About Yellowtail

Dam

Type: Concrete arch Height above foundation: 525 ft Crest length: 1,480 ft Crest width: 22 ft Crest elevation: 3,660 ft Base thickness at center: about 145 ft Volume: 1,546,000 cubic yds

Spillway:

Tunnel in left abutment: 32 ft diameter 2 radial gates: 25 ft wide, 64.4 ft high Capacity at 3,660 ft elevation: 92,000 cfs

River outlet: 2 conduits: 84 in diameter each Ring-follower gates capacity: 5,000 cfs

Power outlets: 4 penstocks: 12 ft diameter each

Reservoir (Bighorn Lake)

Capacity at 3,657 ft elevation: 1,357,000 af Area at 3,657 ft elevation: 17,300 acres Length at 3,657 ft elevation: 71 river miles

Water surface elevations: Joint-use storage: 3,614-3,640 ft Flood control storage: 3,640-3,657 ft

Powerplant

Vertical shaft generators connected to Francis type turbines: 4 Total nameplate capacity: 287,496 kw Capacity of each generator: 71,874 kw Capacity of each turbine: 87,500 hp

(1 kw is enough to power 1 house)

Afterbay Dam

Type: Composite concrete gravity with embankment wings Height above foundation: About 40 ft Crest length: 1,360 ft Crest width: 28 ft Crest elevation: 3,197 ft

Outlet works:

Radial gates: 5 Sluice gates: 3 Total capacity of flows to the river: 24,500 cfs Total capacity of flows to BIA canal: 750 cfs











Yellowtail Dam Visitor Center Rte 210, Fort Smith, MT 59035 (406) 666-3218



— BUREAU OF — RECLAMATION

Yellowtail Dam & Reservoir



Yellowtail Dam is located on the Bighorn River at the mouth of Bighorn Canyon about 43 air miles from Billings, Montana. When full, the reservoir extends 71 miles south into Wyoming. The dam and reservoir provide multiple benefits to the American public including power generation, flood control, silt control, irrigation, municipal and industrial water, fish and wildlife benefits, and recreation opportunities.

Recreation



Bighorn Lake is a 71-mile long deep bluewater fishery created by Yellowtail Dam. Flows in the Bighorn River below the Afterbay Dam are clear and cold and offer world-class trout fishing opportunities.

Over 190 miles of shoreline showcase colorful geology and an area rich in history and tradition. Much of the reservoir's length is within the Bighorn Canyon where wildlife is abundant and the scenery is spectacular.

The Bighorn Canyon National Recreation Area (NRA) surrounds the reservoir and afterbay and is managed by the National Park Service. The NRA was dedicated in October 1968, three years after the dam was completed.

Office and Visitor Centers are located in Fort Smith, Montana, and Lovell, Wyoming.





The Yellowtail Unit

Most of the water and power facilities in the Missouri River Basin were constructed under the Pick-Sloan Missouri Basin Program (PickSloan), authorized by the Flood Control Act of 1944. Pick-Sloan is one of the most extensive plans ever developed for management of an entire river basin.

Pick-Sloan brought together a flood control and navigation plan developed by the Army Corps of Engineers and an irrigation and hydroelectric plan prepared by the Bureau of Reclamation. Together they became a comprehensive approach to multiplepurpose benefits in the basin. Today benefits include flood control, sediment abatement, irrigation, hydroelectric power, municipal and industrial water, navigation, fish and wildlife enhancement and recreation.

The prime contract for construction of the dam was awarded in April 1961, and the last bucket of concrete was placed in the dam during October 1965. The construction of the powerplant began with the dam and was completed in December 1967 when the last unit was placed in service. Yellowtail Afterbay Dam was started in April 1964 and was completed in November 1966.

Electricity

Yellowtail Powerplant is located at the downstream toe of Yellowtail Dam and covers nearly all the width of the river. Four generating units are operated independently to provide power for homes and businesses.

Hydropower is uniquely capable of quickly generating electricity when demand rises and conserving energy when it is not needed. This "peaking power" ability is enhanced when the widely varying flows do not adversely impact those who live downstream. Yellowtail provides peaking power for a part of each day and the Afterbay Dam continuously regulates the flows.

Yellowtail's annual power generation over the last 10 years has averaged nearly 1 million kilowatt-hours. That is enough electrical energy to supply about 80,000 homes. The power is marketed to utilities and electric cooperatives throughout the west by the Western Area Power Administration.

The Afterbay Dam

The widely varying releases from the powerplant are regulated by the Yellowtail Afterbay Dam located 2.2 miles downstream. The afterbay, with a capacity of 3140 af, minimizes downstream fluctuations in the Bighorn River by temporarily storing peak discharges from the powerplant.

Water

Water has many uses at the Yellowtail Unit. Each use provides benefits to the American public and is consistent with state law, the terms and conditions of the Yellowstone River Compact and contemporary environmental law. • **Hydropower** Hydropower provides low cost electricity to the region.

Flood Control

Yellowtail reduces damage caused by flooding and is credited with over \$113 million in savings since 1965.

• Irrigation

Water is released into the Bighorn Canal to satisfy senior water rights for the Crow Indian Irrigation Project and other irrigators.

• Municipal & Industrial

Project water used for human use and purposes is one of Yellowtail's authorized purposes.

• Fish & Wildlife

Special management areas around the reservoir preserve habitat for waterfowl, upland birds and other animals. The dam transformed the Bighorn River between Fort Smith and the Yellowstone River into an internationally recognized blue-ribbon trout fishery. The reservoir is home to brown and rainbow trout, walleye, sauger and other species.

Recreation

The Bighorn Canyon National Recreation provides ample recreation opportunities around the reservoir.