BEAR LAKE

BEAR RIVER
Bear Lake, Bear River

Bear Lake, astride the Utah-Idaho border, plays a key role in one of America’s first comprehensive, multipurpose reclamation projects, the Bear River-Bear Lake development.

Superb recreation is only part of Bear Lake’s importance. It also provides vital water when needed, for irrigation and the generation of hydroelectric power.

Introduction

It originates in Utah’s High Uintas. Its meandering, 500-mile course passes in and out of three states—Utah, Wyoming and Idaho—before the well-worked waters of Bear River empty into the Great Salt Lake, just 90 miles from its place of origin. Less than midway in its journey, it passes Bear Lake on the Utah-Idaho border.

The river and the lake, combined with engineering ingenuity, became one of America’s first comprehensive, multipurpose reclamation projects.

The Bear River-Bear Lake development (conceived and initiated by a Utah Power & Light predecessor company) was built by Utah Power without cost to the farmers of the area or to the federal government.

The Bear River provides the water for six Utah Power hydroelectric plants during its 500-mile journey from the High Uintas to Great Salt Lake.

The project provides water for irrigation; minimizes flooding of downstream farmland; furnishes boating, fishing and other recreation for thousands of people; and makes possible the generation of electric power.
Visible evidence exists of an ancient shoreline about 50 feet above the present elevation of Bear Lake. Bear River, no doubt, was once a natural tributary of this ancient lake. Geologists say that sediment eventually formed a plain, separating Bear River from the lake. Later, wave action formed a natural causeway extending across the lake's northern shore. Between this causeway and Bear River, lying on the plain separating the river and the lake, is a group of shallow, interconnected lakes collectively called Mud Lake or North Lake.

Initial construction of facilities to divert Bear River water into Bear Lake was begun in 1909 by the Telluride Power Co. L.L. Nunn was the entrepreneur who saw what could be done. Nunn was a turn-of-the-century pioneer in hydroelectricity and general manager of the Telluride Power Co. He began tapping hydropower in southwestern Colorado, using electricity from a river to operate a mine several miles away. He expanded into Utah, and his search for more electricity to serve Utah's booming mining industry led Nunn to the Bear River.

He and his colleagues saw the river from a new perspective. Most folks might describe the river by its serpentine course from its origin in Utah's High Uintas, through Wyoming and Idaho, and back into Utah's Great Salt Lake. As far as Telluride Power was concerned, the Bear flowed in only one direction—downhill.

From that point of view, the river is just a big waterfall, although the cascade is disguised by hundreds of miles of seemingly lazy twists and turns. And what a waterfall! The difference in elevation between Bear Lake and the Great Salt Lake is about a third of a mile—a plunge that dwarfs Niagara Falls.

In 1912, Utah Power & Light Company was organized, consolidating some 130 predecessor companies, including the Telluride Power Co., into one strong integrated power system. Utah Power continued work on the Bear River-Bear Lake project, and in 1918, the Bear Lake project was completed. Construction of the downstream power plants was completed in 1927.
Key to the whole development is the use of Bear Lake as a storage reservoir. The lake is a natural body of water with a surface area of 109 square miles and lies in a Wasatch Mountain basin, half in Utah and half in Idaho. The lake stretches about 20 miles north and south and is about seven miles wide.

The first phase to reconnect Bear Lake and the Bear River across Mud Lake required digging of inlet and outlet canals, along with a system of control structures and a pumping plant on Bear Lake to regulate flow. Those improvements prevent floods by diverting torrential runoff in spring and early summer into the lake for storage. Later in the year, water can be pumped out as it is needed for irrigation during the dry season.

The lake level fluctuates because of its store-and-release function as well as evaporation, moving up and down an average of 3.2 feet each year. However, historically the lake has fluctuated over its full range of 21.65 feet of active storage capacity. At full level, the active storage capacity is 1,421,000 acre feet.

The Lifton pumping plant at the center of the lake’s north shore lifts water from the lake to a man-made outlet canal that runs into the Bear River just west of Montpelier, Idaho. Five big pumps at Lifton can send up to 2,000 cubic feet or 15,000 gallons of water per second surging into the outlet canal.

Utah Power completed its power plant construction along the Bear River in 1927. Today there are six power plants along the river’s course tapping the energy of falling water. Those plants, with a combined generating capacity of 115,900 kilowatts, were for many years the core of the Utah Power system. They remain to this day the least expensive source of electricity.
One of the most important benefits of the Bear River-Bear Lake project is the controlled release of stored water for irrigation purposes. It has brought water to thousands of acres of land in southeast Idaho and northern Utah that otherwise would have lain arid because of the lack of a dependable water supply in summer and early autumn when rain is infrequent.

Moreover, the project is credited with saving millions of dollars of crops in drought years by controlled releases of stored Bear Lake water. Widespread downstream flooding, too, has been averted during almost every spring runoff since 1918 because of this system, which permits storage of excess river water in Bear Lake. It repeatedly has protected downstream farmlands from being flooded.

As late as 1987 through 1990, stored Bear River water was still saving crops during a very critical drought cycle.

Bear River and Bear Lake offer a barrel of water-oriented fun. One of the region’s best boating waters, Bear Lake attracts hundreds of sailors with a yen for both sail- and engine-powered watercraft each year. The lake is ideal for water skiing, and for just lolling or building sand castles along Bear Lake’s many beaches.

Just south of the Utah-Idaho border, on the western shore of the lake, is the Utah State Marina, which provides dock facilities and an information center. On the lake’s northern shore, just east of Utah Power’s Lifton pumping plant, is the Idaho State Park beach and marina, which attract crowds throughout the summer months.

Bear Lake fishing has steadily improved over the past several years due to a unique fish stocking program undertaken by the Utah and Idaho Departments of Wildlife Resources. Bear Lake cutthroat trout, a unique species found nowhere else in the world, are caught in fish traps each spring as they swim up the tributaries to spawn. Eggs are removed without injury to the fish and transported to a special hatchery at Mantua, Utah, for rearing. Fish from these eggs are then planted in Bear Lake, enhancing the natural

A primary benefit of the Bear River-Bear Lake project is the dependable water supply it provides farmers for irrigation.

Bear Lake is one of the area’s best boating waters for both sail- and engine-powered craft.
Many stretches of the Bear River provide excellent stream fishing, while Bear Lake offers several varieties of trout, plus the tasty cisco.

reproductive capability of this native species. In addition, there are mackinaw and rainbow trout throughout the lake. Each winter something amazing happens: the cisco run. The cisco is a sardine-like fish averaging about four inches in length. Each winter, in mid-January, they spawn. The cisco run is confined to one or two coves on the east side of the lake, and during the spawning run, literally hundreds of people wade out in the cold waters of Bear Lake to net the tasty cisco.

Motels, cabins and camping areas ring the lake, and the city of Montpelier is just 18 miles away from the lake’s northern shore.

Utah Power voluntarily, and in cooperation with other organizations, has provided facilities such as public beaches, boat launches and docks and wildlife preserves for the public’s recreational enjoyment. These facilities have been provided around Bear Lake and North Lake, as well as at Utah Power reservoirs downstream from Bear Lake.

Community involvement is encouraged. When Utah Power was putting together documentation required for relicensing its Cutler plant in northern Utah, for instance, it organized a citizens advisory board to recommend improvements that could be made to benefit agriculture, recreation and wildlife interests.

The river below the Soda, Grace and Oneida power plants provides good trout fishing. Cutler reservoir is located under a waterfowl flyway. The reservoir has become a favorite spot for hunters, bird watchers and boating/canoeing enthusiasts.

Although water released from Bear Lake is used primarily for irrigation, it is also utilized in six downstream hydroelectric plants with a combined generating capacity of 115,900 kilowatts (kw). Three of the plants also have reservoirs and provide recreational activities.

The plants, in order of construction, are Grace, Oneida, Gove, Soda, Cutler, and Last Chance. The Grace plant, largest of the six, was partially developed in 1906-08. Major expansion begun in 1913 by Utah Power tripled its capacity. A fifth and final unit postponed by the start of World War I in 1917 was completed in 1923, bringing its capacity to 44,000 kw. The Grace plant receives its water from Grace dam to the north through a straight flowline 4⅓ miles long. During the first World War, the Grace plant was considered such a vital resource that...
troops were posted there to guard against sabotage. Part of the plant has been retired, and today its generating capacity is 33,000 kw.

The Oneida plant, downstream from Grace, was begun in 1915 by Utah Power with generating units going into operation in 1915, 1916 and 1920. The original Oneida plant produced 20,000 kw, but with an eye to the future was designed for an ultimate capacity of 40,000 kw. Its present capacity is 30,000.

Next to be built was Cove station just south of the Grace plant. By damming the tailrace flow from Grace (the water leaving the plant after it has powered the generating turbines), and utilizing a 100-foot natural drop in the terrain, Utah Power's engineers brought water through a wooden flume to the Cove plant a mile and a half away to generate another 7,500 kw of electricity. The Cove plant was constructed in 1917.

A dam and power plant at Soda Point, where the Bear River starts flowing south, were envisioned early in Utah Power's history, but construction was delayed by World War 1 and other factors until 1923-24. The value of this northernmost station is threefold. By storing water at Soda where it can reach both Grace and Cove in a very short time, flow control greatly improves the efficiency of all three stations.

Secondly, Soda's 14,000 kw capacity adds materially to Utah Power's hydroelectric output. And, lastly, Soda dam eliminates a serious problem of ice clogging at the Grace dam intake. Soda reservoir is large enough to catch and store practically all the mush ice that comes down the river from Bear Lake.

The fifth power station to be built in the Bear River system was the Cutler plant begun in 1925 and put into operation in 1927. It replaced a smaller plant nearby, the Wheelor works, built in 1902. Cutler station is located in Bear River Canyon at a point where the Wasatch Mountains separate Cache and Great Salt Lake Valleys. With a capacity of 30,000 kw, Cutler is second to Grace in output. From June to September, Cutler produces limited power because a large amount of water is diverted from its reservoir into irrigation canals.

The Last Chance plant was purchased from the Last Chance Canal Company in 1984. The 1,400-kw plant is located on the Last Chance Canal between the Soda and Grace plants. Flows in excess of irrigation demands are conveyed down the canal to the plant and then returned to the Bear River.
Control of the Bear River system rests with the three states within which the river flows. Utah, Idaho and Wyoming control this operation through their respective state water resource organizations. Coordination among the three states is accomplished by their participation on the Bear River Commission, which administers the three-state Bear River Compact. A U.S. District Court ruling, known as the Dietrich Decree, dated July 13, 1920, granted diversion rights of 5,500 cubic feet per second of Bear River water to storage in the lake.

In addition to the decree, the Bear River Compact of 1955 and the revised Compact of 1978 permitted storage development above Bear Lake of 106,500 acre feet annually, and provided for a specified reserve of stored water that could only be released for irrigation as its primary use. If the lake's elevation falls below 5,914.7 feet, no storage water can be released unless required for downstream irrigation use. That has happened only seven times since the original compact was ratified in 1955.

During the summer months, Cutler's power production is reduced because a great deal of water from its reservoir is diverted for irrigation.

A specified reserve of water stored in Bear Lake can only be released for irrigation as its primary use. Control of the Bear River system is shared by Utah, Idaho and Wyoming.