

Utah Lake Disaster

In 1848, fishing companies were organized to collect fish for desperate settlers who were without provisions. That year, frost killed early sprouting crops. Then came the crickets. Swarms destroyed many crops that survived the freezing temperatures, and hundreds of the valley's early residents stare starvation in the face. Were it not for the plentiful fish in Utah Lake, hundreds of settlers would have suffered severely. Several families were fortunate to have friends who were also skilled fishermen. The Hale family, for example, considered themselves lucky to know Lucas Hoaglund, who provided them with enough fish to survive a very rough year:

More crickets would destroy pioneer crops in years to come (right after 1848). However, the worst attack wasn't executed by crickets, but by Rocky Mountain locusts, commonly known as grasshoppers. These tiny beasts weren't finicky eaters. They gobbled up wheat, corn, oats, barley, clover, grass – even clothing. They also ate almost everything in the typical backyard garden, including potatoes onions, peppers, rhubarb, beets, cabbages, radishes, and turnips. At times like these, when insects viciously took away what the earth so generously provided, the only thing left to do was fish. Motivated by hunger and the will to survive, settlers fished frequently and recklessly. Soon, laws were written to prevent the needless destruction of fish, to regulate fishing methods, and to control the number of fish being taken from the lake. But these laws were ignored by many locals, who seined night and day. Fishermen also placed stationary gill nets across the mouth of the Provo River. These nets indiscriminately caught thousands of fish – many of which were attempting to spawn.

Very often, change is good. But in the 1880s, when carp were introduced to Utah Lake, the results weren't good at all. The intent was to replace the dwindling number of Bonneville cutthroat trout and to provide locals with a hardy fish that was also a very popular dish in other areas of the world. Yet, the newly integrated carp had long-lasting, negative impacts on the lake's native fish population. The carp's aggressive foraging habits eventually destroyed the pondweed on the surface and the plant life on the lake floor. This directly impacted the native fish populations. The reduced amounts of vegetation made it easier for waves to bring sediments up from the bottom, making the water more turbid and green in appearance. Most THE BUSINESS OF ABUSING A LAKE September 2010 Page 2 of 10 people didn't know it then, but high levels of sediments and nutrients fuel algae growth. If algae grows out of control, oxygen levels become too low for many fish to survive.

As the human population grew (post 1880s), so did competition for fish and water. Farmers needed water to irrigate fields, so dams and canals were built, many to redirect flows from the Provo River. At first, irrigation ditches were unscreened, so thousands of fish were carried into farmers' fields and stranded. Many of the townspeople gathered the fish for dinner, other fish were left to fertilize crops. As a result of over-fishing, the introduction of nonnative fish, water depletion caused by irrigation, and later, the

straightening, channeling, and dredging of its main tributaries, the health of the lake and its native fish began to decline.

The 1930s ushered in two destructive signs of the times: The Depression and drought. During this time, Utah Lake was receding as each year passed. By 1933, the Provo River had become narrow and shallow, and with a sandbar across its mouth, no large boats could pass through. The drought continued, and between 1935 and 1936, the water in the lake was too shallow for most boats to cruise. Utah Lake contained only 10,000 acre-feet of water that inadequately covered 20,000 acres. The surface area of Utah Lake, under normal conditions, is about 96,000 acres. The volume of water at that level is about 900,000 acre-feet, about one-third of which is lost to evaporation each year.

Construction of the Provo Boat Harbor began in the 1930s with the purpose of replacing the defunct Provona Resort. When World War II began, the harbor was left unfinished, but after peaceful times returned, it was finally completed. With a secure place to park their boats, skippers from all over the state came to Utah Lake to race. The Memorial Day boat races were by far the most popular. These events drew spectators from far and wide to watch some of the fastest boats ever seen zip around the lake.

The Utah Lake State Park was born in 1967 when the state park system took over the Provo Boat Harbor from the city of Provo. New facilities were added, including a toll booth at the parks' entrance. Not surprisingly, the number of lake visitors dropped. People were so accustomed to freely accessing the beaches and picnic areas that they begrudged paying to get through the newly posted gate.

Industrial development brought more jobs and even more people to Utah County. The water in Utah Lake was in its worst condition, and recreation on the lake began to decline. People were beginning to see the damage that so many years of abuse had rendered. The effects of agricultural and industrial pollution and the deposition of raw and treated sewage did more than keep swimmers away; they also had negative impacts on the native fish community. As the 1960s and 1970s progressed, signs warning swimmers not to go into the water were posted. Most of the recreational resorts were closed by that time. Convincing swimmers, campers, boaters, and water skiers to recreate at Utah Lake was a sales pitch that fell on deaf ears.

The abuse of Utah Lake's tributaries and ecosystem began earlier than most people realize. Beginning in the 1890s and continuing into the 1950s, raw sewage was drained into the creeks and streams flowing into the lake. Also in the 1880s, sugar mills deposited waste from the processing of sugar beets into the tributaries of the lake and the Jordan River. Sawmills were guilty, too. Instead of paying to have sawdust removed with team and wagon, owners dumped it into the streams that ran into lake tributaries and the Jordan River. The sawdust got lodged in the gills of trout and suffocated large numbers of them. Cottonwood, Nebo, Santaquin, and Payson creeks were among the streams affected.

Utah's economic development progressed into the 1900s when the steel industry came to Utah Valley via the newly constructed railroads. Columbia Steel Corporation's Ironton Plant started operations in the 1920s. The plants provided jobs for eager workers and transported steel products to various parts of the country by train. Geneva Steel began operations in 1942 and became a magnet for jobseekers of all levels, from the manufacturing floor to the upper stations of engineering and management. The company caused a sharp population increase and helped spark the local economy, but the steel industry wasn't good for the lake. Steel plants were accused of severely polluting the water. They later worked to repair the damage by funding extensive cleanup efforts.

In the 1970s, a study led by Dr. Willis H. Brimhall of Brigham Young University found that Utah Lake was less turbid in pioneer times. Brimhall's study noted that since its inception, the lake has never been perfectly clear because it has always been shallow. This lack of depth contributes to its turbidity, large loss of water to evaporation, slightly saline water, warm summer temperatures, and an abundance of algae. Brimhall also concluded that some 28 feet of sediment accumulated on the lake's bottom over the past 10,000 years. The rate of sedimentation has doubled since the first settlement and the later urbanization of Utah Valley.

In the 20th century, the increased amounts of fertilizer and sewage that were dumped into the lake fueled algae growth, harmed the quality of water, and damaged the habitat of the native fish. Urban growth around the lake has increased erosion, and the carp population has stripped the lake of nearly all of its aquatic vegetation. These factors, combined with the lake's historically shallow depths, have kept the water in a turbid state.

In recent years, the introduction of more nonnative fish, including predators such as white bass, has also contributed to the demise of the lake's ecosystem and native fish community. White bass compete with native fish like June sucker for food and also prey upon sucker young. Nonnative carp, which currently comprise 90 percent of the fish biomass (weight) in the lake, destroy the vegetation on the lake's bottom. This leaves less cover to protect June sucker from predators. With so many obstacles placed in the reproductive path of this native fish, it's no surprise that most June sucker found in the lake today are estimated to be between the ages of 20 and 43 years old.

Mill owners of the late 1800s and early 1900s joined the assault on water quality by regularly dumping sawdust and other forms of waste into the tributaries of Utah Lake and the Jordan River. Large numbers of trout suffocated when the sawdust clogged their gills. Public outcry led to legislative law, which helped control the problem, but serious damage had already been done