

# **Hungry Horse Project**

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## **Hungry Horse Project**

The United States' entry into World War II put great pressure on the country and its resources. Wartime industry exploded in a flurry of activity as manufacturers raced to produce greater amounts of material for the war effort. Electrical power was one resource necessary for all wartime manufacturers. Increasing need for emergency water storage for wartime electricity influenced serious consideration for the Hungry Horse multi-purpose dam, with hydro-electric power as one of its main functions.<sup>1</sup> In apparent contradiction to the professed urgency for electrical power, Congress authorized the project June 5, 1944, to begin "as soon as war conditions permitted the diversion of materials and manpower for the work."<sup>2</sup>

Reclamation planned to use Hungry Horse Dam to regulate the release of water to Grand Coulee and Bonneville Dams on the Columbia River to increase their power production. Hungry Horse would also generate its own hydro-electric power for residents in the immediate vicinity. Reclamation planned for Hungry Horse Dam to protect agricultural lands in the Flathead Lake area against floods.<sup>3</sup>

### **Project Location**

The Hungry Horse Project is located in Flathead County, in the extreme northwest of Montana. Hungry Horse Dam lies south of Glacier National Park. To the southwest lies Kalispell, and to the west, Whitefish and Columbia Falls. They comprise the three major communities near the project. The Canadian Border lies 44 miles directly north of Hungry Horse. The Flathead National Forest surrounds the project in heavily timbered wilderness.<sup>4</sup> The northerly location of Hungry Horse often results in extreme variations of temperatures between the seasons. Kalispell recorded temperatures up to 101 degrees in July 1934 and as low as -34 degrees in January 1909.<sup>5</sup>

### **Historic Setting**

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1. Bureau of Reclamation, "Hungry Horse Project, Montana: Final Construction Report Vol. 1: 1946-1953," *Project Reports*, Record Group 115, Box 444, 28. Hereafter Record Group 115 cited as RG 115.
  2. Bureau of Reclamation, *Annual Project History, Hungry Horse Project, Prior to 1946*, RG 115, 7.
  3. *Ibid.*
  4. Reclamation, "Hungry Horse Project, Final Construction Report, vol. 1," 27.
  5. Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1952*, RG 115, 55.

First explored for the United States by the Lewis and Clark expedition of 1804-05, Montana became an example of the popular ideal of the west. The state boasted a significant cattle ranching industry during early settlement. Later the Great Northern Railway brought Montana civilized transportation. Flathead County experienced an oil rush at the turn of the century. Montana continues to exemplify the ideal of western history with its assortment of cowboys, cattle, ghost towns, and the Little Big Horn battlefield, where George Armstrong Custer made his famous, or infamous, last stand.<sup>6</sup>

Meriwether Lewis and William Clark led the first known expedition of European-Americans through Montana in 1804-05. The expedition gave the United States a taste of what to expect in the newly acquired Louisiana Purchase. Later the booming fur trade of the early nineteenth century brought more Americans to the Flathead Valley. They were trappers from the Hudson's Bay Company and the Northwest Fur Company. Except for the trappers, however, northwest Montana remained isolated from European influenced civilization until the first permanent settler arrived in 1860.<sup>7</sup>

The Flathead Valley became closely linked to the Great Northern Railway. Three Montana towns, including Columbia Falls, the oldest town in Flathead Valley, were considered for a division point on the rail line. Two proved unsuitable, and the land barons in Columbia Falls wanted too much for the property. In desperation, Jim Hill, the railway's builder, convinced a friend to purchase the necessary amount of land in another suitable location. Hill then built the Great Northern line to that point, giving birth to Kalispell, Montana.<sup>8</sup>

Hungry Horse received its name from an incident that occurred in the winter of 1900-01. During the Montana oil rush at the turn of the century David and William Prindiville hauled drilling equipment to a spot on the north fork of the Flathead River. One day after crossing the south fork of the river they noticed two of their horses missing, Jerry and Tex. A month later the

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6. Marie Cuffe Shea, *Early Flathead and Tobacco Plains: A Narrative History of Northwestern Montana* (Eureka, Montana: 1977), 77; "Who's Hungry Now?" *The Reclamation Era*, January 1947, 21.

7. Clark C. Spence, *Montana: A Bicentennial History* (New York: W. W. Norton, 1978), 10; Water and Power Resources Service, *Project Data* (Denver: Government Printing Office, 1981), 535.

8. Shea, *Early Flathead and Tobacco Plains*, 77.

horses were found "belly deep in snow and `nothing but skin and bones'."<sup>9</sup> The men cleared a trail to the horses and fed them until the horses had the strength to walk out. Jerry later pulled a fire wagon in Kalispell, and Tex did similar duty on a wagon for the Kalispell Mercantile Company.<sup>10</sup>

During the early twentieth century, Montana citizens in the area discussed the possibility of a project to use the Flathead River for irrigation and power generation, and to provide flood control. The U.S. Geological Survey began studies of the Hungry Horse Dam site in 1921. The analyses continued periodically for twenty years. The Army Corps of Engineers conducted its own investigations of the area for dam sites. The Corps reported on the studies in 1934, but did not immediately proceed farther.<sup>11</sup>

Organized support for the project materialized in 1943 when the Corps of Engineers returned to investigate possible storage sites for the Columbia River power system. The Corps of Engineers initially proposed one million acre-feet of storage by raising Flathead Lake. Local opposition to this plan influenced a closer look at Hungry Horse Dam as an alternative. Favorable engineering and geologic findings led to selection of the Hungry Horse Dam site by Reclamation in 1944.<sup>12</sup>

### **Project Authorization**

Congress authorized the Hungry Horse Project June 5, 1944, as a result of the promising reports. Afterwards Reclamation began detailed investigations to determine the exact dam size and location. Congress approved the project on the condition that work should proceed when war conditions permitted the diversion of resources to the project. Committee reports stressed urgency in providing flood control for Flathead Lake agricultural lands and regulation of Columbia River waters to increase power production at Grand Coulee and Bonneville Dams. The proposed site for Hungry Horse Reservoir would flood many U.S. Forest Service facilities. Reclamation and the Forest Service reached an agreement on February 25, 1947, providing that

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9. "Who's Hungry Now?," 21.

10. *Ibid.*

11. Reclamation, "Hungry Horse Project, Final Construction Report, vol. 1," 28.

12. *Ibid.*

Reclamation would rebuild or relocate affected facilities. These included a road around the northeast side of the proposed reservoir and several structures.<sup>13</sup>

### **Construction History**

The war effort and expenditure of resources in World War II delayed construction on the project until 1945. Reclamation appointed Paul A. Jones as Project Engineer, January 16, 1945. Pre-construction work on Hungry Horse commenced in August 1945 as workers started on the access trail up the Flathead River's south fork to the dam site. In 1947 Reclamation transferred Paul Jones to Denver and C. H. Spencer became the project's Construction Engineer.<sup>14</sup>

Guy F. Atkinson Co. excavated the diversion tunnel in the right abutment of the dam site from November 3, 1947, until Reclamation accepted the work June 30, 1948 to divert the south fork of the Flathead River around the dam sit for construction. Atkinson pushed excavation harder through the winter to finish, starting three work shifts in February. Work originated from both sides of the tunnel, but the upstream portal collapsed due to fractured rock. From then on work continued from the downstream portal only.<sup>15</sup>

Clearing of the reservoir site signaled the beginning of main construction work on Hungry Horse Project in 1947. The clearing process overlapped the construction time of the dam. Wixson & Crowe and J. H. Trisdale, Inc. of Redding, California; and J. J. Reese of Columbia Falls, Montana, received the contracts to clear parts of the reservoir site in May 1947. Reese began work on his section June 23, 1947, but moved very slowly. He completed only a quarter of the scheduled work in more than half the time allowed by the contract. In August 1948, Reclamation terminated Reese's contract and Seaboard Surety Co assumed the work under bond. Seaboard completed the work by the end of 1949, shortly behind schedule.<sup>16</sup>

Wixson & Crowe and J. H. Trisdale started clearing September 7, 1948. The outfit

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13. Reclamation, "Hungry Horse Project, Final Construction Report, vol. 1," 28; Reclamation, *Project History, Hungry Horse Project, Prior to 1946*, 5, 7; Reclamation, *Annual Project History, Hungry Horse Project, 1948*, RG 115, 33.

14. Reclamation, *Project History, Hungry Horse Project, Prior to 1946*, 5; Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1947*, RG 115, 8.

15. Bureau of Reclamation, *Project History, Hungry Horse Project, 1948*, RG 115, 15.

16. Reclamation, *Project History, Hungry Horse Project, 1948*, 19; Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1949*, RG 115, 18.

achieved better results and moved much faster than Reese. The area cleared by the firm totaled approximately 6,200 acres, mostly burned over areas with dead timber. Reclamation made the contract deadline December 20, 1950, but the company completed the job early, August 18, 1950. Wixson & Crowe and J. H. Trisdale Inc. dissolved their partnership into Wixson & Crowe, Inc. and J. H. Trisdale, Inc., in 1949 to give each more latitude in estimating and bidding on the clearing contracts. Both received contracts for clearing further sections on the Hungry Horse Reservoir site.<sup>17</sup>

The two contractors started their new sections in May 1950. They used tractors to pull eight foot diameter steel balls attached by cables through the trees and brush. Workers used the balls to keep the cables clear of stumps left from logging operations. The balls also prevented the cable from sliding up and over small, more flexible trees. Workers soon nicknamed the process "Operation Highball". The two firms' combined acreage to clear a total of 14,695 acres. Both firms continued clearing operations through 1951, closing down in October for the coming winter with approximately 15 percent of the work left to accomplish. Wixson & Crowe finished the work September 25, 1952, and Trisdale completed his section September 30.<sup>18</sup>

Coleman H. Dykes of Knoxville, Tennessee, received a contract to clear just over 1,000 acres of the dam site on October 18, 1949. Dykes' efforts proved unsatisfactory in the eyes of Reclamation officials. Dykes began the contract with low financial capital and no equipment for clearing work. Consequently he got off to a slow start. Dykes let subcontracts (placed in quotations in the *Project History* apparently questioning their validity) to several locals. By doing so Dykes thought he ended his obligations under the Davis-Bacon Act of 1931 that regulated wages on government contracts including, the requirements to file weekly wage affidavits, pay employees on a weekly basis, and to pay minimum wage.<sup>19</sup>

Evidently Dykes' maneuvering did not clear him with Reclamation, because he finally let

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17. Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1950*, RG 115, 27; Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1951*, RG 115, 30-31.

18. Reclamation, *Project History, Hungry horse Project, 1950*, 30-1; Reclamation, *Project History, Hungry Horse Project, 1951*, 33-4; Reclamation, *Project History, Hungry Horse Project, 1952*, RG 115, 39-40.

19. Reclamation, *Project History, Hungry horse Project, 1950*, 30.

a subcontract to Robert E. Lee, Inc. of Manning, South Carolina, on January 25, 1950, to take over all of Dykes' schedules and subcontracts. The situation with Dykes' contract did not resolve for several months until Robert E. Lee started work on the contract. Lee showed greater proficiency for the work, completing nearly 90 percent of the work in 52 percent of the time allotted. The firm resumed work after the winter shutdown, in April 1951. The remaining job was primarily hand picking and clearing of steep slopes. Lee developed a four point iron drag, shaped similar to an umbrella, to pull cut trees to a central pile for burning. Lee completed the work September 24, 1951, and Reclamation accepted it in October.<sup>20</sup>

General-Shea-Morrison of Seattle received the contract for construction of Hungry Horse Dam and Powerplant in April 1948, by Secretary of the Interior Julius A. Krug. In a ceremony on July 10, 1948, attended by Assistant Secretary of the Interior William E. Warne; Governor Sam Ford of Montana, set off the first dynamite blast to start construction of Hungry Horse Dam.<sup>21</sup>

General-Shea-Morrison began their work the next day. The company erected a construction camp south of the government camp. They equipped it with houses, dormitories, warehouses, and a schoolhouse, and established a mercantile, grocery store, hospital, and a first aid station. General-Shea-Morrison built an eighty ton capacity bridge across the river and built a machine shop, compressor house, and a blacksmith shop at the dam site. The contractor strung floodlights across the canyon to permit night operations. General-Shea-Morrison considered building a conveyor from the aggregate pit to the dam, a distance of five miles. They dropped the plan because the breakdown of one drive unit could have stopped the entire system, so trucks were used to haul the aggregate.<sup>22</sup>

Boyle Brothers subcontracted to build the "morning glory" spillway, a short distance upstream in the right abutment of the dam. Excavation of the spillway tunnel began at the same

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20. Reclamation, *Project History, Hungry Horse Project, 1950*, 30; Reclamation, *Project History, Hungry Horse Project, 1951*, 31.

21. Reclamation, *Project History, Hungry Horse Project, 1948*, 16-7; "Hungry Horse Breaks 'Fast,'" *The Reclamation Era*, October 1948, 197; "Hungry Horse Contract Signed," *The Reclamation Era*, June 1948, 120.

22. Reclamation, *Project History, Hungry Horse Project, 1948*, 16-7.

time as dam construction. Work on the spillway tunnel carried over into 1949. Boyle Brothers broke through to the diversion tunnel on January 19, 1949. Reclamation increased diameter specifications of the lower end of the spillway from 55 feet to 120 feet. They finished excavating the spillway to its full diameter in early April 1949. Boyle Brothers started lining the lower twenty feet of the spillway in October 1949.<sup>23</sup>

Boyle Brothers continued lining the spillway in 1950 and 1951, halting during the winter months. When lining the spillway commenced June 1, 1951, Boyle Brothers used a twenty foot steel form for setting the concrete. Workers had to expand the steel form to correspond to the taper of the spillway tunnel's inclined portion. The company utilized wooden forms to connect the new lining and the lining at the foot of the spillway. In the course of the year, workers closed the upstream portal of the diversion tunnel and drained it, permitting excavation for the spillway's outlet structure to be completed.<sup>24</sup>

General-Shea-Morrison continued excavation and stripping of excess rock from the abutments and river channel above the low water line. Workers raised an upstream cofferdam of concrete cutoff walls and rock-filled timber cribs from each abutment to divert the river. The company completed diverting the river through the diversion tunnel April 11, 1949. High water overflowed the cofferdam in early June. The overflow delayed the expulsion of water from the river channel portion of the dam foundation until June 23, in turn postponing foundation excavation.<sup>25</sup>

General-Shea-Morrison placed the first concrete in the dam September 7, 1949. The contractor used fly-ash as a pozzolan<sup>26</sup> mixture. Reclamation instituted the fly-ash mixture to replace about 35 percent of the portland cement, because it was a waste product from burning coal dust, required no processing, and cheap, abundant amounts were available. One negative aspect of using the material, was the fly-ash constituted a health hazard in the mixing plant

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23. Reclamation, *Project History, Hungry Horse Project, 1948*, 17; Reclamation, *Project History, Hungry Horse Project, 1949*, 21-3.

24. *Ibid.*, 25-6.

25. Reclamation, *Project History, Hungry Horse Project, 1949*, 21.

26. Pozzolan is "a finely ground burnt clay or shale resembling volcanic dust, found near Pozzuoli, Italy; used in cement because it hardens underwater." Source: Sybil B. Parker, ed., *McGraw-Hill Dictionary of Scientific and Technical Terms, 4th Edition* (New York: McGraw-Hill, 1989), 1480.

because of the constant presence of dust in the air. Winter shutdown of concrete placement in Hungry Horse Dam occurred November 16, 1949 after 59,554 cubic yards of concrete had been laid.<sup>27</sup>

Operations proceeded in the Spring of 1950, with the raising of the upstream cofferdam by twenty-four feet to protect against expected high water. Concrete placement operations resumed April 8, 1950, and shut down on November 19, for the winter. General-Shea-Morrison placed the penstock pipes and started laying concrete for the powerplant in April. Lining the foundation tunnels began in May. May 18 inaugurated the major placing of concrete for the dam structure. Between June 26 and July 7, 1950, a railroad switchman's strike halted rail shipments of cement. The strike forced the company to ship cement by truck, adding an estimated \$75,000 to the project's cost. During the construction months General-Shea-Morrison laid roughly one million cubic yards of concrete.<sup>28</sup>

After the winter shutdown, work on the dam continued April 2, 1951. During the year General-Shea-Morrison started construction of the trashrack structures and installing the steel trashracks. The four penstock pipes were enclosed in concrete. Workers laid 1.3 million cubic yards of concrete on the dam during the year. The company finished the steel work in the powerplant, and all but five pours of the concrete for the powerplant structure before the year's end.<sup>29</sup>

Concrete placement on Hungry Horse Dam resumed April 7, 1952. At the beginning of the work year the concrete blocks were at an elevation of 3,413 feet. By September 15 the contractor had raised all blocks but one to a 3,565 foot elevation. Workers waited as long as possible to raise the final block in order to continue using the full length of concrete transfer track which ran through the block's position. They finished the final block October 4, 1952.

Workers used a collapsible rubber form to fashion the five inch drain holes in the dam. They

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27. Reclamation, *Project History, Hungry Horse Project, 1951*, 23; Bureau of Reclamation, "Hungry Horse Project, Montana, Final Construction Report, vol. 4: 1946-53," *Project Reports*, RG 115, Box 444, 110; Bureau of Reclamation, *Physical and Chemical Properties of Fly-Ash -- Hungry Horse Dam*, Research and Geology Division, Branch of Design and Construction, Denver, June 1948.

28. Reclamation, *Project History, Hungry Horse Project, 1950*, 5-6, 24; Reclamation, *Project History, Hungry Horse Project, 1951*, 23.

29. Reclamation, *Project History, Hungry Horse Project, 1951*, 23-5.

filled the form with water to keep the required diameter, then emptied it for removal. General-Shea-Morrison completed most of the parapets and the trashrack structures in late 1952. The company finished concreting the powerplant control bay superstructure in May 1952. They completed final work on the powerplant in July, while elevator shaft work concluded in August. Boyle Brothers continued lining the spillway tunnel and concreting the outlet structure. They placed the ring gate in August 1952. Workers finished the concrete plug in the upstream portal of the diversion tunnel in April 1952.<sup>30</sup>

On October 1, 1952, at 11:35 a.m., President Harry S. Truman threw the switch to start power generation in the Hungry Horse Powerplant. President Truman then attended the dedication ceremony for Hungry Horse Dam at Flathead County High School in Kalispell. Work still remained after the dedication. In early 1953 inclement weather shut down virtually all construction on the Hungry Horse Project, but the end of February marked final cooling of the dam. Workers completed grinding, patching, and finishing of the spillway. They also accomplished final drilling of drain and pressure uplift holes in the dam.<sup>31</sup>

Hungry Horse Dam is a concrete thick arch structure 564 feet high. The top width is 39 feet, while the bottom is up to 330 feet wide. The crest is 2,115 feet long. Hungry Horse Dam has a morning glory spillway controlled by a 64 x 12 foot ring gate. Three 96 inch diameter conduits provide outlets for the river. Four 162 inch penstock pipes supply water to the powerplants four generators with a total capacity of 285,000 kilowatts. Total storage of Hungry Horse Reservoir is almost 3.5 million acre-feet.<sup>32</sup>

Construction of Hungry Horse Dam required replacement of some U.S. Forest Service structures and roads. Relocation of the Forest Service road proved the more complex procedure. For the operation, Reclamation divided the road into two sections and awarded contracts for each. F. R. Hewett Co. of Spokane, Washington received the contract for the first section of

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30. Reclamation, *Project History, Hungry Horse Project, 1952*, 23-4, 51.

31. Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1953*, RG 115, 12; Reclamation, *Project History, Hungry Horse Project, 1951*, 25; "Last Concrete Poured at Hungry Horse," *The Reclamation Era*, December 1952, 299.

32. Water and Power Resources Service, *Project Data*, 539.

road in August 1947 and started in September. Gordon Construction Co. of Denver subcontracted with Hewett to move Margaret Creek and Tiger Creek bridges. Weather conditions limited Hewett's construction time in 1948 to six months. At the end of the year 53 percent of the allowable time had elapsed with 42 percent of the work completed. By working two shifts in 1949, Hewett succeeded in finishing the work on September 24, 1949, with only 89 percent of the contract time elapsed.<sup>33</sup>

Reclamation awarded McLaughlin, Inc., of Great Falls, Montana, the contract for section two of the Forest Service road relocation. McLaughlin's section consisted of 16.7 miles around the northeast shore of Hungry Horse Reservoir. McLaughlin started work in May 1949 and closed down for the winter in November with 55 percent of the job completed. Work slowed down in 1950, due to weather conditions on the project. Saturation of the ground caused repeated mud slides on the roadway at Felix Creek. Cribbing the soil proved necessary to support the road. After completion of the cribbed section, an October slide covered the road. Rain in the days between October 15 and 21, 1950, prevented McLaughlin from finishing and grading the road, and burning nearby brush. By the contract deadline, McLaughlin had completed 91 percent of the road relocation.<sup>34</sup>

McLaughlin continued operations on the Forest Service road May 24, 1951, after the winter shutdown in 1950. Completion of the task concentrated around roadway finishing, slide removal, cleanup, and brush burning. McLaughlin concluded the work July 21, 1951, 202 days past the deadline. Reclamation launched a fact finding investigation into the overrun, but determined McLaughlin was not responsible for the delays.<sup>35</sup>

Other road work included the relocation of three bridges on the new road, west of the reservoir. Hansen & Parr Construction Co. of Spokane fulfilled the contract for the bridges. Valley Construction of St. Ignatius, Montana, built a new fire lookout tower to replace one inundated by Hungry Horse Reservoir. Flathead Building Service of Whitefish constructed the

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33. Reclamation, *Project History, Hungry Horse Project, 1949*, 18-9.

34. Reclamation, *Project History, Hungry Horse Project, 1950*, 27-8.

35. Reclamation, *Project History, Hungry Horse Project, 1951*, 30-1.

West Side Work Center to replace facilities lost to reservoir waters. The new work center consisted of housing for Forest Service employees, garage and shop facilities for vehicles, a communications center, stable, corral, and storage space. The Betty Creek Work Center, finished in 1952 by Merritt Cass of Polson, Montana, was the same design.<sup>36</sup>

### **Post-Construction History**

After construction Hungry Horse Dam proved free of any major problems. Mechanical failures constituted most difficulties that appeared. For instance several generator thrust bearing oil coolers failed in 1955, and new coolers of different material were installed to correct the problem. A power pole fire caused eight power line outages in one eight hour shift in 1955. Cavitated areas on turbine runners appeared, but were repaired.<sup>37</sup>

Concern arose in the mid-1980s about Hungry Horse Dam's safety under certain conditions. Reclamation's Division of Dam Safety released its Safety Evaluation of Existing Dams report on Hungry Horse. The report said severe cracking may occur on both the upstream and downstream faces of Hungry Horse Dam in a maximum credible earthquake. The report stated the failure of the dam would endanger 15,000 people.<sup>38</sup>

### **Settlement of the Project**

Because the Hungry Horse Project has no irrigation obligations, population figures from the project have limited importance. The population of surrounding Flathead County remains sparse. In 1990 the county population only totaled 59,218. The three major towns on the project include Kalispell, population 11,917; Whitefish, 4,368; and Columbia Falls, 2,942.<sup>39</sup>

Interest in the Hungry Horse Project altered the annual Reclamation Conference in 1951. Reclamation held the conference in Wenatchee, Washington, but added a train trip to Hungry Horse. The Northern Pacific Railroad modified the water fountains on the train to dispense scotch or bourbon. Regional Director Lyle Cunningham said, "In the event there is anyone

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36. Reclamation, *Project History, Hungry Horse Project, 1953*, 39-41.

37. Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1955*, RG 115, 1.

38. Bureau of Reclamation, *SEED (Safety Evaluation of Existing Dams) Report on Hungry Horse Dam, Hungry Horse Project, Montana, Pacific Northwest Region*, Division of Dam Safety, Assistant Commissioner--Engineering and Research, Denver, 30 September 1987.

39. Bureau of the Census, *Twenty First Census of the United States, 1990*, Bureau of the Census, 1990, CD-ROM.

aboard who prefers to drink water, which is considered highly improbable, he or she will be assigned quarters in the engine, where he may share the engineers water jug."<sup>40</sup>

The power generated by Hungry Horse Dam led to significant economic developments in the area. To exploit the new abundance of electricity in the early 1950s, Anaconda Aluminum Co. built a plant in Columbia Falls, that employed 450 men. Automation kept the employment figure low. Pacific Power and Light Co. and the Bonneville Power Administration built a new plant and modernized an existing one in the area during the same time period. Increasing visitors to Glacier National Park boosted tourism in Flathead County during the early half of the decade. By the 1970s, financial pressure had its effect on the region. Chilean nationalization of Anaconda holdings forced the company to lay off one-third of its Montana employees to ease the company's economic woes.<sup>41</sup>

### **Uses of Project Water**

As mentioned throughout this history, the main function of Hungry Horse Dam, Reservoir, and Powerplant is the production of electrical power for various recipients. The dam and reservoir provide other functions as well, flood control being one of the paramount roles. Hungry Horse Dam accomplishes the task by regulating the amount of water to flow down the Flathead River during high water periods, as it did during floods in May and June of 1970.<sup>42</sup>

Various forms of recreation remain favorite public activities on the dam, reservoir, and surrounding area. Visitors enjoy boating, swimming, and water skiing on the reservoir. Boat launches are located in coves along the shore of Hungry Horse Reservoir. Lost Johnny Campground and Heinrud Creek Recreation Area provided facilities for those who prefer land activities or at least sleeping on dry ground. Reclamation opened Hungry Horse powerplant to visitors in 1953. An estimated 150,000 people visited the dam in 1954, and over 47,000 of those took the guided tour through the dam. In 1959 Reclamation ended guided tours, and initiated self-guided tours for visitors. Approximately 50,000 people a year went on the tour after the

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40. *The Winatchee Daily World*, 27 July 1951, p. 1.

41. Spence, *Montana*, 176; Reclamation, *Project History, Hungry Horse Project*, 1955, 2.

42. "Hungry Horse Prevents Floods," *The Reclamation Era*, November 1970, 30.

change.<sup>43</sup>

### **Conclusion**

Compared to many Reclamation projects, Hungry Horse is small. Though it consists of only one dam and no irrigation facilities, the project fulfills an important function in generating electrical power for the immediate area and providing water storage for hydro-electric dams farther downstream, on the Columbia River. The current, primary concern about the project is the effect of dams on migrating and spawning fish, such as Kokanee. Dams offer the greatest barrier to fish migrating upstream to spawn.<sup>44</sup>

### **About the Author**

Eric A. Stene was born in Denver, Colorado July 17, 1965. He received his Bachelor of Science in History from Weber State College in Ogden, Utah, in 1988. Stene received his Master of Arts in History from Utah State University in Logan, in 1994, with an emphasis in Western U.S. History. Stene's thesis is entitled *The African American Community of Ogden, Utah: 1910-1950*.

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43. Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1959*, RG 115, 19; Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1960*, RG 115, 7-8; Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1962*, RG 115, 3-4, 17; Bureau of Reclamation, *Annual Project History, Hungry Horse Project, 1973*, RG 115, 10.

44. Will Beattie & Joel Tohtz, Biologists, Bob Bukantis & Steve Miller, Research Assistants, *Effect of the Operation of Kerr and Hungry Horse Dams on the Reproductive Success of Kokanee in the Flathead System: Prepared for the U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife, Montana Department of Fish, Wildlife, and Parks: March 1990*, 20-1.

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