For shame! For shame! You dare to cry out Liberty, when you hold us in places against our will, driving us from place to place as if we were beasts.

~ Sarah Winnemucca Hopkins (b. ~1844, d. 1891), born Thocmentony or Tocmetone, Paiute for “Shell Flower” (“Piutes” was the early spelling for what is currently spelled as “Paiutes”) (Hopkins 1883).

Death of Lake Winnemucca

The outrage that Sarah Winnemucca expressed about the treatment of her people by the whites did not even touch upon the disaster to a lake that bore her name. Four decades after her death, the lake would be erased in the span of a generation. Here we describe a lake that is truly “dead” and an adjacent lake that so far has avoided the same fate.

One might think that eliminating a 30-mile-long lake would attract some attention, especially one that hosted 30 million birds and huge trout. However, all that remains of Lake Winnemucca is a dusty depression near the Black Rock Desert (home of the Burning Man Festival) in northwestern Nevada (Figure 1). No signs, no tombstones, no obituaries in the paper, no large display in the local museum . . . just gone. That’s what happens with a truly dead lake. There is little life there now; birds, lizards, and rabbits are difficult to find. The only signs of wildlife on a recent visit were gnats at dusk. We offer a brief eulogy for Lake Winnemucca and contrast that with a more optimistic outlook for Pyramid Lake.

Lakes Winnemucca and Pyramid were once part of the Pleistocene Lahontan Lake complex (see Herbst et al., this issue). As the climate dried, Pyramid and Winnemucca lakes became distinct lakes, but still connected by a wetland. Pyramid Lake, which lies in a deep trough, became the last known refuge for a remnant population of Lahontan cutthroat trout. Its shallower neighbor, Lake Winnemucca, supported extensive peripheral wetlands and attracted huge populations of waterfowl, including the white pelican. This abundance of life also attracted early settlements of newcomers to the continent. The shores of the once-productive lake were home to tribes that produced the earliest documented petroglyphs (http://news.nationalgeographic.com/news/2013/08/130815-lake-winnemucca-petroglyphs-ancient-rock-art-nevada/) in the Americas (Benson et al. 2013).

It is likely that the extent of Lake Winnemucca varied with fluctuations in climate, forcing tribes to periodically move to more permanent sites such as Pyramid Lake. Their modern-day descendants, the Paiutes, enjoyed the region until encounters with the U.S. cavalry and white settlers became increasingly unpleasant and eventually violent. Part of this sad history was documented by Sarah Winnemucca, daughter of Chief Winnemucca and granddaughter of Chief Truckee (Hopkins 1883). What is now the Lake Winnemucca dry lake bed was ingloriously called Mud Lake by the white settlers. Sarah Winnemucca wrote of the early years...
in which the Paiutes were rounded up on a reservation established in 1860. The reservation contained Winnemucca and Pyramid lakes as well extensive holdings beyond the lakes, but confined the Tribe to a small fraction of their former lands. Both lakes contained large trout populations that helped to sustain the Tribe. However, in 1867, the railroad divided the reservation in half leaving the Tribe with only one lake and a greatly diminished reservation. Both Lakes Winnemucca and Pyramid were maintained by inflow from the Truckee River and had similarly low salinity, about 3.5 g/L (Clarke 1924). As late as 1895, Lake Winnemucca was still a significant body of water when it was studied by Russell (1895). He indicated that Pyramid Lake was over 350 ft. deep and the deepest contour shown for Winnemucca was 30 ft. The 121 mile-long Truckee River is the sole outlet from Lake Tahoe and the flows were rapidly appropriated for irrigation and drinking water supplies. This trend accelerated with the completion of the Derby Dam in 1905, which diverted significant flows to the agricultural fields near Fallon. The final blow to Lake Winnemucca occurred with the construction of a road along the western shore of the lake that blocked the remaining inflows into the former wetland connecting Lake Winnemucca with Pyramid Lake. By the 1930s, Lake Winnemucca was nearly desiccated. Even its designation as a national wildlife refuge by President Roosevelt didn’t protect it from getting the life sucked out of it. Some views of the lake bed illustrate the now desolate terrain (Figures 2-6).

**Assault on Pyramid Lake**

During this period, Pyramid Lake was also declining. It’s estimated that the lake stage dropped by 80 feet from its height prior to white settlers. Salinity increased and the number of Lahontan cutthroat trout declined because their access to spawning grounds in the Truckee River had been blocked by the formation of a large delta at the mouth of the Truckee River and by the Derby Dam. In 1936, the Pyramid Lake Paiute Tribe was formally recognized by the federal government and assumed control of Pyramid Lake and the surrounding lands, but too late to head off the apparent extinction of the trout in 1939. In what was good science, combined with a bit of luck, a fishery scientist correctly identified a remnant population of Lahontan cutthroat trout surviving in a creek on the Nevada/Utah border (Hickman and Behnke 1979). How the trout ended up several hundred miles from the Pyramid Lake is unknown, although the activities of “bucket biologists” would be a good guess. The emaciated trout were nursed back to health and formed the recovery brood stock. The remarkable find allowed the Tribe to propagate the recovered species and successfully reintroduce it into Pyramid Lake. Since then, 20-pound trout have been caught and biologists are hopeful that the 1925 record of a 41-pound Lahontan cutthroat trout may one day be surpassed. Another large species of fish, the cui-ui, a long-lived sucker found only in Pyramid Lake, experienced dramatically reduced numbers and only three surviving age classes. This was also attributed to loss of access to the Truckee River. However, it is also making a dramatic recovery and they are now
moving into spawning reaches of the Truckee River in large numbers. There is reason to be optimistic about the fisheries and water in Pyramid Lake; the lake levels have stabilized and salinity values, which reached 5.5 g/L, have also stopped increasing (Figure 7).

**The Modern Battleground – The Courts**

The political status that comes from Tribal recognition enabled the Paiutes to negotiate directly with the federal government and has brought more resources to help resolve some of the long-standing conflicts. The Tribe now operates three hatcheries to produce both trout and cui-ui. The recognition of the Pyramid Lake Paiute Tribe was achieved only after a long struggle involving numerous court actions. Two critical pieces of legislation that facilitated the path towards recovery of Pyramid Lake were the Endangered Species Act (1967) and the renewal of the Clean Water Act (1987), both of which provided the Tribe with a strong footing in court (Wagner and Lebo 1996). Additional water for the Tribe and the lake was made possible through completion of the three Bureau of Reclamation dams whose discharge flow to the Truckee River. These include Prosser Creek Dam (1962), Stampede Reservoir (1970) on the Little Truckee River, and the smaller Marble Bluff Dam (1975), which provides flow for a fishway to allow the trout and cui-ui to migrate upstream and spawn. The fishway is actually a lock that fills with water and allows the fish to migrate above the Truckee River delta that was exposed when the lake stage was lowered 80 feet.
However, as the previous articles in this issue illustrate, there remains a need for vigilance to guard against future attempts to access the water now reaching Pyramid Lake. A glance at the Lake Winnemucca dry lake bed only reinforces this need. The words of Sarah Winnemucca reveal how the white settlers and cavalry were viewed by this articulate princess of the Paiute nation:

*They came like a lion, yes like a roaring lion, and have continued so ever since. . . .*

Perhaps we can learn from misdeeds of the past, both in terms of dealings with people and how we treat the lakes that enrich our lives.

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