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WATER

The water czar who reshaped Colorado River politics

Las Vegas' Pat Mulroy initiated an era of deal-making that may buffer against catastrophic drought.

Matt Jenkins

Image credit: John Gurzinski

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The morning of Tuesday, Sept. 27, 2005, brought hints of a classic New Mexico fall, with a forecast high in the 80s and a trace of rain. But in a Wyndham Hotel at the Albuquerque airport, not far from where the rugged buttress of the Sandia Mountains rose into the autumn sky, life was anything but serene. Tensions were rising around a conference table in a rented meeting room, and the catered sandwich platters sat forgotten.

For more than a year, the Southwest's top water bosses had been shuttling between airport hotels all over the region. Regulators from the seven states that depend on the Colorado River, together with major urban water-agency managers, faced a collective crisis that threatened the water supply of nearly 40 million people and a \$1.4 trillion economy: A six-year drought that showed no signs of letting up.

No one at the table that day commanded more attention than Patricia Mulroy. Then 53, Mulroy was the lead negotiator for the state of Nevada and the head of the Southern Nevada Water Authority, the powerful agency that supplies Las Vegas with its water. Partial to pantsuits and shirts with popped collars — a look she picked up from Katharine Hepburn — Mulroy has a crisp, wrinkle-proof bearing and an often unnerving intensity.

For her, the stakes were especially high. Las Vegas' population was exploding, but the city had rights to less than 2 percent of the river's water, and that was running out fast. The one resource Mulroy had in abundance was money: In 2005, the Water Authority would rake in more than \$363 million.

Inside the Wyndham, negotiations reached an impasse as representatives from Arizona and Colorado locked horns over differing interpretations of a key part of the complex body of law that governs the river. "It just went on and on and on," says assistant New Mexico Attorney General Steve Farris. "And the longer it went on, you could just see Pat getting angrier and angrier and angrier."

Finally, Mulroy had enough. "I'd heard all the nonsense I was going to listen to," she remembers. "And I blew my cork."

Bristling, she rose abruptly and warned everyone that they stood at the brink of war. "She said, 'Nevada has very little water, but the one thing I do have is millions and millions of dollars, and I can afford to spend years in the Supreme Court fighting you all,' " remembers Farris. " 'So you need to figure out whether you're going to help me out — or we're going to court.' "

Then she stormed out, headed for the next flight back to Vegas. Everyone sat in stunned silence. "It was just like a bomb had gone off in the room," says John Entsminger, then one of Mulroy's lead attorneys.

Suddenly, Mulroy burst back in — to retrieve the cellphone she'd left behind in her fury. Then she turned and disappeared once more, the heavy door slamming behind her.



Former Las Vegas water czar Pat Mulroy earlier this year. Mulroy had a fierce reputation — and a fondness for personally chauffeuring climate scientists and other visitors to the Las Vegas airport to catch their flights.

John Gurzinski/lasvegasphotography.com

This was classic Pat Mulroy: brash, blunt, combustible and sometimes her own worst enemy. Yet by last February, when she retired after 25 years as Nevada’s top water boss, Mulroy had challenged much of the legalistic dogma on the river and forced a radical new style of deal-making in the face of crisis.

“She really was a major force in transforming the way the states worked on the Colorado River,” says Bruce Babbitt, U.S. secretary of Interior under President Clinton.

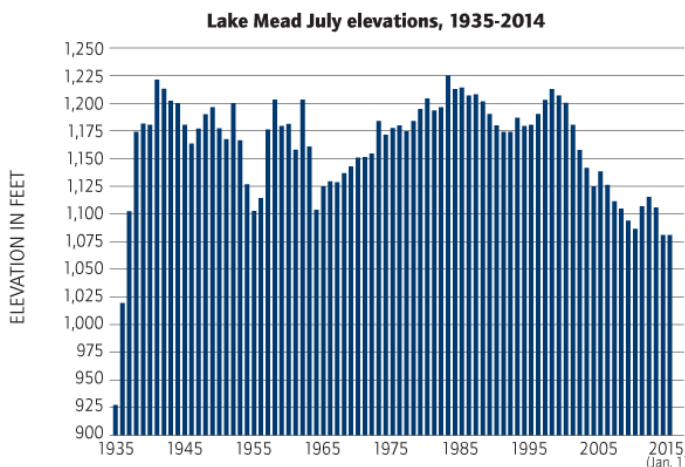
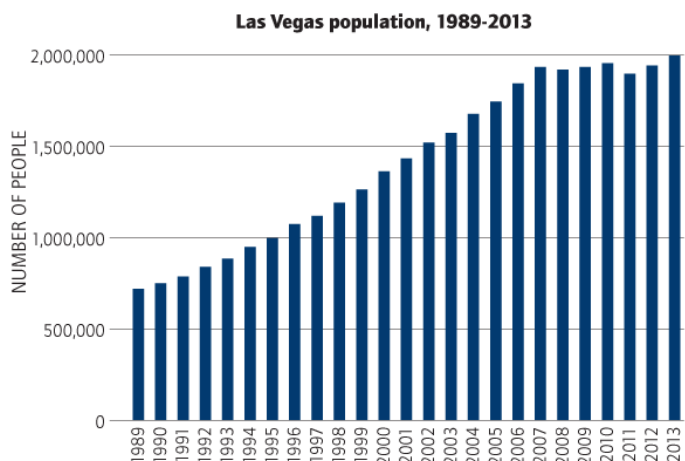
Today, the drought that the water bosses were contemplating in 2005 is dragging into its 16th year, and scientists recognize it as one of the worst in more than 1,200 years. Mulroy was pugnacious, but she also argued for a spirit of flexibility and shared sacrifice. And in doing

so, she helped launch a quiet revolution that will shape Colorado River politics far into the future, and perhaps provide a path to safety in the face of intensifying scarcity. Yet even as that transformation ripples forward, a

moment of decision is nearing in another of Mulroy’s campaigns — a multibillion-dollar water project that stands starkly at odds with much of what she preached.

Mulroy came to the world of Western water as an outsider. Born in Germany in 1953, Elizabeth Patricia Gallagher was the daughter of a German mother who had herself been born in Java. Her father was a civilian contractor who helped run U.S. airbases. Mulroy also lived in Libya for several years. Her childhood left her with a cosmopolitan sensibility. “As a family, we had always viewed the world as one place,” she told me last March, in a conference room just outside her former office.

Mulroy first came to the city that would become her longtime home in 1974, on a scholarship to University of Nevada, Las Vegas, where she would earn her bachelor’s and master’s degrees in German Expressionist literature. She began a doctoral program at Stanford, but ran out of money and returned to Las Vegas in 1978.



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“She was broke,” says Richard Bunker, Clark County manager at the time, who hired Mulroy as his assistant and became her political godfather. “And that’s when I hired her at the county.” Mulroy quickly proved her mettle. “She was the hatchet man,” he says. “She had a tough reputation.”

In 1978, she also met Robert Mulroy, a county finance manager. On weekends, Bob worked as a ski patroller at the nearby Lee Canyon Ski Area, and Pat rode in the rescue toboggan as a mock victim. The two married in 1981; their son, Ryan, was born in 1986, their daughter, Kelley, in 1987.

In 1985, Mulroy became deputy general manager of the Las Vegas Valley Water District, one of seven water agencies that supply Vegas and its suburbs. By 1989, she was general manager — and found herself with a fight on her hands. The seven agencies were running out of water and squabbling over what remained. “Southern Nevada was in meltdown,” she says. “It was acrimonious and ugly.”

It took three years to find “peace and a pathway forward,” as she puts it, by convincing the other agencies to cooperate under the banner of a new superagency called the Southern Nevada Water Authority, whose primary goal would be to ensure water supplies for the entire metropolitan area. From the start, it was clear that Mulroy would be in charge. “There was no way in hell,” says George Forbes, then Boulder City manager, “that she was going to play Number Two to anybody.”

Then Mulroy turned outward. In the 1920s, when the Colorado River was originally divvied up, Las Vegas was little more than a railroad stop, and Nevada was a sparsely populated desert. The other six states that share the river received nearly all the water — and the power. Mulroy was determined

to change that by challenging the so-called “law of the river,” an amalgamation of more than four-dozen statutes, international treaties and court decrees that other states’ managers adhered to, Mulroy notes sarcastically, as if they were Moses’ tablets. With southern Nevada’s warring agencies now united, Mulroy was ready to take on the other states. “When we said something,” she says, “they knew we meant it.”

For his part, Bunker likens Mulroy’s entrance into the broader realm of Colorado River politics to unleashing “a flash-bang grenade” on a bunch of “old, mossback, gray-headed guys.”



Patricia Mulroy in 1996 at the new Southern Nevada Water Authority Desert Demonstration Garden in Las Vegas. The Water Authority would go on to institute conservation measures that reduced per capita household water use in Vegas by about a third and slowed Vegas water usage even as the population exploded.

Lennox McLendon/Associated Press

Mulroy's grand entrance came at a critical time for Las Vegas, which was well on its way into a major boom. In 1992, when Mulroy took charge of the Water Authority, roughly 840,000 people lived in the metropolitan area. Over the next decade, that number would nearly double. By 2002, Mulroy fully expected to have hit the limits of Nevada's full Colorado River allocation of 300,000 acre-feet — roughly 98 billion gallons per year — even as the city continued to swell.

So she launched a campaign to wrest more water from the Colorado. Roughly 70 percent of the river's water is used for agriculture, and many urban water agencies see that as a reservoir on which they might draw if necessary. But there's very little farming in southern Nevada, so Mulroy was forced to look toward other states. This was sacrilege in a system where each state traditionally guarded its own allocation of the river as if it was more precious than gold.

Her sights eventually fell on Chevron, which held rights to water that it hoped to use to extract oil shale in western Colorado. The company needed a way to put the water to use until the shale industry took off. One way to do that might be by leasing it to Las Vegas.

That, however, would run headlong into a hallowed proscription in the state of Colorado. Owing to the structure of the law of the river, the upstream, Upper Basin states — Colorado, Wyoming, Utah and New Mexico — and their downstream, Lower Basin counterparts — Nevada, Arizona and California — form two separate negotiating blocs, which are set squarely in opposition to each other on key legal controversies. And Colorado officials have long maintained that, under the law of the river, transfers between the Upper and Lower basins are illegal.

Though it would be decades before Colorado needed its full river allocation, officials there saw Chevron's water as critical to the state's future economic development. If Las Vegas came to depend on the water, they feared, Colorado might lose its rights through a sort of adverse possession.

So when Jim Lochhead, a strategy advisor for Colorado, heard about Mulroy's negotiations with Chevron, he quickly booked a flight to Vegas and delivered a warning: Back off. "She would have gotten years and years of litigation," Lochhead said last year. "And she wouldn't have gotten any water."

Mulroy turned her attention to the safer territory of the Lower Basin. Water managers there were already bandying about a series of interstate "banking" proposals, under which the states could store water for each others' use. Both Arizona and California were interested, but Nevada's need was urgent.

Finally, in 2001, Mulroy got what she wanted: The Southern Nevada Water Authority inked a deal under which it would pay a counterpart in Arizona to buy water from farms there and store it underground. In return, the Water Authority could, in later years, take an equivalent portion of Arizona's share of the Colorado River directly from Lake Mead, the massive reservoir just east of Las Vegas from which the city already draws most of its water.

Though it was pitched as a banking deal, it was really an exercise in figuring out how to move water across state lines. "If you think about it, it's pretty much the exact same thing as us going to Arizona and buying water and moving it to Nevada," says David Donnelly, who was Mulroy's engineering and operations chief and the principal architect of this deal. "Except in this case, Arizona buys it, takes the water and banks it for us — and then we get it back in the future."

It was also the first federally sanctioned deal for a water transfer between two states. But Mulroy has only ever spoken about it euphemistically because transfers, even within the Lower Basin, are so politically charged. "Don't ever

call it a transfer,” she scolded during a 2008 interview. “It’s a *banking agreement*. That thing will disappear on us tomorrow if we call it a transfer.”

She had learned a crucial lesson, however. In the years that followed, Mulroy would — despite her reputation as a woman who didn’t mince words — speak an increasingly convoluted lingua franca that would eventually include enigmas like “intentionally created unused apportionment.” It sounds like gobbledygook, but it was all for a larger end.

“I learned it’s not what you do, it’s what you call it,” Mulroy told me. “You find the right name for it, and you can do anything.”

The opaque language bought managers leeway to try new approaches within the arcane system of interstate water management on the river. That helped Mulroy in her quest for water to sustain Vegas’ runaway growth. Ultimately, however, it would help all the Colorado River water bosses weather a much bigger looming disaster.



Wheeler Peak, the centerpiece of Great Basin National Park, rises from Spring Valley, near the Nevada-Utah border. The remote, sparsely populated area is a key piece of the Southern Nevada Water Authority's planned groundwater project.

Ralph Maughan

The dawn of the 21st century brought signs of a grim new reality. The winter of 1999-2000 was dry. So was the next one. Then, during the winter of 2001-2002, snowpack in the river's Rocky Mountain headwaters — source of most of its water — plunged to just a quarter of average.

For decades, bright minds have warned that the compact that divides up the river's water — based on some of its wettest years — promises considerably more than the river can actually deliver. Add the corrosive impacts of climate change, and it's likely that, by mid-century, water managers will have to make do with one-fifth to one-quarter less water than they have legal rights to. By 2002, that problem was becoming alarmingly real for Mulroy.

“We were holding out hope that there would be a late spring storm, and it was not happening,” she says.

On a Friday morning in April that year, Mulroy's top managers gathered. “Pat walked into the meeting and just said: ‘We've got to have a plan,’ ” John Entsminger remembers. What had long been a rule of thumb for Mulroy suddenly became gospel: “We have to live 20 or 30 years in the future,” she says. “And we have to assume the worst.”

That year, the water level in Lake Mead, one of two giant reservoirs on the river's mainstem, would fall 25 feet. Were it to drop another 100, one of Las Vegas' two water intakes would go dry and the city's supply would be roughly halved. Sixty-five feet below that, the second intake would suck air.

The Water Authority immediately put itself on a water diet, ramping up a “cash-for-grass” program that ultimately paid Las Vegas \$189 million to tear out their lawns, cutting per-person water use in the city by about a third. In 2005, the Authority approved construction of an \$817 million “third straw” that would draw water from deeper within Lake Mead than the existing intakes could reach.

Meanwhile, the river's flows kept fading — and tensions between the states reached a fever pitch. Thanks to a 40-year-old U.S. Supreme Court decision, the U.S. Secretary of the Interior has the power to declare an official shortage in the Lower Basin, which would effectively allow him or her to take control of river management. In May 2005, then-Interior Secretary Gale Norton gave the feuding water bosses an ultimatum: Figure out how to deal with the drought, or face federal intervention.

Norton made the threat, but Mulroy drove people into deal-making mode. “You need somebody to be yelling at the top of their lungs,” says David Hayes, deputy secretary of the Interior under both Clinton and Obama. “And Pat was very willing to provide that service” — mostly by threatening to sue her colleagues.

Because fights over the Colorado River are interstate disputes, they automatically go before the Supreme Court. And, at least in part because water cases are such arcane, complex pieces of litigation, the Court has done a famously poor job of resolving them. For most water managers, sending river issues to the Court was a dangerous crapshoot. Mulroy, though, had little to lose and much to gain — which gave her a critical strategic advantage.

“Mulroy was willing to be really tough and invite people to roll the dice,” says Peter Culp, an Arizona attorney who has been closely involved in Colorado River policymaking over the past decade. “She'd suggest that that was a really dumb thing to do — but if they wanted to roll the dice, she'd go find some.

“That uncertainty,” Culp adds, “was a big driver for cooperation.”

That was exactly the point Mulroy was trying to make when she stormed out of the Albuquerque airport hotel in 2005. Even as she was slamming doors behind her, she knew that the only hope for a durable solution lay in the same sense of strength in unity that had driven the creation of the Water Authority 15 years earlier. “She obviously advocated passionately for Las Vegas. But she realized that she wasn’t going to get anywhere if she didn’t look at how she was going to help solve some of the bigger issues on the river,” says Lochhead. “Essentially, we were going to find solutions that protected each other.”



Courtesy Southern Nevada Water Authority

So began a marathon three-year round of negotiations, whose intensity did little to curb Mulroy’s appetite for Benson & Hedges DeLuxe Ultra Lights. But the resulting agreement, finalized in 2007 and carefully pitched as a set of “interim guidelines” that will expire in 2026, lays out a damage-

control plan for when the river finally sinks into official shortage.

Key to the plan is a series of trigger points that will force the Lower Basin states to throttle back their water use. As the surface level of Lake Mead — currently at 1,088 feet above sea level — sinks below 1,075, 1,050 and 1,025 feet, the states will face progressively greater reductions in the amount of water they can pull from the river. Those cutbacks will sting, but they’ll slow



Courtesy Southern Nevada Water Authority



Seven years ago, construction began on the “third straw,” an \$817 million water intake that will allow Las Vegas to keep pace with sinking water levels in Lake Mead. The project is scheduled to go into operation this summer.

Courtesy Southern Nevada Water Authority

the rate at which the shortage worsens — giving managers like Mulroy more options for managing the crash. “If I’m sitting at a negotiating table and I’m agreeing to a certain level of shortage,” she explains, “I have a backup plan at home that tells me how I’m going to manage through that.”

The shortage agreement has several components. One of the most important allows the Lower Basin states to put money toward water efficiency projects, fallowing farm fields, desalinating seawater, or “importing” water from elsewhere; they can then sock that water away in Lake Mead. That will help boost water levels and thereby postpone the moment the reservoir falls below 1,075 feet — the first trigger for shortage.

As a whole, the agreement is essentially a strategy to help water bosses stall for time — and pray for snow. Think of it as the roulette-wheel theory of drought survival: Each year that the states manage to stave off a shortage, or keep it from deepening to the next tier of cutbacks, they buy themselves

another spin of the wheel. That means one more shot at the jackpot: a big winter snowpack that refills the reservoirs — or at least brings enough water to buy yet one more spin of the wheel.

“We’re headed for worse shortages,” Mulroy says. “If we can move water around, and backfill other people’s shortages, and take advantage of every opportunity that comes along, then we’ve got a better chance of adapting to what is invariably going to happen on that river system.”

Mulroy was by no means the only person responsible for the deal. It took a whole raft of open-minded, adaptable counterparts from the other states, many of whom maintain far lower public profiles than Mulroy. But as her negotiating counterpart and cautious ally Jim Lochhead — the man who flew to Vegas in 1993 to confront Mulroy — puts it: “It wouldn’t have happened if she weren’t there.”

The agreement could mark the beginning of a new era of hydraulic inventiveness. Water managers are less and less likely to try to engineer themselves out of a problem with massive, Hoover Dam-style projects. Instead, they’re becoming adept at shuffling a finite — and shrinking — supply of water around to cover the most desperate shortfalls. In that sense, the 2007 shortage agreement opened the Rubik’s Cube era of water in the West. And while it was born from crisis as a damage-control measure, the deal may prove to be a first step toward long-term sustainability.

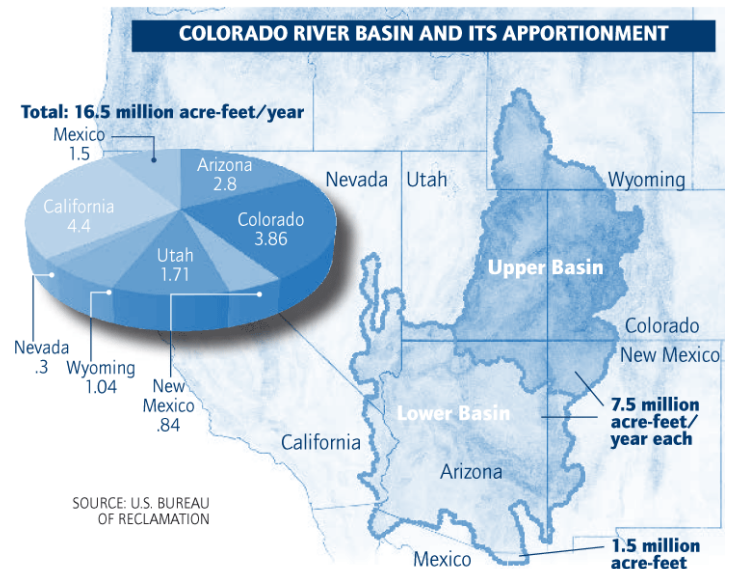
ust south of the U.S.-Mexico border, the river once flowed to the sea in the Colorado River Delta. But after more than 80 years of re-plumbing for cities and farms, the river has rarely

Reached the Gulf of California, and the Delta has turned from a fabled Eden into a kind of wasteland.

In 2000 and 2005, Mulroy and her Western counterparts were entangled in two lawsuits, which argued that water operations in the U.S. were harming populations of U.S.-protected endangered species that happened to live across the border in the Delta. The water agencies ultimately prevailed, though not without an eleventh-hour congressional rider.

What's surprising, then, is that even as Mulroy battled in court, she simultaneously urged that Mexico's concerns and the Delta itself — which she called “a black eye for the whole river community” — be included in discussions about the river. Mexico has rights to about 9 percent of the river's water, but for many U.S. water managers, the neighboring country “might as well have been an alien planet,” Mulroy says. Soon after the turn of the 21st century, though, Mexico began insisting that it be treated as an equal partner, which meant something had to be done to restore the Delta. “My attitude is: Let's put the skunk in the middle of the table,” says Mulroy. “Let's talk about it. And let's deal with it.”

In fact, as long ago as 1998, Mulroy had started sending water bosses across the border to tour the Delta. Members of her staff would drive roughly 1,000 miles to ferry water managers from the San Diego airport to Mexicali, Mexico, and then farther south to the river's end.



Soon after the 2007 shortage agreement was finalized, U.S. water bosses began another five years of intense negotiation with their Mexican counterparts. That led to Minute 319, an amendment to a nearly 70-year-old water treaty between the two nations. At its heart was a provision for a manmade flood designed to restart some of the natural ecological dynamics of the Delta.

Yet when that so-called pulse flow was finally released last March, Mulroy wasn't there to watch. Her prize had always been something else. Minute 319 also allows U.S. water agencies to fund water-efficiency investments on Mexican farms and canals in exchange for water that — as under the Arizona banking and 2007 agreements — they can use in their own systems.

“She saw opportunity in the Delta,” Lochhead says — for adding yet more flexibility to the system to avoid shortage, and to protect Vegas' supply. “She also saw potential political danger.”

The Delta was but one issue in which Mulroy's enlightened rhetoric was a means to self-interested ends. Mulroy was initially agnostic about climate change. But 2002, that *annus horribilis* when the snowpack failed, changed her mind. “The one thing that always kept me awake at night,” she says, “was two 2002s, back-to-back, with the reservoirs already down as far as they were.”

Mulroy went on to argue, far more openly than any other water boss, that it was time to take climate change seriously. “Are we just going to pretend we're Nero and play the fiddle?” she said last March. “Or are we going to proactively avoid a catastrophe?”

Mulroy realized that the world was changing in ways water managers couldn't yet fathom, and she went out of her way to court climate scientists like the University of Arizona's Jonathan Overpeck. In 2009, he and his Colorado colleague, Brad Udall, flew to Las Vegas for a climate change symposium at the Palms Casino. Mulroy spent the afternoon talking with them before shuttling them back to the airport in her GMC Yukon. Overpeck was impressed with her concern. "I think a lot of water managers don't want the public to worry," he says. "Pat understood that there's a real problem here, and that if we don't talk about it, we won't solve it."

Mulroy was feeling the heat herself, in every sense of the word. Despite her longtime determination to live a quarter-century in the future, she was still scrambling to keep up with falling reservoir levels: She would ultimately spend nearly \$1.5 billion on a series of massive water intakes to pull water from lower and lower levels in Lake Mead.

In many ways, Mulroy symbolizes the era in which we *all* are at the mercy of a hostile climate. Her credo of dependence and cooperation could become a sort of rallying cry for the 21st century's grim realities: We are all vulnerable, but we are in this together.

"We all, as a larger basin, are going to be short," Mulroy said in a notable talk at the University of Colorado law school in 2013. "And we all, as a larger basin, are going to have to bring everything to the table to bring almost 40 million people, and productive agriculture, and national parks, and recreational uses, and tribal nations, and endangered species through the knothole."

Yet Mulroy's proselytizing about that perilous knothole would serve a larger purpose: It would become the mainstay of the campaign for her biggest and most controversial idea.



Mulroy testifies at a 2011 hearing about her plan to pump water from eastern Nevada. The project — with a price tag of more than \$15 billion — is still mired in legal challenges.

Cathleen Allison/Nevada Photo Source

Mulroy always had a Plan B for getting more water. Back in 1989, she made a dramatic opening move: She applied for permits to pump 800,000 acre-feet of groundwater — more than two-and-a-half times Las

Vegas' share of the Colorado — from a 20,000-square-mile expanse of cattle country in eastern Nevada. The area is far off the beaten path, in a starkly beautiful world of wide valleys dotted with sagebrush and winterfat, ranch outposts, desert springs and the craggy peaks and bristlecone pines of Great Basin National Park. It's also home to three national wildlife refuges and at least five federally protected endangered species, including several rare desert fish.

The \$1.5 billion project, which was the largest groundwater-pumping effort ever proposed in the U.S., opened a gigantic rift between Las Vegas and rural Nevadans. Mulroy backed off the effort to seek permits — until the dry year of 2002, and pressure from the other Colorado River water bosses, spurred her to resurrect it.

Mulroy repeatedly insisted that she wouldn't actually build the project unless forced to. In 2013, she told the state Legislature that it “is a project of last resort. That means nothing else is possible: There is no way to desalt water; there is no way to exchange water; nothing else is possible to save Lake Mead.” Even so, the Water Authority has already spent more than \$133 million pushing the project forward.

And last March, Mulroy invoked the threat of climate change as justification for building it: “Cities, in order to adapt to climate change, *have* to diversify where their water comes from — period, end of conversation.”

Despite a shoestring budget, the project's foes have already managed to drag the permitting process out for a decade by fighting it in state and federal court. And even as regulators and the Water Authority have whittled back the project's scale, its estimated cost has ballooned to at least \$15.5 billion.

Mulroy's groundwater crusade has constantly forced her to contend with the ghost of William Mulholland, the notorious Los Angeles water boss who siphoned water more than 200 miles from the rural Owens Valley through the Los Angeles Aqueduct in the early 20th century, ruining the valley's farming communities. Mulroy hopes for a better legacy. She has long argued that if Las Vegas does have to tap the groundwater in eastern Nevada, it can recharge extra water into the aquifer when it's available. Meanwhile, she says, the Water Authority can work with local communities to ensure they're not harmed.

“The days of just going into an area, voiding it of its water resources, and letting happen what will — that can't happen anymore,” says Mulroy. “There has to be a balance.”

Yet Mulroy has steadfastly refused to agree to objective triggers that would decrease or shut off pumping if it begins harming springs or ranches in rural Nevada. In fact, the legal fight against the project now hinges on this very issue. Without explicitly defined triggers, there's no legally binding assurance that the Water Authority won't simply pump the aquifer to exhaustion — which would make the groundwater project an enterprise completely at odds with the credo of shared fate, accommodation and mutual sacrifice that Mulroy urged on the Colorado River.

This is the darkest shadow hanging over Mulroy's legacy, and it has caused deep unease within her own camp. Steve Sisolak is the chairman of the Clark County Commission, which encompasses the Las Vegas metropolitan area, and since 2009, he has also been a member of the Water Authority board. The

more he learned about the project’s potential impacts and the resistance against it, the more worried he became. “It was like: Wait a minute, this isn’t making sense to me,” Sisolak remembers thinking. “This isn’t a good idea.”

The challenges to the proposal, he says, were greater than anyone had anticipated — yet Mulroy refused to back down. “Instead of taking a step back and saying, ‘OK: Let’s re-evaluate,’ ” he says, “it was like, ‘No: We’re just going to put our foot on the pedal harder to make this happen.’ ”





A ferry navigates Lake Mead in February, framed by the famous “bathtub ring” left by receding water. The reservoir now stands just 13 feet from a critical level for triggering water cutbacks.

John Gurzinski/lasvegasphotography.com

Today, Colorado River bosses face the frightening possibility of being caught in a “megadrought” so bad that, even if they do look 25 years ahead, the end may still be beyond view. And while the new generation of Colorado River agreements is unprecedented, those deals can only delay and soften the crash; they can’t prevent it.

It’s not hard to imagine a point where the possibilities of this new style of cooperative problem-solving will run out, when even the best minds on the river are outmatched by the pitiless cycles of the trade winds and the oceans,

aggravated by an atmosphere full of greenhouse gases. Mulroy has raised the prospect of the drought becoming so bad that it will necessitate “outmigrating 40 million people” from the Southwest.

Yet there’s still a tremendous safety net for the trillion-and-a-half-dollar, primarily urban, regional economy the river feeds: that 70 percent of the river’s water that flows to roughly 5.7 million acres of farms. A 2013 study by Michael Cohen and colleagues at the Pacific Institute estimates that in the Colorado River Basin, irrigated pasture and forage — mostly alfalfa for cattle — uses an amount equal to about a third of the water in the river. Freeing up just 6 percent of that, through increased water efficiency or outright water sales, would double Las Vegas’ share of the river.

Politically, it would not be easy. But the reality is that the Southern Nevada Water Authority and other agencies are already plumbed into a system that could theoretically provide more water than they’ll need for centuries, even in the face of megadroughts and climate change. And contrary to popular rhetoric, Western cities can turn to farms for water without killing off farming. California is a quarter century into a successful effort to develop, test and refine ways of structuring water transfers that allow farming to continue.

On the Colorado, the new generation of water agreements that Mulroy and her fellow water bosses have negotiated has set the stage for much broader-scale transfers from farms to cities, which will be especially critical in enabling cities to ride out a deepening drought. It’s still far from a wide-open market, but many of the old taboos are breaking down as the law of the river is revised, rewritten and adapted for a drier future.

All of which points up a central paradox of Pat Mulroy's personality. She has long been known for making outrageous moves. In 1989, she launched the groundwater project in the face of widespread furor within Nevada. In 1993, she poked a finger in Colorado's eye when she tried to buy water from Chevron. In 2006, she seemingly threatened to have Nevada's top water regulator fired — something she later denied. In 2009, as Barack Obama was about to take office, Mulroy suggested that the federal government tap the Mississippi River — more than 1,300 miles from Las Vegas — in a New Deal-style program to create jobs and ease water shortages in the West. In 2011, when the Mississippi flooded, Mulroy pitched the idea again.

“What we've said, continually,” she told me last March, “is that there's not a single option too far out there to be worth looking at.”

Yet all of that may simply have been a smokescreen for the delicate chess setup — for concepts like farm transfers — that she was doing much closer to home. Ultimately, Mulroy's real M.O. was incrementalism: a tireless determination to slowly expand what was possible *within* the law of the river. Rather than taking a sledgehammer to the Colorado River's sacred tablets, she assiduously covered them with sticky notes and asterisks.

Cumulatively, Mulroy was always pushing a bigger program. All of the innovations since the drought began — while carefully pitched as pilot programs and interim measures — have been small advances in Mulroy's broader initiative, launched more than two decades ago, to open up the law of the river to greater possibilities. That, in large part, is her legacy: pushing everyone into the new era of aquatic contortionism that it will take to fit everything through the knothole.

This is the true revolution on the river. And although water managers remain profoundly reticent about the critical role that water transfers play in this transformation, the proof lies in the rapidly accumulating addenda to the law of the river. In their 2007 “interim” agreement, water bosses included a little-remarked provision that could allow Nevada, Arizona or California to buy water from farms in another Lower Basin state, as long as all three states agree. In 2012, Minute 319 added Mexico as yet another place the Lower Basin states could turn for water.

Some of these provisions lie dormant — for now. But “if the system’s dropping like a rock and Southern Nevada’s out there running around with a checkbook,” says one person who helped write the post-drought agreements, “a lot of farmers are going to take advantage of that.”

In fact, over the past eight months, agencies have developed two new programs under which they hope to begin moving water later this year. In July, the Water Authority, Metropolitan, the Central Arizona Project, Denver Water and federal Bureau of Reclamation approved an \$11 million pilot program to fund water-efficiency improvements on farms or pay farmers to temporarily idle their fields, and thereby infuse the system with an additional 75,000 acre-feet of “shared” water over the next two years. That will boost the odds that drought and climate change don’t push the reservoir levels past the crucial shortage triggers. In October, the U.S. began discussions with Mexico about that country’s participation in the program. And in December, the Lower Basin states, urban agencies and the federal government approved the Pilot Drought Response Actions program, which gives the states an additional vehicle to fund efficiency improvements or fallowing programs and add another 1.5 to 3 million acre-feet of water to Lake Mead over the next five years, which the water agencies can then individually recover later.

It's now indisputable that farm transfers will help shield 40 million people from the worst effects of catastrophic drought. The wider extent to which they might supply future urban growth remains a persistent riddle.

Mulroy is exceedingly careful to note that farm-to-city transfers “can't be viewed as the easy solution.” But much goes unspoken on the river. And even Mulroy — the consummate incrementalist — allows that, sometimes, real change comes only with the convulsive push of a crisis.

“Sometimes, you need to look straight into the eyes of disaster in order to start rethinking,” she told me last March. “No issue will be resolved until the time is right and the circumstances are right. People will not change unless they absolutely have to.”



Brazilian tourists Fernando, left, and Enrico Gil take a selfie with Lake Mead's "bathtub ring" as a backdrop.

John Gurzinski/ lasvegasphotography.com

Mulroy retired on Feb. 6, 2014. Her husband, Bob, is suffering health problems, and as Mulroy put it soon after she stepped down: “There’s no good time. It’s just time.”

John Entsminger, whom Mulroy hired in 1999, replaced her as head of the Water Authority. Mulroy now holds fellowship positions with the Brookings Institution and the University of Nevada, Las Vegas, and she’s a member of

the powerful Nevada Gaming Commission, which oversees the state's casino industry.

No agency on the Colorado River bears the mark of a single person as much as the Southern Nevada Water Authority, and Mulroy's legacy will live on for decades. But Lake Mead continues to fall, and the groundwater project lurks in the wings, potent and explosive: a rocket-powered relic of the mega-engineering era, wreathed in whiffs of spraypaint and grease, waiting for liftoff. This, in contrast to Mulroy's studied incrementalism on the river, is her go-for-broke project: the moon shot.

This summer, Lake Mead could drop below 1,075 feet. Though an official shortage won't be declared until it's that low on January 1 of a given year, Mulroy has long said that when Lake Mead does hit 1,075 feet, the Water Authority must decide whether to fully commit to the groundwater project.

That project has been known variously as the Cooperative Water Project; the "in-state" project; the Northern Resource System; and the Groundwater Development Project. No name that's been tried has ever really stuck, and none does justice to its ambition.

Why not call it the Patricia Mulroy Groundwater Extraction and Delivery System? Why not turn all 263 miles of pipeline, the 245 miles of high-voltage power lines and all the pumps thundering in the desert, into a monument to Mulroy's mind — to the idea that the future need not repeat the past, and that, with the benefit of hindsight from the Owens Valley, things really *can* be done differently? With her name on the line, perhaps it really could be run as a different kind of project: a paragon of balance and a monument to sustainability.

Still, Mulroy helped blaze a trail into a new era, where real innovation comes in the kinds of packages that can't be affixed with commemorative plaques. Plenty of ambitious Western water projects endure today only as yellowing blueprints, historians' curiosities, ghosts from a different era. Ultimately, perhaps, the greatest testament to Pat Mulroy's vision will be that the project that would have borne her name finds a home among all the dream ventures that were never built — because they didn't have to be.



This is the first in an occasional series that looks at the people and ideas helping the West better understand and better use its water, as the threat of prolonged drought looms. The series will highlight possible solutions to the specific problems brought on by the drought — from the way we allocate water to the way we consume or conserve it. Yes, there's less water than we'd like. And yet, there's more than enough, if we're wise, to keep the glass half full.

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