

Okanogan Project

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Okanogan Project

Isolated from markets, money and progress, but eager to join the rest of the irrigated West, Reclamation's Okanogan Project brought the twentieth century to north central Washington state. The persistence of some 200 irrigators along the Okanogan River directed engineers to a spot described by historian Alvin M. Josephy, Jr., as the "last outpost of frontier life" in the American West. In the years prior to Reclamation's arrival and the subsequent completion of a connecting railroad line, as fellow Washingtonians in Seattle and Spokane traveled paved streets in motor cars and trolleys, remote Okanogan still relied on stagecoaches and stern-wheeled riverboats coming up the Columbia River for supplies and contact with the outside world.

Logic should have led Reclamation toward the promising Yakima region southwest of Okanogan County as the first authorized project in Washington. However, residents of Okanogan County mastered bluster and perseverance and lobbied Reclamation to build in an area which could support only a few cash crops, and did not have a connecting railroad line to outside markets.

In the summer of 1910, Reclamation's engineers felt a sense of accomplishment after completing their first hydraulic-fill earth dam on the Okanogan Project. All the local irrigators could feel was anticipation, as their county would soon be blanketed with apple orchards bearing, in the words of one grower, "fruit prolific and luscious." Okanogan residents, tempted by a vision of prospective wealth dangling from the branches of their saplings, ignored the wisdom of the English poet Robert Browning: "Where the apple reddens/Never Pry/Lest we lose our Edens." Eden briefly came to Okanogan County, but overestimation, bad luck and the elements conspired to take the luster off the growers' hopes.

Project Location

Situated in one of the continental United States' most secluded regions, the population center and county seat, the town of Okanogan, is a little over 200 miles east of Seattle. Shielded

behind the Okanogan, Wenatchee and Cascade Mountain ranges, the county is cut-off by these natural barriers from the east-west traffic routes crossing the state. Okanogan County is dotted with a series of broken mountain ranges descending into rolling valleys. Project boundaries are the Okanogan River to the East, a series of foothills on the West, the town of Okanogan on the Southwestern extremity, and the town of Riverside on the north edge. Within project lands, there are 20 miles of main canals and 43 miles of laterals to serve 5,038 irrigable acres along the Okanogan River.

The project lands rise from the Okanogan River on an eroded form of land known as benches. The benchlands extend back three miles from the riverbank to the foothills. The sandy, loose soil on the lower benchland along the river is called by locals as "The Flat." The dirt on the upper benches is a rich volcanic ash underlaid with gravel, and unlike the soil along the river, will grow several different crops. The summers are hot and sunny, and in some years, unforgiving. Annual precipitation of 11.8 inches, plus a growing season of 168 days from May to September, provides favorable conditions for raising apples. These elements in combination set the stage for a century-and-a-half of quiet drama.¹

Historic Setting

For centuries, north central Washington was home to a myriad of tribes, including the Northern and Southern Okanogan. Before Anglo-European migration crossed their lands, the area's tribes were semi-nomadic, surviving by fishing and berry picking in the spring and summer and deer hunting in the fall. Relations among the regional bands were peaceful, as each tribe fought only to defend themselves from non-Okanogan attackers. In July 1811, whites made their first appearance in the Okanogan River Valley in search of beaver to satisfy the increasing demand for pelts. The "Oakinackken" (one of 50 early spellings of the tribe's name and pronounced Oh-kaw-nogan) co-existed with the wandering newcomers until the late 1840s when the fur trade had gone out of fashion. A small gold find at Fraser River in British Columbia

1. U.S., Department of Interior, United States Reclamation Service, *Third Annual Report on the Operation and Maintenance of Reclamation Projects* (Washington, D.C.: Government Printing Office, 1912), 154; William E. Warne, "Land Speculation," in *Reclamation Era*, August 1947, 179; U.S., Department of Interior, Water and Power Resources Service, *Project Data*, (Denver: United States Government Printing Office, 1981), 719.

lured a few individuals to pass through the county along the Cariboo Trail. In 1886, another rush of gold seekers roamed through the county, but most of those fortune hunters left when the rush petered out, as homesteading was not in their characters.²

Presumed to be the first white settler, Hiram Francis "Okanogan" Smith, settled near Lake Osoyoos along the Canadian border. Besides his mining and ranching interests, Smith is remembered for planting the first apple trees in the area. In the winter of 1861, Smith transported 1,200 young apple trees to his ranch. Smith also dug the region's first irrigation ditch to water his young orchard. By the end of the 1860s, 24 acres of apples and eight acres of peaches, pears and grapes were growing on his property.

Throughout the 1860s and 1870s, Smith, and the area's sole saloon keeper, John Utz, appear to be the only white settlers in what later became Okanogan County. In the early 1870s, to encourage white settlement, the Federal government confined 4,200 Indians to a reservation running east from the Columbia River to the Pend Oreille River and from the U.S-Canadian border south to the Spokane River. Expressing the newcomers' viewpoint were men like Thomas H. Brentz, delegate to Congress from Washington Territory, who justified the government's reduction of the reservation saying: "There is so much wealth here and so few Indians to use it." However, into the 1880s, the region remained sparsely populated as one new arrival from the East described the county holding "only 30 white men and three white women in an area larger than Massachusetts." Over the next 15 years, in a confusing series of shifts, government agencies rearranged the borders of the reservation. In 1886, the lands west of the Okanogan River were detached from the Colville Indian Reservation and advertised in the East for settlement. The numerous Eastern Washington tribes had the option to obtain allotments to farm west of the Okanogan River or move to the Colville reservation on the river's east bank.³

West of the river, between 1886 and 1888, Dr. Joseph I. Pogue, and a horticulturalist, H.C. Richardson, dug four miles of ditch to deliver water from Salmon Creek to three different

2. Bruce A. Wilson, *Late Frontier: A History of Okanogan County*, (Okanogan County Historical Society: Okanogan, Wash., 1990), 17, 38. In the language of the Southern Okanogan, the name for their tribe was "Sinkaiaetk."

3. Wilson, *Late Frontier*, 70-7, 200; *Project Data*, 720.

ranches. The duo fancied themselves potential fruit producers and realized that a little over 11 inches of rainfall a year made irrigation necessary for their nursery stock. As of 1893, Pogue's fruit trees covered 60 acres, and the orchard was successful enough to encourage a small ripple of settlers to consider raising apples. An interested few came and planted forage crops for winter stock feed.

In an attempt to foster interest in irrigation, an Okanogan newspaper editor, S.T. Sterling, began to promote an elaborate irrigation system storing Salmon Creek water in two local lakes (Green and Brown) then transporting it by ditches and flumes to apple orchards north of the town of Omak. In 1897, an increasing demand for water from Salmon Creek sparked the creation of the Conconully Reservoir Company. The company managed the storage of almost 1,500 acre-feet of water in Salmon Lake. Other associations and individuals also began to dig. By 1908, fifteen ditches irrigated 1,423 acres along Salmon Creek and neighboring Spring Coulee and Pogue Flat.⁴

In 1902, the news reached north central Washington that President Theodore Roosevelt approved the Newlands Act. The birth of the Reclamation Service inspired Sterling to craft a slight exaggeration on behalf of his neighbors. In a letter to the newly formed U.S.R.S., Sterling stated "50,000 to 75,000 acres of arid land" along the Okanogan River was waiting to be reclaimed by an "inexpensive reservoir." Attached to the letter was a petition signed by 200 residents calling themselves the Okanogan County Improvement Club, also requesting the new Reclamation Service to come out and survey the land. That invitation opened the last frontier in the West to domestication.⁵

Project Authorization

On March 3, 1903, Chief Engineer of the Reclamation Service Frederick H. Newell, directed Seattle engineer T. A. Noble to go to Okanogan and research the feasibility of beginning the project. Noble completed his report in April 1903, and concluded Reclamation should begin

4. Wilson, *Late Frontier*, 69, 220; *Project Data*, 720.

5. U.S., Department of Interior, Bureau of Reclamation, *Project Histories, Okanogan, Vol. 1*, (Washington, D.C.: Government Printing Office, 1910), 1-5.

a project utilizing the waters of Salmon Creek and nearby Johnson Creek combining a storage facility constructed at one of five potential sites. Those sites were Conconully and Salmon Lakes, the Scotch Coulee, and Green and Brown Lakes. Throughout 1903-04, Charles E. Hewitt surveyed the entire county for the ideal damsite. Hewitt's report of October 23, 1904, to Noble, and Supervising Engineer H. N. Savage, recommended canceling the project. Hewitt believed the drawbacks of dam building on Salmon Creek included a prohibitive estimated construction cost of \$45 per acre and inflated shipping rates for materials. Each of the five proposed was 50 miles from a rail line and accessible by boat for only three months out of the year.⁶

This setback swung the persistent settlers back into action. They sought the support of Congressman Wesley L. Jones of Yakima, who helped draft the Newlands Act of 1902. Local representatives went to Washington, D.C. to meet with Secretary of Interior Ethan A. Hitchcock to convince him to reconsider Reclamation's decision. Their arguments swayed Hitchcock, and he launched another round of investigations and reports. The revised plan proposed "the storage of 12,000 acre-feet of water in Conconully Reservoir and 4,300 acre-feet in Salmon Lake Reservoir; the water from Conconully Reservoir to follow the channel of Salmon Creek to a diversion point some three miles above the town of Okanogan."⁷

On December 2, 1905, Hitchcock authorized expenditure of up to \$500,000 to build the Okanogan project. The cost of the plan included construction of the dam, necessary buildings, telephone lines, purchase of water rights, and a maintenance contract for 10 years. Assessment against 8,645 acres covered by the project would be \$420,179, at a cost per acre of \$48.60. The Okanogan Water Users Association, representing some 10,000 acres along the Okanogan River, formed immediately following Hitchcock's decision.⁸

If patience and determination are necessary in raising apples, those same qualities came in handy in the growers' campaign to convince Reclamation to trek out to Okanogan County and

6. *Project Histories, Okanogan, Vol. 1*, 1-5; *Third Annual Report on the Operation and Maintenance of Reclamation Projects*, 153.

7. Wilson, *Late Frontier*, 221; U.S., Department of Interior, Bureau of Reclamation, *Project Histories, Okanogan, 1959*, (Washington, D.C.: Government Printing Office, 1959), 1.

8. *Project Histories, Okanogan, 1959*, 2; Wilson, *Late Frontier*, 221.

raise Washington state's first federally built dam. From an engineering and commercial viewpoint, a better location to build would have been the Yakima Valley some 190 miles southwest of Okanogan, where the railroads and population were both thriving. Still, in keeping with Reclamation's quest to reclaim all the arid West, Okanogan's growers were given a second hearing. Their persistence won them the authorization race with their larger neighbor, as Hitchcock sanctioned Yakima ten days after Okanogan, on Dec. 12, 1905.

Construction History

In early April 1906, construction began on the worker's camp, located at the foot of Pogue Mountain on vacant public land. The camp was near the proposed main canal and laterals and a spring on Pogue property. Entirely comprised of wood framed structures, the camp consisted of a project engineer's house, office building, bunkhouse, stable and a mess house measuring 18 by 60 feet. All construction from campsite to dam was completed by "force account" through small contracts with local contractors. Project engineers made the decision to use force account labor after they felt bids to construct a storage works and main canal were too high.⁹

By mid-April, 7,206 acres of Okanogan County were designated as project lands. Nearly all the pre-existing water rights and ditches now belonged to the project. Work at the dam site began in mid-August 1906, with the clearing of 460 acres of partly wooded meadow by contract labor to prepare the land for the main canal and laterals. Later in 1906, the first element of the Okanogan Project, the Salmon Creek Diversion Dam, was finished 12 miles downstream from the proposed Conconully Dam. The diversion dam is six feet high and 140 feet across at the crest. The dam diverts the Salmon Creek releases to the Main Canal, which is two miles long and has a capacity of 100 cfs. This canal divides at a "Y" into the Six mile long High Line and the four mile long Low Line Canals. Salmon Creek has a 300-cubic-foot-per-second overflow capacity.¹⁰

9. *Project Histories, Okanogan, 1910, Vol. 1, 24-7.*

10. George Wharton James, *Reclaiming the Arid West: The Story of the United States Reclamation Service*, (New York: Dodd, Mead and Company, 1917), 328-9; U.S., Department of Interior, Bureau of Reclamation, *Annual* (continued...)

Preparatory work on the Conconully Dam commenced in March 1907. The dam's design featured a core wall of sheet piling covered with rock and earth next to a spillway and an outlet tunnel. In the middle of May, excavation revealed the foundation's soil was too loose to support an 80-foot high earth dam. Construction halted and a new round of surveys began farther up the canyon in search of a better location. On June 8, the Project Engineer, Christian Andersen, and a three man Board of Engineers approved moving the dam to a new site 3,000 feet north of the original excavation. The new location reduced the dam's storage capacity from 16,000 to 13,000 acre feet, but relocation was necessary for the project's longterm stability.¹¹

Conconully Dam was the first project in Reclamation's short history to be built by hydraulic methods. Construction Engineer Lars Bergsvik previously worked in hydraulic mining before he oversaw the Okanogan Project. His expertise would guide other engineers and laborers since Reclamation lacked standard plans of their own to follow. The granite and soil of nearby Peacock Mountain provided the dam's material. A little more than a thousand feet west of the dam, two rock pits alongside the mountain were cleared with the help of blasting powder. The pits were used alternately; one a starting point for sluicing rock and earth to the damsite, and the other a holding area for rocks too large to be carried by water down a steel-lined flume. A team of workmen broke the larger rocks with sledgehammers before the material went down the flume.¹²

Darting over hills and around trees for almost three-and-a-half miles, the flume carried water from the North and West Forks of Salmon Creek to gravel pits on Peacock Mountain south of the town of Conconully. The fast moving water sluiced 349,455 cubic yards of dirt and rock from the pits through 3,000 feet of flume to the damsite. Ninety-six foot high trestles, resembling a towering spider web or an amusement park roller coaster, supported the flume. The flume construction proceeded in three stages during 1907, 1908 and 1910. The finished structure

10. (...continued)

Project History, Okanogan Project, Vol 30, 1984-5, iii.

11. U.S., Department of Interior, United States Reclamation Service, *Project Histories, Okanogan, Vol. 3*, (Washington, D.C.: Government Printing Office, 1912), 35-9.

12. Herbert A. Yates, *A Pioneer Project*, (Portland, Ore.: Metropolitan Press, 1968), 29-30.

followed a sloping downhill grade of four to three percent. The man-made channels carried 25 cubic feet per second (cfs) of water, and the largest rocks carried down the four percent grade flumes weighed about 250 pounds. At the end of their ride at the damsite, a shower of rock, dirt and water tumbled from the flumes to form the embankment.

At the damsite, side gates swung across the flume every 16 feet, discharging the entire flow of water and material. Two gates near the dam opened simultaneously (according to the amount of water carried by the supply flume) usually turning out at the first opening or gate, releasing coarse material on the outside slopes to form a levee. The other two gates discharged on the inside, carrying finer material toward the center of the dam, manufacturing a pond between the two levees. In 1909, engineers ordered the placement of a puddle core to compensate for the lack of fine material at the rock pits. Conconully Dam's puddle core is a water-tight core made of silt and very fine sand stratified in thin layers. Much of the silt and sand was dredged from the bottom of Salmon Creek.¹³

As a transfusion of earth formed the dam above ground, workmen below were drilling 394 feet through a hill on the east end of the works sculpting a tunnel. Hand drills were used on the seamy granite to create a tunnel for irrigation flow. Excavation began in July 1907 and concluded six months later. For the next three years, the previously perpetual tranquility of Okanogan County was disturbed by the sounds of blasting powder smashing rock and the running jumble of earth and rock shooting down the flumes.¹⁴

In the second year of construction, 1908, the wear and tear of thousands of cubic yards of dirt and rock coursing through the main flume was noticeable. Five times during the first season the No. 10 mild steel plates had to be replaced after taking a beating from the rocks. Eventually, the flume was redesigned so the wear was redistributed more evenly. The seasons annually hindered construction, as the cold and snowy winters halted sluicing, and lack of precipitation in

13. U.S., Department of Interior, Bureau of Reclamation, *Geologic Report for Modification Decision Analysis, Safety of Dams Program, Conconully Dam, Okanogan Project, Washington*, (Boise, Id.: Pacific Northwest Region), 1992, 1; *Final Report on the Construction of the Conconully Hydraulic-Fill Dam*, 33.

14. U.S., Department of Interior, United States Reclamation Service, *Final Report On the Construction of the Conconully Hydraulic-Fill Dam, 1907-1910*, (Conconully, Washington: Reclamation Service, 1910), 8-24. The author of the final report was Construction Engineer Lars Bergsvik.

summer saw little flow to move material quickly through the flumes.¹⁵

Riding along the trestles across several ravines and draws, the silt, sand and rock pile eventually grew into a dam crest 1,025 feet long. After workmen dressed the slopes of the dam into neat lines, the finished structure stood 70 feet high. Work concluded in late June-early July of 1910. Between 1907 and 1910, the dam's diversion weir, main canals and laterals were also completed.¹⁶

Work on all projects progressed steadily except for two interruptions. On the night of January 27-28, 1907, camp headquarters caught fire and destroyed the assistant's quarters and many office files, maps, profiles and vouchers. The fire burned plans for a distribution system that resulted in month's delay while the plans were re-drawn.

In late July 1909, laborers and pitmen called the first general strike in Okanogan County history. In an average construction season, a shift employed 17 men clearing the pit and tending the flumes. Pay for these men ranged from \$2.25 to \$2.75 for an 8-hour day. Strikers demanded an increase of 50 cents a day and cookies once a week. The three day strike ended when the workers settled for a 25-cent pay raise. Management acceded to labor's demand on the cookies bargaining point.¹⁷

Despite the setbacks, on May 4, 1909, the first irrigation water flowed to 2,000 acres in the southern part of the project. As operations wound down in June-July, 1910, the finished product stood 70 feet high and contained 359,000 cubic yards of fill. Construction was also way over the original estimate of \$500,000, as the project's remoteness and demanding climate pushed the final cost up to \$1,513,287.¹⁸

In many areas, once Reclamation completed a reservoir, benefits could be seen almost immediately in nearby irrigated fields. Okanogan's apple producers practiced patience, as they grew potatoes, onion and beans between their rows of saplings. Growers faced a wait of up to

15. *Final Report on the Construction of the Hydraulic-Fill Dam*, 25, 32; Yates, *A Pioneer Project*, 31.

16. Wilson, *Late Frontier*, 222.

17. *Final Report on the Construction of the Conconully Hydraulic-Fill Dam*, 43; Wilson, *Late Frontier*, 222; *Okanogan Record*, 30 July 1909, p.1. The *Okanogan Record* was printed in the town of Conconully. Articles from the *Record* are available from the Okanogan County Historical Society located in the town of Okanogan.

18. *Project Data*, 719, 721; *Annual Project History, Okanogan Project*, Vol. 1, 89.

seven years before their apple trees would bear fruit. In the intervening time, the partnership between local growers and Reclamation would remain close.

Post-Construction History

The Okanogan project saw a number of improvements in a 30 year period following completion of Conconully Dam. The first expansion was the construction of an electrical power and pumping plant completed in 1914. The building of nearby Salmon Lake Dam started in 1919 and completed in October 1921. As Salmon Lake was under construction, North Fork Salmon Creek Diversion was completed in 1920.

These improvements increased Conconully Reservoir's capacity and responded to changes in the region's climate. In 1911, although only 65 percent of the project's acreage was under cultivation, the water supply was exhausted by August 1. The quantity of water delivered to the 5,038 acres in cultivation averaged about 1.38 acre feet per acre. Engineers blamed the shortage of moisture on seepage from the Project's three canals, High Line, Low Line and Main. The three channels went into service in 1917, and their immediate leaking was an unwelcome headache in an area growing drier each summer. Between 1912 and 1917, to reduce precious moisture losses, much of the distribution system was lined with concrete. Reclamation repeated the procedure in the spring of 1922. The distribution system included approximately 25 miles of laterals, many of which are closed metal or concrete pipes. As an additional resource fighting back against the increasingly arid summers, a pumping plant was built at Duck Lake, some ten miles from Conconully Dam. The pumping plant lifts water from Johnson Creek and the High Line Canal into Duck Lake for pumping in the canals.¹⁹

The difficulty of raising apples on sandy soil was evident by the end of the 1910s. In 1919, Reclamation began to reduce acreage served by the project by purchasing owner equity and canceling water rights on sandy land properties. When the Okanogan Irrigation District took over management of the project on January 1, 1929, water rights had been cut from a high of

19. U.S., Department of Interior, United States Reclamation Service, *Project Histories, Okanogan, Vol. XI, 1922*, (Washington, D.C.: Government Printing Office, 1922), 113-4; *Project Data*, 720; U.S., Department of Interior, Bureau of Reclamation, *Modification of Conconully and Salmon Lake Dams*, (Denver: Office of Chief Engineer, 1967), 26.

10,999 acres to 7,300 acres. Reduction continued in the following decades, until the remaining district controlled land totaled 3,700 acres by the late 1940s.²⁰

The construction of the new Salmon Lake Dam, a mile northeast of Conconully Dam, began in 1919. Average wage for Salmon Lake laborers was \$3.60 a day. Salmon Lake's construction design and techniques were similar to Conconully's. Like its older neighbor, Salmon Lake is an earthfill structure standing 42 feet high. Two feet of riprap protects the upstream face of the dam. The siphon spillway and outlet works combine into a single structure located on the dam's left abutment. Salmon Lake's adjoining reservoir, Conconully Lake, holds 10,500 acre-feet of water. A small diversion headworks structure on Salmon Creek diverts the flow into Conconully Lake through a short feeder canal. Work on Salmon Lake Dam concluded in 1921.²¹

During the creation of Salmon Lake Dam, Reclamation attempted to strengthen Conconully Dam from excessive seepage. In the early 1920s, workers drilled down to the puddle core and implanted an 8-inch by 10-foot concrete parapet wall into the dam's foundation. The height of the dam also increased by 2.5 feet by the addition of gravel topping. These improvements did not last long, as on June 1, 1938, the discovery of a sink hole at the foot of the parapet wall on the upstream side of Conconully Dam, meant more rehabilitation. A contemporary study showed two feet of the puddle core eroded under the wall. The inside of the dam was filled with puddled silt and no additional faults were uncovered. Reclamation's Denver office blamed the problem on faulty upgrading done in the 1920s. More erosion four years later required an additional 2,800 cubic yards of clay material backfilled into the puddle core. During the 1930s, the Works Progress Administration (WPA), planned to increase Conconully's storage capacity, but constant repair work delayed those intentions. In 1948, a major rainstorm beginning May 27 and continuing through the 29th, pushed the county reservoirs past their capacities. Over 71,000 acre-feet destroyed the North Fork Salmon Creek Diversion, but it was rebuilt later

20. *Annual Project History, Okanogan Project*, 1959, 2.

21. *Project Histories, Okanogan*, 1959, 5, 47; *Modification of Conconully and Salmon Lake Dams*, 15.

that year.²²

The 1950s and 1960s saw a period of upgrades and refinements. In 1951, a contract for rehabilitation of Conconully Dam between Reclamation and the district was drawn up. The funding for the new canal linings and over 100,000 linear feet of pipe lines came from the project's operations and maintenance budget. The late 1960s saw more changes made in Conconully's facade. In 1966, the project replaced the intake structure and the lined upstream tunnel. In 1967, a rare reservoir spill exposed a serious weakness in Conconully Dam's concrete structure. During 1968-69, repairs on the crest of the dam were accomplished with new embankment materials and a riprap. The deteriorating concrete spillway was replaced with a concrete-baffled apron design with a capacity of 11,580 cubic feet per second.²³

The most recent addition to the project is the Shell Rock Point Pumping Plant on the Okanogan River. Completed in 1979, the plant pumps water from the Okanogan River to the High Line Canal during water short years. Shell Rock has four pumps, each with a capacity of 8.3 cubic feet per second discharging flow into the High Line Canal.²⁴

Eighty years after its original construction, the Okanogan project evokes memories of how irrigation captured the imagination of Western landowners. Since its beginnings, nature provided a few reminders for engineers and growers of who was truly in charge of their destinies.

Settlement of the Project

The Newlands Act established the Reclamation Service, and under the measure, no landowner serviced by a government water project would be supplied with irrigation water for more than 40 acres. Those who claimed squatters' rights on 160-acre homesteads dating before the turn of the century, began to sell off three of their four 40 acre tracts to new buyers. Newcomers made homes and planted orchards in Pogue Flat, the "sand flats" north of Omak, and a location called the "Cherokee Strip," named in honor of the Oklahoma land rush spot. The

22. *Modification of Conconully and Salmon Lake Dams*, 3, 26; Yates, *A Pioneer Project*, 90.

23. *Geologic Report for Modification Decision Analysis*, 3-4.

24. *Geologic Report for Modification Decision Analysis*, 3-4; *Project Data*, 719.

strip's 1,100 acres of stubborn sandy loam needed cover crops like clover hay and alfalfa to make the land fertile and retentive of moisture so trees could be planted. This Cherokee Strip extended west of the Okanogan River from Omak to Riverside nearly 10 miles to the north. The years between the completion of the Conconully Dam and large scale production were tough ones for growers. Many homes were mortgaged and their owners were living "not in a very prosperous condition."²⁵

A branch of Okanogan County's agricultural strategy depended on the completion of the Reclamation project. The other relied on the arrival of the railway to link the region to national and world markets. Before 1913, farmers could haul produce by wagon to the neighboring towns, or go to the community of Brewster 25 miles away, to ship by sternwheeler steamboat at headwaters of the Columbia River. In 1910, the Great Northern Railroad graded and built a branch line along the Okanogan and Columbia rivers from Pateros in the south to Oroville in the northern end of the county. The line connected Okanogan's groves to the markets of Spokane and Vancouver, British Columbia. By 1914, the growers shipped 20 carloads by the Great Northern Railroad. A year later, two hundred cars shipped the first large crop from Omak and an additional hundred cars from Okanogan. The initial shipment showcased apples, but also included apricots and peaches. Iced refrigerator cars rushed fruit from the orchards to Chicago and New York City. At market, the average price growers received for their fruits was a \$1 per box.²⁶

Okanogan irrigators reacted much like other project farmers across the West after Reclamation completed a job. They were awash in a river of hyperbole contemplating the promise of their futures. On November 20, 1909, apple grower Albert Rogers wrote to Okanogan Project Operations Manager Ferdinand Bonstedt, that with open access to the Pacific Ocean, Okanogan apples should "enter the homes of the poor both in our own nation and in Europe." Post construction prospects were so bright, grower C. H. Knosher wrote, "five acres of

25. U.S., Department of Interior, United States Reclamation Service, *Project Histories, Okanogan, Vol. 5, 1915*, (Washington, D.C.: Government Printing Office, 1915), 61; Yates, *A Pioneer Project*, 48.

26. Wilson, *Late Frontier*, 222.

fruit will keep an ordinary sized family in comfort and independence; ten acres will afford luxuries; twenty acres will accumulate earthly goods almost fabulous of conception."²⁷

A Reclamation statistician returned the bouquets, as he described those living on the project as "cosmopolitan, of high intelligence, and strongly attached to their homes." Average tracts of ranchland for these gentlemen farmers and their families ranged from five to 30 acres. Project water irrigated 448 farms in the first decade after the dam's completion.²⁸

In 1906, before construction, unimproved land went for \$10 an acre. By 1913, the same land sold for \$250 to \$300 an acre. Undeveloped land in the Cherokee Strip and Flats area was selling for \$75 an acre after Conconully Dam. An acre of land planted with three to four year-old orchards sold for \$400 to \$525. One grower, C. C. Parkman, recommended other farmers in the West follow the Okanogan example, "Looking backward, the guideboards along the trail I have traveled read; Get a homestead if you are *sure* that Uncle Sam will water it, but be *sure*."²⁹

Nineteen-sixteen was a pivotal year in the history of the Okanogan Project. It signaled the last of the good times and pointed toward upcoming decades of struggle. That year, a reclamation statistician, C. J. Blanchard, reported that in the Okanogan Valley it had been 20 years without a killing frost. The 7,850 acres in production that growing season was the most acreage irrigated in the history of the project. In the immediate years after Conconully's completion, the winters were mild with average snowfall and the summers were warm. The perceived predictability of the seasons caused one Reclamation staffer to comment, "the uncertainties in fruit growing which have made the industry so much of a gamble in other parts" did not bedevil Okanogan County. In the mid-1910s, the county's three main towns, Okanogan, Omak and Riverside, with populations of 800, 400 and 500 respectively, began to benefit because of the developing agricultural activity. It seemed Okanogan's orchards were heralding the promised Eden, but soon conditions would turn the promise into a broken vow.³⁰

27. U.S., Department of Interior, United States Reclamation Service, *Project Histories, Okanogan, Vol. 3, 1912*, (Washington, D.C.: Government Printing Office, 1912), Box 121.

28. C. J. Blanchard, "Okanogan Project, Washington," in *Reclamation Record*, November, 1916, 516.

29. Warne, "Land Speculation," 179; *Project Histories, Okanogan, Vol. 3, 1912*, Box 121.

30. Blanchard, "Okanogan Project, Washington," 516.

A grower, Fred McMillan, summed up Okanogan's thirty year nightmare: "The years 1912, 1913 and 1914 and were good ones for farmers. From 1915 on, it was a different world. . . the beginning of the dry years which lasted into the 1940's. The morning sun came up hot and stayed hot. Clouds raised hopes, then faded away. Ponds and lakes dried up. . . The crops were too stunted to harvest."³¹

In 1920, five years into the drought, Reclamation constructed two pumping stations to increase water on the project, and private and federal agencies dug wells. No runoff from winter snowpack and a succession of dry years demanded the creation of pumping plants at Robinson Flat, Duck Lake and Salmon Lake. Despite a succession of dry years, 1922 still holds the record for the largest amount of apples grown on the project in a year. The total year was 1.2 million boxes with an estimated return of \$1,537,149. It would be the last happy news for a while.³²

In November, 1928, the \$1.5 million debt owed to the Federal government by the Okanogan Irrigation District was scaled down to \$310,000 payment at the rate of \$10,000 a year over a period of 31 years. Reclamation worked with growers and the District between 1917 and 1928. In those eleven years, the district spent almost \$2 million of its own money to purchase water outside of the project to compensate for the drought.³³

The project had collected 50,421 acre feet of runoff in 1916. Two years later, that amount fell to 8,860 acre feet. The water shortage hit its most critical level in the early days of the Great Depression, as the Conconully reservoir clung to only 1,142 acre feet in 1931. Tree stumps in the bottom of the lake left from construction thirty years earlier now cooked under the hot sun. Abandoned farms and families packing up became a familiar sight as sand storms blew across the orchards and the county's small towns.³⁴

In the 1920s and early 30's, two-thirds of the orchards were mortgaged. One resident whose family had paid \$2,500 for an orchard in the sand flats told of a ditch rider guiding their

31. Wilson, *Late Frontier*, 251.

32. U.S., Department of Interior, United States Reclamation Service, *Project Histories, Okanogan, Vol. XI, 1922*, (Washington, D.C.: Government Printing Office, 1922), 37.

33. *Project Histories, Okanogan, 1959*, 2.

34. Yates, *A Pioneer Project*, 98, 121-2.

allocation of water into their box: "The water did not go more than 10 feet from the box before disappearing into sand. We abandoned the place, and our \$2,500, after three months."³⁵

Excessive rainfall in 1936 and 1948 offered relief from the never ending dust and dryness, but by the 1940s, the hopes that had fired the imaginations of the first generation of growers were long gone. Through Reclamation's buy-outs and growers' abandonment, the original 10,099 acre project stood at 5,038. In a Nov. 2, 1942, Okanogan Project Manager N. D. Thorp wrote to Reclamation Commissioner John C. Page, after years of drought and recent wartime inflation that many growers were "in a turmoil of bewilderment," over their situation. He added even successful growers were considering abandoning their orchards, if additional financial hardships awaited them.

Herbert A. Yates, Reclamation's chief clerk and fiscal agent during the Okanogan project, commended growers efforts. In 1968, Yates wrote in his memoir if some considered the project a "failure," judging by abandoned farms and reduced acreage, it was "due solely to the insufficient water supply." Visiting Reclamation officials shared Yates' opinion, as they were "often in praise of the farmers who still fought on, even after they were licked."³⁶

Over the course of the next fifty years, the Okanogan project remained isolated. As late as 1954, the U.S. Department of Commerce ranked the project fifth in the nation with 626,677 apple trees. Irrigated acreage today is half in orchard, half in pasture and alfalfa hay. The county's population still is sparse compared to the rest of the state. In the 1990 census, the state of Washington had 4.8 million residents. In the same census, the population of Okanogan County was 33,350 with the town of Okanogan numbering 2,370 citizens.³⁷

Uses of Project Water

Before Reclamation's arrival, pioneer apple growers would haul water in buckets from springs and wells to soak young trees individually. Orchards need to be irrigated in any six-

35. Wilson, *Late Frontier*, 223.

36. Yates, *A Pioneer Project*, 78.

37. U.S. Department of Interior, Bureau of Reclamation, *Office of the Chief Engineer, General Correspondence Files, 1902-42*, Box 998, File 234-C; U.S., Department of Commerce, Bureau of the Census, *1990 Census of Population and Housing, Pacific Division, Vol. 1*, (Washington, D.C.: 1991), Summary Tape File 1A; Yates, *A Pioneer Project*, 106. In 1954, leading the apple tree census was Yakima County, Washington with 1,495,426 trees.

week period during the summer or the trees will die. Replacement orchards require six years to begin production and ten years to reach full growth. After Reclamation completed the project, settlers tried a colorful variety of apple plantings. Settlers experimented with Winesaps and Johnathans, before moving on to Spitzenbergs, Rome Beauties, Arkansas Blacks, Yellow Newtons, Ben Davis and King Davids, and Winter Bananas in an attempt to decide which kind thrived in the Okanogan soil. The two varieties currently dominating production are Red and Golden Delicious. In the late 1910s into the 1920s, much of the crop went east, but since then more Okanogan apples ship in greater numbers to the southern United States and California.³⁸

In 1943, the project serviced 397 farms. In 1990, the number shrank to 74 full time and 169 part time farms. At the beginning of the 1990s, 2,289 acres of apples were in production out of a total of 5,038. Total dollar amount of apple production was \$3,845,520, yielding for growers an average of \$8.00 per acre. The amount of all fruit grown (apples, peaches, pears and cherries) came to \$5.4 million. Growers still harvest alfalfa and other forage crops for livestock. Okanogan's yields are not as colossal as their neighbors in the Yakima or Chief Joseph projects. In 1990, Yakima grew \$227.6 million worth of apples on a little over 59,000 acres and Chief Joseph raised \$87.6 million on 22,055 acres.³⁹

Conclusion

The growers' hopes of transforming acres of Okanogan County into the nation's apple orchard were as porous as the lower benchland along the Okanogan River. Separate goals drove growers and Reclamation to attempt this gamble. For Reclamation, it was an opportunity to try out new methods of dam design and construction, and for the most part, they succeeded. For the growers, it was a chance to build a fortune, and unfortunately, all who tried were not successful. The aspirations of these two groups produced a situation full of contradictions: a capitalist Eden provided by federal money and technology centering on the production of the most romantic of nature's gifts -- the apple. If the project's design ignored the longterm moisture-gathering

38. Wilson, *Late Frontier*, 222; *Modification of Conconully and Salmon Lake Dams*, 26.

39. U.S., Department of Interior, Bureau of Reclamation, *Crop Report and Related Data; Federal Reclamation Projects*, (Denver: 1943), 28; U.S., Department of Interior, Bureau of Reclamation, *1990 Summary Statistics: Water, Land and Related Data*, (Denver: 1991), 153.

capacity of the watershed and was unsuspecting of the damage a multi-year drought could do, it still was a worthy effort. A monument to those who tried can be found in Northern Okanogan County near the Canadian border. Almost a century and a half after saplings were first placed into Okanogan soil, five bent and gnarled fruit trees planted by Okanogan Smith are still producing.

About the Author

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