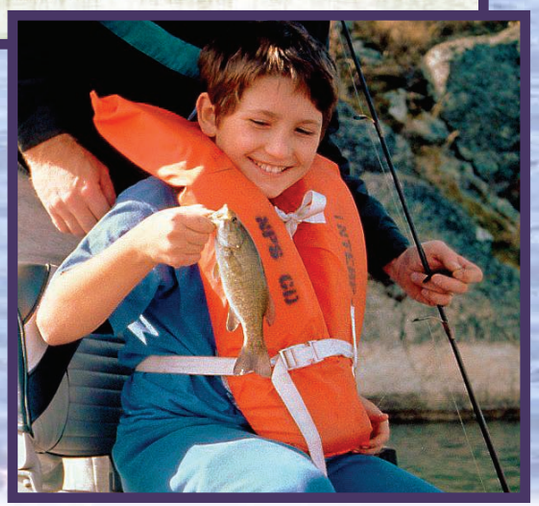

Benefits of the Columbia Basin Project

In addition to storing and carrying water for irrigation, producing electricity, controlling floods, providing recreation, and regulating streamflow, the Columbia Basin Project also provides water for cities, industries, navigation, and endangered species.

What's the Yearly Value?

Irrigated crops: $870 million
Power generated: $950 million
Recreation: 3 million visits - $50 million

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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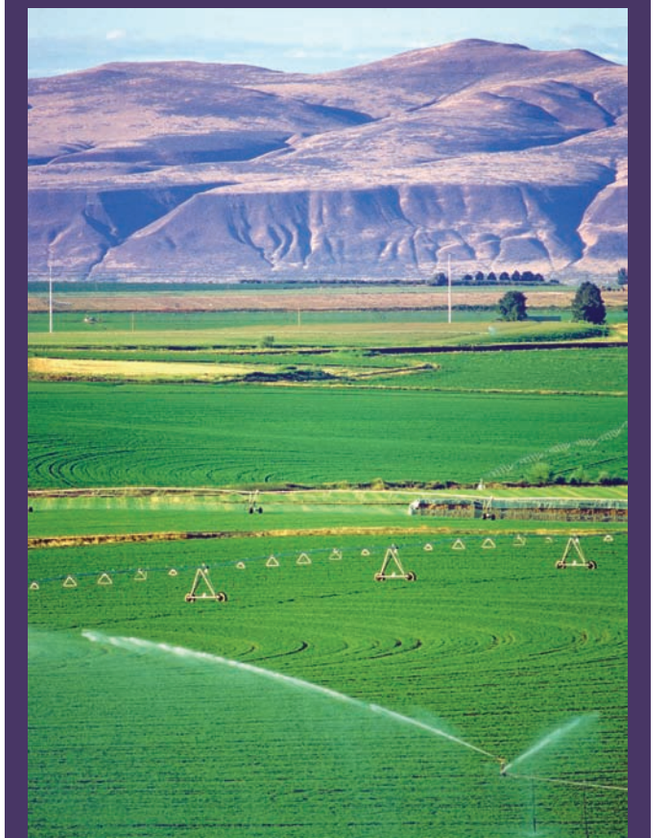
December 2008

RECLAMATION
Managing Water in the West

The Story of the Columbia Basin Project

WASHINGTON



U.S. Department of the Interior
Bureau of Reclamation

Ice Age Forces Shape the Landscape

About 10,000 years ago, a huge glacier dammed a river gorge in Idaho creating a 3,000 square mile lake in western Montana. When the ice dam broke, a wall of water nearly 2,000 feet high and traveling 65 miles per hour carved new river paths across Idaho, Washington, and Oregon in a matter of days. Ancient ravines were left high and dry above today's Columbia River after the water receded. Over time, the wind gradually deposited a rich layer of soil.

Early Settlers

In the early 1900s, many settlers homesteaded the dry plateaus of eastern Washington and began dryland farming. But the area's average annual precipitation of 6-10 inches doomed their efforts to failure despite an ample growing season and soils well suited for crops. Many settlers abandoned their farms while others tried to develop irrigation water supplies. The plans often proved too costly or difficult for private groups.

How It All Started

Congress passed the Reclamation Act in 1902 to boost development of the arid West. Reclamation began its task of creating water storage and irrigation networks by looking into locally supported projects.

Several groups proposed irrigation projects for the Columbia plateau. One plan used gravity to bring water from the Pend Oreille River in northern Idaho and eastern Washington. Others suggested pumping water from the Columbia River into the ancient riverbed known as the Grand Coulee.

Miles From Nowhere

President Roosevelt gave Reclamation permission in 1933 to begin building Grand Coulee Dam to create jobs and provide inexpensive power. The first step was to build a town for workers and a railroad for hauling supplies. Work on the dam and powerplants continued day and night through World War II.

Typical landscape before irrigation

Congress authorized the Columbia Basin Project in 1943, although building the irrigation system did not start until after the war. The first irrigation water pumped from the Columbia River near Pasco in 1948 was delivered to about 5,400 acres. The irrigation system carried its first water from Grand Coulee Dam to about 66,000 acres in the spring of 1952. Extending canals and adding pumping plants and other features continued for about 30 years.

Water Used At Least Twice

Water that irrigates project land is often used again before it returns to the Columbia River near Pasco. Potholes Reservoir collects runoff from the north for farms in the south. Water from drains and wasteways returns to the canal system for reuse. Irrigators use about 2.5 million acre-feet of Columbia River water each year. Water reuse gives them an additional 1 million acre-feet.

Food For Your Table

Although some grow wheat and other grains, many Columbia Basin Project farmers grow high value fruits, vegetables, and specialty crops like mint and wine grapes. Agriculture-related businesses account for 30-50 percent of all income in counties served by the project.

High value crops include cherries

Several Agencies, Many Purposes

The Bureau of Reclamation works with the U.S. Army Corps of Engineers and Bonneville Power Administration to coordinate operations at Grand Coulee Dam and other Columbia River dams to produce power, prevent flooding, and provide irrigation water, benefits to fish and wildlife, and recreation.

Controlling Floods

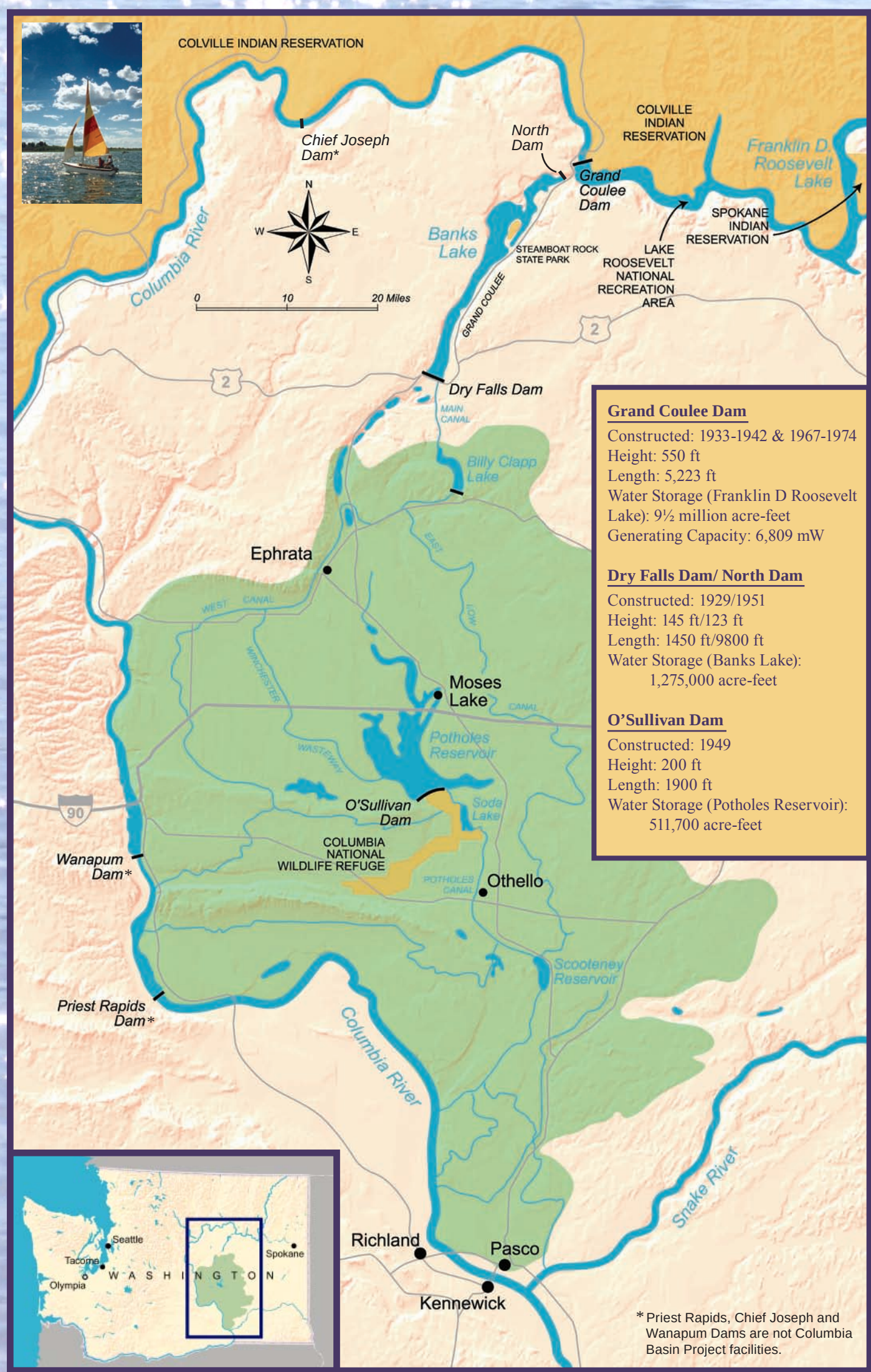
The 1964 Columbia River Treaty between the United States and Canada allowed both countries to build more reservoirs to store and share water. This greatly reduced the risk of flooding for cities along the Columbia River. It also led to producing more electricity in the energy-short 1970s.

The Plumbing

The Columbia Basin Project includes 330 miles of main canals, 1,990 miles of smaller canals, and 3,500 miles of drains and wasteways served by more than 240 pumping plants that carry water to some 10,000 farms.

Keeping the Lights On

Grand Coulee Dam's powerplants produce an average of 21 billion kilowatt-hours of electricity each year. This is about 11 percent of the power requirements of the Pacific Northwest.



Grand Coulee Dam

Constructed: 1933-1942 & 1967-1974
Height: 550 ft
Length: 5,223 ft
Water Storage (Franklin D Roosevelt Lake): 9½ million acre-feet
Generating Capacity: 6,809 mW

Dry Falls Dam/ North Dam

Constructed: 1929/1951
Height: 145 ft/123 ft
Length: 1450 ft/9800 ft
Water Storage (Banks Lake): 1,275,000 acre-feet

O'Sullivan Dam

Constructed: 1949
Height: 200 ft
Length: 1900 ft
Water Storage (Potholes Reservoir): 511,700 acre-feet

* Priest Rapids, Chief Joseph and Wanapum Dams are not Columbia Basin Project facilities.

Fun in the Sun

Franklin D. Roosevelt Lake is the largest lake on the project. It stretches 151 miles from Grand Coulee Dam north to the Canadian border. Part of the lake is a National Recreation Area. The lake is managed by the National Park Service, Coville Confederated Tribes, Spokane Tribe of Indians, Bureau of Indian Affairs and Bureau of Reclamation.

Franklin D. Roosevelt Lake offers many campgrounds plus swimming beaches, boat ramps and docks, houseboat and fishing boat rentals, fuel, and food. The lake supports more than 30 fish species.

Banks Lake is the starting point for the project's irrigation water delivery system. This reservoir is a popular attraction for fishermen, boaters, and other recreationists. Steamboat Rock State Park is one of the more popular facilities in Washington State. Potholes Reservoir is valued for its recreation as well as for its original irrigation purpose.

Producing Electricity

Grand Coulee Dam first produced electricity in 1941. Hydroelectricity is produced when the energy of falling water turns a turbine connected to a generator. Bonneville Power Administration sells this electricity to repay expenses of building and maintaining the project. Grand Coulee Dam is the largest hydroelectric plant in North America generating 2.7 times the electricity produced at Hoover and Glen Canyon Dams combined.

Irrigating the Land

Twelve of the world's largest pumps lift water from Franklin D. Roosevelt Lake into a feeder canal and Banks Lake.

The water then flows through a main canal and the Bacon Siphons and Tunnels to more than 670,000 acres of project cropland. Seven small hydroelectric plants built by the irrigation districts help finance conservation and capital improvement projects.

Columbia National Wildlife Refuge

Northwest Trek Wildlife Park

Some of the wetlands created by the project are part of the Columbia National Wildlife Refuge. Ducks, geese, sandhill cranes, and other birds gather at the refuge or pass through it during migration.

What About the Fish?

Dr. Ernest Keeley, Idaho State University

Grand Coulee Dam releases water to increase river flow to help salmon and steelhead migrate. Improvements in water measurement, irrigation methods, and agricultural practices are also improving river conditions for fish and the overall environment of the region.

Water Flows Both Ways!

Six of the twelve pumps at Grand Coulee Dam are also generating units that can reverse the direction water flows. They lift water *uphill* for irrigation storage. Then when additional electricity is needed, they return water *downhill* to produce electricity.

Water, Water Everywhere

Natural channels and canals carry water to smaller project reservoirs–Billy Clapp Lake, Soda Lake, and Scooteney Reservoir. Each reservoir stores irrigation water and provides additional wildlife habitat and recreational opportunities such as camping, boating, swimming, fishing, nature study, and hunting. There are more than 300,000 acres of lakes and wetlands within the Columbia Basin Project.