

East Bench Unit

Three Forks Division

Pick Sloan Missouri Basin Program

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East Bench Unit

Pick Sloan Missouri Basin Program

Located in rural southwest Montana, the East Bench Unit of the Pick Sloan Missouri Basin Program provides water to 21,800 acres along the Beaverhead River in Beaverhead and Madison counties in southwestern Montana. It also supplies supplemental water for 24,848 acres previously irrigated. Benefits go beyond irrigation to flood control, recreation at Clark Canyon Reservoir, and municipal and industrial water. Not as large or as well known as the main stem dams of the Missouri River authorized under the Pick-Sloan Plan, Clark Canyon Dam nevertheless impounds 257,152 acre feet and provides full irrigation services to nearly 50,000 acres of land—and makes a significant contribution to the economy of southwestern Montana.

Project Location

The 50,000 acres of land in the East Bench Unit are located in Beaverhead County, which derived its name from Sacageawea. While traveling with the famous Corps of Discovery, she pointed out to Meriwether Lewis and William Clark a rock resembling a beaver's head. Tucked away in southwest Montana high country, Montana's second largest county is rural and sparsely populated yet easily accessible by the north-south Interstate 15. Dillon, the county seat, had a population of only 3,752 at the 2000 census. In earlier days, at the height of the gold rush, Bannack City was the state's oldest city and the first territorial capital. Virginia City, also a mining town located a short distance to the east in Madison County, was the state's second territorial capital.

The unit derives its water from the Beaverhead River, a tributary of the Jefferson River in the headwaters of the Missouri River. The river begins at Clark Canyon Dam, cutting through arid hillsides and, beginning near Barretts Dam sixteen miles downstream, a wide and expansive

valley. William Clark described the Beaverhead River as “gentle Crooked and about 40 yards wide, Containing but little timber, Some few Cotton willow, Willow & Birch, and the Shrubs common to the country and before mentioned.” The river’s bottom sported a whitish color due to the tertiary clays exposed along the river banks and washed down onto the floodplain in the Beaverhead Valley.¹ The unit lands begin near the diversion dam and extend thirty miles in a northeasterly direction to the Ruby River near the small settlement of Twin Bridges. High lands and fairly cold climate conditions limit agricultural output primarily to alfalfa and small grains.²

Historic Setting

The Beaverhead Valley was located at the territorial edge of several Plains and Great Basin Indian tribes. To the north the Flathead occupied a large area on the Columbian Plateau extending as far east as present Billings and north to present Great Falls—though by the early nineteenth century their territory had been reduced by enemy neighbors. To the south the Northern Shoshone and Bannock tribes occupied much of southwestern Montana and southern Idaho. These tribes constituted a branch of a cultural group that occupied a wide area in the Rocky Mountains.

While the native groups and tribes were never static prior to European contact, the arrival of European culture and goods had a transformative impact in native America. In some cases, the tide of European culture that washed over Native Americans in the Plains and Rocky Mountain regions preceded direct contact. Devastating diseases and the introduction of the horse in the late seventeenth century are two examples. For the Northern Shoshone and Bannock

1. William Clark, Journal, August 7, 1805, *The Journals of the Lewis and Clark Expedition*, ed. Gary Moulton (Lincoln: University of Nebraska Press / University of Nebraska-Lincoln Libraries-Electronic Text Center, 2005), <http://lewisandclarkjournals.unl.edu/journals.php?id=1805-08-7>.

2. U.S. Congress, House of Representatives, *Jefferson, Madison, and Gallatin Rivers, Mont. (Three Rivers Basin). Letter from the Secretary of War transmitting report from the Chief of Engineers on the Jefferson, Madison, and Gallatin Rivers, Mont.*, 72nd Cong., 1st sess., H. Doc. 193 (Washington, D.C.: Government Printing Office, 1932), 33.

tribes that relied on hunting along Beaverhead River, a seasonal migration corridor for buffalo, the Euro American presence directly led to the demise of buffalo herds and in other ways disrupted Indian lifestyle and culture.³

In the early nineteenth century, Meriwether Lewis and William Clark and the Corps of Discovery explored the upper reaches of the Missouri River and its tributaries in the Three Forks area. Beaverhead Valley favorably impressed Lewis. At the fork of the Jefferson River, Lewis directed Clark to proceed along the Beaverhead while Lewis moved up the right fork, what he called Wisdom River, now known as the Big Hole River. After a few miles he ascended a steep hill and took “a pleasing view of the valley through which I had passed many miles below and the continuation of the middle fork through the valley equally wide above me to the distance of about 20 miles when that also appeared to enter the mountains and disappeared to my view[.]”⁴ His eyes settled on the broad, low lying land along the Beaverhead River, which later became the site of the East Bench Unit.

Further up the river, at the present site of Clark Canyon Dam and Reservoir, a distance of fifteen miles from what they called “rattle snake Clifts,” the company encountered “a ha[n]dsome open and leavel vall[e]y where the river divided itself nearly into two equal branches; here I halted and examined those streams and readily discovered from their size that it would be vain to attempt the navigation of either any further.” At this point the explorers correctly identified the left fork, Red Rock River, as the headwaters of the Missouri River.⁵ At Camp Fortunate, the site of present Clark Canyon Reservoir, the Lewis and Clark party met the

3. *The Handbook of North American Indians*, ed. William C. Sturtevant, vol. 12, *Plateau*, ed. by Deward E. Walker, Jr. (Washington, D.C.: Smithsonian Institution, 1998), 297-9, 305-6; *The Handbook of North American Indians*, ed. William C. Sturtevant, vol. 11, *Great Basin*, ed. by Warren L. D’Azevedo (Washington, D.C.: Smithsonian Institution, 1986), 287-8, 300-4.

4. Meriwether Lewis, Journal, August 4, 5, 1805, entry in *The Journals of the Lewis and Clark Expedition*, ed. Gary Moulton (Lincoln: University of Nebraska Press / University of Nebraska-Lincoln Libraries-Electronic Text Center, 2005), [http](#)

5. Lewis, Journal, August 10, 1805.

Limhi Shoshoni Tribe, and Sacagawea, who as a young woman had been captured by a Hidatsa war party, reunited with her people. For the struggling party close to exhausting their supply of food and anxious for the route ahead, this encounter was indeed “fortunate.” At the camp the party cached their canoes and a stash of supplies for the return trip.⁶ (After construction of the Clark Canyon Dam, an employee from the Bureau of Reclamation recommended, with no success, naming the island at the lake York Island after the only black man in the Lewis and Clark expedition.⁷)

The men on the Lewis and Clark expedition party wrote favorably of the “gentle” river slicing through a wide, “ha[n]dsome” valley.⁸ We can be certain they were not the last to notice the pleasant features of the Beaverhead River and Valley. Fur traders scoured the area for its rich beaver supply. Gold seekers planted stakes in nearby Bannock and Virginia City, Montana. Captain Richard Grant operated the state’s first cattle outfit in Beaverhead County.

The next wave of Whites in the upper Missouri consisted of traders and trappers. The St. Louis Missouri Fur Company pushed as far west as the Three Forks area in 1810, only to be forced out by unfriendly Blackfoot Indians. The Rocky Mountain Fur Company, Columbia Fur Company, and John Jacob Astor’s American Fur Company, which crushed its competition by using aggressive and sometimes brutal tactics, also made in-roads in the upper Missouri. They were followed by young men seeking fortune in precious metal in the hills of the Rocky Mountains. The first rush in Montana Territory was at lower Deer Lodge Valley in August

6. See Lewis, Journal, August 13, 1805.

7. U.S. Department of the Interior, Bureau of Reclamation, “Annual Project History, East Bench Unit, Three Forks Division, Missouri River Basin Project,” Volume 10, 1969, A-18, box 163, Accession 8NN-115-92-130, Record Group 115, Records of the Bureau of Reclamation, National Archives and Records Administration, Denver, Colorado. Copies of certain Project Histories are also located in Accession 8NN-115-92-130, Record Group 115, Records of the Bureau of Reclamation, National Archives and Records Administration, Denver, Colorado; and in the Great Plains Region. Hereafter cited as “Project History” followed by volume and page numbers.

8. Joseph Whitehouse, Journal, August 8, 1805, entry in *The Journals of the Lewis and Clark Expedition*, ed. Gary Moulton (Lincoln: University of Nebraska Press / University of Nebraska-Lincoln Libraries-Electronic Text Center, 2005), <http://lewisandclarkjournals.unl.edu/journals.php?id=1805-08-8>.

1853, followed by rushes in Bannack, Virginia City, Last Chance Gulch (later Helena), and Confederate Gulch in the 1860s. Bannack was only a few miles northwest of present Clark Canyon Reservoir, and Virginia City was not far to the east in Madison County. Also in the mid-nineteenth century the military established forts on the Missouri River and along the Bozeman Trail during the height of the Indian wars.⁹

After 1870 settlement intensified as men, women, and children streamed into the territory looking for land and livelihoods. Rivers provided the arteries of transportation, but people and goods also moved along well worn roads like the Northern Overland or Montana-Minnesota Road, the Bozeman Trail, and the Virginia City-Corinne Road. Later railroads replaced rivers and roads as the easiest mode of transportation: the Utah Northern from Salt Lake City to Butte was completed in 1881, Northern Pacific in 1883, and the Great Northern from North Dakota to Great Falls in 1877 and continuing on to the west coast in 1893.¹⁰

Montana became well known for its vast cattle herds grazing in mountain valleys and in the vast Plains ranges east of the mountains. Beginning in 1850, Captain Richard Grant, who had previously worked for the Hudson Bay Company, operated a small cattle outfit in Beaverhead Valley. Traveling south to old Fort Hall on the Oregon Trail, he would trade one of his fattened cattle for two worn out cattle owned by the overland travelers.¹¹ By 1879 the livestock industry had established a notable presence in Montana, though as was the case elsewhere in the West, the livestock industry sustained heavy losses during the hard winter of 1886-1887 and frequently butted heads with homesteaders over the open range.

Even as the mining towns and cattle industry took root in Montana, the economy always

9. Clark C. Spence, *Montana: A Bicentennial History* (New York: Norton, 1978), 16-9; Howard R. Lamar, ed., *The New Encyclopedia of the American West* (New Haven, Connecticut: Yale University Press, 1998), 730.

10. Spence, *Montana*, 16-9; Lamar, ed., *The New Encyclopedia of the American West*, 730.

11. Montanakids, Agriculture and Business, The History of Montana's Cattle Industry, http://montanakids.com/agriculture_and_business/farm_animals/History_of_Cattle.htm

relied, at least in part, on agriculture. In a state of limited rainfall and irrigation, the agricultural output was impressive. As early as 1870, Montana boasted 84,674 acres of farmland and the production of 181,000 bushels of wheat. The territory's agriculture was so advanced that Governor Potts remarked that at the territorial fair in Helena he saw "as fine as any Ohio wheat and vegetables that surpassed anything I ever expected to see." Men and women from the East settled down on tracts of land and grew grain and hay. Some farmers irrigated their crops from local streams and rivers. Many others dry farmed, which essentially meant planting in deep soil during cultivation season to retain water. In the late nineteenth century the price of grain and crops languished, but after the turn of the century farmers—many of whom were homesteaders—benefitted from the steadily rising price of grain. In 1900 there were 258,000 acres of wheat in Montana; by 1920 the acreage jumped to 3,417,000. Whereas there had only been 851 farms in 1870, the number grew to 13,097 in 1900—and the average size of these farms had multiplied from 164 acres to nearly 886 acres.¹²

Investigations

The first water rights to the Beaverhead River were filed in 1865. Early irrigation methods were crude. Farmers simply flooded their lands using small diversion dams on the river and used water as it was available. Yet, during the balance of the nineteenth century the irrigation methods and technology were small in scale and Beaverhead and Madison counties remained sparsely populated.¹³

Homesteaders put down roots in the project area beginning in 1910, and for several years good rainfall produced abundant crops. By about 1912 the plentiful rainfall gave way to drought, prompting many homesteaders to abandon their tracts of land and move to the cities in

12. Spence, *Montana*, 130-2.

13. "Project History," Volume 1, 1960, 1-2.

search of work. The response to the drought by other settlers in Beaverhead and Madison counties was to plan to develop water projects that would protect farmers from the vagaries of weather. Private interests organized to construct Lima Reservoir on the Red Rock River (Jefferson River), which primarily served farmers in the Red Rock Valley, although ranchers in Beaverhead Valley also held shares in the reservoir. Locals also planned to deliver water to about 40,000 acres between the Ruby and Beaverhead Rivers, but the plans never materialized.¹⁴

In 1919 residents backed by businessmen from Dillon organized a committee interested in further developing the East Bench area. In 1922 landowners organized the 25,000-acre East Bench Irrigation District and backed a plan outlined by an engineer from Dillon, G. V. Elder, for diversion of the waters in the Beaverhead River to a storage reservoir on Grasshopper Creek. The proposed irrigation works would service up to 12,000 acres of irrigable land. The district acquired another 4,000 acres and proposed additional storage in Red Rock Lakes, but the Montana Public Service Commission recommended abandoning storage in Red Rock Lakes until the actual water supply was known.¹⁵

In part due to the devastating floods on the Mississippi River in 1927, the War Department became interested in the navigation, flood control, and development of the Missouri River and its tributaries. In its massive tome, over 1200 pages long (excluding maps), the War Department presented “a general plan for the improvement of Missouri River” that included flood control, power, navigation, and irrigation. The irrigation plan was ambitious: eighty projects and a total irrigable area of 2,843,826 acres in the Missouri River Basin.¹⁶ In a separate

14. “Project History,” Volume 1, 1960, 2; U.S. Congress, House of Representatives, *Jefferson, Madison, and Gallatin Rivers, Mont. (Three Rivers Basin)*, 28-9.

15. “Project History,” Volume 1, 1960, 2-3.

16. U.S. Congress, House of Representatives, *Missouri River: Letter from the Secretary of War Transmitting a Report, Together with Accompanying Papers and Illustrations, Containing a General Plan for the Improvement of Missouri River*, 73rd Cong., 2nd sess., H. Doc. 238 (Washington D.C.: Government Printing Office, 1935), 40.

report on existing and potential irrigation in the Three Forks Basin, the War Department identified 590,000 acres—30,000 of that along the East Bench of the Beaverhead River—irrigated in the basin, but none had been the result of Federal initiative. The report therefore called on the government to build a reservoir on Grasshopper Creek that would provide water to 7,000 acres, a reservoir on Red Rock Creek that would irrigate 8,000 acres, or the construction of both reservoirs for a combined irrigation plan of 16,000 acres. The least costly option was the East Bench plan, or the reservoir on Red Rock, at an estimated total cost of \$1,051,000, or \$131 per acre.¹⁷

In 1938 the Bureau of Reclamation began field work on studies that ultimately led to a reconnaissance report for the Missouri River and its tributaries. “Missouri River Basin,” published in Senate Document 191 (78th Congress, 2d session), proposed the Red Rock unit designed to provide water to several thousand acres of land using water from the existing Lima Reservoir, and recommended transferring water rights to the reservoir owned by landowners in Beaverhead Valley. The planned water project for farmers in the Beaverhead Valley—Dillion Valley unit—would consist of the larger Clark Canyon Reservoir near the town of Armstead, Kelly Reservoir on Rattlesnake Creek, Landon Reservoir on Blacktail Deer Creek, and Apex Reservoir on Birch Creek. The unit would also tap into a 38,900 acre foot capacity reservoir on the Ruby River, which had been constructed in 1936 but lacked the ability to deliver water to nearby lands.¹⁸

The East Bench Unit was included in the plan for the Pick-Sloan Missouri Basin Program (formerly Missouri River Basin Project) presented in this report and authorized by Congress in

17. U.S. Congress, House of Representatives, *Jefferson, Madison, and Gallatin Rivers, Mont. (Three Forks Basin)*, 21, 33, 34, 39.

18. U.S. Congress, Senate, *Missouri River Basin: Conservation, Control, and Use of Water Resources of the Missouri River Basin in Montana, Wyoming, Colorado, North Dakota, South Dakota, Nebraska, Kansas, Iowa, and Missouri*, 78th Cong., 2nd sess., S. Doc. 191 (Washington D.C.: Government Printing Office, 1944), 62-3.

1944. Not until 1956 did Reclamation prepare the definite plan report on the East Bench Unit. The proposed unit would consist of Clark Canyon Dam for storage of water from Red Rock River and Horse Prairie Creek. A diversion dam on the Beaverhead River would divert water released from Clark Canyon Dam to existing and newly opened irrigation lands. In September 1956, in anticipation of the East Bench Unit, irrigation farmers organized the Clark Canyon Water Supply Company, Inc., and in October 1957 dry farmers organized the East Bench Irrigation District. The next year, in 1958, the water districts and the United States signed repayment contracts.¹⁹

Project Authorization

East Bench Unit was authorized by the Flood Control Act of December 22, 1944 (58 Stat. 887). The Act set forth the general comprehensive plan in Senate Document 191 and House Document 475, as revised and coordinated by Senate Document 247, 78th Congress, 2nd session.

Construction History

Reclamation opened the East Bench Project Office and secured additional office space in Dillon for personnel transferring from the Helena Valley Project Office. Theodore E. Mann became Reclamation's Construction Engineer for both the East Bench Unit and completion of the Helena Valley Project at Canyon Ferry Dam on the Missouri River.²⁰

In fiscal year 1960, with funds now appropriated, Reclamation revised the definite plan report, conducted preconstruction surveys and investigations, and prepared specifications for construction contracts. A meeting at the Assistant Commissioner's Office in Denver, Colorado, on January 18-21 and field inspections on May 16-19 helped to establish the design criteria and

19. "Project History," Volume 1, 1960, 5; Volume 2, 1961, 2.

20. "Project History," Volume 1, 1960, 8.

requirements for construction of the project features. By the end of the year personnel working on design submitted data for the first ten miles of the canal, Barretts Diversion Dam, and Clark Canyon Dam. In general, the unit office prepared design data on each of the unit features based on preconstruction surveys and investigations, the Denver Office prepared the specifications, and the United States then opened the contracts for bidding. Recreation and disposal of land within the unit area required close planning and coordination with private and public entities.²¹

Some of the first contracts, awarded in 1960, were for the relocation of communication, railroad, and highway lines that would be inundated by Clark Canyon Reservoir. Government forces and the Union Pacific Railroad worked on the relocation of a section of the rail line. The Montana State Highway Commission issued the contract for relocation of approximately eight miles of U.S. Highway No. 91 near Armstead, Montana. The Mountain States Telephone and Telegraph Company relocated its Salt Lake-Helena and Pocatello-Butte Toll Lines. Horse Prairie Creek Road was relocated to the crest of the dam.²²

This work was neither simple nor inexpensive. To move 13.3 miles of the main line and 1.9 miles of side line of the Union Pacific Railroad required extensive excavating, digging, backfilling, and building. Cherf Bros., Inc., Sandkay Contractors, Inc., and Sime Construction Company from Ephrata, Washington, the contractors, moved soil by making a “big cut” into a hillside from Station 494 to Station 508. After the contractor had laid material as backfill, railroad engineers noted that the slope of the backfill was too steep to support the rock being encountered in the soil. R. A. Brown of the Union Pacific Railroad recommended lessening the slope and adding a fifteen-foot wide berm above the track grade. Reclamation complied with these recommendations. By late summer and early fall the contractor had completed the

21. “Project History,” Volume 1, 1960, 9, 20, 24-5; Volume 2, 15.

22. “Project History,” Volume 1, 1960, 27-8; Volume 2, 1961, 46-52; Volume 4, 1963, 67.

excavation and embankment work and commenced placing the ballast (gravel) and laying the ties. The work continued until November and resumed the following spring with the change of the weather. The new line went into operation on July 24, 1961.²³

In 1962 Reclamation began construction of the unit's larger features: the diversion dam, the canal and laterals, and the dam at Clark Canyon. Zook Bros, Construction Co., COP Construction Co., and Lewis Construction Co., of Great Falls, Montana, received the contract to build Barretts Diversion Dam for \$2,420,612.70. On October 18 the contractor began to clear the work site and by the end of the year had built a temporary channel to divert the river during construction, placed concrete and steel forms in the spillway area, and excavated the canal using a dragline. The cold weather during winter months not only delayed but seriously threatened progress on the construction. "Ice jams" on the river just downstream from the diversion dam made the river rise and would have inundated the work site had the contractor not broken up the ice jams with dynamite. As soon as the weather warmed, the contractor went to work placing concrete in the fish weir walls, the spillway, sluiceway, outlet works, and headworks. By September the structure stood completed, except for the installation of handrails and placement of rocks in the fish weirs.²⁴

The same contractor also built the first section of the canal and laterals (Mile 0 to 20.3). This was no small canal with a base 20 feet wide. Construction entailed excavation and lining of the main canal and laterals, erection of a bridge across the main canal, and installation of precast concrete pipe on Wilson and Carter Creek siphons. In general the work proceeded apace or even ahead of schedule. Subcontractors lined the canal, built fences in the area, and supplied

23. "Project History," Volume 2, 1961, 17-20; Volume 3, 1962, 11-2.

24. "Project History," Volume 2, 1961, 35-7; Volume 3, 1962, 41-6.

materials ranging from aggregate to concrete culvert pipe.²⁵

In 1962 Reclamation issued a new contract for continued construction of the main canal and laterals (Mile 20.3 to 34). The specifications called for thirteen miles of lined and thirty miles of unlined canal and laterals, and earthwork for county roads and construction of siphons, culverts, bridges and like structures. As before, Zook Brothers Construction Co., COP Construction Co., and Lewis Construction Co. bid low, at \$1,644,854.05, and received the contract. The work on excavation, embankment, concrete, and piping commenced in June. Nearly 700,000 cubic yards of earth from the main canal and 232,706 cubic yards from the laterals had been excavated by the end of the year. The construction contractor completed the canal and laterals, including the siphons at Spring Creek, Trout Creek, and Stone Creek, in 1963.²⁶

The A & B Construction Company and Sime Construction Company, a joint venture, received the third (and final) contract for earthwork and structures on the last section of the canal and laterals (Mile 34 to the end). The contractor worked on the features through 1963 and 1964.²⁷

The unit's largest contract and main attraction was Clark Canyon Dam. Reclamation opened bids on the contract to construct the earth-fill dam, as well as spillway, outlet works, and county road relocation, and on September 15 awarded the contract to Emil Anderson Construction Co., Ltd., Square M. Construction Ltd., and Coleman Collieries Ltd., Vancouver B. C., Canada for \$3,347,402.60. Two weeks later, on October 1, 1961, state and local officials and dignitaries participated in an official ceremony commemorating the start of construction on Clark Canyon Dam. Commissioner Floyd E. Dominy, Senator Lee Metcalf, Representative

25. "Project History," Volume 3, 1962, 41-6; Volume 4, 1963, 21.

26. "Project History," Volume 3, 1962, 58-66; Volume 4, 1963, 51-8.

27. "Project History," Volume 4, 1963, 61-4; Volume 5, 1964, 39.

Arnold Olson, and Montana Governor Donald Nutter spoke, followed by a ceremonial explosion in the left abutment area of the dam.²⁸

In the first year the contractor laid out construction plans, constructed office space, began to strip the foundation of the dam, and built access roads. In 1962 the contractor excavated in the outlet works area, dewatered the excavation area, stripped the borrow area, and placed Zone 1, 2 and 3 material in the dam embankment. Work also commenced on concrete placement in the outlet works and in the stilling basin area and on excavation in the spillway and the river outlet works areas. By 1963 the dam was half completed. Through the year the contractor placed embankment, Zone 1, 2 and 3 materials, riprap, and concrete in the spillway and the river outlet works stilling basin. At the end of the year the contractor had placed 12,258.83 cubic yards of concrete in the spillway and the river outlet works. Meanwhile, the ACME Power Line Construction, Inc., had received the contract to clear the reservoir area and perform miscellaneous work in preparation for completion of the dam and reservoir.²⁹

Dignitaries dedicated the dam on September 20, 1964. About 3,000 people attended the dedication, including representatives from Federal, state, local government and private organizations. Senator Lee Metcalf delivered the keynote speech praising the water project, as did the other speakers. William F. Cashmore, former state senator from Lewis and Clark County, noted that the project was an example “of cooperation between levels of government and people themselves,” while Parke Scott of the inundated town of Armstead stated that citizens of the town did not fight to save it because “the dam represented progress and we have never fought progress.”³⁰

Reclamation awarded various contracts up to the closure of the construction office in

28. “Project History,” Volume 2, 1961, 7-8, 25-8.

29. “Project History,” Volume 3, 1962, 22-30; Volume 4, 1963, 30-6.

30. “Project History,” Volume 5, 1964, 5-6, 54-7.

1966. Reclamation relocated the residence and garage of Coy Brown as a caretaker's residence to the north side of the Horse Prairie Road. It awarded a contract to Carl F. Hollensteiner for drilling and testing a water supply well and rejected bidders on the contract to move the buildings, construct a basement, install a water system, and build other appurtenant facilities.³¹ After 1966, Reclamation continued to award contracts for such miscellaneous projects as graveling an access road and laying asphaltic lining on the main canal.³²

Post Construction History

On January 1, 1966, Reclamation transferred the project office in Dillon from construction to O&M status and staffed it with a handful of Reclamation employees. Before doing that, however, Reclamation performed several O&M functions to get the newly constructed project features ready for irrigation use. It seeded the banks of the canal and laterals with Bluebunch, Siberian, Streambank, and Western Wheatgrass. It removed "floating weeds" (Russian Thistle and Wild Mustard) by machinery and by hand. At high flows in the Beaverhead River, it turned water into the canal and laterals to prime the water system and determine potential water losses. In subsequent years O&M personnel performed routine maintenance and made repairs to project features like the radial gate cables, siphons, riprap, and control equipment at the headquarters office and at the dam.³³ Other post-construction operation and maintenance activities included lining the canal and building a drainage system. Drainage became particularly important. Since the soils in the area tend to be pervious, irrigators in the Three Forks Basin were likely to have large seepage return flows into the streams. Without

31. "Project History," Volume 5, 1964, 47-9.

32. "Project History," Volume 7, 1966, 4; Volume 8, 1967, 3.

33. "Project History," Volume 4, 1963, 12-3; Volume 5, 1964, 10-2; Volume 6, 1965, 10; Volume 7, 1966, 6; Volume 9, 1968, 5.

proper drainage the lands could become waterlogged.³⁴

The first growing season to use water supplied by the East Bench Unit—in 1965—presented ideal conditions for a good crop. On May 19, the first water deliveries went to the farm owned by George McDonald, but generous rain in May and June kept crops alive until other farms had been outfitted with irrigation structures.³⁵

As is often the case, the success of the East Bench Unit depended on the availability of water. In water-rich years the dam would reach capacity and flood water could actually be released. In drought years the scarcity of water precipitated conflicts over water rights and water use. The farmers facing drought in 1966 got by just fine thanks to the use of fertilizers and wise irrigation techniques. However, on June 21 the Board of Directors of the Clark Canyon Water Supply Company cut off water rights by issuing the following resolution: “Whereas, the excessive use of water by certain individuals above and beyond the amounts purchased, or which the natural water right would give them or a combination of the two, is unfair to the other members of the corporation and can result in wasting water that may be needed for next year.” The district moved to “direct that the water be cut off from anyone who has used 5 acre feet,” and also sent a letter to the Fish and Game Commission asking that it stop making early releases that “could have been used for irrigation purposes.”³⁶

The tensions over releases for fish and wildlife became particularly contentious. On November 10, 1966, representatives from Reclamation, the irrigation district, Fish & Wildlife Department, and the State Fish & Game Commission met and discussed water releases for fish and wildlife development. When the district demanded that the Fish & Wildlife Department and

34. See U.S. Congress, House of Representatives, *Jefferson, Madison, and Gallatin Rivers, Mont. (Three Forks Basin)*, 23; “Project History,” Volume 11, 1970, 3.

35. “Project History,” Volume 6, 1965, 7, 12-3.

36. “Project History,” Volume 7, 1966, A-15, A-27-A-29.

the State Fish & Game Commission reduce release during dry periods, the State Fish and Game Department biologist in attendance said that reductions had already been made from 200 cubic feet per second (cfs) to 100 cfs. The district persisted, arguing that releases ought to be reduced to 50 cfs “and that they [the irrigation district] know of no right whereby the Fish and Game Commission should dictate what the stream flow or releases should be. It was pointed out that the D[efinite] P[lan] R[eport] provided for a minimum of a release of 25 cfs during the times of drought and that in the opinion of the water users the present circumstances clearly were drought.” Representatives from the fish and wildlife agencies stated that drought meant “a drought sustained over a period of five to ten years.” The irrigation water users then issued a threat: “if the Fish & Game Department is going to insist on releasing water which is needed for irrigation next summer . . . they would further consider legal action to enjoin the Government from releasing an excess of 25 cfs during periods of drought.” The meeting ended when Harold Aldrich, regional director of Region 6, stated the river releases would be reduced to 80 cfs.³⁷

A solution to the drought-releases from the dam would be to increase storage capacity in the reservoir. Reclamation reportedly worked with the Army Corps of Engineers to find a way to permit the district to increase the active-use capacity from 177,000 to 198,000 acre-feet, but this never went anywhere.³⁸

The impact of Clark Canyon Dam on fish populations was undeniable. Before 1964, when the Beaverhead River flowed free, wild brown and rainbow trout proliferated, except during the irrigation season when sections of the river frequently dried up. After 1966 the Department of Fish, Wildlife and Parks began studying the impacts of the dam and reservoir on the fish populations and found that the numbers had declined due to inconsistent releases of

37. “Project History,” Volume 7, 1966, A-32-A-34.

38. See the minutes of the annual meeting of the stockholders of Clark Canyon Water Supply Company, March 13, 1967, in “Project History,” Volume 8, 1967, A-19.

water from the reservoir. In 1974, believing erratic flow during spawning season impeded fish reproduction, Reclamation began to stabilize flows. The plan worked. After three years the carefully monitored flows had a noticeable salutary effect: the fish count per mile had increased from 600 to 3,000. As *Montana Outdoors* put it, “the East Bench Unit has played the pivotal role in making the upper Beaverhead one of the finest wild trout fisheries in the nation.”³⁹

On other fronts, Reclamation successfully coordinated efforts and signed agreements with Federal, state, local, and private entities on matters related to the East Bench Unit. The Montana Highway Commission agreed to implement the recreational plan for the reservoir in development of the area. The United States leased the lands to the commission, and the commission agreed to conform to the management plan prepared by the National Park Service. Reclamation worked with Beaverhead County on an underground lateral across Dillon Airport. In addition, Reclamation cooperated with Dillon Canals, Inc., Irvine and Cottom Company, Inc. and Laden Brothers on easements, and with Montana State College on development of information regarding irrigation and farming on the East Bench Unit.⁴⁰

In recent years, there has been discussion about installing hydropower generation at Clark Canyon Dam. The East Bench Irrigation District applied to the Federal Energy Regulatory Commission (FERC) for a license for a power plant at the toe of Clark Canyon Dam. The proposed power plant would generate power using discharges from irrigation and flood control which would then be used by three rural electric cooperatives in the area. On April 21, 1982, the state of Montana issued a water use permit for hydropower generation.⁴¹

39. “A Dam That Didn’t Damn Trout,” *Montana Outdoors*, September 10, 1985, in East Bench Irrigation District, *Before the Federal Energy Regulatory Commission, Application for License for Clark Canyon Dam*, FERC Project No. 7664, Beaverhead, County, Prepared by James A. Sewell & Associates, Newport, Washington, August 1986, Exhibit E Attachment 3.

40. “Project History,” Volume 3, 1962, 80-90.

41. Application for License for Clark Canyon Dam, Exhibit A.

Reclamation signed a memorandum of agreement with the district for the study of hydropower potential at Clark Canyon Dam. In general, Reclamation did not seem to have a problem with it and presented no major obstacle to its construction. However, the director of Missouri Basin Region recommended several design modifications to meet operation concerns. In May 1986 he proposed moving the plant away from the outlet works stilling basin in order to “provide a means to bypass releases from the reservoir to meet minimum instream flow requirements.” Later he advised moving the plant to the east of the outlet works basin, “to avoid any interference with future operation and maintenance activities,” and indicated that Reclamation would need to approve the design and construction that may impact the existing dam and structures.⁴²

This facility was never built, but in 2004 Clark Canyon Hydro, LLC, a branch office of Symbiotics LLC, began the process of applying for a FERC license for hydroelectric project on Clark Canyon Dam. If approved, the project will have a capacity of 4.75 MW from two turbine units.⁴³

Settlement of Project Lands

At the East Bench Unit, a husband and wife could each own 160 acres of irrigable land in the East Bench Irrigation District, and Congress waived the acreage limitations of Federal reclamation laws for farmers in the supplemental service area. Reclamation worked with the Commissioner of State Land and Investments at Helena and with the Beaverhead County Soil Conservation District on excess land limitations applicable to private land above the reservoir. Public auctions were held on November 20-21, 1963, to sell land owned by the state and the

42. *Application for License for Clark Canyon Dam*, Exhibit E Attachments 5, 18, 28.

43. Symbiotics LLC, “Clark Canyon Project,” <http://www.symbioticsenergy.com/projects/runriver/clarkcanyon/clarkcanyon.html>; Clark Canyon Hydro, LLC, *Clark Canyon Dam Hydroelectric Project, FERC No. 12429, Draft License Application Stage 2 Consultation Document*, prepared by Ecosystems Research Institute, and NW Power Services, Inc., March 2006.

Northern Pacific Railroad in Beaverhead and Madison counties to East Bench farmers.⁴⁴

In association with the settlement of project lands, Reclamation implemented a settler assistance program to address the challenges of laying out new farms and irrigating new acreage. The program would iron out financial and technical problems confronted by settlers. Reclamation awarded contracts for this work to the Extension Service of Montana State College and the Soil Conservation Service. The assistance must have been well received; in March 1969 the committee of the East Bench Irrigation District requested that Reclamation continue providing the services of an irrigation specialist for at least two more years to assist landowners in the area.⁴⁵

Project Benefits and Uses of Project Water

The first full year of irrigation the project lands yielded 16,307 acres of crops. In 1967 full irrigation service to unit lands increased by 2,443 acres, and in 1968 another 1,701 acres were put into production.⁴⁶ Today, the East Bench Unit provides full irrigation service to 21,800 acres and supplemental service to 28,000 acres, for a total of 49,800 acres divided among 152 farms. Land holdings owned by members of the irrigation district averaged 1,061 acres in 1965, though not all the land was located within the East Bench Irrigation District's boundaries. The principal crops grown are grains and hay for cattle.⁴⁷

Boosters hoped that the economic benefits accruing to irrigators would extend to other industries in the area. The unit did provide the impetus for the construction of new buildings and developments in Dillon and the surrounding area, and for the creation of the Dillon Livestock Auction Company in 1961. Shortly after the unit had been completed, the Beaverhead County

44. "Project History," Volume 3, 1962, 93-4; Volume 4, 1963, 14.

45. "Project History," Volume 4, 1963, 16-7, 87; Volume 9, 1968, 3; Volume 10, 1969, A-16.

46. "Project History," Volume 8, 1967, 7; Volume 9, 1968, A-81.

47. U.S. Department of the Interior, Bureau of Reclamation, "Pick Sloan Missouri Basin Program, East Bench Unit, Montana," <http://www.usbr.gov/dataweb/html/eastbench.html>. Hereafter cited as Project data, online.

Planning Group began drafting an overall economic plan for the area. The Dillon Chamber of Commerce considered for a short time wooing a Butte meat packer to move its operations to Dillon by raising the money to construct the plant. However, the Agricultural Subcommittee of the County Planning Committee concluded that the proposal would be uneconomical, and nothing came of it.⁴⁸

More directly, the region saw an increase in the production of goods and in net farm income. In 1969 and 1974 the unit contributed “4 to 5 percent of total employment, 5 percent of total earnings, and 3 percent of per capita income in Beaverhead and Madison counties.” The project accounted for about 16 percent of irrigated land in the two counties.⁴⁹

The other principal benefit of the project was flood control benefits on the Beaverhead River. Clark Canyon Reservoir has an exclusive flood control capacity of 79,090 acre-feet, including a replacement storage capacity of 56,475 acre-feet allocated to assist with the flood and power operations of the Corps of Engineers Missouri River Main Stem System, and a surcharge capacity of 71,827 acre-feet for a total flood control capacity of 150,917 acre-feet. In June 1964 the dam minimized losses—the Corps of Engineers estimated that the partially completed dam prevented \$110,000 in damages—stemming from a flood on the Beaverhead River. By 1998 the savings in flood damages totaled an estimated \$11.5 million.⁵⁰

As a further benefit, Clark Canyon Reservoir and Barretts Diversion Dam provide recreation opportunities to the community of Dillon and the surrounding area.

Conclusion

The East Bench Unit is a medium-sized, little known water project designed to provide

48. “Project History,” Volume 4, 1963, 16-7; Volume 6, 1965, 13; Volume 7, 1966, 13.

49. U.S. Department of the Interior, Bureau of Reclamation, *The Economic Impact of the East Bench Unit Irrigation Project on Beaverhead and Madison Counties, Montana*, prepared by Bureau of Business and Economic Research, University of Montana, Missoula, Montana, September 1977, iii, iv, 19, 35, 38, 41.

50. Project data, online; “Project History, East Bench Unit,” Volume 5, 1964, 14a.

irrigation, flood control, and recreation benefits to Beaverhead and Madison counties. No doubt, the 49,800 acres of land irrigated by the unit contributes significantly to the local economy. Part of the patchwork of water projects incorporated into the Pick Sloan Missouri Basin Program, the unit makes a notable contribution to the development and harnessing of the Missouri River and its tributaries.

Despite tangible benefits exemplified by the East Bench Unit, the Pick-Sloan Program is not without its problems or critics. The water projects do not always entirely solve questions of water scarcity and allocation. They also raise questions about the natural state of our rivers and biotic communities they support. For years, the dominant perception was that the rivers were a commodity that had to be channeled and harnessed to serve man. This was the sentiment that drove passage of the Pick-Sloan Plan in 1944 and construction of the East Bench Unit in Montana. In more recent decades that sentiment has run head-on into the idea that big dams in particular have disrupted the physical environment and the human perception of the Missouri River. Reclamation's task is to balance these competing values and interests as it develops and manages water resources in an economically and environmentally sound manner for the twenty-first century.

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