
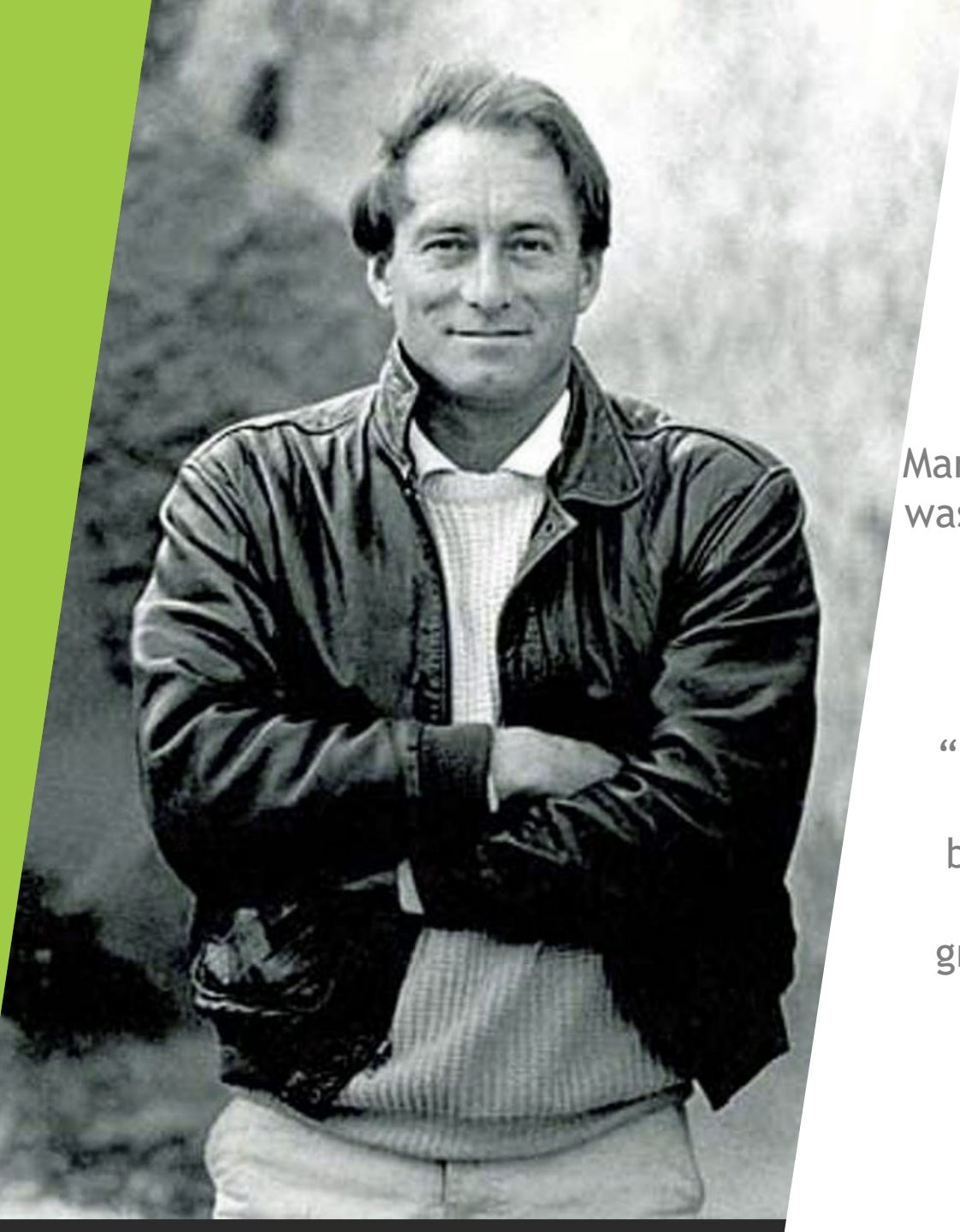




**Notes and highlights from
Cadillac Desert
by
Marc Reisner**



**Presented by Michael M. McGreer
MesquiteWaterAlliance.com
To Blue Currents Book Club
May 12, 2022**



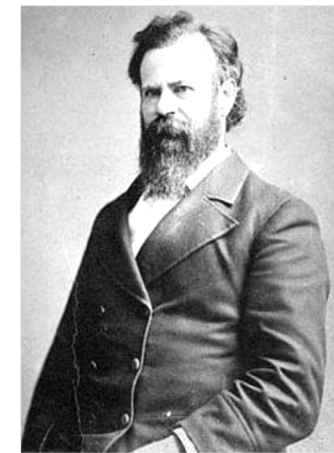
Marc Reisner

Marc Reisner (September 14, 1948 - July 21, 2000) was an American environmentalist and writer best known for his book *Cadillac Desert*, a history of water management in the American West.

“Desert , semidesert , call it what you will . The point is that despite heroic efforts and many billions of dollars, all we have managed to do in the arid West is turn a Missouri - size section green — and that conversion has been wrought mainly with groundwater. “ (Reisner, pg. 15)

Colorado River

- “If you evenly distributed all the surface water flowing between the Columbia River and the Gulf of Mexico, you would **still have a desert almost indistinguishable from the one that is there today**”. John Wesley Powell (In Reisner, pg. 15)

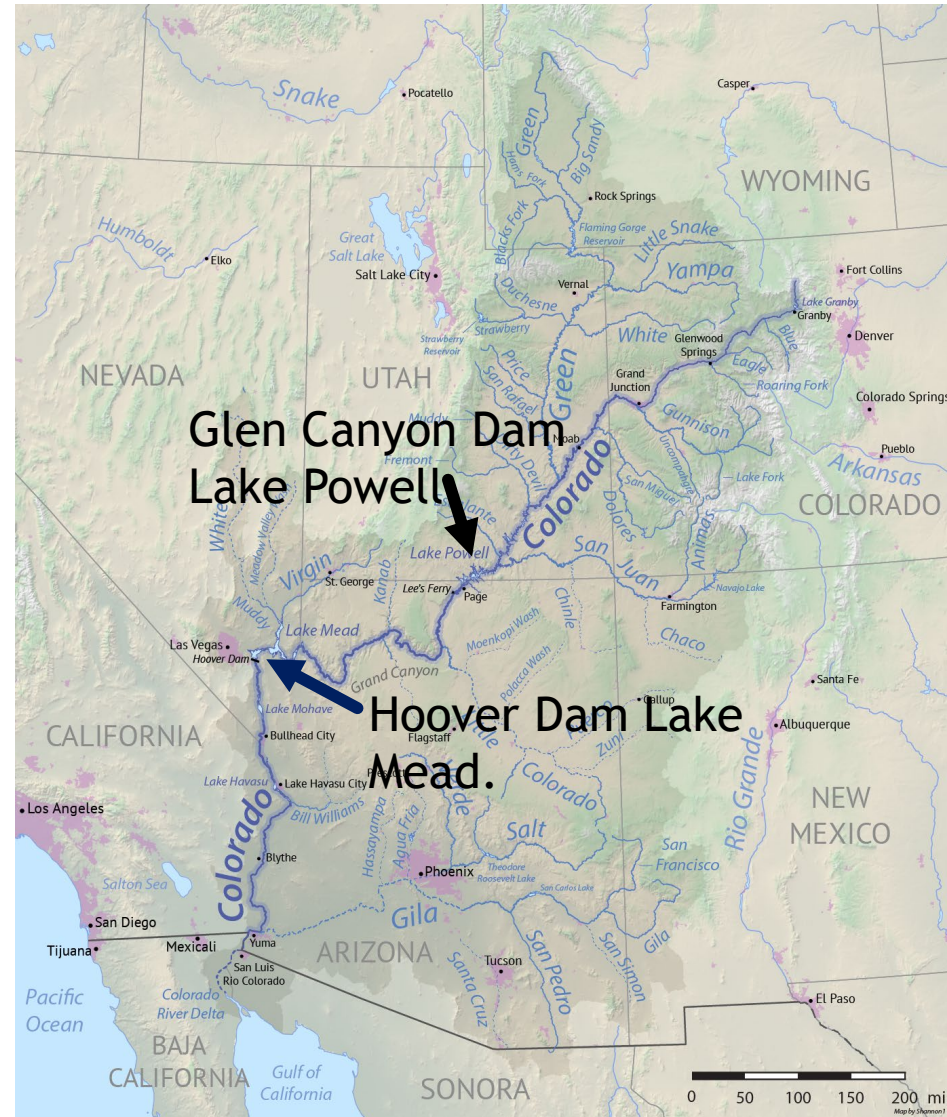


John Wesley Powell



Colorado River Route

“Released by Glen Canyon Dam, the Colorado takes in the Little Colorado, Kanab Creek, the Muddy, and one of the more misnamed rivers on earth, the Virgin. It pools again in Lake Mead, again in Lake Mojave, and again in Lake Havasu; it takes in the Gila River.” Reisner, pg. 16)



Groundwater

Precipitation



Over Appropriations

- ▶ In 2017 at a meeting of the Nevada legislature Committee on Natural resources and Mining, Jason King, then the Nevada Water Engineer, Said: “It is the general policy of the State Engineer to limit Groundwater withdrawals from a basin to the average annual recharge to the Groundwater basin or its perennial yield.”
- ▶ On July 25, 2017, Timber Weiss, a water resource specialist for the Division of Water Resources, warned the Water Board that the perennial yield from local **Basin 222 is only 3,600 Acre Feet Annually (AFA)**. The VVWD is taking more than twice water from the aquifer than the perennial yield (recharge) allows in the closed to application basin

The Perennial yield is the maximum amount of groundwater that can be salvaged each year over the long term without depleting the groundwater reservoir.

Precipitation

“ If it be true that **increase of the water supply is due to increase in precipitation**, as many have supposed, the fact is not cheering to the agriculturalist of the arid region

Any sudden great change [in climate] is ephemeral, and usually such changes go in cycles , and the opposite or compensating change may reasonably be anticipated

[We]e shall have to expect a speedy return to extreme aridity, in which case a large portion of the agricultural industries of these now growing up would be destroyed . ” (Reisner, pg. 55)

Lower Virgin River

Table estimated annual precipitation and groundwater recharge (AFY)

in Nevada north of the river	3,100
in Nevada south of the river	500
Total	3,600

The official underground perennial yield for Basin 222 which serves Mesquite and Bunkerville was established in 1968 by USGS scientists Glancy and VanDenburgh, at 3,600 Acre Feet Yearly.

Glancy, Patrick A., Van Denburgh, A.S. "Water-resources appraisal of the Lower Virgin River Valley Area, Nevada, Arizona, and Utah. U.S. Geological Survey, U.S. Department of Interior, 1969 from published records of the U.S Weather.

In 2019, the Virgin Valley Water District pumped 6,659.99 Acre Feet from the underground source and af in 2020 they took 8,684 Acre feet from that source.



Beware of those bearing gifts

Bureau of Reclamation

► October 16, 2003. Secretary of the Interior Gale Norton today officially signed the Colorado River Water Delivery Agreement, a landmark pact that begins a new era of cooperation on the river by fulfilling a promise California made more than 70 years ago. "For the Basin States, **the Agreement provides certainty, allowing them to protect their authorized allocations and meet their future water needs,**" Norton emphasized. "As part of this agreement, and in reliance on the promises made in the agreement, I have fully reinstated the Interim Surplus Guidelines," Norton declared.

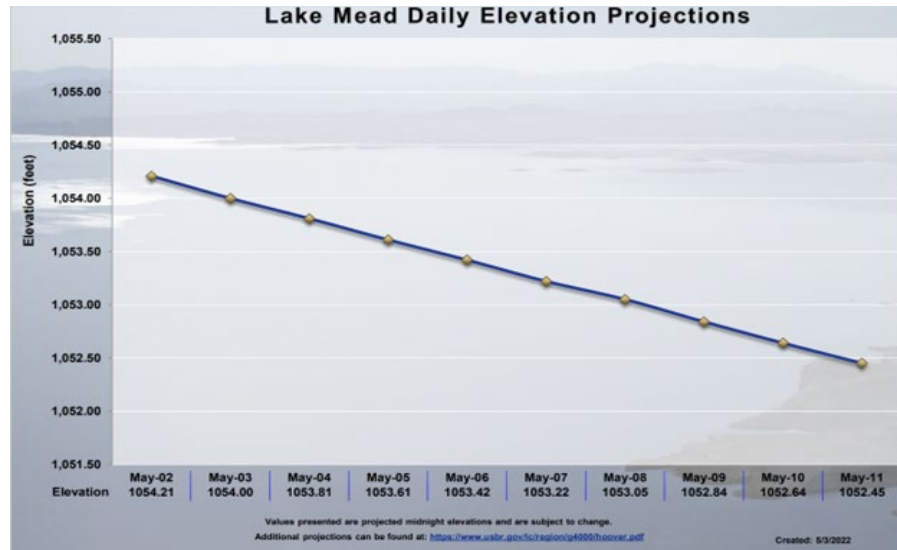
► That will allow Nevada, which lost access to extra water from the Colorado River along with California, to again have access to this water and return to the long-term path it has developed to meet the needs of its growing population. [Secretary Norton Signs Historic Colorado River Water Pact | Indian Affairs \(bia.gov\)](#)

► In the West , of course , where water is concerned , logic and reason have never figured prominently in the scheme of things. (Reisner, Pg 24)



Drought Contingency Plan

- ▶ The Las Vegas Valley gets about 90 percent of its water from the **Colorado River**, which is facing the worst drought in the river basin's recorded history.
- ▶ The water level of **Lake Mead** which serves the source of most of our community's drinking water, has dropped more than 150 feet since January 2000.



As of May 11, 2022

The Maximum elevation of water in Lake Mead is 1,229 feet. In 2000 Lake Mead was at about 1,214 feet. On May 2 this year it was at 1,054.21. from 1,052. 42



Lake Powell

Almost as soon as it was created—well before it metamorphosed into the mighty Bureau of Reclamation—the agency found itself working on behalf of the wealthy and powerful and against the interests of the constituency it was created to protect, the small western irrigation farmer. (Reisner, pg. 112)

Arizona over Nevada

- On May 4, the Bureau of Reclamation officials decided to **prop up Lake Powell** to benefit Arizona and the Navajo Nation at the expense of Nevada's Lake Mead consumers. The effort exposes the BoR flaw in their **Drought Contingency Planning Operation**, i.e. the power of the federal governed to establish water use priorities.
- Under the plan, the Lake Powell keeps more upstream water, **and 480,000-acre-feet of water is held back from Lake Mead.** from Lake Mead to protect hydropower generation. The water supply for Page, Arizona, and the LeChee Chapter of the Navajo Nation shows the major flaw in agreements with the Department of Interior - Bureau of Reclamation.

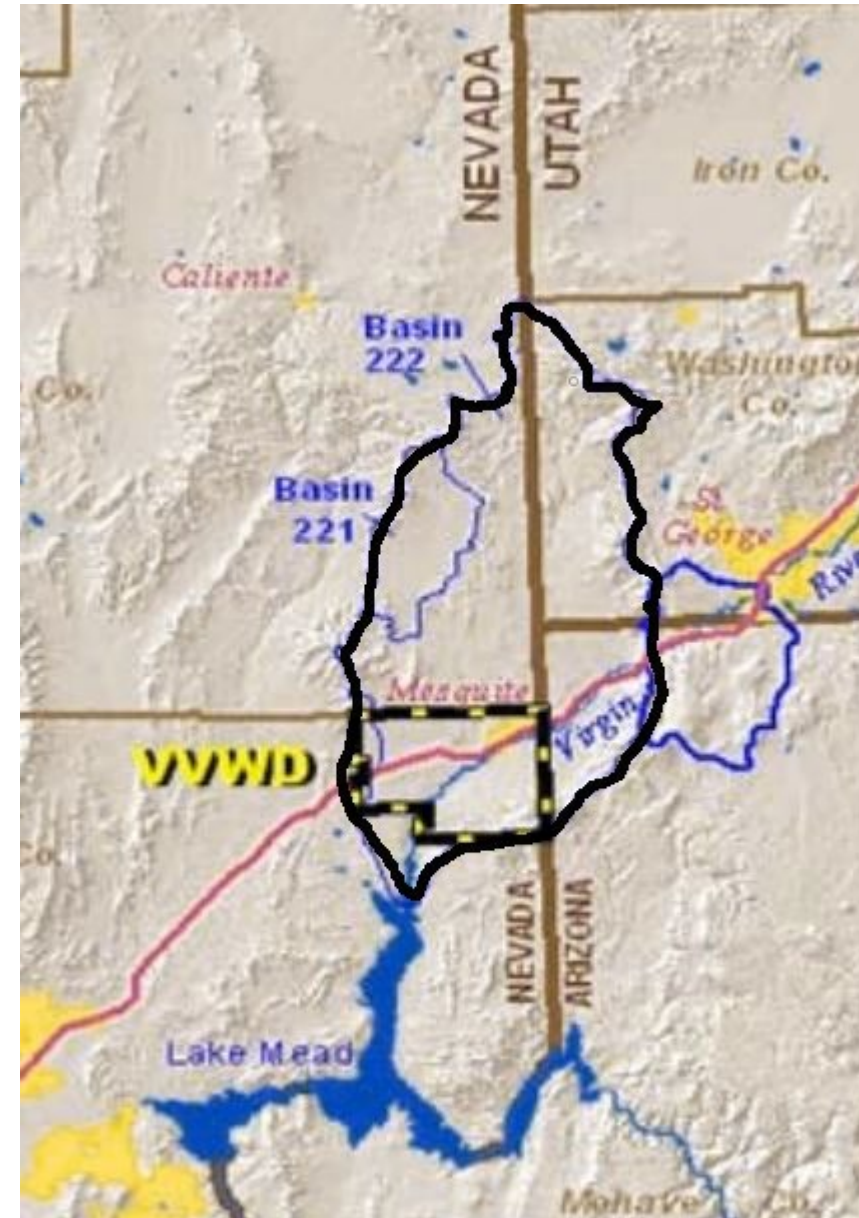
Over appropriations and Drought

The background of the slide is white with abstract green geometric shapes on the right side. These shapes include overlapping triangles and polygons in various shades of green, from light lime to dark forest green. The shapes are layered, creating a sense of depth and movement.

Drought intensifies over appropriations

- ▶ As the drought intensified, the Owens River moved perilously close to over appropriation. The problem was not only that the river was small, but also that no carryover storage existed—nothing but some small receiving reservoirs around the basin and the snowfields in the Sierra. (Reisner, pg. 98)

Virgin River Valley Basin 222

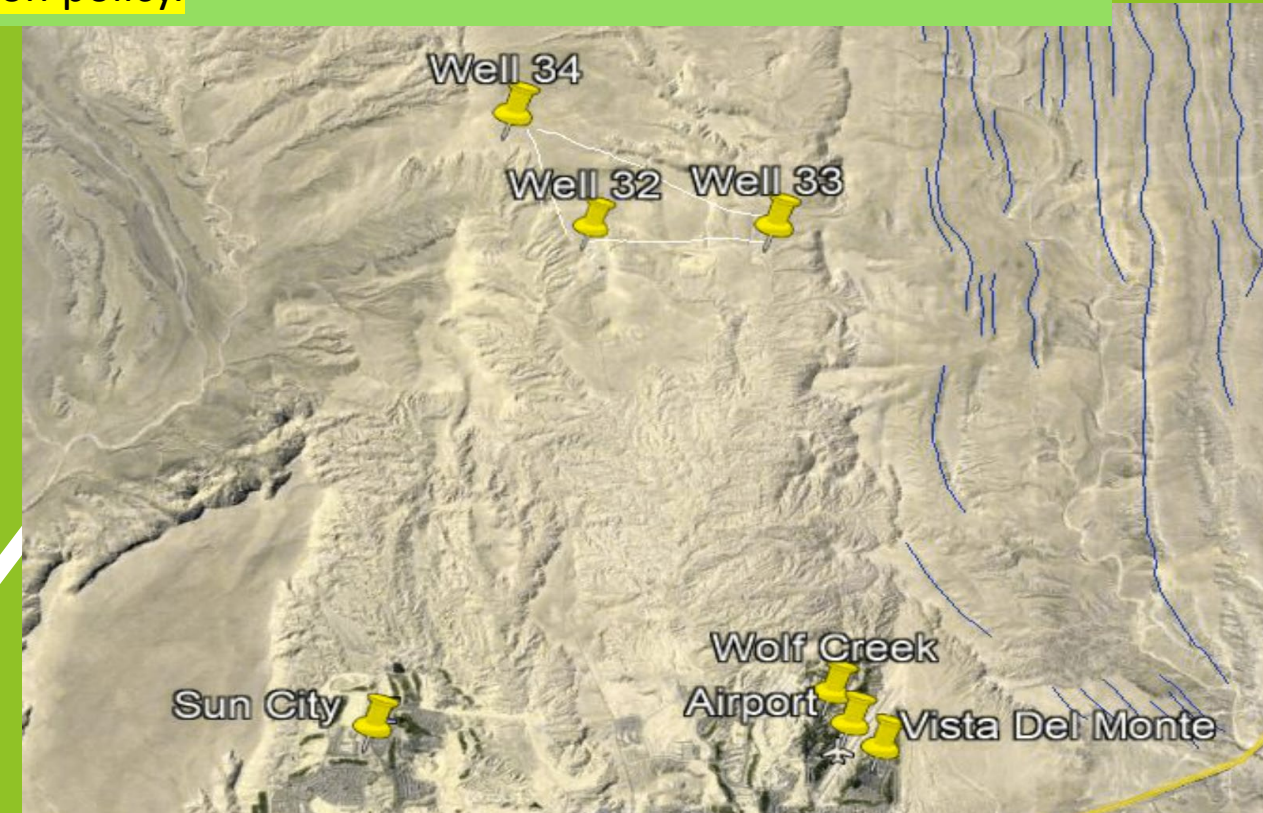


Over Appropriations

On August 18, 1980, Nevada Water Engineer William J. Newman (1979-1981) issued order 793. That order designated local Basin 222 as a critical management area. Under that order, withdrawals from domestic wells must conform to a restriction policy.

► Basin 222

Basin 222 overage analysis									
Application and decree status (Acre Feet Annually (AFA))						Basin 222 Hydrographic summary (Acre Feet Yearly)			
Application group(1)	Reserved	Certified	Vested	Permitted	Row totals	Resource	Total permits, certificates, vested	percent	
Effluent (1)	0.00	1,120.00	0.00	9,526.00	10,646.00	Effluent	10,646.00	8.49%	
Other Surface Water	0.00	5.06	0.00	0.00	5.06	Spring water	459.42	0.37%	
Spring water	3.36	424.14	31.92	0.00	459.42	Underground water	12,547.95	10.00%	
Stream water including Virgin River)	0.00	6,636.09	210.00	80,919.59	87,765.68	Surface water	87,770.74	69.98%	
Sub total							111,424.11	88.84%	
1927 Virgin River decree group (3)							Mesquite Irrigation Company (MIC)	7,727.43	6.16%
							Bunkerville Irrigation Company (BIC)	6,268.81	5.00%
Sub total							13,996.24	11.16%	
Grand total							125,420.35	100.00%	
System Yield (1968 recon report 51)							100,000.00	NA	
Overage							25,420.35	11.16%	



Basin 222 (all sources) is over the Nevada Water Engineer approved system yield of 100,000 AFY by about 25,420.25 AFY.

On July 15, 2008, Tracy Taylor, Nevada's Water Engineer, declared that the entire flow of Basin 222 was fully appropriated and closed to new appropriations.

Lesson Learned: Owens Valley Aquifer

- ▶ By the 1970s, even that tenuous existence was threatened; the aquifer was so drawn-down that desert plants which can normally survive on the meagerest capillary action of groundwater began to die, and the valley went beyond desert and took on the appearance of the Bonneville Salt Flats. When the winds of convection blow, huge clouds of alkaline dust boil off the valley floor; people now live in the Owens Valley at some risk to their health.
- ▶ The city has refused every request that it limit its groundwater pumping, just as it has refused to stop diverting the creeks that feed Mono Lake to the north—another casualty of its unquenchable thirst. Some sporadic dynamiting's began to occur again in the 1970s, and reporters arrived eager to cover the “second Owens Valley War,” but the war was long since over—there was nothing left to win. — (Marc Reisner, Pg. 111)

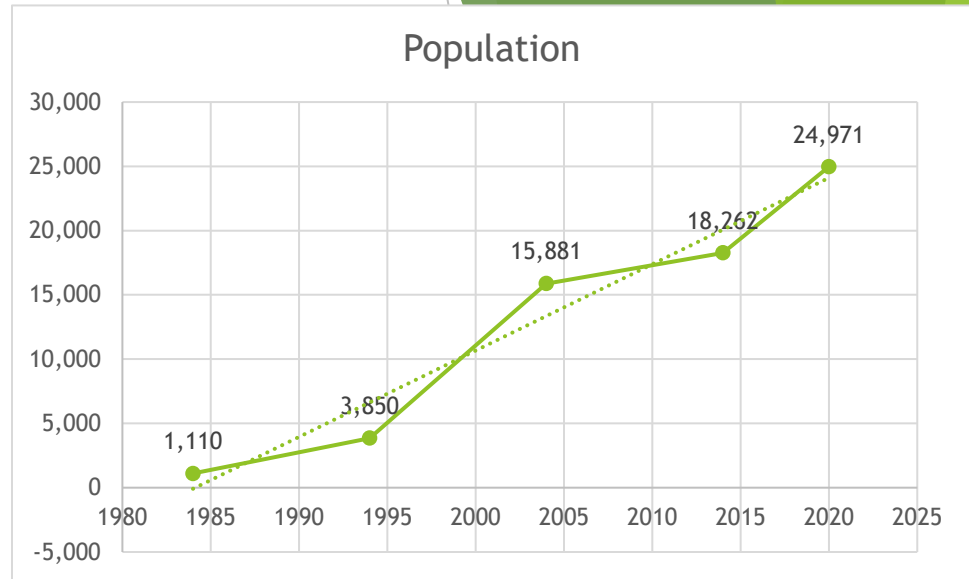


Table 1-1 Land Use Districts (COM)

Land Use Districts	Acres
Planned Unit Development (mix of land uses)	7461.68
Rural	146.63
Single Family	492.62
Multi Family	347.43
Mobile Home	49.40
Recreational Vehicle	77.64
Commercial	593.23
Hotel Tourist	312.71
Industrial	828.73
Public Facility	361.99
Parks, Recreation and Open Space	5,106.01
Land Reserve	2,779.75
Agriculture	6.43
Total Acres (excluding roadways)	18564.24
Total Square Miles	29.01

Source: Planning and Redevelopment Department

Profiteering

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The rest of the slide is a plain white background.

Profiteering

► “In the West , it is said , water flows uphill toward money.” (Reisner, pg. 22)

ALL WATER SOURCES WITHIN THE BOUNDARIES OF THE STATE, ABOVE AND BELOW GROUND, BELONG TO THE PUBLIC (NRS 533.025 AND 534.020).

Article 8, sections 9 and 10 prohibits the State from gifting or loaning public money to acquire stocks.

It also prohibits a city, county, town, or municipal corporation from becoming a stockholder of any company, corporation, or association or loaning its credit.

When the Bureau’s (Reclamation) commissioner declares that this Intentionally Created Surplus (ICS) water is available including land following. Reisner, pg. 487

Muddy, Virgin River and Coyote Springs created water stock shares purchased by Southern Nevada Water Authority (SNWA) under Intentionally Created Surplus (ICS) program (1997-2019) (1)

	Muddy Irrigation District	Virgin Valley Water District (VVWD)	Bunkerville Irrigation Company (BIC) shares	Mesquite Irrigation Company (MIC) irrigation shares	Coyote Springs	Row totals
	\$57,900,689.26	\$200,000.00	\$13,523,959.40	\$22,831,431.75	\$200,000.00	\$94,656,080.41
	\$21,093,596.03		\$730,420.75	\$610,000.00		\$22,434,016.78
	\$10,923,185.71		\$11,686,500.00			\$22,609,685.71
Sub-total	\$89,917,471.00	\$200,000.00	\$25,940,880.15	\$23,441,431.75	\$200,000.00	\$139,699,782.90

Virgin Valley Water District Board Purchases of MIC and BIC River Water Shares (1993-2010) (2)

Sub-total			\$5,546,518.29	\$6,613,152.57		\$12,159,670.86
Grand total	\$89,917,471.00	\$200,000.00	\$31,487,398.44	\$30,054,584.32	\$200,000.00	\$151,859,453.76

(1) SNWA Records request 2019 needs updating

(2) VVWD Records request needs updating

Total “gifting”

Under the ICS, those holding stock shares can claim to fallow their lands in return for payments under the assumption that non irrigated water, with dedications for evapotranspiration, will flow into Lake Mead

Under the ICS, the Southern Nevada Water Authority as of 2019 “gifted” \$139,699,782.90 to individuals and corporations holding stock share appropriations granted in 1920 and 1927 to Irrigate Virgin and Muddy River farmland. That gifting continues to this day.

In addition, between 1993 and 2010 shareholders of Virgin River water dominated the Virgin Valley Water District Board. During that time, they “gifted” At least \$12,159,670.86 for stock shares.

Monopolization of Water

Riparian doctrine alone, therefore , made it possible for a tiny handful of landowners to monopolize the few manageable rivers of the West. (Reisner, pg. 53)

The property boundaries would therefore have to be gerrymandered to give everyone a sufficient piece of the stream.

That was one way you could help avert the monopolization of water. Another way was to insist that people use their water rights , not hold on to them in the hope that cities would grow up and one could make a killing someday selling water to them . An unused water right should revert — let us say after five years — to the public trust so someone else could claim it. Reisner, Marc. Cadillac Desert (p. 56).