

# Mono Lake Controversy

By,  
Daniel Kastner



*Environmental victories are temporary; environmental defeats are forever.*

*-Sally Gaines*

**LONG LIVE MONO LAKE!!**

**Lone Grebe Enjoying Mono's Water**

## **Geology and Composition**

Despite the Sierra Nevada to the immediate left, Mono Lake is bordered by a volcanic landscape. Erupting somewhat recently in geologic time (within the last 40,000 years), the Mono Craters, stretching to the south of Mono, as well as Black Point and Negit Island are some obvious examples of volcanic features at Mono Lake. The Mono Crater chain may very well be the youngest mountain range in North America. It stretches 10 miles north to south and rises to around 9,000 ft. The most recent eruption in this chain produced Panum Crater, and took place less than 700 years ago. Chances are that the Mono Craters could erupt sometime in the future. Twenty miles south of Mono lies the northern edge of the Long Valley Caldera. This Long Valley eruption produced an eruption that was 2,500 times greater than the 1980 Mt. St. Helen's eruption. The blast buried much of the region in hundreds of feet of volcanic debris, with ash falling as

far away as Nebraska. Along with being an extraordinary geologic event in our history, the ash debris from this eruption proved a useful tool in discovering the secret to Mono Lake's age. In 1908, oil prospectors began drilling for oil on Paoha Island, an island in Mono Lake. In the process and beneath hundreds of feet of lake sediment, they discovered a layer of ash from the Long Valley eruption, and beyond this layer was even more lake sediment. So with this evidence, geologists were able to infer that Mono Lake has held water since the Long Valley eruption 760,000 years ago, and the lake sediments beneath this layer of ash suggest that Mono Lake is even older than that. This would place Mono Lake amongst the oldest lakes in North America. Tree ring dating has also helped to give an approximate age for the lake, and even more interesting is that fish fossils found in the lake suggest that at one time it was fresh water, and that it had an outlet to the North.

“Mono Lake is part of the western edge of the Great Basin, a vast region of parallel mountain ranges and valleys, most of which drain to salt lakes or desiccated playas” (Hart). 15,000 years ago almost every Valley in the Great Basin was filled with water, and some were large enough to come together and form inland seas. But since the end of the last ice age and the onset of a warmer and drier climate, many of the lakes in the Great Basin have decreased in size and have entirely dried up. However, thanks to its great location, tucked right underneath the snow covered Sierra peaks, Mono has been able to withstand dry spells and constant evaporation that many of the other terminal lakes fell to. As far as researches can tell, the lake has never sunk as low as it has in recent times, however, it is certain that the lake has risen much higher. Only 120,000 years ago, the lake was large enough to have an outlet into the Owens Valley. Around

20,000 to 15,000 years ago, during the peak of the most recent ice age, the lake level was so big that the current town of Lee Vining was a shoreline. Through hands on experience, it is evident that the lake has dried up considerably because it is very easy to see exposed shoreline that was once covered by water. A great deal of tufa structures were also fully exposed, and we know that they had to be once covered by water since tufa is a calcium carbonate structure that grows from the calcium rich lake (Dave Marquart, Field Notebook). More evidence to the lake's past depth can be seen through Black Point, described as "a broad-shouldered, gentle mass of basaltic cinders on Mono's north shore"(Hart). Black Point, a beautiful spot where our group enjoyed a splendid outlook of Mono, is a volcano that erupted underwater roughly 13,300 years ago. Lava that poured out cooled quickly, then cracked and formed extravagant fissures (horizontally split land) in the ground. Black Point is perhaps the only volcano in the world that was created underwater but is now fully exposed. Around 9,000 years ago the lake shrunk to a size much like its present, fluctuating within a range of around 130 vertical feet. It was when the lake began to subside that it began being referred to as Mono, and prior the lake was known as Lake Russell, after the nineteenth-century geologist Israel Russell.

The lake has no outlets, and receives its water from mountains streams and creeks, the three main ones being Mill, Lee Vining, and Rush. Mono's water level depends entirely on the flow of these waterways. These inlet streams carry salts and other minerals that have dissolved from rocks. Since only pure water evaporates, an immense amount of minerals are left behind, making Mono an incredibly mineral rich body of water. On average the lake loses roughly 3 to 4 ft. of water per year from

evaporation. It is estimated that 285 million tons of chemicals are now dissolved in Mono (Hart). Chemically, it is often referred to as a triple-water lake. It is saline, alkaline, and sulfurous due to its volcanic surroundings. The Lake also includes high levels of fluoride, boron, and arsenic, as well as traces of uranium, thorium, and plutonium. Before Los Angeles began diverting water from Mono, the lake was roughly 1/3 as salty as the ocean. In 1981, after years of fresh water diversion, Mono was three times as salty as the ocean.

The unique chemistry of Mono Lake typically nurtures a very productive ecosystem. Mono embraces 14 different ecological zones, over 1000 plant species, and roughly 400 recorded vertebrae species within its waters (Mono Lake Committee). No fish live in the lake because of immense salt content, and this was why at one time people thought Mono Lake served no purpose. But after time people began to discover the trillions of brine shrimp and alkali flies that feed on the lake's algae. Even more important, are the millions of migratory birds that come every year to feed on the lake's rich source of brine shrimp and alkali flies. Together with the surrounding area's sagebrush, Jeffery pines, volcanoes, tufa towers, gulls, grebes, brine shrimp, alkali flies, freshwater streams, and alkaline waters, Mono Lake and its surrounding basin encompass one of California's richest natural areas. In the 1970s, with this new found knowledge of how truly important this lake was, David Gaines and others began to exercise their political rights in a bitter struggle to save the waters of Mono Lake.

### **Political History of Mono Lake**

At the beginning of the 20<sup>th</sup> century, the city of Los Angeles began to undergo tremendous growth, and those in charge realized that this emerging city in Southern

California was going to need some secure sources of water to ensure its stability. So around 1905, an officer of the Los Angeles Department of Water and Power (L.A.D.W.P), Fred Eaton, began to buy up land in the Sierra region, areas of land that produced great amounts of fresh water. Eaton and his colleague William Mulholland's first place to tap was the water from the Owens' Valley, a watershed that yielded on average 300,000 acre-feet of water per year. In a genius maneuver, a giant aqueduct was built, long enough to transport water directly from the source all the way down to L.A. The thought was that since most of the water coming from mountain watersheds is at a much higher elevation than Los Angeles, gravity alone could send water down to L.A., while also producing some electricity along the way through spinning turbines. The Owens' River was used until around 1919, when the area began to dry up due to an ever-increasing L.A. population. But L.A. plans for water usage did not go unnoticed, and in fact angered many people, prompting law-makers to make the County of Origin statute. This enforced the principle "if water was exported, the area must have their economic needs served first"(Hart). Unfortunately, this statute did not include Owens and Mono counties, leaving these areas in water hungry L.A.'s jurisdiction.

So when the Owens' River Valley began to dry up, L.A. moved its attention to the Mono Basin area. Mono is fed by a series of creeks and streams, the three main ones being Mill, Lee Vining, and Rush. L.A. already owned around 3,000 acres in the Mono Basin, but they wanted much more than this. In the 1930s L.A. went to court in an attempt to buy up land from current private owners. In the case *Los Angeles vs. Aitken*, L.A. was finally able to own outright some 30,000 acres of land in the basin, with water rights for thousands more. This cost L.A. roughly 5 million dollars. So with almost all

water rights, L.A. got to work, building dams, reservoirs, and underground pipelines to help them most efficiently use the water for their own benefit. Standing in their way, was the California legislature, who in 1937 added a new requirement to new or old dams, saying that “all dams, old or new, equipped with fishways or not, must let enough water to pass to maintain ‘in good condition’ the fish in the streams below”(Hart). Yet after this, L.A. proposed to neither let water escape its new reservoirs or add fishways. California law would let them escape the fishways rule, by allowing them to build a hatchery that didn’t even have to be on the stream being dammed. The Fish and Game Commission agreed to this and a hatchery was built on Hot Creek in Long Valley, and still exists today. The second provision of the California Law, that water be released through dams, was a lot harder to dismiss. However, Nate Milnor, chairman of the Fish and Game Commission let L.A. off the hook as part of the Hot Creek Hatchery deal. But by doing this Milnor had gone far beyond what the full commission had agreed to, and the bargain itself was patently illegal. However, it was signed into California law, and this controversial law became a huge obstacle for those that complained about the fate of streams in the Mono Basin.

Over the next decade, L.A. took water from the main watersheds in the area, and damage was noticeable, namely lower levels of water, leading to dying fish populations, shrinking marshes and duck ponds, and wildering vegetation due to the dryness of the area. The effects on Mono Lake were a little more gradual, but nonetheless visible. In 1919, before water diversions, Mono had a height of 6,428 feet above sea level. In 1941, that height was down to 6,417. In 1955 the lake stood at 6,405 and continued to fall, eventually breaking the 6,400 ft. mark. This loss of water made the salinity of the water

increase tremendously, and also made the shorelines much larger, resulting in dust storms where the wind would pick up the deposited minerals on the shoreline. Chemicals, such as arsenic, which were prevalent in these dust storms, are horrible for people to breathe in.

As L.A. continued to devour Mono's streams, people began to take notice to the devastating effects it had on the environment. However, at this time, there was no California law that could refute the L.A.D.W.P's misuse of the land. In 1972, David Gaines and group of students from the University of California, began to research the wildlife around Mono Lake. From this study, Gaines and company were able to understand the incredible ecosystem Mono Lake houses. As the lake halved in size and doubled in salinity, the students noticed that the shrimp could not live in very salty waters like other shrimp, allowing these Mono Lake shrimp to be considered a separate species. Research concluded that that the brine shrimp would probably not be able to live when the level of water was below 6,360 ft. If the shrimp could not survive, then that is one less food source for the millions of migratory birds that depend on Mono. And as the water level fell, islands such as Negit and Paoha were accessible to more wildlife than just birds, namely coyotes that would cross the land bridges that were exposed from low water levels, and destroy the Gull population. It was the realization of Mono's incredible ecosystem and its gradual downward spiral that provoked Gaines and others to take a firm stand in defending Mono's waters.



*As Rush Creek and I rambled to Mono Lake, I was struck with how quickly Mother Nature, given the chance, heals the wounds we inflict upon her.... If nature can heal an injured land, it can heal our blighted souls as well. That's why saving Mono Lake is a matter of saving, and healing, ourselves.*

*-David Gaines*

Lee Vining Creek Flows to Mono Lake

In 1978, Gaines and David Winkler founded the Mono Lake Committee, an organization dedicated to educating and saving the dying waters of Mono. They began talking to conservation clubs, service organizations, schools, lawyers, legislators, and anyone else who would listen and help take action to save this high desert lake. With Gaines' leadership, the committee grew to 20,000 members and began to receive legal and legislative recognition (Mono Lake Committee). All they needed to battle the Goliath L.A.D.W.P was a good legal theory that they could bring to court and challenge L.A.'s over use of the Mono Basin's waters. The answer came from a gentleman named Tim Such, who put his law school education on hold to crack the case against the L.A.D.W.P. Such spent countless hours in the Berkeley and Stanford law libraries researching the laws and decisions of most of the fifty states, Mexico, England, and the Roman Empire. Eventually he found what he was looking for in a 1967 article in the *Michigan Law Review* by environmental lawyer Joseph Sax; the theory of the public trust. "The 'public trust' is the concept that certain lands and resources belong to the whole people and that the government, which serves as a guardian, has an inescapable



duty to manage these properties well. (Hart). The protected uses in California were initially navigation purposes, fishing, and commerce. However, in 1971 in the case *Marks v. Whitney*, the California Supreme Court extended the law's use to include wildlife habitat, nature study, and the simple beauty and aesthetic value.



South Tufa photo by J. Regan

*The public trust is an affirmation of the duty of the state to protect the people's common heritage in the streams, lakes, marshlands, and tidelands...  
-California Supreme Court, 1983*

So in 1979, the National Audubon Society, Mono Lake Committee, and others filed suit against the L.A.D.W.P, claiming that their water diversions violated the Public Trust Doctrine. The Public Trust Suit is the cornerstone of the legal efforts to protect Mono Lake. After a few years of deliberations, the California Supreme Court ruled in 1983 "...that the state has an obligation to protect places such as Mono Lake 'as far as feasible,' even if this means reconsidering past water allocation decisions. The court also ruled that the courts and the State Water Resources Control Board (SWRCB) have concurrent jurisdiction in cases of this kind"(Mono Lake Committee). This decision gave the Mono Lake advocates a huge leg to stand on. Following this case, the Mammoth Fly Rodders later joined by the MLC, NAS, and CalTrout, filed suit against the L.A.D.W.P charging that their diversions not only violated the Public Trust Doctrine, but also the California Fish and Game codes and the California Environmental Quality Act. From

this case, the court required the L.A.D.W.P to release 19 cubic feet per second (cfs) into lower Rush Creek. In the years to follow, the Mono Lake controversy was in and out of the courtroom. In 1989, after a series of coordinated proceedings, the court halted Mono Lake litigation for four years in order to allow the SWRCB to conduct an Environmental Impact Report in order to recondition DWP's water rights licenses to comply with the Public Trust Doctrine and the Fish and Game codes. Finally on September 28, 1994, the SWRCB issued its landmark decision. The court calls for the lake to be able to rise back up to a height of 6,392 ft. above sea level, which was estimated to take roughly 20 years. During this 20-year period, the L.A.D.W.P will continue to be able to divert water, but only on average 31,000 acre-feet of water, which is about 1/3 of the L.A.'s historic usage. The L.A.D.W.P must also develop plans to restore waterfowl and stream damage as a result of their past diversions.

The key to achieving what the Mono advocates desired was a willingness to work with the L.A.D.W.P and not against them. The point was not to deny L.A. its water needs, but rather to show them that everything we do comes with a price, and that we can't simply use convenient sources of water at the expense of nature, especially something as unique and historic as Mono Lake. It's important for L.A. to realize that what's even more important than finding new sources of water, is conserving the sources we already have. The story of the Mono Lake controversy is a classic example of the possibilities every one of us has. In this case, the possibility of a few individuals standing up for what they believe in, and battling immense odds to achieve a common goal. What a fantastic and inspirational display of environmental heroics and politics in one of the most historic environmental battles of our time!

## Sources:

- Hart, John. Storm over Mono. The Mono Lake Battle and the California Water Future. Berkeley, CA: University of California Press, 1996.
- The Mono Lake Committee web site, [www.monolake.org](http://www.monolake.org).
- Mono Lake Brochure, provided by California State Parks.
- Discussions with Mono Lake Ranger, Dave Marquart, and Mono Lake Committee Educator, Bartshe Miller.