turned to ranching on a larger scale, since California crop availability brought competition on crops, and new regulations on dairy farm sanitation made dairy farming more expensive. The farmers could grow alfalfa effectively to feed cattle, turning Fallon, Nevada, into the center of hay export in the region. Mechanization of farms after World War II made hay production more efficient as well. Still farmers continued to need water diversions for their farms, and Reclamation was struggling to even maintain fishery flows in the Truckee River between Lake Tahoe and Donner Lake (northwest of Lake Tahoe).³¹

In 1948, The Truckee-Carson Irrigation District and the Department of the Interior

29. Douglas Strong, *Tahoe: An Environmental History*, (Lincoln: University of Nebraska Press, 1984), 40.

30. Hinkle, 34; National Archives and Records Administration, Rocky Mountain Region, Records of the Bureau of Reclamation, Record Group 115, Project Histories: Mid-Pacific Region: "Washoe Project" 1934-7, 24, (hereafter cited as "Project History" with year, and page.)

31. Townley, 62-7.

transferred thousands of acres of marsh north of Fallon, Nevada, to Federal control to form the Stillwater Wildlife Management Area for migratory wildlife habitat protection.³²

Authorization

After World War II, an exceptionally rapid increase in population occurred in the Truckee-Carson basin, and diverging interests within California and Nevada tried to come to a consensus on division of the impounded waters. Reclamation and the Army Corps of Engineers began conducting investigations in the Truckee-Carson region for water storage sites, since they wanted to enhance the irrigation potential of the area, and provide flood control on the Truckee River. (There had been severe flooding in Reno in 1950 that prompted this government action for flood control.) Plans for the Washoe Project originally allocated more water to Nevada than California, causing controversy. The two states could not come to consensus, and therefore Congress could not pass legislation authorizing the project in 1953 or 1954. The California and Nevada Interstate Water Compact Commission was formed on March 11, 1955, to handle the negotiations surrounding allocation of Sierra water resources. Congress finally authorized the commission's plans for the Washoe Project and appropriated \$43,700,000, on August 1, 1956. That amount was increased to \$52,000,000 on August 21, 1958, after Prosser Creek Dam, a structure planned for regional flood control, was added to the project plans. The location on Prosser Creek was selected the following month. The Carson-Truckee Water Conservancy District was organized that year and named project operator.³³

Originally, the project was set to use 34,000 acre feet of Lake Tahoe water for irrigation purposes in the Truckee-Carson basin. Nevada would receive 11,000 acre feet and California would receive 23,000 acre feet. Watasheamu Dam, another storage facility, was planned for

32. Townley, 70.

33. Townley, 71-3; "Project History, Washoe Project," 1959.

construction on the Carson River, but the dam's construction was deferred since it would draw water away from the Stillwater marshes. Plans for Stampede Dam were also included in the rudimentary storage designs for the project.³⁴

Construction History

The first feature built within the Washoe Project, Prosser Creek Dam, has a height of 163 feet. This earthfill dam, finished in 1962, has a crest length that extends 1,830 feet. Prosser Creek Reservoir accompanies the dam, with a storage capacity of 30,000 acre-feet which allows for flood control. Stampede Dam, completed in 1970, is also an earthfill dam with an embankment volume of 4.5 million cubic yards. With a height of 239 feet, its crest length extends 1,511 feet. Stampede's reservoir is much larger than Prosser Creek's, with a capacity of 226,500 acre-feet, twenty-five miles of shoreline, and a surface area of roughly 3,340 acres.³⁵

Marble Bluff Dam and Pyramid Lake Fishway were completed in 1975. Marble Bluff Dam is a thirty-five foot high zoned earthfill structure with a crest length of 1,622 feet. It was created to serve as the headwaters for water flow through Pyramid Lake Fishway. The fishway is an earth-lined, three mile long channel which provides fish improved access to the Truckee River. Fish handling facilities are part of the structure, as is a river trap for catching fish migrating upstream. Fish can be diverted into the handling facilities to be studied or can be released into the river. The fishway has a capacity of fifty cubic feet of water per second.³⁶

Stampede Powerplant was completed in 1987. It includes a Francis type turbine, and is a run-of-the-river plant with an original nameplate capacity of 3,650 kilowatt hours. The power generated there is used to meet project requirements first, and remaining energy is sold to

34. Townley, 71-3.

35. Dataweb, 7/11.

36. Dataweb, 7/11; "Project History, Washoe Project," 1980.

customers in Northern California.³⁷

Prosser Creek Dam and Reservoir

In 1959, bids opened for the construction of Prosser Creek Dam, a structure planned for flood control and storage purposes. On November 12, 1959, the contract was granted to R.A. Heintz Construction Company of Portland, Oregon. Construction began on the dam in 1960. Horizontal and vertical construction points were established in 1959, with center lines located and referenced. Test pits were excavated in the earthfill borrow area, lab testing was conducted on the construction material, and the government relocated Highway 83 to accommodate the dam site. Furthermore, an agreement for water exchange operations between Lake Tahoe and Prosser Creek was established on June 15, 1959, between the Department of the Interior, Truckee-Carson Irrigation District, Washoe County Water Conservation District (who operated Boca Dam), and the Sierra Pacific Power Company (formerly known as Truckee General Electric Company.³⁸)

In 1960, the National Park Service prepared a broad recreational plan for Prosser Creek Reservoir. The Forest Service followed with preparations for general use in the area and detailed plans for camp sites and recreational facilities. Construction workers spent the winter of 1960 in Carson City, Nevada, due to severe winter weather at the dam site. Equipment was moved to the job site during April, and contract work started on May 5, with clearing of debris for the dam's foundation. A full time fire patrolman was hired to monitor fire danger due to extremely dry conditions in the region at that time. During the year, work for the diversion of Prosser Creek was underway. Excavation for the spillway, dam foundation, and outlet works had begun; pressure grouting of the foundation and placement of concrete in the outlet works had

37. Dataweb, 7/11.

38. "Project History, Washoe Project," 1959, 9-12.

commenced as well. Progress was diminished by the eighteen inch snowfall that occurred on November 14. Construction was thirty-nine percent complete by year's end.³⁹

The winter of 1961 was very mild and therefore construction began on April 10--earlier than the prior year. The first work completed was the diversion of Prosser Creek from the right abutment so grouting operations could be resumed. Prosser Creek was diverted through the outlet works on July 17. California Highway 89, located in the vicinity of the project, had to be rerouted over a newly built road on August 25; transmission lines and a fuel pipeline also had to be relocated to bypass Prosser Creek Reservoir during August. On September 21, pressure grouting of the foundation was finally completed. The contractors avoided over-topping of the dam embankment by determining a minimum embankment elevation of 5,700 feet, based on the flood flow of 1955, which was the greatest flood flow on record. The outlet works gates were opened fully throughout the winter and spring until water storage was initiated. All spillway concrete work was completed during November.

Contractors made changes in their plans during 1961. The cutoff trench at the left abutment was deepened and re-sloped, and adjustments in the requirements for placement of dam embankment material followed.⁴⁰

Prosser Creek Dam was one hundred percent complete by the end of 1962, a productive year for contractors, with no labor or weather issues. During the year contractors did have difficulty obtaining riprap in the region. Talus slope (rock debris) was chosen three-quarters of a mile away and hauling began June 26. Excavation in the spillway approach channel and in the outlet works discharge channel was finished in November. The placing of the riprap and the final cleanup of the job site occurred in November. The dam was officially dedicated on October

39. "Project History, Washoe Project," 1960, 1-5.

40. "Project History, Washoe Project," 1961, 2-5.

29, 1962. The dam's recreation development followed, construction of roads, boat launching ramps, campground and parking areas was completed in December. The project was transferred from construction to operation and maintenance status on December 12, 1962. That same day, regional director H. P. Dugan approved initial storage of water at Prosser Creek when, and if, flows exceeding downstream requirements became available.⁴¹

Stampede Dam and Reservoir

During Reclamation's planning stages for Stampede Dam, the structure was initially designated to be built on the Little Truckee River as an additional project reservoir dedicated to storage of irrigation water. However, the Bureau of Sport Fisheries and Wildlife initiated studies in 1965, and worked with Reclamation to acknowledge fish and wildlife issues in the region. In 1966, the Department of the Interior advised representatives from Nevada and California that the Endangered Species Preservation Act of 1966 should take precedence over the contract to supply irrigation water to the Truckee-Carson region, and Stampede Reservoir would consequently be used to maintain fishery flows to Pyramid Lake, which is fed by the Truckee River. (The Lahontan cutthroat trout and the cui-ui fish were endangered species living in Pyramid Lake, a lake fed by the ever-diminishing waters of the Truckee River; Reclamation was attempting to save both species by reevaluating the intended use of Stampede Reservoir waters.)

Survey and material explorations surrounding the intended Stampede Dam area were conducted in 1965, in order to obtain information for potential designs of this dam and suitable locations. Reclamation conducted diamond drilling studies to determine the nature of the rock in the surveyed regions, and foundation exploratory work was accomplished. Potential earth construction material was also identified.⁴²

41. "Project History, Washoe Project," 1962, 6-8.

42. Dataweb, 7/11; Townley, 70; "Project History, Washoe Project," 1965, 2-4.

Designs for Stampede Dam were complete by the summer of 1966 and bids for construction were opened on October 4, 1966. Ray Kizer Construction Company, of Redding, California, and R.A. Heintz Construction Company, of Portland, Oregon (contractor for Prosser Creek Dam) were awarded the contract on November 8, 1966. That year, construction activity included rough grading and installation of culverts on the access road. The open-cut excavation for the inlet and outlet portals of the outlet works tunnel was completed in 1966. Tunneling, and stripping of dam foundation and borrow areas was started that year, and the Little Truckee River was diverted.⁴³

In 1967, an accumulation of five feet of snow in January suspended work for the winter. The spring was very wet, therefore the contractor did not resume work until June 5, 1967. The outlet tunnel was holed through on July 31. At the end of the year, its concrete lining was nearly halfway finished, as was the spillway's concrete. By the end of 1967, Stampede Dam and its appurtenant structures were thirty-nine percent complete.⁴⁴

The year of 1968 was a peak year of construction for Stampede Dam, since so much was accomplished. Work on the dam resumed in February, after winter weather had subsided. Concrete placement in the outlet tunnel lining resumed on March 7, and was finished on June 22. Nevada Senator Alan Bible witnessed the diversion of the Little Truckee River through the outlet works tunnel on July 3, and work on the dam embankment resumed July 8. (Dam embankment construction reached an elevation of 5,850 feet at the end of the year.) Concrete work on the spillway was complete by November 6.⁴⁵

Stampede Dam was nearly complete by the end of 1969. Dam embankment placement operations were resumed on May 15. High pressure gates were installed in August; embankment

43. "Project History, Washoe Project," 1966, 8-10.

44. "Project History, Washoe Project," 1967, 10-1.

45. "Project History, Washoe Project," 1968, 9-11.

for the dam and outlet gates were installed in October and December respectively.⁴⁶ Stampede Dam was accepted as complete on February 20, 1970, with only county road relocation, paving of access roads, and installation of guardrails left to finish. The project was transferred to operation and maintenance status on December 1, 1970. Kizer and Heintz Construction Companies received Reclamation's Construction Safety Award for their fine record under contract. They finished cleanup at the site in June of 1970.⁴⁷

Marble Bluff Dam and Pyramid Lake Fishway

In 1960, Reclamation, the Bureau of Sport Fisheries and Wildlife, and the Bureau of Indian Affairs examined fishery problems and land erosion issues on the Lower Truckee River and at Pyramid Lake. Pyramid Lake's level had decreased considerably due to downstream water diversions, therefore land erosion had occurred where the Truckee River meets the lake. The situation prevented fish from migrating upstream during spawning periods. Reclamation decided that the answer to these environmental issues was construction of Marble Bluff Dam at the junction of the Truckee River and Pyramid Lake. This dam would allow fish to migrate past the Truckee River delta during low lake levels or low flow periods. It would also prevent headwater erosion of the river channel and, therefore, halt erosion of the Paiute reservation lands there.⁴⁸ In 1966, a report was written by the Bureau of Sport Fisheries and Wildlife and Reclamation to assess ways to accommodate fish needs within the project. The report proposed construction of Marble Bluff Dam and Pyramid Lake Fishway to aid in the restoration of Pyramid Lake fish. Furthermore, the maintenance of uniform flow on the Truckee River allowed the Bureau of Sport Fisheries and Wildlife to conduct biological and environmental fishery

46. "Project History, Washoe Project," 1969, 9-10.

47. "Project History, Washoe Project," 1970, 10-1.

48. Dataweb, 7/11; "Project History, Washoe Project," 1960, 2-3.

experiments on the river below Derby Diversion Dam.⁴⁹

In 1971, a Pyramid Lake Task Force was assembled to address specific alternatives to replenish the water supply of Pyramid Lake. The task force agreed that Marble Bluff Dam would serve as an erosion control structure, halting further channel down cutting and bank sloughing at the junction of the Truckee River and Pyramid Lake. The dam would also provide a heading for the Pyramid Lake Fishway.⁵⁰ In 1972, preconstruction began on the dam. Rights of way for 623.2 acres for Marble Bluff Dam and Pyramid Lake Fishway were approved by the Paiute tribe and signed by the Bureau of Indian Affairs in December. Spawning conditions were examined more thoroughly with the help of the Paiute tribe. Reclamation decided that fish hatchery facilities would be built near Marble Bluff Dam to boost the fish population near the site, rather than enhancing the existing Lahontan National Fishery near Gardnerville, Nevada.⁵¹

On November 15, 1973, bids were opened for construction of Marble Bluff Dam and Fishway. The contract was awarded to Olson Construction Company on December 26, 1973, for \$14,289,000.⁵² Work on the fish ladder began in January of 1974. In February, a diversion dike for the fishway was completed around the spillway area. Sheet piling was driven into the sand around the structure site, then wells were installed and jetted, and de-watering pumps were added. The first concrete was placed in the terminal fish ladder on March 29, and placement was completed by September. The embankment construction on the fishway commenced in May. The earth material was very dry, therefore water was applied before excavation. Fishway excavation and embankment were nearly complete by early September.

Foundation excavation north of the first stage river diversion channel at the left abutment

49. "Project History, Washoe Project," 1966, 3-4.

50. "Project History, Washoe Project," 1971.

51. "Project History, Washoe Project," 1972, Appendix.

52. "Project History, Washoe Project," 1973.

was completed in mid-October of 1974. The river was then diverted to a second stage channel near the center of the dike. The left abutment area was de-watered, and excavation was complete by the end of the year. Above average water flows in April and May of that year had caused the river to cut from its initial channel into the left abutment and remove roughly 18,000 cubic yards of material from within the planned limits of the cut-off trench excavation. The design was therefore revised to extend the dike into the abutment. On June 3, a labor strike against the Associated General Contractors stopped all work for a few days, and consequently progress was cut in half until August, when labor settlements concluded with the hire of more workers for the project.⁵³

That same year, initial construction on Marble Bluff Dam took place, with earthwork and riprap accumulations completed by the end of the year. Aggregates came from a pit near Wadsworth, Nevada. Excessive slump loss was a persistent problem at the site that year, making careful control necessary. In May, workers began concrete placement in the spillway and adjoining structures. The dam's main spillway structure was complete by December 31.⁵⁴

In 1975, work was initially slowed by cold weather in early January. On April 28, the second stage river channel through the dike embankment had begun. A dike was built upstream across the river channel to divert water into another channel leading to the spillway. Runoff was delayed due to an abnormally cool spring. The dike for the fishway channel and dike riprap was complete in May. The first fish was caught in the river fish trap on May 2. Marble Bluff Dam's spillway, sluiceway, and fish handling structures were completed that year. The dam's terminal fish ladder and channel into Pyramid Lake were finished that year as well. Construction was completed on October 3, and the dam and fishway were turned over to the Fish and Wildlife

53. "Project History, Washoe Project," 1974, 19.

54. "Project History, Washoe Project," 1961, 19.

Service for operation and maintenance on October 15, 1975.⁵⁵

Stampede Powerplant

Plans for a powerplant at the Stampede Dam site were first developed in 1980, due to a nationwide energy shortage. The growing demand for electric power and the ever- diminishing supply of fossil fuels prompted Reclamation to utilize Stampede Dam in order to create energy that was not deemed necessary when the Washoe Project was first authorized in 1956. Work began on the powerplant in 1983, but construction was not completed until 1987, because of high turnover among the project's contractors.⁵⁶

Post Construction History

In 1963, Prosser Creek Dam and Reservoir became operational, and made a valuable contribution to flood control early in the year. Reservation storage began when the outlet gates were closed on January 30, 1963, at the beginning of one of the area's heaviest storms to date. Prosser Creek Dam's 30,000 acre feet reservoir reduced the peak flow of the Truckee River at Reno by approximately 6,000 feet per second, capturing 17,000 acre feet of water that would have reached Reno. Also in 1963, fishery exchange was initiated between Lake Tahoe and Prosser Creek Reservoir. There were only minor problems that year at Prosser Creek Dam; frost accumulated on the shaft house vent screens during cold weather. This was corrected with the installation of a barometric damper over the screen to prevent heat loss. Also, erosion damage from roadside drainage at the dam's right abutment contact line had to be repaired.⁵⁷

The year 1965 marked Reclamation's execution of the terms of the water repayment contract among Washoe Project water users, who consequently had to pay for water rights.

55. "Project History, Washoe Project," 1975.

56. Bob MacDougal, Operations and Management Team Leader for Washoe Project, Civil Engineer, Interview by author, August 10, 2001, Denver.

57. "Project History, Washoe Project," 1963, 1-6.

Meanwhile at Prosser Creek Dam, a traffic turnaround was installed on a county road at the left abutment due to the hazard being created when numerous visitors began stopping on this road to view the spillway flows and reservoir. Irrigation structure examinations were made at the dam on July 2, 1965. Leakage was detected in the high pressure regulating gates. Reclamation installed V-notch weirs in the drain at the downstream toe of the dam.⁵⁸

Reclamation began planning for storage and conveyance facilities to improve the Stillwater Wildlife Management Area in 1966. The marshy area, roughly 205,000 acres in the Carson Sink east of Pyramid Lake, greatly needed water that Reclamation had been diverting in an effort to irrigate the region. The Stillwater area was having trouble supporting several types of migratory wildlife. The year 1966 included an earthquake on September 12, measuring 5.75 on the Richter scale. Prosser Creek Dam only suffered minor damage, limited to shallow settlement cracks of varying degrees. No water storage restrictions had to be imposed due to the cracking. That year, Prosser Creek Dam's spillway and outlet works were examined and found to be in satisfactory condition.

When Reclamation first devised the Washoe Project, Watasheamu Dam was included in the plans to offer additional irrigation water supply. In 1966, the Washoe County Water Conservation District (who furnished dam tender services for minor maintenance of Prosser Creek Dam and Reservoir) experienced difficulty obtaining sufficient recruitment of farmers interested in the proposed Watasheamu Dam's supplemental irrigation waters. Therefore Reclamation had to re-evaluate its plans for building Watasheamu Dam on the east fork of the Carson River. In 1966, the Secretary of the Interior was under pressure to sign a contract with the Carson-Truckee Water Conservancy District for operation of Stampede Dam. The Secretary

58. "Project History, Washoe Project," 1965, 2-9.

was worried about the effect of the reservoir on Pyramid Lake, and therefore temporarily decided it would be used for flood control and recreation only. This decision prevented the Carson-Truckee Water Conservancy District from operating the Washoe Project, as had originally been intended. Reclamation would operate the project instead, to make the Paiute Indians and environmental protection the project's new priority.⁵⁹

In 1967, the Paiute tribe filed suit to force the Secretary of the Interior to develop more restrictive operating criteria and procedures for the Truckee River, to better protect Pyramid Lake and its fish. The judge ruled that the Secretary had failed to consider the Paiutes by protecting Pyramid Lake (their source of fish and the business it generated) and ordered the Secretary of the Interior to allow a maximum of 288,120 acre feet of water for the Truckee-Carson Irrigation District's use. (The maximum had been 378,000 acre feet.) The Secretary of the Interior then issued the first Newlands Irrigation Project regulations in 1967, called the Operating Criteria and Procedures, which required project farmers to use water from the Carson River to minimize diversions from the Truckee River which feeds Pyramid Lake. Total irrigated acreage on the project was also set by the Secretary of the Interior at 74,500 acres.⁶⁰ A 1967 inspection of Prosser Creek Dam showed that the earthquake of 1966 had not caused any seepage. Also that year, water users were reluctant to purchase intended Watasheamu reservoir water until the status of their water entitlement within the Alpine Ditch Decree was determined. (The Alpine Ditch Decree, like the Truckee River's Orr Ditch Decree, sought to solidify water rights on the Carson River.) Despite farmers' reluctance to endorse construction plans for Watasheamu Dam, representatives from Carson City and Douglas County in Nevada were interested in the industrial and municipal water that the dam could provide, and requested that

59. "Project History, Washoe Project," 1966, 12-3.

60. State of Nevada, Division of Water Planning, *Truckee River Chronology*, 1995.

Reclamation reconsider the potential of Watasheamu Dam. That same year, the cui-ui fish of Pyramid Lake was listed as an endangered species due to the diminishing level of Pyramid Lake waters.⁶¹

The next year, the Department of the Interior convened an Economic Work Group to evaluate the economic consequences of water diversion decreases from the Truckee River. Such government measures were becoming more common as the water level of Pyramid Lake continued to diminish, endangering the native fish species. Meanwhile, Prosser Creek Reservoir releases of sixty-four cubic feet per second were initiated on August 14, 1968, to permit fishery exchange with Lake Tahoe. Debris had been accumulating at Prosser Creek Dam, and a cable log boom was placed at the entrance of the spillway inlet channel in 1968. Meanwhile, recreational activity was becoming increasingly popular at Prosser Creek Reservoir.⁶²

The 1960's ushered in a new sentiment at Reclamation regarding the Washoe Project's goals. Reclamation deemed recreation as important within the Truckee-Carson region as agriculture, and Pyramid Lake was at the center of this movement. The Orr Ditch Decree, written in 1913, never took recreational water use into consideration, and Paiute protests regarding the diversion of water away from Pyramid Lake were becoming more and more prevalent after 1960. The Indians highlighted the endangered cui-ui fish in the lake to gain greater attention. In 1968, a Nine Point Program developed by the Bureau of Indian Affairs proposed a maximum water diversion of 406,000 acre feet for irrigation purposes in the region. In 1969, Reclamation was facing continual pressure to remedy Pyramid Lake's ever-diminishing water level. The irrigation season coincided with the fish spawning season, and wildlife were

61. "Project History, Washoe Project," 1967, 15-6; Don Seney, Professor of Political Science, interview by author, July 18, 2001, Denver.

62. "Project History, Washoe Project," 1968, 6-15.

being deprived of the water they needed for survival as a result.⁶³ Conservationists joined the Paiute in a crusade to save the National Bird Refuge's pelicans, cormorants, great blue herons, and gulls on Pyramid Lake's Anaho Island.⁶⁴ The Department of the Interior wanted the Washoe Project to be used for more than just agricultural purposes, specifically asking that Pyramid's Lake level be stabilized by the Washoe Project. The Pyramid Lake Task Force, set up by the government in 1969, began investigating potential water sources to boost the lake's level and yet still serve water user needs in the Truckee-Carson region.⁶⁵

Stampede Dam was finished in 1970, and that same year, the Paiutes' lawyer, Robert Stitser, filed a suit in federal court against the Secretary of the Interior and the Attorney General for failing to protect the tribe by allowing the devastation of Pyramid Lake and its fishery. The court responded by asking the Secretary of the Interior to establish an annual water right for the lake and rebuild the fishery.

By 1971, Prosser Creek Dam had no construction issues. The only item to be addressed was the raveling of slopes that had occurred that year at the left side of Prosser Creek Dam spillway stilling basin. These accumulations were removed.⁶⁶

The Pyramid Lake Task Force, created to study the water situation in the region and develop a compromise between water users and the Paiute tribe, compiled its findings and recommendations in 1971. They determined that Pyramid Lake's recession was caused by a lack of a water right to maintain it. Furthermore, they predicted future demands on water supply in the region, and identified potential water sources in the region that could be channeled to raise and maintain the lake's level. The task force determined that their first priority was to insist that

63. Seney, July 18 2001.

64. Rocky Mountain News, (Denver), February 13, 1972.

65. "Project History, Washoe Project," 1969, 17; Townley, 73-5.

66. "Project History, Washoe Project," 1971.

water right decrees be enforced in the region, since some areas were receiving more water than originally decreed. The Truckee-Carson Irrigation District, who operated the Newlands Project, had been refusing to limit their use of water on the Truckee River since the limits had been placed for the Paiutes' sake in 1967. (This gave the Paiute tribe further cause to take legal action on behalf of their lake.)⁶⁷ The task force determined that such enforcement would result in savings of roughly 9,500 acre feet of water for Pyramid Lake. Unfortunately, the Paiute Indians refused to recognize the task force's findings, claiming the task force did not grasp the tribe's view of the resources at hand.⁶⁸

In September of 1972, the government entered into a suit against California and Nevada on behalf of the Paiute Indians, who were greatly concerned about the state of Pyramid Lake. The government filed the suit with the goal of allocating Truckee River waters for preservation of Pyramid Lake. At this point, Stampede Dam and Reservoir had been in full operation for two years. The Secretary of the Interior authorized that 127,000 acre feet be maintained for recreation purposes in the reservoir, rather than using the reservoir to store irrigation water that Pyramid Lake would need.⁶⁹

At Stampede Dam, rock had to be removed from the spillway stilling basin in late June of 1972. Vehicle travel between Boca and Stampede Dams was increasing, therefore maintenance was required on the road's asphalt that year. Flotsam had to be swept from Stampede Reservoir's surface as well. The Washoe Project included provisions for the Stillwater Wildlife Management Area, and proposals were made for it that year, since irrigation and new Pyramid Lake water requirements were depleting its water supply. Reclamation would enlarge and drain the supply canals to supply water to the Paiute Reservoir (which is adjacent to the wildlife

67. Don Seney, Professor of Political Science, interview by author, August 10, 2001, Denver.

68. "Project History, Washoe Project," 1971, "Construction and Rehabilitation"; Townley, 76-7.

69. "Project History, Washoe Project," 1972, "Recreation Management."

area).⁷⁰

As a response to the suit filed against the Department of the Interior in 1970, on behalf of the Paiute Indians, a federal court reopened the Orr Ditch Decree of 1924. The court ordered severe restrictions on water diversions from the Newlands Project's Derby Diversion Dam, and required Reclamation to monitor future operations, on March 12, 1973. Water distribution to Nevada farmers on the project would now be precisely monitored and recorded. The government assumed control of Newlands Project operations, terminating the 1926 contract that gave operating jurisdiction to the Truckee-Carson Irrigation District. In November of that year, snow hydrology studies conducted in the Sierra Nevada mountains prompted Reclamation to install a snow lysimeter. This measuring instrument, located at the Central Sierra Lab at Soda Springs, California, gauges snowfall amounts that could potentially be used as project water. Meanwhile, the material at the excavation slopes at Stampede Dam's outlet works, and at the left side of Prosser Creek Dam's spillway was eroding and collecting on the berms against the structure walls. This accumulated material was removed on June 27, 1973. Stampede Dam's toe drain channel and Prosser Creek Dam's spillway berm were cleaned in July as well.⁷¹

In 1974, the Truckee-Carson Irrigation District filed suit against the Secretary of the Interior for injunctive relief related to Reclamation's takeover of Newlands Project operation and maintenance the year before. The year 1974 also marked a year for maintenance and repair on Prosser Creek and Stampede Dams. Continued erosion of excavation slopes at both dams had occurred and loose rock had to be collected on the berms of the dams. Repairs were made to an area on the downstream face of Stampede Dam that had been eroded by a severe thunderstorm in 1973. Also in 1974, recreation at the project sites dropped five to ten percent due to a fuel

70. "Project History, Washoe Project," 1972, "Recreation Management."

71. "Project History, Washoe Project," 1973.

shortage.⁷²

Water releases from Stampede Reservoir in 1975 allowed the Little Truckee River Interagency Fishery Evaluation Team (a team composed of Reclamation, Bureau of Fish and Wildlife, Bureau of Indian Affairs, the Federal Water Master, the Nevada and California Departments of Fish and Game, the Paiute tribe, and Sierra Pacific Power Company) to study spawning conditions. They were able to develop a temperature prediction model, and establish a schedule of minimum Little Truckee River flows to provide favorable Truckee River conditions for spawning studies and experiments. Furthermore, the Paiute tribe received \$8,000,000 from the government to cover damages to the tribe's fishery in Pyramid Lake. Also that year, soil and moisture conservation activities were conducted. Four check dams were established in Worn Mill Canyon near Stampede Reservoir to prevent stream channel erosion, head cutting, minimize siltation flow, and maintain the meadow water table for wildlife habitat improvement. Reclamation planted 1,700 native shrubs on the cut slope below Prosser Creek Reservoir to aid in stopping erosion.⁷³

It seemed plans for Watasheamu Dam could not be suppressed by disinterested Nevada farmers. Early in 1976, a public meeting was held to begin planning the unit. Those present set a goal for the dam's definite plan report to be completed by 1978. On August 12, the Carson-Truckee Water Conservancy District, Sierra Pacific Power Company, and the State of Nevada filed suit against the Secretary of the Interior. The plaintiffs sought to have water from Stampede Reservoir allocated toward municipal and industrial purposes. (A resolution was obtained in 2000 with the Truckee River Operating Agreement.)

Meanwhile, repairs were taking place on several of the Washoe Project's features in

72. "Project History, Washoe Project," 1974, 10, 38.

73. "Project History, Washoe Project," 1975, 9-18.

1976. Erosion of the Pyramid Lake Fishway channel's earth lining, which was found to contain a dispersive clay, proved to be serious. By March, erosion had cut into the channel nearly one and one-half feet laterally. Reclamation placed as much riprap protection on the upper slope of the channel as possible, without stopping its operation. At Prosser Creek Dam, repairs were made to cavitating surfaces at the outlet gates. The dam's spillway, abutment contacts, and outlet works concrete was found to be in excellent condition. The drainage ditch along the left abutment above the spillway was cleared of debris, and riprap that had slipped near the intake structure was replaced. At Stampede Dam, a steel outlet pipe was emptied and its interior was examined and found to be in good condition. No seepage was found at the dam, but the metal framework used to support the V-notch weir was damaged to the extent that the weir could not be installed. The weir installation was repaired and/or rebuilt. The outlet works and concrete in the spillway were deemed to be in good condition. A rack was installed across the spillway just above the spillway bridge to prevent rock from entering the stilling basin below the spillway.⁷⁴

In 1977, Marble Bluff Dam was examined underwater. The only problem was accumulation of sediment at the fishway terminal structure. Stoplogs were wedged in that structure to prevent further sediment passage. The crest of the dam was sealed with asphalt concrete in May. That same year, the Carson-Truckee Water Conservancy District sued the government to force the Secretary of the Interior to execute a repayment contract with the district so they could purchase water from Stampede Reservoir for municipal and industrial purposes. Reclamation was still only using Stampede Dam for flood control and fishery purposes for Pyramid Lake. That year, a drought caused spawning studies to be eliminated in the Little Truckee River, and Stampede Dam operators had to maintain fishery flows in the Pyramid Lake

74. "Project History, Washoe Project," 1976, 8-16.

Fishery channel during spawning season. Recreation at the dam was down due to low water levels. At Marble Bluff Dam, stoplogs were wedged firmly in the stoplog guide due to sediment accumulation that was blocking fish passage.⁷⁵

Reclamation participated in meetings with Nevada representatives, the Bureau of Indian Affairs, the Fish and Wildlife Service, and the Carson-Truckee Water Conservancy District to discuss short-term water needs in 1978. This meeting led to an interim contract between Reclamation and the Carson-Truckee Water Conservancy District to supply water from Stampede Reservoir to the Reno and Sparks, Nevada area in the event of a drought. That year, underwater examinations of Stampede Dam, the outlet works, and spillway stilling basin showed no problems with these structures. Above normal run-off resulted in increased storage that year in Prosser Creek and Stampede Reservoirs, consequently, recreation increased.⁷⁶

Reclamation conducted an extensive examination of Marble Bluff Dam on July 11, 1979. The dam's abutments and riprap were found to be in excellent condition. Cracks were repaired in the paving on top of the left embankment. There was some seepage found at the right abutment downstream. The seepage was monitored and flow measured. The spillway and sluiceway were in excellent condition. At Prosser Creek Dam, loose wires at the outlet works near the bypass valves were placed in the conduit. There was leakage past the slide gate seals and through the bypass valve, yet the gates were still in good condition.⁷⁷

Since the beginning of the 1980's, water diversions in the Truckee-Carson region had been cut in half and farms threatened by drought as a consequence. On September 25, 1980, a contract was executed that required Reclamation to provide 10,000 acre feet of space in Stampede Reservoir for storage of the Truckee-Carson Irrigation District's water rights, to be

75. "Project History, Washoe Project," 1977, 1-10.

76. "Project History, Washoe Project," 1978, 1-14.

77. "Project History, Washoe Project," 1979, 4.

used by the city of Reno during periods of drought.⁷⁸ In 1984, a court ruled that Stampede Reservoir was to be operated for the benefit of Pyramid Lake and its fishery.

In 1985, legislation was introduced in the Senate as the Truckee River Settlement Act of 1985. The legislation proposed guaranteed water for Pyramid Lake, municipal and industrial water supply for Reno and Sparks from Stampede Reservoir, and a \$29,000,000 trust fund for Paiute Indians to maintain and enhance the lake's fish. Furthermore, restrictions placed on Truckee water diversions had finally begun to make an impact on fish species in Pyramid Lake. The cui-ui fish population had increased ten-fold from the early 1980's to the early 1990's.⁷⁹

A Preliminary Settlement Agreement was established between the Paiute Indians and Sierra Pacific Power Company in 1989, which greatly benefitted both parties. In 1984, the Paiutes had received Stampede Reservoir (through a court order) in order to maintain Pyramid Lake's level. Therefore, they had a reservoir to be operated for their benefit, but no water to store in it. Sierra Pacific Power Company had water rights to the Truckee River, but no place to store its water. Within the agreement, Sierra Pacific Power Company would pay the tribe to store up to 39,500 acre feet of water along the Truckee River in California, when the water was not needed for municipal or industrial use in the Reno and Sparks area. In exchange, excess water in storage would be contributed to fishery maintenance on the Truckee River in non-drought years. Furthermore, the Reno-Sparks metropolitan area would now be required to reduce water usage by roughly ten percent.⁸⁰

In 1990, the Truckee Carson Pyramid Lake Water Rights Settlement Act would change agricultural development as much as the Newlands Project had at the turn of the century. This act called for creation of the Truckee River Operating Agreement, an agreement that came to

78. "Project History, Washoe Project," 1980, 9-18; Townley, 80.

79. Townley, 80; "Fewer Cui-ui Fish Spawn in River," *Las Vegas Review Journal* (May 6, 2000).

80. *Chronology*, 27; Seney, August 10, 2001.

pass in the year 2000, and would take both water storage and conservation into consideration. Its provisions included drought protection measures for Reno and Sparks, Nevada; storage to aid Fernley, Nevada; improved in-stream water flow in the Truckee River; better recreational levels at Boca Reservoir; wetlands restoration and fish recovery at the site; and formal allocation of water between California and Nevada. Due to its recent origination, the guidelines of the Truckee River Operating Agreement have not yet been implemented, therefore operations at Boca Dam have not changed. However, change is inevitable, since storage has been deemed more important than the maintenance of Floriston rates, and the flow requirements will eventually be waived within the agreement. The Federal Water Master, Garry Stone, now operates the Truckee Storage Project and will be enforcing the Truckee River Operating Agreement.⁸¹

In 2000, Pyramid Lake's cui-ui fish population began to dwindle again. After investigating the reasons why, scientists came up with various answers. One scientist maintained that the Truckee River was not as turbid in 2000, accounting for fewer spawning surges. Another scientist suggested that pelicans have been responsible for the diminished number of cui-ui fish. As the fish reach the dam, the pelicans feed on them during their ride on a fish lock that raises them above it. The scientist feels that the only answer to the problem is to try and clear their passage by removing Marble Bluff Dam so fish will not be such easy targets for pelicans.⁸² However, Washoe Project Team Leader Bob MacDougal asserts that the pelicans are not eating more fish than they did before Marble Bluff Dam was constructed.⁸³

An article in the Reno Gazette-Journal on May 5, 2000, recorded Pyramid Lake's level at its highest in half a century. Wet winters in the early 1980's and late 1990's contributed to the

81. Seney, July 18 2001.

82. *Las Vegas Review-Journal*.

83. MacDougal, August 10, 2001.

rise in water level, but Reclamation's measures to generally deliver greater Washoe Project water to the lake are crucial to Pyramid Lake's recovery in years with less precipitation. The article noted that it would only take a rise of thirty-seven more feet of water to overtop the spillway at Marble Bluff Dam, easing fish travel even more than the existing mechanical lock system at the dam and fishway.⁸⁴

Settlement of the Project

Project lands in Nevada experienced an influx of people after Reclamation began systematically irrigating the Truckee-Carson basin. When Senator Newlands devised his Newlands Project at the turn of the century, he actively recruited farmers for the soon-to-be reclaimed lands. Settlers moved into this desert area and tried to produce plentiful cash crops. The region experienced another population boom after World War II. Wartime prices and demand for crops revitalized the area's market. As for the Paiute Indians, they have remained on their 475,000 acre reservation, thirty-five miles northeast of Reno. They receive sixty percent of the revenue generated from the Pyramid Lake Marina, and continue to fish in Pyramid Lake in order to boost their economy. The Paiutes have the number one and number two water rights on the Truckee River. They currently own 6,000 acres of farm land, but only farm 1,000 acres of it since the remaining acreage has no irrigation system in place.⁸⁵ They also operate and manage cattle herds in the region.⁸⁶

Uses of Project Water

The original goal for the Newlands Project was to irrigate the desert. Senator Newlands planned on irrigating up to 400,000 acres, but today only 58,000 to 73,000 acres actually receive

84. Faith Bremner, "Pyramid Lake at Highest Level in Half Century," *Reno Gazette-Journal* (May 5, 2000).

85. MacDougal, August 10, 2001.

86. "Pyramid Lake Paiute Tribe," Internet, <http://thecity.sfsu.edu/NativeWeb/home/plpt.html>, accessed on 7/11/01; Townley, 21, 70.

irrigation water.⁸⁷ The Washoe Project, rather than functioning for irrigation purposes, instead channels water in various ways to support the fish and wildlife in the region. Sierra Pacific Power Company also uses the Washoe Project's reservoirs to store water for municipal and industrial use in the Reno-Sparks metropolitan area. Prosser Creek Reservoir water is used to maintain fishery flows in the Truckee River. Recreational activities take place on the reservoir. Stampede Reservoir also provides a recreational area, but its water's primary use is to furnish supplemental water on the Lower Truckee River, in order to improve spawning habitat conditions for threatened fish in Pyramid Lake.⁸⁸ Stampede Powerplant harnesses project water to power regional irrigation works. In 2000, the net generation produced there amounted to 12,146,010 kilowatt hours.⁸⁹

Conclusion

The Washoe Project was designed to better regulate runoff from the Truckee and Lower Carson Rivers, and each of its features currently assists this project aspiration in different ways. Since all of the Washoe Project's characteristics protect fishery flows, the project's overreaching goals are representative of the power of the Environmental Movement which took place while the bulk of the project was being constructed (in the 1960's and 1970's). Reclamation's general incentive for creating the progressive features of the Washoe Project underlines Reclamation's growing commitment to cooperative water resource usage as well as environmental protection.

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