



## Snake River Basin of Oregon

The Snake River Basin of Oregon includes a 230-mile reach of the Snake River and all its Oregon tributaries. The Snake River rises in Yellowstone Park, Wyoming, follows a huge crescent across southern Idaho, turns north along Idaho's common boundary with Oregon and Washington to Lewiston, Idaho, and then flows west through Washington to its confluence with the Columbia River. In Oregon, the area drained by the Snake River is about 18,900 square miles, and the most important tributaries are the Owyhee, Malheur, Powder, and Grande Ronde rivers.

Although the hydrologic boundaries do not quite coincide with the county lines, the area drained by the Snake in Oregon is essentially Malheur, Baker, Union, and Wallowa counties. The population of those four counties is about 72,000 (1990 census). The principal communities are La Grande, Union, Elgin, Baker City, Enterprise, Joseph, Ontario, Nyssa, and Vale.

The basin has the semiarid climate characteristic of eastern Oregon. The lower areas are sagebrush-covered except where farms have been established. Ponderosa pine forests grow in the uplands. The Blue Mountains and Steens Mountains define the western boundary of the basin. In the north are the Wallows, one of America's premier mountain wilderness areas. Just to the east, the Snake River flows through Hells Canyon, an immense gorge deeper at its greatest drop than Arizona's Grand Canyon. The Blue Mountains rise

above La Grande and Baker City, the two largest cities in the basin.

Most economic development in the basin is concentrated in three separate areas whose trade centers are Ontario, La Grande, and Baker City. The Snake River Plain (Ontario) has the most population.

Forest products and livestock enterprises supported by irrigated feed bases are the principal activities in the Grande Ronde and Powder River valleys. Row-crop irrigation and associated food-processing plants are basic to the economy of the Snake River Plain. Water is valuable and an important limiting factor in economic development.

### Flood Damage Reduction Project

Large floods may occur in the basin at any time from November through May, but usually come while the snowpack is melting in the spring. Warm rainstorms in the winter which melt snow in the higher mountains also cause flooding, but normally those floods are less severe and last for a shorter time. They are also less frequent, because widespread heavy rainfall rarely occurs during the winter months. The flood of December 1964, however, caused extensive damages.

Other than Continuing Authorities small flood control projects, the only projects in the basin con-

structed by the Corps to date are two flood control projects in Malheur County and a navigation project along the Snake River in the extreme northeastern corner of Oregon. A multipurpose project, Catherine Creek Lake, near Union, was deauthorized in 1990. Another multipurpose project, Grande Ronde Lake, and a flood control project, Grande Ronde Valley, were deauthorized in 1986.

## Existing Projects

### Snake River at Malheur Improvement District

This project, authorized in 1944, is located on the Oregon bank of the Snake River across from Weiser, Idaho. It provides flood protection to about 500 acres of land and an arterial highway. Sixty to 70 farm units, where 45 families live, are in the protected area. Construction of the project began in 1957 and was completed the same year. Federal cost of the work was \$56,000.

### Malheur River at Vale

Levee and channel works to protect the town of Vale and vicinity were authorized by the Flood Control Act of 1950. The project consists of channel enlargement and levees along the lowermost mile of Bully Creek and along the lowermost two miles of the Malheur River from the mouth of Bully Creek to Nevada Dam, a short distance downstream from Vale. Construction began in 1960 and was completed the following year at a federal cost of \$338,580.

## Navigation Development

Barge navigation on the Snake River to Lewiston, Idaho, became a reality when a series of four dams with locks, authorized in 1945, were completed. The four are Ice Harbor, Lower Monumental, Little Goose, and Lower Granite. Lower Granite, the furthest upstream, about 30 miles downstream from Lewiston, started operation in 1975. When the reservoir was filled, a new deeper calm-water channel was formed and Idaho was linked with the sea. Shallow-draft, fast-water conditions continue for commercial navigation on the Snake River above Lewiston to Johnson Bar Landing in Hells Canyon.

## Existing Project

### Snake River from Lewiston to Johnson Bar Landing, Idaho

This project extends in part along Oregon's common boundary with Idaho. Work by the Corps of Engineers on the 92-mile reach of Snake River from Lewiston to Johnson Bar Landing was first authorized by Congress in 1902, and again in 1910 and 1925. Boulders and other obstructions were removed from the channel. In 1949, a wing dam was constructed from the bank into the stream to provide greater depth over Temperance Creek Rapids,

about eight miles downstream from Johnson Bar.

The Snake River in this reach provides access and mail service to residents of the canyon area. River launches transport animal feed, household goods, and groceries upstream, wood and other miscellaneous cargo downstream. Many persons are transported into the canyon annually on sight-seeing expeditions. Recreation on this white-water reach of the Snake River includes pleasure boating.

## Lower Snake River Fish and Wildlife Compensation Plan

The Lower Snake River Fish and Wildlife Compensation Plan was authorized by the Water Resources Development Act of 1976. The project will mitigate losses caused to the river fishery and wildlife habitat attributed to construction and operation of the four lower Snake River lock and dam projects (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite). The Compensation Plan includes a number of chinook salmon and steelhead trout hatcheries to be constructed in Idaho, Oregon, and Washington that will provide 27 million juvenile fish. These fish will be released into the Snake River drainage for migration to the Pacific Ocean. As returning adults, these fish will provide both sport and commercial fishing opportunities with over four million pounds of fish going to the commercial fisheries. An estimated 132,000 adult fish will return to the project area of the lower Snake River, providing approximately 689,000 additional angler days of sport fishing.



In addition to the anadromous fish, 93,000 pounds of trout will be reared and released in eastern Washington and Idaho tributary streams to provide 45,000 additional angler days of sport fishing. To assure angler access, 740 acres of land have been acquired along streams in the Snake River Basin.

In addition to some 12,500 acres of project lands

that have been developed as replacement riparian habitat, acquisition of 8,400 acres of land adjacent to projects in Washington for wildlife and upland game bird habitat



and 15,000 acres to compensate for lost chukar partridge habitat is required.

Initial project funding was received in fiscal year 1978 and substantial progress has been made in siting, designing, and constructing the required fish hatcheries.

Hatcheries completed and operating in Idaho are McCall Hatchery for summer chinook; Hagerman National Fish Hatchery for steelhead; Dworshak Hatchery (expansion) near Orofino for spring chinook; the Sawtooth Spring Chinook Hatchery near Stanley; and the Magic Valley Hatchery near Buhl for steelhead. Oregon hatcheries include Lookingglass Creek Fish Hatchery near Elgin for spring chinook and Irrigon Hatchery near Irrigon and its companion facility, Wallowa Hatchery near Enterprise, for steelhead. Washington hatcheries are the Lyons Ferry Hatchery near Starbuck for steelhead, spring and fall chinook, and rainbow trout; and its companion facility, Tucannon Hatchery near Dayton, for spring chinook and rainbow trout.

All construction in Washington has been completed. In Idaho, the Clearwater Hatchery was completed in 1992. The facility added another 91,300 pounds of spring chinook salmon production in addition to 350,000 pounds of steelhead trout in the Clearwater Basin.

Federal costs for hatchery and project wildlife habitat acquisition and development through September 1999 are \$228,336,000. Estimated total project cost of the Compensation Plan is \$232 million.

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