



RESERVOIR RECREATION

The dam, reservoir, and surrounding area create a playground paradise providing great opportunity for public use and enjoyment. A myriad of activities and relaxation associated with the outdoors are realized throughout a rugged and colorful area. The reservoir is a deep 71-mile-long blue-water lake having a magnificent and exciting 195-mile shoreline. Surrounding the reservoir are uplifted mountains—the Bighorns to the east and the Pryors to the west—with upland prairie between them. Through this beautiful grassland the Bighorn River has carved a narrow and precipitous gorge, dropping in some cases 2,200 feet from prairie to river level. The lake covers portions of both Montana and Wyoming, and the lower 47 miles is within the spectacular Bighorn Canyon. Deer, elk, game birds, and waterfowl are within the area, and a visitor is rewarded with spectacular scenery around every turn of a vari-colored canyon that serves as a beautiful backdrop for the reservoir waters. The area is rich in Indian history, and the lake is located in the heart of the Crow Indian Reservation, from whom the land and powersite were purchased. Buffalo jumps, medicine wheels, siege sites,

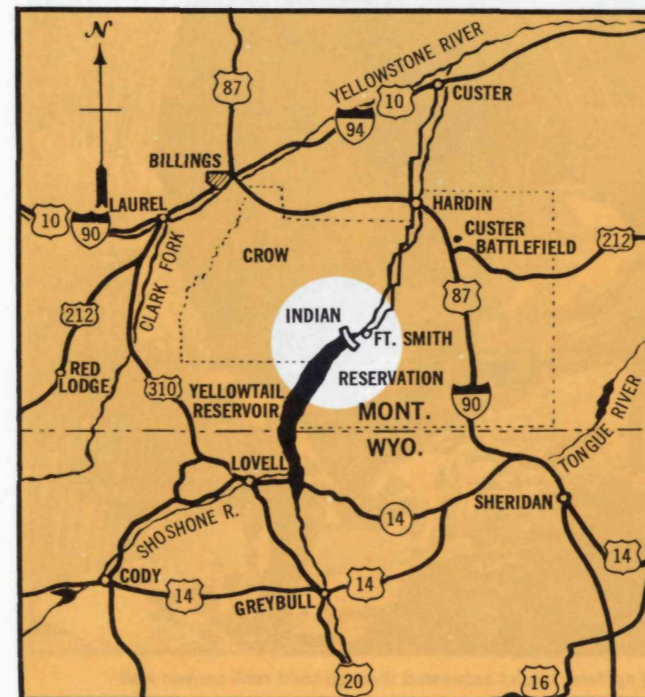
and vision quest locations, all of which have played important parts in the history of the Crow people, are to be seen in several areas of this outdoor playground.

The use of the reservoir and surrounding lands will be unusually diversified. Water-related activities constitute the basic attraction, and outstanding opportunities for boating trips and cruising parties are present. Fishing holds promise, whether along the river, below the dam, on the reservoir, or the various trout streams that feed into the manmade lake. Other activities on the surrounding terrain include camping, picnicking, hiking, riding, scenic drives, points of historical and archaeological interest, the dam itself, bird and wildlife watching, hunting, and geological interests including nearby caves. A visitor center near the dam will provide parking areas, rest facilities, a public information center including dioramic exhibits related to the construction of the dam, historical displays, and audiovisual presentations of areas of interest. Some 63,300 acres in this wonderland have been established as the Bighorn Canyon National Recreation Area.

For further information on recreation opportunities, contact the Superintendent, National Park Service, Yellowtail Rural Station 458, Hardin, Mont.



About two-thirds of the reservoir lies within rugged Bighorn Canyon



PHYSICAL DATA

DAM:

Type	Thin concrete arch
Height above foundation (feet)	525
Crest length (feet)	1450
Crest width (feet)	22
Crest elevation (feet)	3660
Base thickness at center of arch (feet)	About 145
Volume (cubic yards)	1,453,000
Spillway: 32-foot-diameter tunnel in left abutment, controlled by two radial gates 25 feet wide by 64.4 feet high. Discharge capacity at water surface elevation 3660 (cubic feet per second)	92,000
Outlet works:	
River outlets—Two 84-inch-diameter conduits through dam, controlled by 84-inch-diameter hollow-jet valves. Discharge capacity (cubic feet per second)	5,000
Power outlets—Four 12-foot-diameter penstocks through dam.	

RESERVOIR:

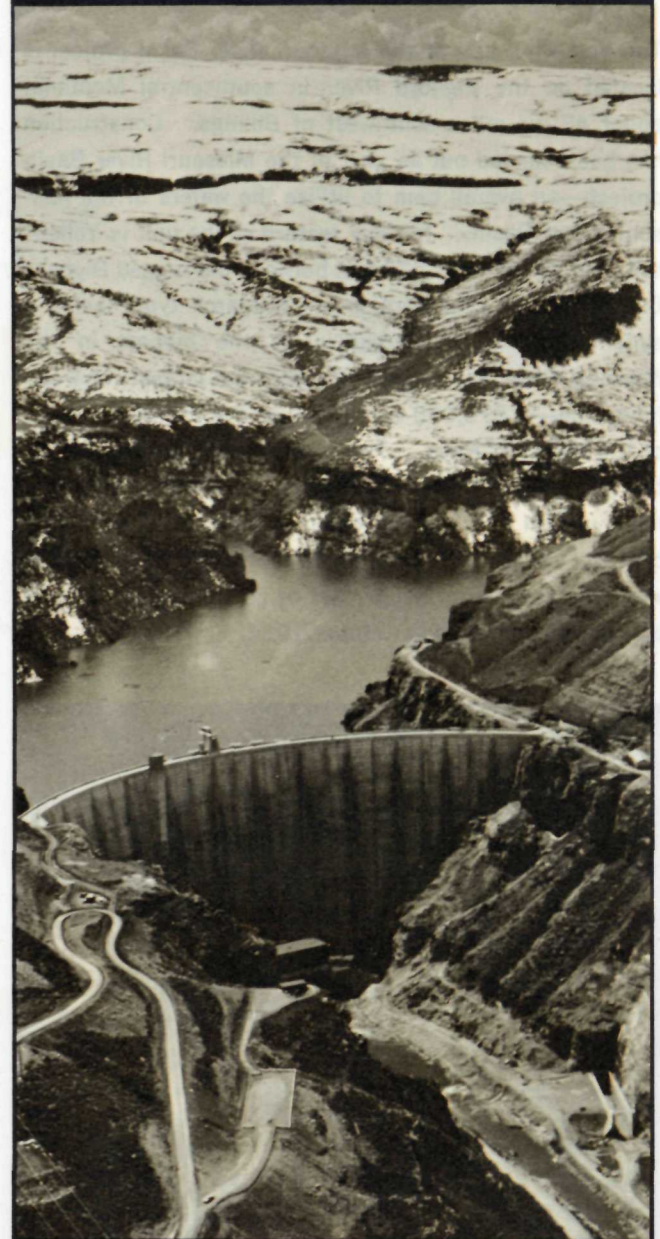
Capacity (acre-feet at elevation 3657)	1,375,000
Area (acres at elevation 3657)	17,300
Length (river miles at elevation 3657)	71
Water surface elevation (joint-use storage)	3614 to 3640
Water surface elevation (flood-control storage)	3640 to 3657

POWERPLANT:

Indoor type, housed in structural-steel framework building faced with brick. Vertical-shaft generators direct-connected to Francis-type turbines.	
Total nameplate capacity (kilowatts)	250,000
Number of units	4
Capacity each generator (kilowatts)	62,500
Capacity each turbine (horsepower)	87,500

In its assigned function as the Nation's principal natural resource agency, the Department of the Interior bears a special obligation to assure that our expendable resources are conserved, that renewable resources are managed to produce optimum yields, and that all resources contribute their full measure to the progress, prosperity, and security of America, now and in the future.

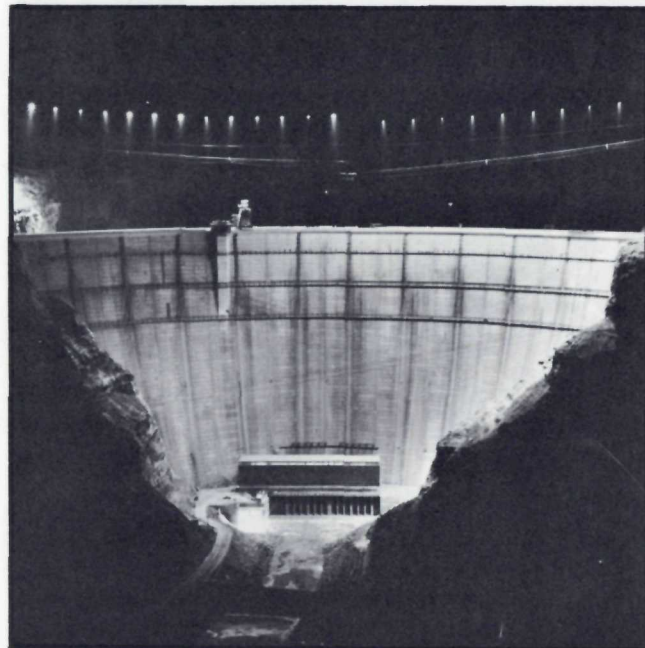
YELLOWTAIL



U.S. DEPARTMENT OF THE INTERIOR
Stewart L. Udall, Secretary
BUREAU OF RECLAMATION
Floyd E. Dominy, Commissioner

A MISSOURI RIVER BASIN UNIT—YELLOWTAIL

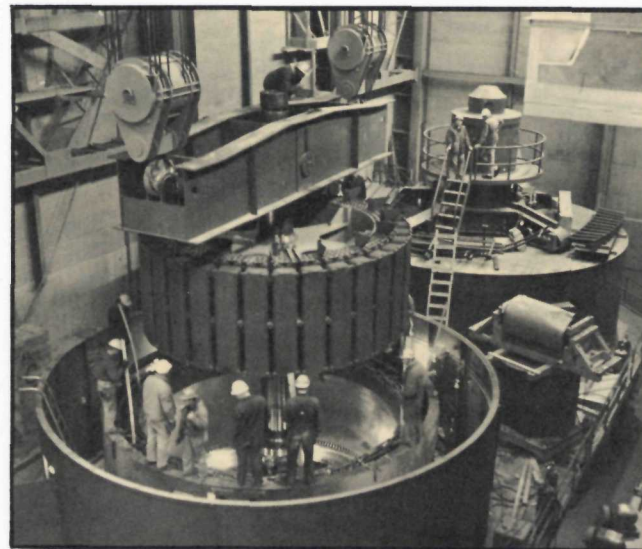
The Yellowtail unit of the Missouri River Basin project is located on the Bighorn River in southcentral Montana, about 43 air miles southwest of Billings. Construction has been carried out as part of the Missouri River Basin project—an overall plan to utilize the waters of the Missouri River Basin. The key feature of the unit is Yellowtail Dam, which rises 525 feet between the rugged Bighorn Canyon walls. The dam, a tall thin-arch type having a symmetrical double curvature, is the highest in the Missouri River Basin and will create the largest reservoir in volume—1,375,000 acre-feet—on the tributary system of the Missouri River. The reservoir will be utilized for the generation of power, irrigation, recreation, enhancement of fish and wildlife, sediment retention, and flood control. In April 1961 the prime contract for construction was awarded. The last bucket of concrete was put into place in the dam during October 1965.



Brilliant mercury vapor lighting enabled round-the-clock operations



Blasting loose rock from canyon walls prior to start of construction



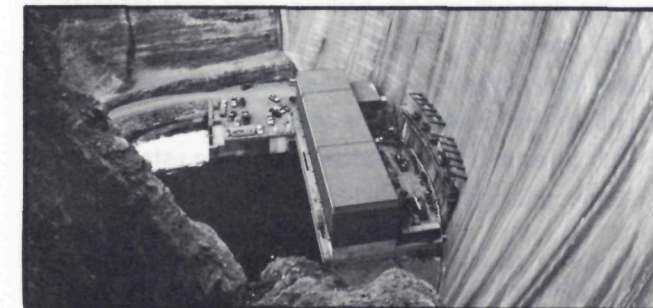
Lowering rotor into one of four 62,500-kilowatt generators



Construction operations in stilling basin in front of outlets to 1,700-foot-long spillway tunnel excavated through solid rock canyon wall

POWER

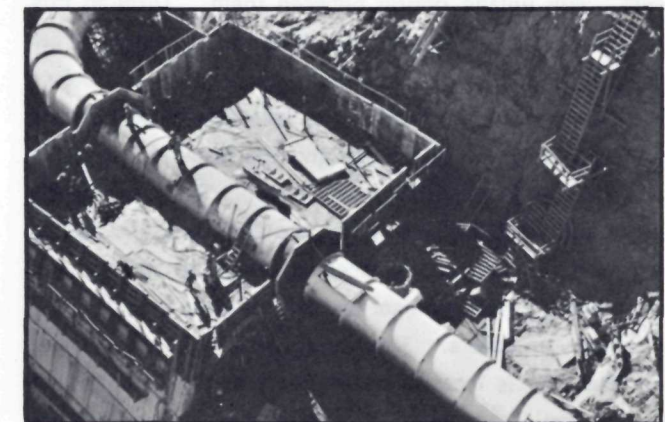
At the toe of the dam a powerplant occupies nearly the entire width of the riverbed. The plant houses four 62,500-kilowatt generating units, driven by four 87,500-horsepower turbines. Water power is supplied to each unit by a separate 12-foot-diameter penstock through the dam. On the east rim of the canyon, high above the dam, is the switchyard through which electrical power and energy will be delivered to the Bureau of Reclamation's Missouri River Basin power system. Power is transmitted from the plant to the switchyard over two 1,800-foot-long underground, oil-filled, high-pressure pipes enclosing insulated cables. This unique system was designed to be consonant with the National beautification program. Delivery from the switchyard will be at 115 kilovolts to the Bureau's power system to the south by interconnection with transmission lines to Lovell, Wyo., and at 230 kilovolts to supply the Eastern area system by interconnection with the transmission line to the Dawson County Substation near Glendive, Mont. Production at the 250,000-kilowatt plant is fully integrated with the more than 2,490,000 kilowatts of hydropower capacity at other Federal developments in the Missouri River Basin. More than 9,500 miles of Federal transmission lines carry this power to major wholesale load centers for further distribution by local suppliers to the farms, homes, and cities of the basin. Transmission lines leaving Yellowtail and their interconnection with other facilities will be a part of one of the major power interties between the eastern and western United States.



The 250,000-kilowatt powerplant occupies entire width of riverbed

IRRIGATION

Yellowtail Reservoir will provide a high-level diversion for the future irrigation of the 43,550-acre Hardin unit and river-level diversion for smaller units further downstream. The potentially irrigable Hardin unit area, now primarily dryfarmed, lies largely in a strip of land 2 to 3 miles wide and 40 miles long extending downstream along the west side of the Bighorn River, commencing about 1½ miles below the dam. Future irrigation will bring forth diversified agricultural production including such crops as sugarbeets, beans, alfalfa, and irrigated pasturage. During construction of the dam, provisions were made for irrigation service by incorporating into the structure the beginning of a system that will allow delivery of water to land at two development levels. The 9½-foot tunnel inlet structure pictured below takes off from the dam and runs about 250 feet into the canyon walls. When irrigation is developed the tunnel will be extended for nearly 1½ miles to connect with a pumping plant not requiring electrical energy to lift the water. Hydraulic turbines powered by water released from the reservoir will drive the pumps. About one-third of the water will be lifted by the turbine-driven pumps to higher benchlands, and the remainder will flow by gravity through a canal system to serve lower benchlands. The storage and regulation of water provided by Yellowtail is the key to the future irrigation development of the Lower Bighorn Basin.



Steel liner assembly placed in dam as future irrigation outlet