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Saving Lake Tahoe: An Environmental History of a National Treasure

By Michael J. Makley. Reno, NV: University of Nevada Press, 2014. xi + 233 pp. US$ 24.95. ISBN 9-780874-179347.

Water Politics in Northern Nevada: A Century of Struggle (2nd Edition)

By Leah J. Wells. Reno, NV: University of Nevada Press, 2014. xii + 139 pp. US$ 21.95. ISBN 9-780874-179514.

Beginning in the 1950s, bitter conflicts over the use of extensively developed fragile lands and the consumptive use of scarce waters intensified in the American West. These conflicts share a common narrative: In the 19th and early 20th centuries, the West was settled by rapidly exploiting its natural resources to create an economy based primarily on ranching, mineral and timber extraction, and irrigated agriculture. In the process, what we now call environmental values were ignored, except for the creation of National Parks, and Native American communities were pushed aside and marginalized by confining them to reservations that were remnants of historic homelands. As the West became the most urbanized part of the country after World War II, a new economy based on knowledge and recreation emerged. In the 1960s and 1970s, this led to a new vision of a greener, bluer landscape. Environmentalists argued that many undeveloped natural areas should be preserved, degraded ecosystems restored, and new development limited to avoid further stresses on the West's fragile landscapes. At the same time, the remnant Native American communities became more aggressive in trying to maintain the natural resource bases necessary to sustain traditional cultural practices, such as fishing, as well as to support economic development on the reservations. In a small area of northern Nevada and eastern California, these conflicts became exceptionally intense starting in the 1960s. After decades of political battles and litigation, the region developed new political institutions to manage these conflicts and to make the transition from the "old" West to the "new" West. *Saving Lake Tahoe* and *Water Politics in Northern Nevada* are case studies of how areas changing from older, now often marginal extractive industries and agriculture might use science and the political constituencies that benefit from change to navigate the transition to modern urban–second home and recreational economies with more sustainable landscapes.

Saving Lake Tahoe details a 60-year fight to preserve one of the world's most magnificent mountain lakes, which sits on the border of California and Nevada. Formed by geologic block faulting 2 to 3 million years ago, Lake Tahoe is 6229 feet (1920 m) above sea level, and the magnificent Sierra Nevada mountains tower up to 4000 feet (1220 m) above the surface on its western shore. Tahoe is the second deepest lake in the USA and the tenth deepest in the world, with a maximum depth of 1645 feet (501 m), and its outstanding feature is the clarity of its water. Stresses from the development in the basin on the quality of the lake are the root of the conflict. In the first half of the 20th century, the basin was logged extensively and also became a summer home and winter ski area for wealthy San Francisco Bay area residents. These part-time residents left a fairly light footprint on the landscape. In the booming postwar prosperity of the 1950s, the area began to develop more intensely. Soon sediment and fertilizer runoff from this development increased the nutrient levels in the lake. By 1968 a scientist from the University of California at Davis, who had begun to study the lake in 1959, had established the causal link between runoff and the decline in the lake's clarity. By 1973 the lake's visibility had been reduced to 85.6 feet (26.1 m) and people began to talk about its death. Starting in 1965, California and Nevada searched for a bistate solution to limit development in the Tahoe Basin to the carrying capacity of the lake. In 1969 an innovative interstate compact (a quasi-treaty between states) created the first bistate agency whose primary mission was land use regulation.

To the east of Lake Tahoe, a five-way water fight, which also involved the lake, was getting underway among one of the first irrigation projects built by the federal Bureau of Reclamation after its creation in 1902. Indian Tribes, the City of Reno, a hydroelectric power company, and environmental groups all competed for scarce water in the driest state in the USA. Truckee River flows had been capped by a 1915 court degree designed around flows for hydroelectric power generation. California refused to allow additional diversions from Lake Tahoe. The Newlands Irrigation Project, near Fallon, Nevada, diverted most of the water from both the Truckee and Carson rivers flowing out of Sierra Nevada Mountains. This decreased Truckee River flows into Pyramid Lake and made it difficult for cui-ui and Lahontan cutthroat trout to enter the lake. The Newlands Project also produced heavily polluted return flows, which came to rest in the closed Lahontan Wetlands, a major stop on the Pacific Flyway. In 1992 Congress approved a legislative water allocation settlement among all the parties except the irrigation district; and in 2008 the legislation was implemented, again over the objections of the district, with an innovative reservoir and river flow operating regime: the Truckee River Operating Agreement (TROA).

Around Lake Tahoe, land development is now subject to a strict set of land use regulations that have

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curbed much of the sediment runoff into the lake. In the Truckee-Carson Basin, the city of Reno, the Pyramid Lake Tribe, and the birds in the wetlands have benefited from increased, higher-quality flows. The irrigation district chose to subject itself to market discipline and is slowly shrinking, as some farmers have decided to sell their water rights to the Bureau of Reclamation to restore the wetland; others are resigned to the increasing urbanization of the area, as their children leave it.

These new landscapes were bitterly opposed by those who stood to lose from the transition. The common theme in both areas is the assertion of land and water property rights to block the transition. Land owners and developers around Lake Tahoe brought numerous legal challenges, 2 of which reached the United States Supreme Court, characterizing the stringent land use regulation as an unconstitutional taking of property without just compensation. The Newlands irrigators had water rights dating back to the late 19th century that allowed them to ignore more efficient irrigation practices. These rights blocked any significant reallocation of water because earlier water rights awarded very little water to the Pyramid Lake Tribe and no water to the wetlands.

In Lake Tahoe, the diligent work of scientists and landscape architects laid the foundation for stringent but science-based land use regulations, and the courts ultimately upheld the development standards adopted by the bistate agency. Lawyers for the Pyramid Lake Tribe found an innovative way around their lack of water rights. The two fish species were listed under the Endangered Species Act. A federal court held that the Bureau of Reclamation had to operate a reservoir on a tributary of the Truckee, to provide more water flowing into the lake for the benefit of the listed fish. This gave the political leverage to be included in the 1992 Congressional legislation and the 2008 TROA. Congress also appropriated money for voluntary sales of Newlands Project water rights to increase flows into the closed Lahontan wetlands.

To the south of the Truckee-Carson basin is another river, the Walker, where similar irrigated agriculture–Native American–environmental conflicts exist. The river flows into Walker Lake, a closed-basin lake. Between 1882 and 2008, upstream agricultural diversions, primarily for alfalfa—which has high demands for water—caused the lake level to decline by more than 150 feet (46 m), and 7,400,000 acre-feet (9,128 million m^3) of storage were lost. Walker Lake became much more saline as dissolved solids increased from 2500 to 17,000 milligrams per liter, threatening the survival of the Lahontan cutthroat trout, a native species listed under the Endangered Species Act. The federal presence in the Walker Basin was less because there is no federal irrigation project. However, federal legislation sparked a science-based voluntary strategy to save the lake and to preserve the local irrigation society, even as the area urbanizes. The strategy involves scientific studies to provide a better understanding of the impact of irrigation on the lake, the development of less water-demanding crops, and voluntary sales of water rights to restore the flows into Walker Lake.

This review does not begin to do the case studies justice. It does not include the sketches of the many dedicated scientists, government officials, and others who provided the intellectual and political support for innovation as well as the many "old West" colorful characters who opposed the transition to a new landscape at every step of the way. Read together, the 2 books identify 2 necessary conditions for the transition of a landscape controlled by those who hold firm water and land use entitlements to a more sustainable one that includes the interests of those excluded from the area's initial development. Simply put, they are sound, practical science and some measure of compensation or other benefits for those caught in the transition.

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