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THE REVEAL



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Grace for the
Great Salt Lake

The little ski hill
that could

A meal of
all seasons

HIGH COUNTRY NEWS

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Washington's seasonal king tides, shown here at Washaway Beach in November 2022, are becoming more destructive as sea levels rise. Local leaders have spread an experimental cobble berm along the shore to help stem erosion. **Sarah Trent / High Country News**

Know the West.

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Water makes the rules

ONE HUNDRED YEARS and a few months ago, in November 1922, representatives of seven Western states gathered in Santa Fe, New Mexico, to divide up a river. As we now know, the Colorado River Compact calculated each state's share of the basin's water based on an unusually wet period, rendering the compact's promises suspect from the start. And those dubious promises benefited an exclusive few; left out of the discussion were all of the basin's Indigenous nations, the nation of Mexico, and anyone who might view the river as anything other than a servant of development. Had the conversation been broader, someone might have suggested that though humans can try to make rules for water, water obeys its own.

Since the signing of the compact, Mexico has negotiated a share of the Colorado River, and 22 of the basin's 30 federally recognized tribes have gained legal recognition of at least some of their rights to the river's water — although many tribes are still fighting for access to that water, and for an equitable role in negotiations. The federal Bureau of Reclamation has periodically acknowledged the river's own needs, at times allowing water to be released from Lake Powell, the reservoir behind Glen Canyon Dam, to mimic seasonal flooding and benefit downstream habitats. And, since the turn of the century, many of the basin's largest cities have reduced their water consumption so dramatically that, even as their populations have grown, their overall water use has decreased.

At the same time, the river itself has dwindled, starved by the ongoing megadrought. The promises of the Colorado River Compact, never reliable, are now nearly empty; water levels in Lake Powell have reached record lows, threatening regional hydropower and downstream water supplies.

As *HCN* contributor Craig Childs writes in this issue, the demise of Lake Powell has sharply contrasting consequences. Upstream of Glen Canyon Dam, cottonwood and willow forests are making an intoxicatingly rapid recovery, and the wonders of long-drowned side canyons are being revealed. Downstream, though, the river is a less and less reliable life-line for humans and other species, and for their respective habitats. Furious negotiations are underway throughout the basin, but a basic problem remains: The river never agreed to fulfill the compact, and it is reaching its own limits.

The Colorado River is not the only Western body of water threatening a work stoppage. Climate change and human overuse are draining the Great Salt Lake, too, and scientists now estimate that if the lake continues to shrink at current rates, it will be gone in five years. As several stories in this issue suggest, there are ways to live within our ecological means, but all of them require us to acknowledge that water gets the last word.

Michelle Nijhuis, acting editor-in-chief

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Editor-in-Chief Jennifer Sahn is on leave.

ON THE COVER

Glen Canyon is defined by its finely sculpted maze-like topography, much of which has been submerged under Lake Powell for half a century. **ELLIOT ROSS**



A simple glass shelf can hold a lifetime of memories.
Giana De Dier / High Country News

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FIRE CAN PRESERVE

Thank you for this article (“Femme Fire,” January 2023)! It is so inspiring on so many levels. I really appreciate that the author highlights how a hyper-masculine, militaristic firefighting tradition ignores and erases so many important aspects of *why* fire suppression is needed and how it can be done in a way that preserves rather than destroys. Thank you.

Melanie Curry
Berkeley, California

DELICIOUS STORY

I just read with delight “Making Christmas cake in Compton” (December 2022). I wanted to give the author, Jenise Miller, a big hug after finishing the sto-

ry. I could smell the wonderful aroma of those delicious spices and taste the moist goodness of her baked masterpiece! Miller makes her words come to life. Thank you for a heartfelt article.

Katherine Brown
Cochise, Arizona

WE NEED TO CHANGE

“The disappearing sagebrush sea” (December 2022) was interesting and alarming. I believe the situation is worse than the article suggests.

Humans have introduced invasive annual grasses, are responsible for starting 80%-90% of wildfires, and create conditions ripe for conifer encroachment via wildfire suppression and climate change.

CORRECTIONS

In “The Body of the Snake” (January 2023), we misidentified the owner of the dams; it is the federal government. “Growing up queer in Colorado Springs” (January 2023) described Club Q as the city’s only LGBTQ club; it was the only one the author knew about. In “Why are Saudi farmers pumping Arizona groundwater?” (January 2023), a candidate for Arizona attorney general, not the attorney general, wanted to investigate a deal between Fondomonte and the Arizona State Land Department. (That candidate has since been elected.) A photo in “Will tribes become Colorado River powerbrokers?” (December 2022) showed conduit pipes sitting alongside Highway 461, not Highway 491. We regret the errors.

We are the ones who need to “change our ways.” I hope we understand this and change our ways significantly soon, or the sagebrush sea will only be a memory.

Brandt Mannchen
Houston, Texas

THERE’S POTENTIAL

I read your article (“An Indigenous Affairs reporter reviews *Alaska Daily*,” Dec. 15, 2022), and right you are about Roz and Eileen. I hope the show’s writers go in a different direction. Eileen is obnoxious, arrogant, beyond a New Yorker, and she needs to be put in her place by the editor. Even some white folks don’t like how the story is going. Thanks for putting it out there. We’re rooting for Roz.

Sadie Ivan
Fairfax, California

Your review is absolutely correct. I especially agree about the show’s potential. I have learned from the contrast of the main characters the degree of change necessary to appreciate a different culture. Sometimes one way is better, as when the authorities are forced into accountability to do their jobs. It seems to me there is a balance to be achieved.

Genie Mitchell
Fort Davis, Texas

KEEP THE FOCUS ON SPECIES

It would be a mistake to de-emphasize species and focus further on habitat (“The next chapter of environmental law,” November 2022). Habitat is vitally important, and protecting habitat helps protect species, but some causes of species decline aren’t easily remedied by habitat protection, such as disease, overharvest and toxins.

I’m concerned that shifting the focus would result in a decline in research and monitor-

ing. Those efforts provide critical information necessary for species recovery. They answer important questions and offer valuable solutions. The threat posed to condors by lead poisoning would never have been discovered without attaching transmitters to condors, tracking them, recovering deceased birds and conducting necropsies. I’m not confident that any of that would have transpired under a habitat-heavy management plan.

If we’re really serious about protecting endangered species, what the Endangered Species Act needs most isn’t a habitat-centric realignment but increased funding. All listed species should have recovery plans in place, and candidate species need to be considered in a timely fashion so that the phrase “warranted but precluded” becomes obsolete. We’re in the midst of what’s been labeled Earth’s sixth extinction event. This is not the time to pivot away from species.

Joseph Belli
Pacheco Pass, California

IN GOOD HANDS

When Betsy Marston left the “Heard around the West” column, I was petrified. Today, I know the space is in good hands. Thank you.

George Ruffner
Prescott, Arizona

MORE ON YELLOWSTONE

I enjoyed “We don’t share land here” (May 2022), and hope to see more writing by Liza Black on the *Yellowstone* franchise. As an Indigenous woman, I recalled the problems with Taylor Sheridan’s film *Wind River* when I first watched the show.

Jolene Thrasher
Inuvialuit, Northwest Territories, Canada



REPORTAGE

Grace for the Great Salt Lake

Environmental sentiments in Latter-day Saints scripture may be ripe for revival.

BY CAROLINE TRACEY | PHOTOS BY NIKI CHAN WYLIE

IN THE SPRING OF 1848, shortly after the first Latter-day Saints settled in the Salt Lake Valley in what later became known as the Territory of Utah, a plague of crickets swarmed their crops. As the tale goes, they prayed, and God sent seagulls from the nearby Great Salt Lake, whose existence reminded the settlers of Israel and the Dead Sea. “By thousands and tens of thousands, (the seagulls) began to devour them up ... until the land was cleared of crickets, and our crops were saved,” a church elder recalled in an 1880 sermon. By saving the crops, the gulls saved the thousands of settlers.

Today, the Salt Lake Valley remains the headquarters of the Church of Jesus Christ of

Brigham Young University staff and students of the BYU Student Sustainability Initiative attend the Rally to Save Our Great Salt Lake at the Utah State Capitol in Salt Lake City, Utah, on Saturday, Jan. 14.

Latter-day Saints. But now it's the Great Salt Lake that needs saving. The West's megadrought has shrunk the lake to record-low levels, and toxic metals in the exposed lakebed are creating dangerous dust storms. Much of the water diverted away from the lake is used for alfalfa, Utah's top cash crop, and many alfalfa farmers are Mormons; the LDS Church itself owns over 5,000 acres of farmland in Salt Lake County alone. But even though the LDS scriptures are rich in environmentally

mindful teachings, many members who consider themselves environmentalists believe their institution is missing an opportunity to live up to its ideals.

Because early LDS culture revolved around farming, founder Joseph Smith emphasized the importance of careful stewardship. One scripture — which famously bans the consumption of coffee and alcohol — states that meat is “to be used sparingly” and “only in times of winter, or of cold or famine.” Adherence to that directive could help preserve the Great Salt Lake. “The drying of the Great Salt Lake is being driven primarily by growing alfalfa, which isn’t for human consumption directly, but feed for animals,” said Ben Abbott, an ecosystem scientist at Brigham Young University and a board member of the faith-based advocacy organizations LDS Earth Stewardship and Mormon Environmental

Stewardship Alliance (MESA). “If we were to follow that clear guidance in scripture to have a plant-based diet, we wouldn’t be in this situation.”

But Mormons who want their church to address current environmental crises must navigate a complex political history. During the 1980s, when resentment of federal regulations sparked protests dubbed the “Sagebrush Rebellion,” many churchgoers sympathized: In the mid-1800s, the federal government had persecuted Latter-day Saints for practicing polygamy by seizing church property and incarcerating officials. (The church renounced polygamy in 1890.) This fraught history made conflict over federal environmental regulation particularly heated in Mormon country. In July 1999, for instance, a bishop in Escalante, Utah, called for a “religious war” against environmentalists. Today, the church’s

membership remains overwhelmingly conservative.

Current and former church members say that the environmental teachings of Mormon scripture are overlooked in favor of teachings that treat life on Earth as merely a preparation for heaven. “All the years I was in the church, environmentalism was scoffed at — it was considered a fool’s game,” said John Larsen, former host of the *Mormon Expression* podcast, who was raised in the church. “Being an apocalyptic church, they believe that Jesus will come soon and renew the Earth, so trying to fix the environment is unnecessary.” Under this interpretation, Larsen said, the desiccation of the Great Salt Lake could be seen as simply another sign of the decadence of non-believers’ earthly existence.

Still, Mormon environmentalists, who see reverence for the Earth as essential to spirituality,

say they are seeing increasing willingness to embrace environmentalism. Organizations such as LDS Earth Stewardship, founded in 2012, and MESA, which branched off to focus on political advocacy, are part of this change. “Our doctrine is very supportive of conservation, but we felt like the membership and the culture of the church have not been,” said Marc Coles-Ritchie, an ecologist and MESA board chair. But now, he said, “there is a shift and a greater awareness and willingness to try to address environmental problems.” In addition to the Great Salt Lake, MESA has been involved in activism regarding air pollution, climate change and the conservation of Utah Lake.

There are signs that the church as an institution is shifting. In June 2022, it released a statement encouraging water conservation. And last year, two church leaders gave formal addresses at LDS events about the importance of water conservation and environmental stewardship.

When approached for comment by *HCN*, a representative of the church’s communications team replied that they “are not offering interviews on (the water conservation statement) or about the Great Salt Lake.” Still, advocates hope the church will use its clout to make an environmental impact, especially in calling for conservation of agricultural water. “The church could be incredibly important in calling for conservation in a way that the state government never could,” said Abbott. ✨



Ben Abbott, left, an ecosystem scientist at Brigham Young University, and Marc Coles-Ritchie, board secretary of the Mormon Environmental Stewardship Alliance, at the Rally to Save Our Great Salt Lake.

In a warming world, California's trees keep dying

That could doom the state's plan to fight climate change with the help of nature.

BY MAYA L. KAPOOR
ILLUSTRATION BY XULIN



ECOSYSTEMS aren't landscape paintings so much as mosaics, with different pieces that grow and change over time. In healthy forests, patches of recent disturbance, such as fire or logging, sit alongside patches of grasses and shrubs, fast-growing trees and centuries-old mature forests. But these ecological patterns require a climate stability that no longer exists.

Due to human-caused climate change, California's forest mosaics are vanishing. According to a study published in *AGU Advances* last July, the state's forests lost almost 7%, or just over 1,700 square miles, of tree cover since 1985. That's an area larger than Yosemite National Park. In particular, forests in California's southwestern mountains lost 14% of tree cover.

Jon Wang, the study's lead author and an Earth systems scientist at the University of Utah, said that at the current rate, "in a hundred years, we will have lost almost 20% of our forests. That's like all of Southern California's forests being gone, or all of the Southern Sierras being gone."

Thousand-year-old forests now get only a decade or

less between fires to recover. California's forests are "never going to get a chance to become old-growth forest again," Wang said. Instead, they may have "more of a permanent stunted state." And aridification means that forests once considered fairly fire-resistant, such as old-growth coastal redwoods, can no longer rely on wet weather conditions for fire protection.

The dramatic loss of many of California's giant sequoias, ancient trees that lived with fire for thousands of years, particularly troubles Wang's co-author James T. Randerson, an Earth systems scientist at the University of California, Irvine.

"You can extrapolate out what's going to happen to the forest," Randerson said. "It's horrific."

To track how California's forests changed over the past few decades, researchers used machine learning, training an algorithm to identify vegetation types in satellite images taken every few days, dating back to 1985. The algorithm differentiated between three causes of tree death: wildfires, logging and drought. As it turns out, far more of California's tree cover

is disappearing due to wildfires than from drought or logging.

The sheer amount of data that this study provides is important, said Philip Higuera, a fire ecologist at the University of Montana, who was not involved with the research. "The ability to quantify changes, not only from fire, but from forest die-back, and from timber extraction — to be able to do all of those three at once — is really valuable, because it helps place them in context" throughout California, Higuera said.

To be clear, wildfires remain a natural part of healthy forest ecosystems across the West, and controlled burns are important tools in forest management. But California has a fire deficit. Colonizers stamped out Indigenous fire-management practices, so fuels keep building up, leading to ever more destructive conflagrations. Today, the astronomical costs of living in California's cities encourage people to move into forests, and fires follow. And those fires, combined with drought, are quickly changing California's ecosystems.

With effective fire management, some Northern California

forests might eventually grow back. But in the southern mountains, where forests are dying even without fires because of drought stress, chaparral may replace trees permanently.

One limitation of this study is its timescale. "Thirty-five years is a long study from the perspective of using satellite data, but in the context of forest development and ecosystem change, it can still be relatively short," Higuera said. Wang and Randerson also cautioned that this research doesn't model future fire recovery, so more work needs to be done before drawing conclusions about whether these ecosystem changes are permanent.

Meanwhile, California is proposing an ambitious plan to achieve net-zero greenhouse gas emissions by 2045. Right now, Wang said, the carbon offset market is really focused on growing trees. But his data suggests that California may have to lower its expectations. "We might be moving to a paradigm of saving what's there," he said. ✨

In "On the move," Maya L. Kapoor writes about how the climate crisis is shifting life in the West.



REPORTAGE

Tribal co-stewardship takes shape

The Biden administration is shifting how the U.S. manages public lands.

BY ANNA V. SMITH

SINCE THE START of his administration, President Joe Biden has taken significant actions that have resonated in Indian Country: restoring Bears Ears National Monument; nominating the first Indigenous Cabinet member, Secretary of the Interior Deb Haaland (Laguna Pueblo); investing billions in

tribal water-rights settlements and infrastructure. In 2021, his administration took a historic step when it committed to a policy of restoring tribal oversight of ancestral lands and of working with tribes in co-stewardship to manage public lands. Since then, a flurry of agency memos and reports have filled out more

details of what these co-stewardship arrangements might look like. But what do all these statements amount to in practical terms?

Tribes across the country are seeking the return of lands that were illegally or forcibly taken by the United States. For some, co-management with federal agencies is a way to regain a measure of control of their ancestral lands and can be a first step toward the restitution and sovereignty sought by the LandBack movement. Given the declining budgets of federal agencies and tribes' deep, place-based knowledge and growing governing capacity, co-stewardship can be a natural fit.

"There really is an ongoing nationwide conversation right now about co-management," Kevin Washburn (Chickasaw Nation), who was assistant secretary of Indian Affairs under Obama and worked on the Biden transition team, said in an inter-

view. "I'm firmly convinced that tribes can run a lot of these units — parks and refuges — as well as or better than the federal government can."

Durable policy is a slow-moving ship, but the administration is making headway. In 2022, the U.S. Department of Agriculture signed 11 new co-stewardship agreements with tribal nations, and the department has said another 60 are in development. Meanwhile, the Department of the Interior finalized an agreement to co-manage Idaho's Dworshak National Fish Hatchery with the Nez Perce Tribe. In the Southwest, after decades of campaigning for protections for Avi Kwa Ame National Monument, the Fort Mojave Tribe and other Yuman-speaking tribes have been promised that protections will be established soon. And, given the administration's new policies, advocates are hopeful that some measure of

co-stewardship will be included. Fort Mojave Tribal Administrator Ashley Hemmers said in an interview that the Biden administration has been intentional in its engagement and has consulted with her tribe throughout the process. “That has been really healthy, and hopefully something that can be ongoing,” she said.

The distinction between co-management and co-stewardship — terms the federal government uses for agreements to collaborate on land management with tribal nations — is subtle but important. “Co-stewardship” covers a broad range of collaborative activities like forest-thinning work in Alaska’s Tongass National Forest in partnership with the Hoonah Indian Association, where Indigenous knowledge can be included in federal management. But “co-management” is more narrowly defined. In those instances, tribal and federal governments share the power of legal authority in decision-making of a place or a species. This is the case with Kasha-Katuwe Tent Rocks National Monument in New Mexico, which is co-managed by the Pueblo de Cochiti and the Bureau of Land Management, and with the salmon fisheries in the Pacific Northwest.

The administration has already begun to grapple with the practical realities of setting up these collaborations with tribes. One challenge is ensuring that the ideals behind co-stewardship and co-management are upheld by the career federal employees who carry out the projects, not just by the political appointees who may change with a new administration. To this end, in 2021 Haaland and Agriculture Secretary Tom Vilsack signed a secretarial order requiring that co-stewardship efforts be addressed in individual employee performance

reviews. “It’s an effort to really change the career-level staff in the agency’s approach to doing their jobs on a day-to-day basis,” said Monte Mills, director of the Native American Law Center at the University of Washington, who wrote a white paper on tribal co-management possibilities. “That’s really where it’s going to make a difference,” Mills said in an interview.

Though tribes and the federal government are both currently enthusiastic about co-stewardship, there are still hurdles to clear, primarily with staffing and funding. Tribes already take on contracts with agencies like the Indian Health Service or the Bureau of Indian Affairs to provide treaty- or trust-mandated public services, such as running hospitals, schools and fire departments. In those cases, tribal governments receive federal funds to help pay for staff and other costs of fulfilling the contract. But Congress hasn’t appropriated additional

funds for tribes to manage public lands, which means that tribes and federal agencies — both of which are underfunded by Congress — must find the capacity on their own.

In the case of the Fort Mojave Tribe, preparing for these obligations has been part of the effort to secure protections for Avi Kwa Ame. “It’s really been a conversation about making sure that our leadership is ready for what we’re asking for,” Hemmers said, adding that it’s important that the tribe “can be a true partner, to show that not only do we have the traditional knowledge but we do have the resources to be able to maintain it, regardless if there is funding at a federal level or not.”

While the Biden administration has prioritized co-stewardship, Congress has not passed legislation ensuring that future administrations follow the same policy. This leaves tribal nations vulnerable to the shifting tides of

politics. Legislation could create a federal process for considering co-stewardship proposals, giving tribes a more permanent avenue to push for collaborations that emanate from tribal priorities. A good starting point could be the millions of acres across the West that lie within tribal reservation boundaries and are managed by federal agencies. “As much as anything else, it’s about sort of changing the mindset and agency approach and identity to land management,” Mills said. “And that takes time. If it’s going to be a wholesale sea change, that’s still yet to come.” ✨

Avi Kwa Ame, the recently proposed national monument in southern Nevada (*opposite*). **Mikayla Whitmore**

Beatrice Jacobo (middle) sits with her mother, Drusilla Burns (right), an elder from the Fort Mojave Indian Tribe, during a 2020 public hearing in Laughlin, Nevada, on the proposed Avi Kwa Ame National Monument. **Kyle Grillot**



Going with the flow

An experiment in combatting erosion could shape a new era of coastal resilience.

STORY AND PHOTOS BY SARAH TRENT

DAVID COTTRELL stood on what used to be a 14-foot-high cliff at the crumbled end of Blue Pacific Drive. Just a few years ago, this was the fastest-eroding shoreline on the U.S. Pacific Coast; locals here in North Cove, Washington, dubbed it “Washaway Beach.” But as Cottrell walked toward the water on a sunny November morning, he stepped not off a cliff but onto soft, dry sand. Thigh-high dune grasses sprawled in all directions. The low tide lapped at a flock of sandpipers a few hundred feet away.

Cottrell, a cranberry farmer and local drainage commissioner, held up a laminated map, pointing to our location. During his childhood, this was part of a dense beachside neighborhood, but the tides have swept most of it away — a complex phenomenon related to dams and jetties that have changed the flow of sediments. “Where we’re standing right now, we were losing 50 to 100 feet a year,” he said. All told, North Cove has lost more than 4 square miles of land, plus a lighthouse, a cannery and 160 structures.

By 2015, many residents had given up on saving their town. Facing predictions of continued erosion, agencies had begun talk of moving Highway 105 away from the coast — a loss that could doom this isolated rural community. An essential transportation artery, 105 serves as the dike that protects 800 acres of historic bogs where Cottrell and other farmers grow more than half the state’s cranberries. Cottrell felt he had to try something. “We had absolutely nothing to lose,” he said.

So in 2016, Cottrell dropped \$400 worth of rocks from the end of this road — “one load, right off the end, just to see what would happen.” He sought to mimic the cobble

beaches and basalt slides that are common in the Pacific Northwest. That experiment has since grown into a more than 2-kilometer-long berm of rocks and stumps that shift with the waves and collect sand, rebuilding the beach.

As a result, much of this coastline has held, putting North Cove at the forefront of a global shift in how communities protect their coastlines as sea levels rise. Engineers — who have long depended on rigid sea walls — are now closely watching this softer approach. North Cove’s solution, which resembles the techniques many Indigenous communities use to cultivate shellfish, looks less like the conventional structures engineers know, and more like the dunes and berms that centuries of storms and tides build on their own.

Cottrell stood in the salty breeze, wearing his signature black Carhartt jacket. On the back, hand-painted letters read “Washaway No More.” Most days, he walks the beach, troubleshooting the remaining hotspots with landowners and explaining the still-evolving project to visitors. “The people that get this best are surfers and Buddhists,” Cottrell had told me earlier. “In a situation that’s in constant flux, what you want to do is position yourself to go with it.”

NORTH COVE was built on land near the Columbia River outlet that has always been at the mercy of intense waves, El Niño-driven storms, tidal currents, flowing sediment and tangles of driftwood. Over millennia, these forces built a long sandy spit at the mouth of Willapa Bay. Storms swept sand away each winter, then currents replenished it each summer — until they didn’t, Cottrell said, for reasons scientists are only beginning to understand. Maps show that the trend had

started by the early 1900s; researchers believe a series of jetties and the 1930s damming of the Columbia, which both changed sediment flow in the region, contributed to it. Over decades, the spit was whittled down to a nub. The rising tides and intensifying storms of climate change only hastened its undoing.

That collision of forces made Washaway Beach a terrible candidate for any protective efforts, Washington Department of Ecology coastal engineer George Kaminsky told me. But since Cottrell couldn’t make anything worse, he decided to try something unorthodox, setting the stage for an experiment whose results global experts, including Kaminsky, are now researching.

After Cottrell dropped that first load of rock, nature took over: When waves hit the pile, the water spread out instead of smashing against the steep, eroded bank. Stones migrated and settled. Sand collected in between.

This galvanized the community, and in 2016, a group led by Charlene Nelson, chairwoman of the nearby Shoalwater Bay Tribe, expanded the project. Using a \$600,000 state grant, they made a scrappy version of what engineers call a dynamic revetment: a long cobble berm along the top of the beach. Using the cheapest unsorted rock they could find, they dumped piles along more than a mile of bank, letting the waves sort them into place. Then, lower down, near the highest average waterline, they spread the same jagged cobbles into a 3-foot-tall speed bump. Together, these structures build back the beach: As waves trip over the speed bump and slosh through the berm, they slow and drop sand. The first year both were in place, the beach near this road-end grew by about 50 feet. The next year, it kept growing.

As climate change progresses, coastal communities nearly everywhere are searching for solutions. Hard barriers like seawalls and riprap won’t cut it in many places; they do block water, but often cause further erosion. They’re also so expensive that few can afford them.

U.S. climate models show sea-level rise locked in at around a foot on average nationwide by 2050. In Washington alone, that is forecast to cause billions in damage. By 2100, the state expects catastrophic land loss, including 44% of tidal flats and 65% of estuarine beaches at key sites along the coast



— places that myriad coastal species, including humans, rely on for food and protection. Coastal resilience experts believe building beaches back could be enough to prevent some of this.

Kaminsky's research on the berm has already influenced projects nearby and in California, Europe and Guam. Together, these experiments promise to transform the tools that agencies and communities can apply elsewhere. To create any protective structure, engineers need design standards. The data to establish them didn't exist until communities like North Cove started trying.

"IF YOU'VE NOT been out here, it's hard to wrap your brain around what's really going on," Lauren Bauernschmidt, a state Department of Fish and Wildlife biologist, said, standing on loose cobble. After working with Cottrell for five years, she was due to issue him a new maintenance permit, and needed her boss's signoff. She and Cottrell were also trying to drum up more funding and buy-in from the many agencies involved, so they had assembled a cadre of colleagues to bring them up to speed.

On this breezy, blue-sky morning near the road-end, the once-threatening waterline was hundreds of feet out. The speed bump, Cottrell told the group, was buried under three feet of sand. Clam beds long absent have

returned, along with grasses and shorebird habitat. And even when winter storms pull sand away — the way of things, here — the cobble remains to restart the beach-building process. Now that this section of shore seems stable, Cottrell said, "My hope is that this is hands-off forever." But down the beach, trouble spots remain.

Farther south, the beach narrowed until it reached a prominent finger of land — a single home atop it — that has so far defied the tides. Surrounded by a seawall of giant boulders, it has become a landmark at the center of this project. Even that day's gentle waves deflected off the wall toward the banks beside it. Stronger ones have carved deeply into the adjacent shoreline, threatening to turn the point into an island: A reminder of the pitfalls of bulwark structures in a naturally ephemeral environment.

The worst erosion was on the southern side. There, a vertical cliff-edge flanked a narrow curve of beach. Over the previous year, seven spruce trees on that neighboring property had lost their footing, toppling into the surf. An eighth leaned ominously. This vulnerable strip of land, owned by Ed Borden, has become a linchpin for North Cove. "From here to the highway is about 400 feet," Cottrell said. "That could go in one or two nights in a big storm." With it would go the roadway, homes and cranberry

David Cottrell surveys Washaway Beach in November, where his community's experiments with piles of loose cobble have transformed the shoreline. Whenever he walks here, he grabs fistfuls of seedheads to scatter (*left*).

Dune grasses and sand verbenas help to stabilize the sand that collects on the berm (*right*).

bogs behind it.

Cottrell hopes to drop more cobble around the wall to re-establish a beach, which would slow the waves or even prevent them from reaching the seawall.

At the edge of his land, Borden stacked hay bales with a mini excavator, hoping they, too, might slow the ocean's inland creep. Throughout the year, Borden and Cottrell had dumped thousands of tons of cobble along this bank, but the wash off the seawall was too strong. Despite — maybe because of — its impact here, that wall remained a seductive solution. Borden eyed the fortress, which stood deceptively steady. He wasn't sure yet about the small cobbles; he had yet to see whether they worked as planned.

"I need a bigger excavator, bigger rock," he started to explain.

"Or we could get you your sand beach back," Cottrell countered, glancing to the surf. "Nothing dissipates wave energy like a good beach." ✨



Marshall Mountain near Missoula, Montana, is used for ski touring. The old chairlift in the background closed in 2002.

REPORTAGE

The little ski hill that could

A Montana community's quest to preserve public access to land on its outskirts.

BY KYLIE MOHR | PHOTO BY ALEX KIM

YOUNG EVERGREEN TREES

are reclaiming the formerly groomed ski runs at Marshall Mountain, just outside Missoula, Montana. In the winter, backcountry skiers descend its slopes, donning headlamps to earn turns in the dark before or after work. In the summer, mountain bikers let out shouts of jubilee as they whiz down the maze of trails, and the base area bustles with kids' camp groups. A rust-speckled Pepto Bismol-pink chairlift dangles unmoving behind a clock tower whose hands haven't budged for over two decades, but this ski hill is far from abandoned.

All that almost changed during the summer of 2021, when a dramatic property sale nearly went through, one that might have closed the bottom half of the mountain. But two local couples who hoped to preserve access made a last-minute backup offer to buy the property instead. That second deal ultimately went through, and the new owners are now leasing it to the city of Missoula for \$10 for up to two years, with an option for the city to buy the property in June 2023. The city is working toward that now. "They bought our community time," said Morgan Valliant, Missoula Parks and

Recreation's ecosystem services director, who is overseeing the project. "That is really rare."

Missoula's on-again, almost off-again access to a powdery paradise and mountain-biking mecca just a 15-minute drive from downtown illustrates the risky nature of relying on landowners' goodwill for outdoor experiences. Now, Missoulians — including the city, nonprofits, a land trust and other outdoor recreation and conservation groups — are determined to guarantee public access, once and for all.

GENERATIONS OF Montanans grew up skiing at Marshall

Mountain. A crude rope tow began pulling people up the hill in 1937, and the ski area officially opened in the winter of 1941. Kerosene flames illuminated the mountain's first night in 1957, and for the next several decades, the slopes remained open. But financial difficulties and a lack of consistent snowfall forced the owners to shutter the resort in 2003.

The ski area splintered: The top, which had been leased from a timber company, was purchased by The Nature Conservancy, and then, in 2015, donated to Five Valleys Land Trust. The ski resort's owners retained the base and allowed organized races and informal public access for parking, skiing and mountain biking. With its relatively safe terrain, Marshall became a beloved training ground for beginning skiers and mountain bikers. "It's a coveted space by a lot of people," said Alex Kim, founder of Here Montana, a social enterprise dedicated to increasing access to outdoor activities for people of color. *(Editor's note: Kim also made the photo for this story.)*

But community access became uncertain in 2015, when the base owners put the 156-acre plot up for sale, and even more tenuous in 2021. Out-of-state buyers were under contract when the two local couples swooped in with a successful backup offer of \$2.16 million. (The almost-owners later filed a lawsuit, alleging breach of contract.)

Missoula is now working to acquire the base parcel for \$1.85 million, along with the land trust parcel and one additional parcel, to create a 480-acre park. A planning process, spearheaded by the SE Group consulting firm, will

conclude with a final master plan in early 2023. Municipalities have bought defunct ski resorts before, according to the consultants. The village of Ascutney, Vermont, and Huerfano County in Colorado each bought old ski hills in recent years and partnered with local nonprofits to run them.

But Missoula is pursuing a different path: It will manage the mountain, adding the property to its Parks and Recreation department's lands. A nonprofit, Friends of Marshall Mountain, is raising money for acquisition, improvements and long-term maintenance. The city also plans to use some of the funding from an open-space bond passed in 2018 for the purchase, and it hopes to cover the rest with grants and partnerships. Last summer, Missoula solicited public input for a community visioning process. Over 1,300 people provided comments — double the amount of feedback on any other city project. “The breadth of community support, or at least interest, passion or nostalgia?” Valliant said. “You don’t often get that.”

The project’s success requires a community with money to spare that loves the hill and its associated sports. It also relies heavily on the private sector. “If we really want to preserve our way of life and our connectivity, with the pace of development and land sales right now, it takes people like that stepping up, and with very altruistic means,” Valliant said, referring to the 2021 buyers. But it’s not a foolproof approach; elsewhere in the West, some landowners block, rather than facilitate, access — from suing hunters for corner crossing to reach public lands in Wyoming to gating crucial roads in Montana.

TODAY, MARSHALL MOUNTAIN is at a crossroads. What will its future be like under new munic-

ipal ownership? The city’s draft master plan shows potential changes, including a new trail for handcycles, a beginner bunny hill with magic carpet conveyor belts, more parking and covered structures for gathering. Some old structures, like the lodge and lift, will likely be demolished for safety reasons, though back-country skiing will continue.

But in order for Marshall to become a true gathering space for Missoulians, barriers like affordability and transportation need to be addressed. Kim has led hiking and snowshoeing outings at Marshall in the past and said the area “plays an important but inaccessible role” in Missoula’s outdoor recreation scene. A lack of public transportation routes up the canyon limits who can get there, and Kim said the city’s standard insurance requirements for events can be restrictive for small groups like his. The city is considering new user fees — already the norm elsewhere for reserving a picnic shelter or using a ropes course — to balance raising operating funds and keep visitor costs down. “We could design a total pay-to-play model where we’re generating a bunch of profit to run the site, but we wanted to get away from that,” Valliant said.

Missoulians are ironing out the details, raising money and awaiting bond funding approval from the city council and county commissioners. Meanwhile, Marshall’s fate as a community recreation destination remains uncertain. This summer, Nathan McLeod, Missoula Parks and Recreation’s landscape architect, was mountain biking at the hill when he overheard people chatting about how glad they were that Marshall was saved. *Not yet*, he thought. “We have not saved it,” McLeod said. “It’s important people realize we still have a lot of work to do.” ✨

POEM

For Friendship

By Julie Carr

Tell the rocks (for lack of women)
of our river rushing its shadows

across our eyes—
how we buried what we wanted in our bodies.

In the evening try to forgive your mother, try
to be forgiven.

There will be time
there will be a time

we will learn, hang our coats, learn.

A glass jar of glass beads – burgundy & violet
once strung and hanging across her chest

marked her body as loved.
These mountains that never

knew her recall her
for me with the first word learned through my skin

as I sat in a driveway untended.

don't leave your childhood, and its / sorrows

The soil smelled like shit
in the sun. I walked

the word to the river, shaking, glistening, urban,
beside the hospital's

windows & I saw myself there.

WEB EXTRA Listen to Julie Carr recite her poem at hcn.org/for-friendship

FACTS & FIGURES

Save public lands: Put solar on Walmart!

Parking lots and big-box store roofs could generate oodles of clean power.

BY JONATHAN THOMPSON
INFOGRAPHIC BY LUNA ANNA ARCHY

ON A SUNNY DAY in early December, Interior Secretary Deb Haaland stood on a dais outside the Phoenix exurb of Buckeye, Arizona, where about 3,000 acres of desert had been scraped clean and leveled to make way for the Sonoran Solar Project, which will soon provide power to some 91,000 homes.

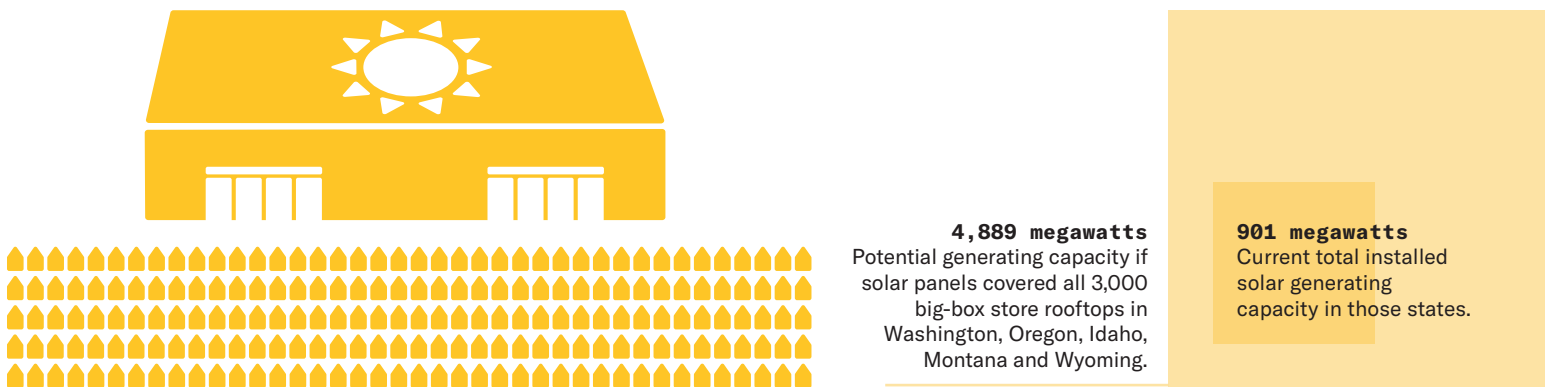
Haaland came with good news for utility-scale solar and climate hawks: The Bureau of Land Management would review three massive solar projects proposed in Arizona and hoped to expedite permitting for solar energy on federal lands in Arizona, California, Nevada, New Mexico and Utah. “Solar energy projects on public lands will help communities across the country be a part of the climate solution, while creating good-paying jobs,” Haaland said.

But these projects could also potentially uproot imperiled Joshua trees and cactus,

kill or displace threatened desert tortoises, block wildlife migratory paths and harm local communities. This puts conservationists and policymakers in the difficult position of having to choose between saving the desert — or the planet.

There are other ways, however, and other locations for solar panels, from residential rooftops to farm fields followed by drought. France, for instance, recently required large parking lots to be covered by solar canopies that shade cars and provide up to 11 gigawatts of new generating capacity, equivalent to about 10 times the three proposed projects in Arizona.

This inspired us to ask: How much power could be generated by slapping solar panels not only over the West’s vast parking lots, but also on its 21,000 big-box store rooftops? We did the math, and this is what we found out. ☀



Big-box stores have plenty of space

An average Walmart has 180,000 square feet of rooftop — about the size of three football fields. That amount of rooftop space could support enough solar energy to power nearly 200 homes.

21,363

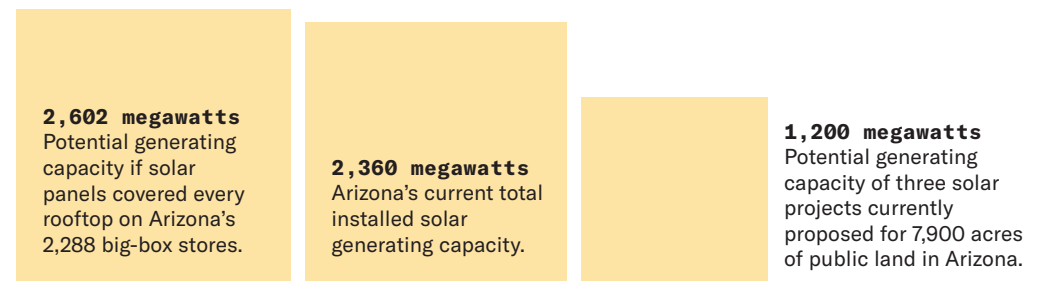
Number of big-box stores in the Western U.S.

31,035,098 megawatt-hours

Estimated total annual energy output if solar arrays were installed on all those stores’ rooftops.

3 million

Homes that could be powered by that output.



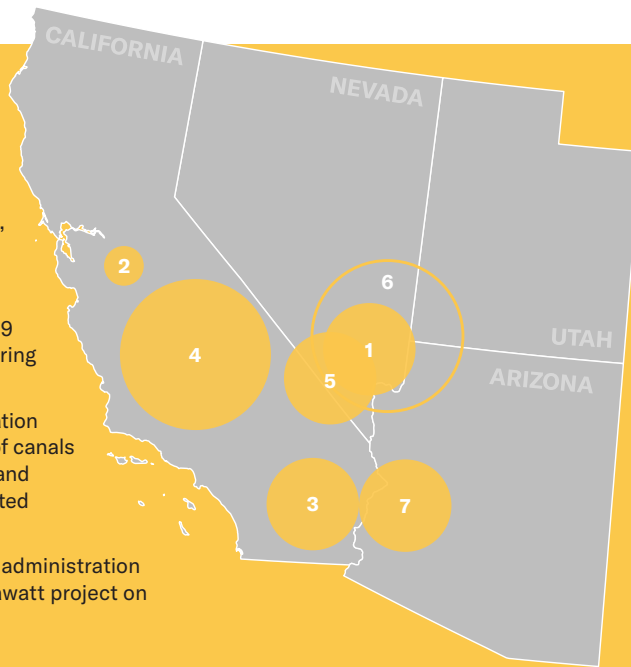
16,477,306 megawatt-hours
Total energy output of Diablo Canyon Nuclear Power Plant in 2020.



14,905,215 megawatt-hours
Estimated total annual energy output if solar arrays were installed on all of California’s 10,260 big-box store rooftops.

Notable utility-scale solar projects in the West

- 1 Gemini Solar:** The 690-megawatt Gemini Solar Project, currently being developed on 7,100 acres of federal land, will be able to power as many as 400,000 homes during peak output. An estimated 219 desert tortoises will be relocated during its development.
- 2 Project Nexus:** The Turlock Irrigation District is covering about two miles of canals with solar panels to generate power and prevent the evaporation of an estimated 32 million gallons of water annually.
- 3 Oberon Solar:** In July, the Biden administration gave the go-ahead to this 500-megawatt project on 2,600 acres of federal land.



- 4 Rexford 1 and 2:** This massive proposed solar project would be built mostly on agricultural fields that have been fallowed due to drought. The 4,000-acre project, which is expected to generate 1,200 megawatts when completed in 2026, will also create income for farmers.
- 5 Yellow Pine Solar:** This 500-megawatt installation on 3,000 acres of public land has been especially controversial, since many of the desert tortoises relocated before construction later died.
- 6 Battle Born Solar (canceled):** This proposed 850-megawatt project on 9,000 acres of public land atop Mormon Mesa was killed by opposition from land-art lovers, off-roaders and skydivers.
- 7 Jove Solar:** The BLM is about to begin reviewing a proposed 600-megawatt photovoltaic installation on about 3,500 acres of public land.

44,800 megawatts

Potential generating capacity if solar canopies covered Los Angeles County's 18.6 million parking spaces.

15,400 megawatts

Potential generating capacity if solar panels covered all 3,495 miles of California's aqueducts and canals.

14,300 megawatts

Current total installed solar generating capacity on the entire California grid.

1,155 megawatts

Estimated generating capacity if solar panels covered all 370 miles of the Los Angeles Aqueduct, as LA officials propose.

37,500 gigawatt-hours per year

Energy output of solar canopies if all of Phoenix, Arizona's 12.2 million parking spots were covered.

139

Number of desert tortoises relocated to make way for the Yellow Pine Solar Project in southern Nevada in 2021. Within a few weeks, 30 of them were killed, possibly by badgers.

4,200 (215,000 acres)

Grazing leases bought and retired in the Mojave Desert in California by Avantus this year to protect wildlife habitat and Joshua trees. The Onyx Conservation Project is a partnership with federal and state land management agencies to "offset" the impacts of the company's developments elsewhere in the region.

1.3 million

Estimated number of Joshua trees destroyed by the 2020 Dome Fire, thought to be exacerbated by climate change, in the Mojave National Preserve in California.

Note: We worked from two figures that were calculated by Greta Bolinger and Mark Bolinger in "Land Requirements for Utility-Scale PV: An Empirical Update on Power and Energy Density," published in the *IEEE Journal of Photovoltaics* in March 2022:

Power density: .35 megawatts per acre for utility-scale, fixed-tilt photovoltaics. Most residential solar systems are about 400 watts, or .0004 megawatts.

Energy density: 447 megawatt-hours per year per acre for utility-scale fixed-tilt photovoltaics. An average American household uses about 10 megawatt-hours of electricity annually.

We used Environment America's figures and Google Earth's measurements to determine that an average big-box store has 3.25 acres of rooftop. We used American Planning Association calculations to estimate that one acre contains about 145 parking spaces.

Additional sources: BLM, EIA, Basin & Range Watch, UC Davis, Berkeley Lab, Avantus, Primergy, American Planning Association, USGS, Environment America, Google Earth.

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Jalen Bazile and Rachel Olzer at Elevenmile Reservoir near Deckers, Colorado. Adam Andres Pawlikiewicz Mesa

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"You guys are awesome! I am a Native American, and HCN offers the best journalism being done anywhere regarding Indigenous news in the Americas, along with excellent news about everything else as well. Thank you for giving voice and in-depth understanding to complex issues!"

-Dawn Suzanne (Wanatee) Buffalo, Meskwaki Nation in Tama County, Idaho



“Thank you for your fine journalism and willingness to delve deeply into the pain and the joys and all the gray of the in-between that is life in the West. And even just ... life. So appreciate you.”

–Felicity Broennan, Santa Fe, New Mexico

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DEAR FRIENDS

Making *HCN* a home for visual journalists of all backgrounds

Visuals Editor Roberto ‘Bear’ Guerra talks about efforts to diversify the visual journalism published in *High Country News*.

For the past several years, the *High Country News* Production Department has been working to diversify the artists who produce photos and illustrations for *HCN*, as well as the people represented in the images we publish.

The results may be hard for readers to put a finger on, but they’re at the heart of *HCN*’s efforts to better tell the stories of the West.

I talked to *HCN*’s visuals editor, Roberto “Bear” Guerra, who joined the publication in 2020 as these efforts were ramping up. We talked about the art team’s work so far and its goals for the future of visual storytelling in *High Country News*.

The conversation has been edited for clarity. Read an expanded version at hcn.org.

Michael Schrantz: First, how would you describe your work around diversity in the imagery *High Country News* publishes?

Roberto “Bear” Guerra: It takes several forms. We’re working to ensure that our art contributors are more representative of the diversity of the West and of the communities that have been underrepresented in the pages of the magazine and in the industry as a whole. The first step is publishing more artists

from diverse backgrounds, which, in this context, refers to racial and ethnic identity, culture, gender and sexual identity. So, since mid-2020, we have been keeping track

of those who are contributing art for our stories, as well as of the people represented in the imagery we use.

But it isn’t just about numbers. We want to support these artists so they can do their best work and create meaningful, sustainable careers in this challenging industry. That means making contracts and rates fairer and building strong relationships with artists.



The pond at Cuenca los Ojo’s Rancho San Bernardino in Sonora, Mexico, where researchers were holding several Yaqui catfish, as reported in Maya L. Kapoor’s 2019 feature story, “Fish out of Water.” **Roberto “Bear” Guerra**

We’re also thinking more about how our visual storytelling can contribute to thoughtful, nuanced and complex representations of Western communities.

I want *HCN* to be a publication where contributors from diverse backgrounds see a home for themselves and their work and where our visual storytelling leads the way in how underrepresented communities are portrayed. I’m inspired by the work of *HCN*’s Indigenous Affairs desk, because they have been doing this for several years.

MS: You’ve also been on the other side of the publication process, pitching and submitting as a freelance photographer. What do you bring from that experience to the project of diversifying *HCN*’s visuals?

RG: It’s important to assign photographers and illustrators who are culturally competent for the work, but it’s just as important to recognize that each of us is passionate about all kinds of things and we bring a lot to assignments beyond our identities or language skills. As a freelancer, it meant a lot to work with editors who commissioned me for stories they knew were important to me. As an editor, I want to bring that same awareness whenever I commission someone for a story.

MS: How do you see this work in relation to what we owe to the region we’re a part of and represent?

RG: It’s part of our responsibility as a journalism outlet today to holistically cover our region. To do that, we need reporters, photographers and artists who can build sustainable careers, bringing their own backgrounds and experiences to the work of telling nuanced, critical stories about the West.

When it comes to art, having staff and contributors with more varied backgrounds and experiences naturally expands our ideas about what visual storytelling can be. I think we’re seeing this in how the magazine is evolving.

MS: What do results look like?

RG: We have a ways to go in representing the diversity of Western communities in our pages, but I think we’re making progress. For artists to see *HCN* as a home for their work, they need to see themselves in our pages. I’ve had many conversations with folks who haven’t been published in *HCN* in the past but are now starting to see it as a good place for their work. I’m heartened to see a shift happening.

—Michael Schrantz,
marketing communications manager



A 171-foot-tall white stain, left by the retreating waters of Lake Powell, looms over Max Lowe as he strides across a sandstone fin in the heart of Glen Canyon.



GLEN CANYON REVEALED

What comes next for
Lake Powell?

By Craig Childs
Photos by Elliot Ross

THERE IS THE CRUMPLING, the mess. A marina that once floated in a cove has been towed out of the shrinking lake and dropped in a field of Russian thistle, its metal pontoons partially sunk into dry, crack-crazed soil. Cooler doors stand open — the marina was once known for its ice cream — and conduits hang from ceilings, wires stripped.

Any restoration might look like this at the start, might exude the strange ugliness of decay. Dangling Rope Marina, the size of a couple of convenience stores, once sold 1.5 million gallons of gas every year, powering the hundreds of boats that, on any given summer day, plied the watery pleasure garden of Lake Powell. Now, its outer doors hang half-open; the interpretive displays bleach in the sun. The official reason for its 2021 closure was “significant wind damage and low water conditions.” The cove it once occupied is disappearing, turning back into land as the lake levels fall. The depth of the surrounding bay has dropped from about 200 feet to 35 feet, and only one of the boat ramps is still operable.

Lake Powell, like its downstream neighbor Lake Mead, stands at a quarter of its full capacity. An increasingly arid climate, high demand from thirsty agriculture, and the bad math embedded in the century-old compact that divides the Colorado River’s water have shrunk the two reservoirs to levels not seen since they were first filling. On Lake Powell’s new shoreline, old boat propellers lie in the dust along with scads of sunglasses. Red plastic drinking cups, some bearing names scrawled in Sharpie, have yellowed to the color of piano ivory.

At its low point last year, Lake Powell’s surface was only 32 feet above operating levels for Glen Canyon Dam’s hydropower intakes, reducing the dam’s power output by half. If reservoir levels fall as dramatically this year as they did last year, the hydropower system — which supplies seven states — will fail. If the reservoir can no longer release adequate amounts of water from the upper reaches of the Colorado, downstream water rights could be rendered meaningless.

Lake Powell, the second-largest reservoir in North America after Lake Mead, is on its way out. Water levels in the canyon system have fallen more or less steadily for two decades, and refilling it to full capacity, or even half capacity, appears to be off the table. The current policy of the U.S. Bureau

of Reclamation, which manages both Powell and Mead, is to prop up Powell by taking water from smaller reservoirs upstream, reducing releases into the Grand Canyon and Mead, cutting back water use throughout the Colorado River Basin, and praying for a good snowpack. All this may succeed in maintaining Lake Powell at its current diminished level — if only for the time being.

Faced with rubbish, disarray and onrushing disaster, it would be easy to stop here, to throw in the towel — yet another artifact frequently found on Powell’s former beaches — and head home. Let’s keep going, though; as this story ends, another is emerging.

I FIRST VISITED LAKE POWELL in the 1970s, when I was in grade school and the new reservoir was still filling up. My dad and his friends rented a houseboat, and as they motored up the lake’s San Juan Arm — the drowned final stretch of the San Juan River — I sat on the bow with my bare feet dangling, my toes splitting the dreamlike panorama of reflected cliffs.

I remember a landscape composed of three bold swaths, like a tricolor flag: the bright blue of the sky, the hard, voluptuous curves of the earth, and the unfathomable blue of the water. I had no idea why there was so much water here; I knew nothing of the dam downstream. When we anchored, I ran barefoot across naked sandstone, unaware that the rising waters would soon cover it. I was a Sonoran Desert boy from the Phoenix area, where my landmarks were tall cactus and snaggletooth mountains. Lake Powell showed me a sandstone desert shaped like soft-serve ice cream — the sensuous heart of the Colorado Plateau.

One evening, as we made camp, thunderstorms roamed the desert, booming in the distance. Suddenly, the entire northern sky turned molten red. Sunset had already passed; the adults talked among themselves, wondering what had caused the sky to glow. A forest fire, perhaps? But there was no forest nearby to burn. Finally, they decided it had to be the northern lights, visible from unusually far south. The night bristled with a sense of mystery, smelling of far-off rain and buzzing with the grownups’ concern. Surrounded by water, bare stone and a sky on fire, I felt as if I’d landed on an alien planet.

Not until my 20s, when I began working





Wahweap Bay, at the far southern end of Lake Powell, is home to one of the two remaining operable boat ramps on the entire reservoir. At 186 miles in length, Lake Powell's shoreline was once longer than the West Coast of the United States. (Note: This photo was taken in the fall of 2021. In January 2023, levels were 35 feet lower, revealing much more dry land.)



Near Lake Powell's historic high watermark along the Escalante River, both native and invasive vegetation is beginning to take root below the fading white line of the "bathtub ring."



as a river guide, did I learn about the reservoir's ruinous backstory. The Colorado River Compact, signed in 1922, divvied up the river's water between seven states, made only a glancing acknowledgment of tribal water rights, and left no water at all for the river itself. (The compact also seriously overestimated the river's average flow, meaning that the river is usually left with less than nothing.)

The agreement, which made it clear that the water was to be used for development above all else, laid the legal foundation for federal dam construction on the river. First came Hoover Dam, behind which Lake Mead began to rise in 1935; about three decades later, when Glen Canyon Dam was close to completion, Lake Powell started to inundate the sandstone labyrinth of Glen Canyon, the hydrologic and ecological core of the Colorado River system. Over the years that followed, 186 miles of river were swallowed by a lake.

The late Katie Lee would have kicked me in the shins for calling Powell a lake. One night, at her dinner table in Jerome, Arizona, I told the fiery activist — in her 80s at the time — that I thought Lake Powell was beautiful. By the time I was born, it had already been filling for four years, and I had never known Glen Canyon. Katie brought out a dictionary and read the definition of “lake” to me. *Powell*, she said, *is a reservoir, not a lake; it's man-made, not natural. It's a goddamned monstrosity.*

Earlier that day, she laid USGS maps from before the dam across her living room floor, matching up their edges so the river appeared to flow. The river was blue and thin and wound like a snake through dense brown contour lines. She traced its course with her finger and told me about sandbars in the sun and secluded grottos. She began to cry.

At the dinner table, sitting with her partner, Joey, she said that if I thought the reservoir was beautiful, we couldn't be friends. We managed to be friends anyway. Over the years, I invited her to visit the reservoir with me, to float on this paradoxical body of water and look down into its depths. I wanted her to point out the places where she had once rowed and scrambled, built driftwood fires, stood naked against warm sandstone. She told me to stop asking.

For more than half a century, Katie Lee railed against what she called Lake Foul, calling for the dam to come down so that the river could flow again. By the time she passed away

at 98, in 2017, she had inspired generations of activists to keep the memory of Glen Canyon alive.

UNDER BLUE SKIES last October, I joined three others in a wooden dory fitted with a 4-horsepower electric motor. We put in at the last functioning boat ramp at Bullfrog Marina, not far from the dilapidated remains of Dangling Rope, and headed south, downstream.

The dory, named *Stella*, is a sleek craft made for lakes and ocean travel, constructed in Flagstaff, Arizona, by master dory-builder Brad Dimock. My wife sat up front, holding the coiled bowline, and the dory's owner, a mutual friend, ran the tiller in the stern. I sat in the middle on a heap of dry bags, ready to take the oars if we needed to maneuver through narrow side canyons. We moved south at 4 mph, about the speed of the Colorado before the dam impounded it, accompanied by the quiet buzz of the boat's solar-powered motor. The bread-loaf cliffs of Navajo sandstone passed slowly enough for the buttes and arches to casually turn their faces, nothing hurried in their demeanor.

We passed over the ghostly forms of rock steeples and buttes, green ogres rising from the depths. Within a year or two, they will likely touch the surface, and then keep rising. We drew *Stella* into the shade of an alcove and cut the motor, drifting into a natural stadium inundated nearly to its ceiling. When Katie Lee floated here 70 years ago, this yawning mouth in the canyon's architecture sat 200 feet above the river. She would have looked up and marveled at the underside of this cupola, a dome the size of a baseball field set high against the sky, out of reach.

Two years ago, this entire feature was underwater, invisible. Now, thanks to the recent, rapid drawdowns, the rock dome hung 20 feet above us, sparking with reflected light. Gentle waves gulped and echoed against the stadium's back wall.

In a decade or two, the dome may soar again. The green ogres we see below the surface may rise again and tower over our heads like gigantic statues. In the face of a water infrastructure calamity, what may become the largest restoration project on Earth is progressing with little assistance from us.

Could I convince Katie Lee to come with

me now, knowing what we would see? The lake is now as low as it was in 1967, four years after the reservoir began to fill. But I don't think she would be impressed; to her, even the shrinking reservoir would look like a corpse. Remembering the beauty buried below, she might vomit over the side of the boat, cursing me for bringing her here.

EVERY RIVER that feeds the Colorado is a mud bath, and in the spring and after storms these tributaries turn a dense red, brown or green. The Colorado itself carries tons of sand, silt, mud, rocks and gravel, evidence of the geologic breakdown of the Rocky Mountains and everything around them. Since the 1960s, all of that sediment has been accumulating at the bottom of Lake Powell — especially at its northern end, where the river's current slows, stills and drops all that it carries, leaving the lake crystal-clear.

"If you can't see it, it's really easy to ignore," said Cari Johnson, a field researcher and sedimentology professor at University of Utah. Johnson studies the deposit of mud, silt and sand that she and many other geologists informally call the "Dominy Formation" after Floyd Dominy, who led the construction of the Glen Canyon Dam as the head of the Bureau of Reclamation in the 1950s and '60s, and who argued vigorously that silt would not be an issue at Lake Powell for thousands of years. This particular formation, Johnson said, is "anthropogenic sedimentation," and it can be a hundred feet thick or more. "Its origin is fundamentally tied to human interactions," Johnson said. "This reservoir sediment would not exist if there wasn't a dam."

The Dominy is a new geologic layer, with its own canyons and hard-packed plains, and it's a mess. When it emerges from the reservoir, said Johnson, its fissures belch up biogenic methane from the rotting cottonwood, willow and oak groves that once flourished in Glen Canyon. She described tons of water caught up in sediment and blocks of slumped material, crooked and collapsing around dark cracks. "I get nervous walking around on it," she said. "Some of these fractures are deep. They are ready to fail."

Johnson looks at Lake Powell as a vast sedimentology experiment coming to its conclusion. As its water drains, she and her colleagues can see what's left behind. "I understand why management agencies,

river runners and everyone else is focused on water," she said. "Sediment is the underappreciated part of the system."

In *Stella*, our dory, we pulled to shore in a side canyon where the Dominy Formation has been above water for a couple of years, its hardened clay surrounding boulders the size of houses. I climbed through sandstone hulks decorated with thousands of desiccated quagga mussel shells, finally reaching the top of the white bathtub ring that commemorates Lake Powell at its fullest. The ring, which consists of evaporated minerals, clings to the native rockface like a smear of powdery cement, draped like a banner across every cliff. When I was a kid, the water had nowhere to go but up. Now the ring is a hallmark of the reservoir, a baseline we may never return to. I used it to mentally refill the full pool, imagining water covering the boulders, benches and pinnacles below me.

Looking down on the canyon where we'd moored, I saw a clear stream flowing along its bottom, slicing through the Dominy Formation and pushing out the mess, flood by flood. Geomorphologists have been surprised by the speed at which the hard muck departs. I asked Johnson what she thought of the speed, and she said, "Drastic. It's changing so fast." Recently, she and her colleagues went to Dark Canyon, a tributary of Glen Canyon, to document depositional patterns in its reservoir sediment, which was more than 25 feet thick in places. When they arrived, they found that the entire layer had been scoured out by a flash flood. In days or weeks, tons of sediment can be carried off to the lower reaches of the reservoir, mud compounding mud. The problem simply relocates — and accumulates.

IT'S EASY TO BECOME disoriented in the canyons of Lake Powell, gas motor stinking and roaring, boat slaloming into hallways made for giants. Right turn, left turn, left turn, right. I'd jumped into a skiff with a 40-horsepower motor, which was three times faster than *Stella's* but whose noise made it harder to talk and harder to listen. The cliffs, in shadow at the end of the day, now moved by too quickly, like a record playing at the wrong speed.

Eric Balken, the 36-year-old head of the Glen Canyon Institute in Salt Lake City, steered us into a dimming enclosure of Navajo sandstone, throttling down as walls closed in. He knew of a place where *Stella*

could catch up to us and our group could camp, but the shorelines were changing so fast he couldn't promise it still existed.

Balken, whose nonprofit advocates for Glen Canyon's restoration, feels differently about this reservoir than I do. He doesn't like it one bit. He first glimpsed the place during a high-school road trip to southern Utah with a group of friends. "We hung out on the shores of one of the big beaches near Wahweap," he remembered. "I think my reaction was that it was odd to see so much water in the middle of the desert. I didn't know the story of the dam, and it wasn't till after that trip that I began to learn about the story of Glen Canyon and the tragedy of what was lost." When he was 19, he started working for the institute, and he's been there ever since.

Lake Powell, Balken said, is hot right now. Members of Congress, water authorities, scientists and journalists want to see what's happening here, and Balken has accompanied many of them into the canyons. If you didn't know the reservoir well, you might not notice anything out of place, but if you've been here as many times as Balken has, it's obvious that it's changed.

Parts of the upper canyons that were documented by photographers in the 1950s and '60s — long believed to be lost for good — are now fully exposed. A famed landmark, Cathedral in the Desert, has been transformed. Last year, boats visiting it pulled into the smooth round vault of a canyon bottom, tying off next to a clear waterfall that descended through a great hourglass in the rock. This year, visitors must tie up their boats downstream, then walk for 15 minutes up a creek already brimming with waist-high cottonwoods and willows. The cathedral itself smells like a herbarium, pungent with vegetation. Springs that were known only from old photographs are dripping and bubbling again, sprouting delicate fronds of maidenhair ferns.

In a year, the walk to Cathedral in the Desert may take 20 minutes; in five years, an hour. When there was no reservoir, visiting the cathedral meant walking six miles up one tributary and then another, a journey

This series of photos highlights the unique quality of light that defines Glen Canyon. Throughout the system, a white line is visible on the canyon walls — a mineral stain left behind by Lake Powell's retreating waters.



shaded by cottonwoods and cooled by trickling streams.

As our metal skiff scooted up the still-flooded side canyon, photographer Elliot Ross, a few years younger than Balken, straddled the fuel tank. Ross looked down the barrel of his lens as we peeled through a reflection of cliff walls shaded to the color of a bruised peach. For the last year and a half, he'd been exploring Lake Powell and its fans of sediment with his camera, documenting their emergence. He could do nothing but grin in the shade of this canyon, saying, over and over, "There's so much happening right now!"

We slowed as we entered the cove where

Balken hoped to set up camp. On shore, three river otters assembled like siblings, slick and whiskered. They bobbed around each other, so close together they seemed like a single animal, a three-bodied mustelid. Their ancestors were introduced in Utah in 1989, long after the state's otter population had been hunted, trapped and fragmented to extinction. The newcomers thrived, and otters are now seen down the Green and Colorado rivers and on Lake Powell.

"They don't want to give up this spot," Balken said over the motor's putter. He pushed the boat closer as the otters wove around each other and entered the water,

slipping under the surface, out of sight.

We hopped ashore onto a hard pad of the sand that caps the Dominy Formation. Ross pounded the sand stake with a mallet and tied off the bowline. We were home for the night, *Stella* an hour behind us.

AN HOUR'S WALK up a clear, sinewy creek, where the land had been exposed for three or four years, we found Gooding's willow and coyote willow. Another few years higher, we found an 18-foot-tall cottonwood, its trunk bigger than two hands could encircle.

One of the first plants to show up after the water recedes is Russian thistle, or



A diverse ecosystem has quickly re-established itself in this side canyon, which was underwater only a year ago. Elliot Ross has documented crayfish, otters, beavers, deer and coyotes, as well as the tracks of mountain lions and bobcats, throughout Glen Canyon's tributaries.

tumbleweed. A single prickly tumbleweed can consume 40 gallons of groundwater over its lifespan, but this non-native species is also known to draw toxins out of soils, possibly clearing the way for the willows and cottonwoods that follow it. I saw a few shoots of tamarisk, another non-native, in the canyons, but cottonwood saplings numbered in the hundreds. The original ecology was returning.

David Wegner, one of the founding members of the Glen Canyon Institute, is retired from the U.S. House of Representatives, where he served as a member of the senior staff and specialized in water, energy, climate change and science. He recently visited Lake Powell, and when he saw a 50-foot-tall cottonwood standing where he'd previously known nothing but water, he hugged the tree. A place he believed to be lost, a place he never expected to see firsthand, had returned to the world. He sees the drawdown as an incredible ecological opportunity. After two dams were removed from the Elwha River in Washington, "we spent millions on reshaping the rivers, millions on replanting," he said. "We have spent zero on the restoration and recovery of Glen Canyon. It is re-establishing with absolutely zero investment from us."

It is, without doubt, erupting with life: On a Dominy bench, alongside rabbitbrush and ricegrass, we found a flaming green cannabis plant. Maybe someone dropped their stash over the side of a houseboat in 1985, letting the seeds sink into anaerobic depths of sediment, where they were preserved until the day when the plant could sprout and its chunky buds glint crystalline in the sun.

The newly exposed land falls within the 1.25-million-acre Glen Canyon National Recreation Area. According to the 1979 General Management Plan for Glen Canyon, the water portion of the lake is managed as recreation, whereas the land, for the most part, is considered a "natural zone" and treated as wilderness. Most of the emergent canyons and landforms are wilderness by default.

Not all of the conservation news from Glen Canyon is glowing, especially when viewed from downstream. The dam's penstocks, which take up water from Lake Powell and send it through the hydropower turbines, are no longer drawing from the cold deep tank of the reservoir. Instead, they're pulling from just below the surface, and that warmer water is heating up the river

below the dam, making it more hospitable to the non-native sport fish that live in the reservoir's upper layers. Now, more of those fish are being flushed through the turbines, and surviving to compete with the Grand Canyon's carefully curated native species. Fish biologists are especially concerned about the humpback chub, which is already hanging by a thread.

Meanwhile, Glen Canyon Dam is still holding back a mountain of sediment, starving Grand Canyon beaches and other streamside habitats of material that would otherwise have gradually flowed downstream over the decades. Downstream river levels throb and dwindle in accordance with the dam and its electricity demands, not seasonal rhythms. The incoming sport fish are one more insult to an already abused system. Recovery on one side of the dam is disaster on the other.

COULD THE LAKE EVER cover Glen Canyon again? "It may come back up a few feet here and there because of variability in our water supply," David Wegner told me, "but I'm not hearing from anybody who looks at the existing data, and the structural deficit that occurs from over-allocating a diminished supply, that the water will ever come up."

I took the question to Brad Udall, a senior water and climate research scientist at Colorado State University's Colorado Water Center. How many heavy winter snowpacks would be needed to put Powell back on the rise? "Five or six really big years in a row," Udall said. "Given the demands on the system, that's how much it would take to turn this around."

While Udall celebrates the return of Glen Canyon, and is as likely to hug a tree as Wegner — in his 20s, he worked as a river guide on the Colorado — he is chilled by the possible ramifications if Lake Powell drops below its current levels. "I think there's a real reason to keep water above the penstocks," Udall said. Below that, he added, is "dangerous territory."

The danger lies in the engineering of the dam. The penstocks are positioned more than halfway up the lake side of the dam, 333 feet above its base. If water levels drop too close to or below the penstocks, they will no longer supply water to the hydropower turbines. Levels have recently drawn near enough to the

penstocks that air bubbles pulled from near the water's surface might begin to collapse, or cavitate, as they pass through the turbines. The resulting pressure waves can tear apart a tunnel's innards, eroding concrete and threatening the dam's integrity. During the floods of 1983, cavitation caused the interior of one of the dam's spillways to disintegrate; by the time it was shut down, the passage was vomiting boulders and concrete.

Ninety-six feet below the hydropower penstocks are four tubes designed to release excess water through the dam during wet years, which might provide a last-ditch route for water if the reservoir continues to drop. But Udall said these bypass tubes were never designed for constant use, and he worries that they will not reliably move water downstream. Udall's hope, for now, is to keep lake levels where they are, even as snowpack declines. Current water restrictions for downstream users, even those enacted under emergency drought policies, are not enough, he said. Less water must leave the reservoir. He sees a greatly reduced Colorado River below the dam, enough for boating but with no more big flows. "Cuts need to happen this year, more than are being recommended. We need to protect that power pool at Powell."

If water can no longer pass through Glen Canyon Dam, the Grand Canyon will all but dry up, and Lake Mead will rapidly dwindle. Seven states will lose the hydropower they receive from Glen Canyon Dam. Over the century since the Colorado River Compact ignored Indigenous rights to the river, 17 of the basin's 30 federally recognized tribal governments have established legal rights to water below Lake Powell, but many are still battling for access to that water and for a long-denied role in basin negotiations. If water stops flowing through the dam, these sovereign nations may never see their rights fully realized.

"This river is our namesake, it is our life," Amelia Flores (Mohave), chairwoman of the Colorado River Indian Tribes, said in testimony to the Senate Committee on Indian Affairs in March 2022. "And if we do not control our water, history tells us that others will."

IN THE SUMMER OF 1998, when I rowed baggage rafts through the Grand Canyon, the flow on the Colorado River often exceeded

20,000 cubic feet per second and Lake Powell was nearly full. By the time Shyanne Yazzie, a 30-year-old guide who grew up next to Glen Canyon Dam in Page, Arizona, started working in the Grand Canyon in the late 2010s, typical flows fluctuated between 12,000 and 18,000 cubic feet per second, and outflows from the dam have continued to decrease. “Now, when we have 12,000,” she said, “I think we have so much water!” The rapids are getting rockier, harder to navigate, and less conducive to rafts made for big water. Yazzie said that the rumor among her fellow guides is that next season’s flows could drop to 3,000 cubic feet per second.

Yazzie was born on the Navajo Reservation, and her Diné ancestors have lived in and around Glen Canyon for centuries. She was raised with Lake Powell, camping on its shores with her family and riding Ski-Doos to Lone Rock, a landmark that used to stick up from the water like a giant thumb and now stands on a barren desert plain.

Yazzie wants Lake Powell back, but she feels torn. “It would be amazing to see the untouched Glen Canyon,” she said. “It would be amazing to see the water go up, because so many people rely on it.”

When she was a kid, she said, the lake’s water rose high enough for boats to pass under the sandstone archway of Rainbow Bridge. But she knew that, according to Navajo tradition, it was disrespectful to go under the arch; one should go around it. In the mid-1970s, three Navajo Nation chapters, along with several individual tribal members, unsuccessfully sued the Bureau of Reclamation and other federal agencies over Lake Powell’s imminent flooding of burial grounds and other sacred sites near Rainbow Bridge. Now the water is a mile away and the bridge stands alone in the desert, its old self.

Yazzie’s mother, Joanne Yazzie, was born not far from Page in the community of First Windmill, Arizona. She recalls visiting Powell in high school in the mid-1980s, when water levels reached their peak. Releases roared from the dam, swelling the river to more than 100,000 cubic feet per second as it entered the Grand Canyon.

She went to the lake when her kids were little, and over the years she watched its level fall, but until recently, the water was still high enough to feel abundant. Now, she said, it feels different. “Places where we used to

go swimming, we can’t, because there are canyons and cliffs,” she said. She sees a world out of kilter, and sees what’s happening to Lake Powell as part of the dislocation. “In the Navajo culture, we think we’re really in deep trouble right now,” she said.

Like her daughter, Joanne Yazzie wants to see Lake Powell at a healthier, higher level. “The lake does help the people,” she said. “Not only us, but down the river where it’s even drier. We have to think of the whole picture.”

AT DAWN, Eric Balken and I sat in Cathedral in the Desert, listening to the waterfall echo within its scalloped sandstone. Sunlight was half an hour from touching the highest cliffs, six hours from reaching us. Sitting on a sandy slope of eroding lake deposits, we looked up to where, not long ago, the dual pontoons of houseboats would have motored above our heads.

With his voice resonating inside the cathedral, Balken asked, “What would we have to sacrifice to refill the reservoir? Are you going to let Lake Mead go dry and then jeopardize the water infrastructure in the Lower Basin and their water security? That’s a hard sell. Lake Mead’s the more important reservoir.”

The Lower Basin includes all those with a legal claim to Colorado River water below Glen Canyon Dam: tribal governments, the national government of Mexico, and the state governments of Arizona, Nevada and California. These governments and their people need their water, Balken said, and both Powell and Mead are holding it. The decision to keep Lake Powell or let it go, he said, will have nothing to do with recreation or hydropower, much less this waterfall and its maidenhair ferns. “It’s going to be a decision about water storage and allocation,” he said. “And nothing else.”

Last spring, the Interior Department set new emergency guidelines for dam operations on the Colorado, reducing releases from Glen Canyon Dam and increasing releases from reservoirs upstream. These higher reservoirs are now bottoming out, bridge pylons standing dry so that Powell can survive another season. The federal government has ordered all of the Colorado River Basin states to dramatically cut their water use — or have it done for them.

Balken said, “The Bureau of Reclamation,

if I had to bet money, they’re going to hold back more water in Powell in the next few years, and they’re going to cut down delivery downstream. They’re already doing fill-Powell-first de facto. They are so afraid of operating below power pool — not because of hydropower, because of water delivery. They’re going to do everything they can to prop it up above minimum power pool until they physically modify the dam.”

For Balken, salvaging this reservoir is the wrong decision. Operating at these levels in a drying climate is unpredictable and dangerous, and it involves curtailing downstream deliveries.

“If we’re rethinking the delivery obligation, why aren’t we rethinking the dam?” he asked. “We keep walking down the path of decisions that were made in the past, even if they’re based on flawed assumptions. Why not re-engineer Glen Canyon Dam, let the river run free, and put the water in Lake Mead?”

He sees this future as almost inevitable. Having two reservoirs, Mead and Powell, both atrophying at once is like having too many bank accounts open with too little money in them, he said. In this time of triage, Balken thinks we need to focus on Mead, and let Powell go.

A DATURA PLANT with creamy white blossoms grows between the legs of a half-buried beach chair. A sunken boat turns to bones. If you dig down deep enough to reach a layer spiked with metal pull tabs, you’ll know it was deposited in the late 1960s, when the lake was filling.

As the dam’s floodgates closed, archaeologists scoured Glen Canyon, collecting what they could, relocating artifacts when possible, and documenting thousands of sites ancestral to at least seven modern tribes. The predominant rock art found here, which is 3,000 to 5,000 years old and mostly sunk beneath the reservoir, is called Glen Canyon Linear, a skeletal, checkerboard style depicting animals, humans, spirit beings and geometric forms. These Indigenous ancestors lived in a sprawling desert sanctuary of rivers and springs. Their rock art style extends for a hundred miles or more in all directions, and the center of the style, its type locality, is the Glen.

The exploitation of the river and the canyons has also destroyed much of its human



First light glistens on Lake Powell's remaining water. In wetter years, the lower benches seen in this frame would be submerged. The water level is 35 feet lower today than it was in October 2021, when this photo was taken.

history. Three-quarters of the ancestral sites within the reservoir are thought to have been destroyed, often by the lashing of boat wakes or by visitors who could step off the deck of a speedboat and into the door of a once-inaccessible cliff dwelling. As the reservoir filled, graffiti rose with the lake level, and higher and higher rock art sites fell prey to vandalism.

What endures, in many places, are toeholds. In a landscape of cliffs and precipitous falls, First Peoples pecked ladders into the rock, vertical paths to cliff dwellings and granaries. While skimming a sandstone wall in the main channel with *Stella*, we came upon

a set of ancient toeholds, out of the water for several months at most. As we slowed, water from a passing speedboat bucked around us. The holds led to an alcove that must have once held a rock-and-mortar structure, long since erased by visitors and waves. Falling from these steps would have probably meant death, a hundred-foot tumble past ledges, slopes and cliff bands. Today it would mean plummeting into the water.

A story from the Hopi, direct descendants of these stairmakers, says that the previous world flooded — filled with water all the way to the top. It was a catastrophic end, a drowning. The people who escaped made it to the

current world, in some tellings rising on a reed boat, in others climbing a ladder. They found their way up from the flood and arrived in a dry, sunlit land above. This is how the first people came to the world.

Stella bucked and sloshed on the waves. We held her gunnels, enchanted by this ancient stairway, each hold big enough for a few fingers or toes, just deep enough to nick the rockface with shadows. Where the cliff went underwater, the holds turned green beneath the surface, then black, then disappeared. They looked like the tip of a ladder leaning against the rock, a way up from the dark. ✨

THE GLASS SHELF

A piece of furniture displayed
what my mother valued most.

By Jenise Miller
Illustrations by Giana De Dier

TWO MONTHS INTO LOSING both of my parents, I felt an urgency to leave. I needed to be in a place that still felt like theirs. I left my home in Compton, California, and traveled to their home country, Panama. It was my first trip there without either of them in the world to guide me, to make sure I arrived safe. My uncle, my father's brother, now the eldest living sibling, explained that I was running to a familiar place to deal with an unfamiliar grief.

For the first time, I visited the Museo Afroantillano de Panamá, or West Indian Museum of Panama. Established in 1980, almost 70 years after the completion of the Panama Canal, and supported by the community's Sociedad de Amigos del Museo Afroantillano de Panamá, the museum formally honored the West Indian labor force that made the construction of the canal possible. Housed in a former single-room church, it held artifacts, books and display boards that corrected the historically underreported numbers of workers and deaths and grounded them with first-hand accounts. The rear of the museum was divided into three spaces — a bedroom, lavatory and dining area — set up to mirror the typical homes of the workers and their families, adorned with reminders that they were more than the labor that brought them there. I recognized the furnishings and decorative items, washboard and oil-wicked lanterns, the same type and color of the ones my father bought from yard sales or thrift stores — which my mother placed on the entertainment center — and near the table against the wall, a glass cabinet, a display case similar to a glass shelf my mother kept in the apartment where I was raised.





MY MOTHER DID NOT EMIGRATE for work. “I came here for love,” she confided. The person she loved, my father, had said to her, “I am leaving and I want you to come with me.” So, together they left. Left her mother, his father, his wife, his eldest children, their eldest daughter. Yet, upon their arrival, when it seemed their relationship could not withstand the physical and emotional journey from Panama to California, labor replaced love. Like their grandparents before them, who were part of the workforce recognized by the Museo Afroantillano, labor influenced how and where they lived. In the 1980s, they settled in the city of Gardena, close to a car wash on Rosecrans Avenue that was a first stop for employment for Panamanian men, including my father. Nearby, my mother worked at a small factory, embroidering pieces, appliques and patches. She brought that skill home, and, when I got older, she taught me needlepoint, how to

cross-stitch flowers, or create animals with plastic canvas boards and yarn. She later worked as a cashier for a large retail chain. She worked as a caretaker and nanny for another family, along with being a caretaker for her own. When she took a job as the manager of a 32-unit low-income apartment building on Long Beach Boulevard in Compton, we relocated there.

The places we lived in the 1980s to 1990s — Compton, Long Beach, Watts — were like constellations along the Alameda Street and Long Beach Boulevard corridors, near industries that employed African American migrants and Central American immigrants. While I attended an elementary school named for the second African American to fly in space, my mother worked for minor wages in a major aerospace manufacturing company, which would ultimately lay off over 10,000 employees, including her. There, she was a canteen cafeteria employee, along

with her brother and several neighbors. She worked long shifts, mostly on her feet, and was absent from home for whole parts of the day. Sometimes she would bring home large, soft-baked chocolate chip cookies covered in plastic wrap, the best cookies I ever had in my young life. Her labor fed us.

OUTSIDE OF WORK, my mother carved space for herself at home. Work required her to make sandwiches, rice pilaf, baked chicken, spaghetti — typical “American” fare that required none of the seasonings and spices that crowded our kitchen cabinet and countertop. But at home, she prepared the dishes of her upbringing: black tea and bakes with sausage, patacones with eggs, pork and beans with sliced frankfurters, rice and peas or guandú, stew chicken, plátano and cucumber salad, bacalao with tomatoes and onion over white rice. At home, she also applied her handiwork to how she arranged our apartment. Homeplaces, bell hooks wrote, were “places where all that truly mattered in life took place — the warmth and comfort of shelter, the feeding of our bodies, the nurturing of our souls. ... The folks who made this life possible, who were our primary guides and teachers, were Black women.” Even if the outside world was in disorder and disarray, our mothers ensured that our homes were not. Hooks, who also hailed from a poor, working-class background, explained that “irrespective of our location, irrespective of class, race, and gender, we were all capable of inventing, transforming, making space.”

In our small apartment in Compton, my mother was creative with space. The apartment had one open receiving area, which we called the living room. It buffered both the kitchen and the square patch of linoleum that fit a four-seat glass dining table. In the living room, with TV only permitted for use on weekends, she created a space to host neighbors. She purchased a gray sofa and loveseat, with fabric and wooden panels etched in swirls, hers for a year of monthly payments. The sofa faced a stereo system and entertainment center, which doubled as a display case for glass and ceramic trunk-up elephants, vintage Coke and Cerveza Panamá bottles, and framed photos of distant relatives. With glass flourishes and mirrors in the coffee table, dining table, and shelf, anyone sitting

at the table, sofa or loveseat could see each other. She could look over what she created and call it good.

My mother dedicated most of her attention to two items of furniture. The first was the stereo. I rarely saw her sitting, but every Saturday began with her as DJ, seated on a dining room chair in front of the stereo, carefully sorting through her music collection to start the day. Her love and taste in music required a system that delivered pristine sound, worth the payments she made at the local Rent-A-Center. The stereo stood about three and a half feet high, several black rectangles, with small and large buttons and knobs, stacked between wooden shelves, all behind a smoky plexiglass door that sucked shut. Two black speakers, several inches taller than the stereo, carried music throughout the apartment and out the front gate. She kept rows and stacks of albums, cassettes and CDs of music that crossed countries, languages and time. A morning of cleaning started slow and strong (La Lupe's "Qué Te Pedí"), peaked with vacuum dancing (Tabou Combo's "Fiesta"), then eased to a finish (Anita Baker's "Same Ole Love"). On Nochebuena, she welcomed neighbors into our home, with this same offering of music and food. My mother, a Saturday morning and Nochebuena DJ, saved lives.

The other star of the apartment was the glass shelf. My mother's glass shelf connected us to a diaspora of homes featuring some version of the glass cabinet display case: in Panama, a piece of furniture in the dining room installation of a Panama Canal worker's home at the Museo Afroantillano; in Trinidad, in the family home of author Elizabeth Nunez, "storage for a mother's treasured collections ... delicate china, dinner sets and tea sets she used only on special occasions"; in London, as a drinks cabinet, described by author Michael McMillan as a common feature in the homes of British West Indian Windrush immigrants, which "took pride of place in the front room with glass shelves neatly filled with rows of shining, gold-rimmed glasses that ... provided a sense of achievement." In Compton, my mother did not have a full glass cabinet with doors, but the glass shelf offered a solution to limited space. Positioned against the wall next to the dining table, the shelf held a collection of crystal glasses and serving ware

that she rarely used and would cost my life to touch. I never observed my mother drinking wine, though she had the glassware to enjoy it. The glass shelf, and the items she placed on it, were both remnant and reminder of the home left in the home made, two feet in the present, one heart in the past, and beauty — beauty in the small treasures and moments not to be wasted.

WHILE AT THE MUSEO Afroantillano in Panama, I met artist Giana De Dier. A multimedia collage artist, her work has been shown in exhibitions in the Museo de Arte Contemporáneo de Panamá (MAC) and around the world. We communed over the glass cabinet, a fixture in her home and childhood in Panama as it was in mine in the U.S., both of us descendants of the West Indian workers celebrated by the museum. Her work utilizes family histories and archives of West Indian migrants who worked on the canal. She rearranges these pieces into creations that are at once new and an elaboration of the original.

My mother curated her glass shelf like an artist. She placed minor objects on glass and elevated them, brought them together with her hands and gave them new meaning. She arranged this display with what she had, or found, or could afford — family photos, wine glasses, decanter, ceramic elephants faced away from the front door, marching in good luck; translucent objects on the top shelf, lightweight objects on the lower one. She made careful choices, paid attention to detail, shape and orientation; decided, in the moment and over time, what to add, what to let go, and where to place it. She considered what looked or felt good, what old pieces to move forward, what to leave behind. If work took her time, home was where she reclaimed it. When not submitting to the demands of children or lover or job, she curated for herself parts of life that pleased only her. A small recreation gave re-creation; a glass shelf, an altar and blessing.

ONCE, MY MATERNAL grandmother came from Panama to visit us. She carried around a plastic bag she called her "grip." Out of it, Menticol, Tiger Balm and an unending supply of ointments emerged. I never knew what or how much was in her grip. When I asked her questions about her life, her childhood, her

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In a world that expects women to birth and carry and share everything, she decided to keep parts to herself.

relationship with the grandfather I never met and my mother barely remembered, she refused to answer, saying those things were in the past. I didn't understand her refusal, but at some point, I stopped asking. Though I wanted the stories and the lessons they may have taught me, stories to pass on to my daughters, my grandmother was not transparent about her experiences. Whether or not the memories may have been too painful to share, they were hers. In a world that expects women to birth and carry and share everything, she decided to keep parts to herself. She, too, stored precious things.

I DID NOT ASK and, therefore, did not know for sure why my mother maintained the glass display, with its array of rarely used items, and even that was a revelation. She possessed an internal world and reasoning, something kept for and to her, beyond the labor and motherhood that defined, and, perhaps, at times, limited her. She found and pulled some inspiration from her world, perhaps not realizing that I was a witness. I was her audience, observing her creativity and appreciating it (now) as art that inspires my own. Though she came to California for love, she stayed for herself. In De Dier's collage sketch *Mother and Child*, a child sits secured on the mother's back, while the mother looks forward.

In my current home, just a few miles away from the apartment I grew up in, there is no glass cabinet or shelf with crystal or unused items. I decided everything would have a use. There is a shelf for books and a shelf for photos and mementos. My children can touch them. They have even taken a framed photo from the shelf and put it in their room. Yet, what have I judged, and misjudged, about the glass cabinet, my mother's glass shelf? What have I sacrificed in my decision to not follow my mother's way of living and valuing literal things? What do I have, secure and put away,

that is mine yet on display for my children and others to understand that they cannot have every part of me? Perhaps I missed an important lesson, that I must now take up for myself and pass down to my daughters. There is a quote from Toni Morrison that has become mantra and affirmation for many, for which even I own a shirt with it printed: "You are your best thing." Morrison, a mother, explained the idea, drawn from her novel *Beloved*, in an interview: "To be simply this mother and that the best thing she was was this lovely child or these children ... no, you are your best thing. You are." Perhaps my mother's glass shelf, in the apartment that she kept through the fruit of her own labor, with items that she bought and gave value, reminded her that she was the most valuable thing in the room, her own best thing. ✨



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HCN

Life without capitalism

A history of environmental exploitation fails to imagine an alternative.

BY MARIANNE DHENIN

THERE ARE AT LEAST two things a historian should do in a book billed as an environmental history of capitalism: Center the environment, and demonstrate an understanding of capitalism. In his new book, *Profit: An Environmental History*, Mark Stoll does neither.

The text is massive in scope. It begins with the earliest genus of *Homo sapiens* and ends aboard Jeff Bezos' private spacecraft, progressing through a series of vignettes of the merchants, inventors and entrepreneurs Stoll writes represent "the opening of ... significant new stage(s) of capitalism." However, the figures he chooses to highlight will be new to no one: Christopher Columbus, Andrew Carnegie and John D. Rockefeller, among others.

Stoll, a professor of history at Texas Tech University, displays his expertise in the history of religion, commenting, for example, that Swedenborgianism and Scottish cultural norms shaped Carnegie's career and noting that Bezos "may identify as Catholic." It will not surprise readers to learn that the cultural and religious backgrounds of some of the world's most prominent capitalists informed their views on both business and the environment, and Stoll makes no effort to decenter the human as he explores these connections. He may have set out to refashion himself as an environmental historian with this book, but he still relies on conventional, if not tired, methods from intellectual history.

Non-human actors and the natural

environment are not the protagonists in *Profit*; the world's mountain ranges, jungles and grasslands, all teeming with life, have no voice here. On the contrary, landscapes and non-human actors are rarely identified by name and more often referenced with platitudes: Humans "transform ecosystems" and "extinguish species," mining "scarred (the environment) for many generations," and new transportation networks "accelerated exploitation of remote resources."

Just as non-human actors are denied a voice in Stoll's text, so, too, are non-Western actors. From the outset, Stoll tells readers that *Profit* is a story of "the paths that led to, through, and out of (Western Europe and North America.)" But this framing does not justify his tendency to treat European actors as the producers of scientific knowledge and to discredit and subjugate non-Western peoples, knowledge and cultures. For example, he writes that during the Industrial Revolution, "Western science and technology dazzled the globe with their successes and achievements, while leaders of poor countries everywhere envied (the West's) power and prosperity."

At the same time, he is hesitant to blame Western actors for the damage they have done, writing that "the English became imperialists almost by chance." Similarly, he treats the environmental harms of capitalism as "accidents." He details the Torrey Canyon oil spill and mentions various mine collapses and chemical plant explosions, but fails to see them as part of a pattern.

Meanwhile, he glosses over the links between capitalism and imperialism. Corporate plantations like those that produce palm oil in Southeast Asia or timber in the Pacific Northwest merit no more than a couple of sentences, despite their being models *par excellence* of a system predicated on the accumulation of capital for capitalists at the expense of local ecologies and laborers.

It is unsurprising, then, that the entire text is underpinned by the idea that capitalism is a system we "cannot live without." But this is a confusing position for Stoll to take, as he also details the centuries of environmental devastation the system has wrought worldwide — albeit with less care than he recounts the religious lineage of Scottish inventor James Watt, among other things.

As he stumbles toward his conclusion,

Stoll finally offers readers a villain: consumer capitalism, which he defines as "a super-charged version of capitalism ... premised on selling ever more goods and services at an ever-faster pace." Still, he does not think we should do away with consumer capitalism, writing with unfounded alarmism that "if it slows or stops, dislocation, unemployment, unrest, and wars (will) plague the earth."

He suggests that consumer capitalism "needs to take a different path" and that it may already be doing so as people "transition from buying stuff to buying other things." Stoll writes that consuming experiences rather than items may somehow help solve the problem of capitalism's environmental destruction. Bafflingly, however, one of his examples of such an experience is a cruise. It's difficult to imagine a more environmentally destructive experience than a fuel-guzzling, waste-belching floating vacation operated by corporations that skirt environmental regulations with almost total impunity.

Not only does Stoll fail to put forward a coherent critique of capitalism or offer credible solutions to its problems, but he neglects to entertain alternative systems. He settles for briefly claiming that "twentieth-century state socialism stands thoroughly discredited." (He does not do this himself.) He also devotes a few sentences to the subsistence communes popular in Oregon and California in the 1960s and '70s, only to conclude that "almost none ... lasted long." His dismissal of them ignores the fact that they did not dwindle because they were inherently untenable but because capitalism made them so. He does not provide case studies of the communes or other alternative projects that have sought to reject capitalism and foster environmental and social justice. Perhaps if he had, *Profit* would be a richer text.

By treating capitalism as something that cannot be overcome, Stoll does a disservice to the environment he ostensibly cares for through his work. *Profit* is a failure of imagination at a time, as Stoll himself demonstrates, that our world most needs the opposite. ✨

Profit: An Environmental History

Mark Stoll

280 pages, hardcover: \$35

Polity Press, 2023

The grammar in the picture

A Los Angeles exhibit reverse-engineers Joan Didion's writing.

BY EVELYN MCDONNELL

JOAN DIDION DESCRIBED her creative process as an attempt to paint pictures with words. In her 1976 essay “Why I Write,” the journalist, essayist, novelist, playwright and screenwriter said that she saw “pictures in my mind ... images that shimmer around the edges.” Her goal was to decipher and document the object in the mist, as if pinning a moth to cardboard: “You don’t talk to many people and you keep your nervous system from shorting out and you try to locate the cat in the shimmer, the grammar in the picture.”

The exhibit “What She Means,” which occupies several rooms at the Hammer Museum in Los Angeles, tries to recreate the world as the doyenne of California literature saw it — to reconstitute the pictures in her mind. The exhibit’s title is inspired by a Didion quote that was also the title of her last collection of essays, *Let Me Tell You What I Mean*, published in 2021. Exhibit co-curator Hilton Als, a Pulitzer Prize-winning critic at *The New Yorker*, wrote the introduction to that book and has become one of the most authoritative and vocal champions of Didion’s work. As a Black, queer East Coast intellectual who authored a book called *White Girls*, Als’ notes on the California-born writer are also distinctively situated. He began working on this show in consultation with

the author before her death in December 2021. The curator had to finish the tribute without its muse, an undoubtedly emotional task that had Als sweating as he walked journalists around the exhibit on opening night, trying to explain and express the woman who meant so much to him.

This is not the first exhibit that Als has dedicated to visually interpreting and re-creating the work of an author; he has also organized shows around James Baldwin and Toni Morrison. But “What She Means” is certainly the most prominent, opening less than a year after Didion’s death at age 87, at a time when both appreciations of — and attacks on — her importance have made her a posthumous cover girl.

As it happens (one of Didion’s pet phrases), I’ve been working on a book about Didion myself. I’ve spent the last year immersed in her articles, books, movies and papers, interviewing family, friends, colleagues and acolytes. And so I walked into the exhibit with my own ideas of what she means.

I took my 15 literary journalism students, undergraduates and graduates, and many of them had trouble grasping the connection between the writer and the work on display. The exhibit was substantial, a welter of media and mediums. Was this art something that she made? (Mostly no, except for the magazine articles and films

she wrote.) Was this art made about her? (Mostly no, except for a few photographs and one drawing.) Was this art she collected? (No, though it included many artists whose work she did know, like and own.) Did she choose the art? (No, it was chosen by Als and his co-curator, Connie Butler.)

What this is is a sort of Didion diorama. The curators (Butler works at the Hammer) have wisely divided the exhibit into four themes, periods and places: “Holy Water: Sacramento-Berkeley, 1934-56”; “Goodbye to All That: New York, 1956-63”; “The White Album: California, 1964-88”; and “Sentimental Journeys: New York-Miami-Honolulu-San Salvador, 1988-2021.” Each room displays a few objects from Didion’s life: the family mantilla handed down to the fifth-generation Californian, childhood photographs, copies of *Vogue* from the years the young Didion worked there, posters for films she and her husband, John Gregory Dunne, wrote. Quotes from Didion and film clips of

people and things she wrote about — John Wayne (a scene from *Stagecoach*), the sunset over the Pacific (an unfinished film by Andy Warhol), Eldridge Cleaver — place the viewer in the context that shaped the text. Alongside these objects are works of art by an impressive variety of talents — Diane Arbus, Glenn Ligon, Betye Saar — which are not directly tied to Didion’s work, but which show how other creators have worked with the same themes and materials. They are like collateral inspirations, the reason for their inclusion in the show sometimes transparent, sometimes whimsical.

In “Holy Water,” the bright earthen colors of a Wayne Thiebaud painting capture the fields and the delta region of Sacramento, where Didion was born and raised and where the painter taught. Below it, a giant chain twists and winds across the floor, an abstract serpentine evocation of *River* by Maren Hassinger; Didion learned to swim in the waterways of the

*They are like collateral inspirations,
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sometimes whimsical.*



The first room of “What She Means” depicts Sacramento and the surrounding area, where Joan Didion was born and raised. Maren Hassinger’s *River* runs through the room, much the way the American and Sacramento rivers run through the valley, while Amanda Williams’ *It’s a Goldmine/Is the Gold Mine?* alludes to the gold rush that changed the region forever. **Courtesy of the Hammer Museum**

Central Valley and was deathly afraid of snakes. The painting captures her childhood roots in Western pastoralism and pastoral Westerns; the sculpture evokes the exploitation of labor and land that she came to understand as the true heritage of the frontier.

By following the chronology of Didion’s life, “What She Means” reveals the transformation of the California girl into the American woman — once you figure out the organizing premise and settle into the work. Maybe it’s because Als and I both worked at *The Village Voice* in the ’80s and ’90s, though we rarely interacted, or because we

have both dug beneath Didion’s “greatest hits,” but it seemed to me that the exhibit homed in on what I consider to be Didion’s most overlooked works, including the book *Where I Was From*, her essay “Some Women,” and her groundbreaking investigation of the Central Park jogger trial, titled “New York: Sentimental Journeys.” “What She Means” provides a timely corrective to some of the backlash bashing of “Saint Joan,” as Daphne Merkin mockingly called her. “What She Means” was not a show for acolytes seeking talismans. That kind of show happened in November, at an

estate auction whose outsized prices would have inspired some perfectly placed acerbic observations from Didion herself. Rather, “What She Means” offers a sympathetically complex reimagining of one of the greatest stylists and most perceptive critics of the past century.

Me, I lingered over the color photos taken by Henry Clarke at Didion’s house overlooking the Pacific Ocean in Malibu. Spices grow in rows of pots in the kitchen. Quintana Roo Dunne, Joan and John’s daughter, sits on the counter, as kids do. An old quilt hangs behind a piano. Soot

blackens the white wall above the fireplace. It’s classic California Didion: a bucolic record of some of her most productive, enviable years and of the family that, decades later, Didion would lose almost all at once, in tragedies she documented in her final books, *The Year of Magical Thinking* and *Blue Nights*.

“What She Means” may be too high-concept for some, too redolent of insider baseball (which, as it happens, is the title of one of Didion’s great takedowns of U.S. politics). But if you focus on the shimmer, your own picture of Joan Didion may materialize. ✨

THE SEASONS OF UŃALAŃLIQ

An exploration of living in direct relationship with the land, water, plants and animals in and around UŃalaŃliq.



Maktak in Kaktovik, Alaska. **Brian Adams**

A meal of many seasons

Native foods harvested throughout the year fill a family's wintertime supper table.

BY LAURELI IVANOFF

ANY TIME I ask Timm, my husband, if he wants *nikipiaq* for supper, he says yes. On a recent Sunday, the northeast wind blew cold Arctic air against our home, the woodstove crackled steady all day, and I wanted Native food. The entire spread, shared with my Dad and my brother's family, is a meal made up of fare gathered, plucked or hunted throughout the year, and harvested for nights like this.

Timm was at the kitchen island, cutting clean the surface of a block of beluga *maktak* the size of his hand. We saw the motion-sensing light turn on outside. It was Dad showing up for supper, his footsteps crunching loud on the snow on the hollow deck. Our son, Henning, promptly squealed and ran to hide. The door opened.

"Where's my mon?" Dad said, using his nickname for Henning as he smiled and looked around for him. As fast as he had run to hide, Henning ran out again, laughing, to give his Papa a hug.

"I put three trout on your deck," Dad said as he peeled off his jacket. "They're not real big, but they're good sized." On any non-windy, not-too-cold day, Dad drives his snow machine eight or so miles up the Unalakleet River to spend the day jigging for Dolly Varden trout through the ice.

The light outside turned on again.

"There's Uncle and Auntie," I said to Henning.

My brother, Fred Jay, and his wife, Yanni, took off their boots and jackets, then walked into the kitchen carrying a plastic food storage container full of bowhead *maktak* and a gallon-sized Ziploc bag of dried pink salmon.

In Unalakleet, we aren't bowhead whale hunters, as the large whales do not migrate through the shallow ocean waters of the Norton Sound. But my brother is adept at trading with acquaintances on St. Lawrence Island, where they have long traditions of hunting the 60-foot whales, and he always seems to have the *maktak* in his freezer — *maktak* valued both because of our own inability to harvest the rich food and for its mild flavor. He trades dried pink salmon for the prize.

Our table was set with two ulus, several small bowls and saucers for seal oil, and five deconstructed cracker and cereal boxes, which would serve simultaneously as cutting boards and oil-soaking plates. Timm and Fred Jay picked up the ulus to cut the three Dollies

from the porch into bite-sized pieces. We loaded our cardboard plates with dried fish, dried *ugruk* meat, bowhead *maktak*, carrots, boiled potatoes we'd harvested from our garden last fall, *quaq*, or frozen fish, and other picked-from-the-land-and-water delights.

"Ooh, popped eggs," Fred Jay said when he noticed the large bowl full of butter-yellow steamed eggs we'd taken from herring bellies last spring. The herring had arrived back in May, after the ice was gone. Just like every spring, we'd boated 18 miles down the coast, to the black, volcanic-rock shores of Shorty Cove, to harvest the eggs they'd laid on kelp. But the herring hadn't yet spawned. The silvery fish were stacked on top of one another, three feet out from the edge of the beach, the females eager to release their eggs and the males their milt.

So we picnicked in the warm sunshine, then collected their eggs a different way. My cousin Allen scooped his dip net, usually used for silver salmon fishing, into the cold ocean water and piled herring into a small, gray fishing tub. Timm and I sorted the still-wriggling fish. We threw the live males back into the ocean. The females with full bellies we grabbed with both hands and literally popped open their swollen bodies to harvest the rich, sticky eggs inside — a carnival-like chore that leaves your face tacky with sea water and your hands covered in a layer of gummy eggs that even soap can't remove. We gathered the eggs in a clean, white one-gallon bucket and placed the spent bodies back in the water to nourish the ocean. Once home, we vacuum sealed the eggs in quart-sized bags, the perfect amount for a meal.

Two days later, our family boated back down to Shorty Cove to harvest black trash bags full of eggs the herring had spawned since the last time we were there, translucent dots thickly coating the green fingers of seaweed that clung to the rock shore. The eggs pop between your teeth like Pop Rocks

candy, and the seaweed embedded inside the thick layers of eggs adds flavor and rich nutrients. The night we had my family over for dinner, offering both spawned-on-seaweed and popped herring eggs felt like indulgent dining, like ordering both French fries and onion rings with a burger.

"There's *tukaiyuks*, too," I said, making sure everyone got some greens to go with their protein and starch. Placing *tukaiyuks* on my plate, I sprinkled a bit of salt on the oily, still fresh-looking leaves.

My plate full, I used my thumb and forefinger to squeeze a few leaves of the parsley-flavored *tukaiyuk* into a cold piece of *quaq*, the tips of my fingers covered in seal oil — my favorite combination. The meat wasn't frozen solid, making it smooth and easy to chew. The salt on the greens rounded out the flavors of herbed fish and soul-calming oil.

On my cardboard plate was a small pile of thinly sliced, half-inch pieces of bowhead whale *maktak*. I dribbled a small amount of soy sauce and a smaller amount of chili garlic sauce onto the pale pink fat and black skin and savored my first bite. The fat was tender and buttery, the skin chewy and firm. Closing my eyes, I enjoyed the combination of salt, spice and fat, and went back for more.

After crunching on herring eggs and carrots and filling up with dried *ugruk* meat, I noticed that everyone was slowing down, so I got up to start the kettle and pull out the tea. A quart-sized Ziploc bag of frozen salmonberries thawed on the counter. We had picked them in July, after driving our four-wheeler to tundra just above the tidal flats that lie down the hill from our home. I dumped the orange, tangy, not-quite-thawed berries into a bowl, and, as I chopped and separated them with a fork, I smiled. All throughout my childhood, I heard my mom or my grandma chop frozen berries after a nourishing meal of *nikipiaq*. It felt good to do this simple, loving act, just like them. ✨

I dribbled a small amount of soy sauce and a smaller amount of chili garlic sauce onto the pale pink fat and black skin and savored my first bite.

CALIFORNIA

The “City of Love” — San Francisco — seems like the last place you’d expect to find “killer police robots” surveilling the streets. Yet, in December, the San Francisco Board of Supervisors voted to allow armed bots to join the police department’s bomb disposal arsenal. Not surprisingly, everyone who has ever watched *Black Mirror* — or any of a hundred other dystopian sci-fi movies — objected. *Ars Technica* reports that 44 community and civil rights groups, including the ACLU, signed a letter saying: “There is no basis to believe that robots toting explosives might be an exception to police overuse of deadly force. Using bombs that are designed to disarm bombs to instead deliver them is a perfect example of this pattern of escalation, and of the militarization of the police force.” The Board of Supervisors quickly backtracked and banned the use of lethal robots, at least for now. Does everyone feel safer?

NEW MEXICO

It was an old-fashioned treasure hunt that inspired podcasts (“Missed Fortune”), books (*Chasing the Thrill*) and numerous articles, not to mention speculation and a lot of controversy. What is a treasure chest worth today, anyway? Some unlucky seekers paid for this one with their lives. In 2010, Forrest Fenn, a Santa Fe art dealer and author, buried his trove somewhere in the Rocky Mountains, with the only clue being a 24-line poem, and the hunt began. “One man served time in prison for digging up graves at Yellowstone National Park,” *Outside* reported, while “five people died while looking for the cache.” Jack Stuef, a 32-year-old medical student from Michigan, finally

found Fenn’s trove in 2020 and sold it to Tesouro Sagrado Holdings LLC; Dallas-based Heritage Auctions then auctioned the contents off. Highlights include a 549-gram Alaskan gold nugget that sold for a whopping \$55,200; a Diquis/Greater Chiriqui frog pendant from Costa Rica or Panama, circa 700-1000 A.D.; and a gold pectoral from Colombia, 200-600 A.D., among 476 other items, including gold jewelry and coins. The most unusual item? Fenn’s 20,000-word autobiography, printed in text so tiny it required a magnifying glass to decipher. Fenn’s 2010 memoir, *The Thrill of the Chase*, explained that he included the autobiography — sealed in a glass jar — “because maybe the lucky finder would want to know

a little about the foolish person who abandoned such an opulent cache.” The manuscript sold for \$48,000. Altogether, the 476 items brought in \$1,307,946 — enough to buy a lot of frog pendants. But let’s hope the goods aren’t under a curse. We’ve all seen that movie, too.

OREGON

An Oregon couple, Phillip and Rachel Ridgeway, became the proud parents of twins, a boy and a girl, on Oct. 31, abc7news reported. Healthy twins are always a good cause for celebration, but what makes this birth extra-celebratory is the babies’ origin story. It’s more than a skosh on the unusual side: The twins came from frozen embryos that

were donated 30 years ago, on April 22, 1992. That means that this particular miracle of life involved embryos that were submerged in liquid nitrogen at 200 degrees below zero for three decades inside a “device that looks much like a propane tank,” and stored in a West Coast facility before being transferred to the National Embryo Donation Center in Knoxville, Tennessee, in 2007 — meaning the embryos were 30 years old *before they were even born*. As Phillip Ridgeway put it, “I was 5 years old when God gave life to Lydia and Timothy, and he’s been preserving that life ever since.”

ARIZONA

Nice try, buddy! The Arizona Department of Public Safety tweeted a photo of a vehicle whose rather “Seusspicious-looking” passenger bore a striking resemblance to the legendary green goblin that almost ruined Whoville’s Christmas once upon a time. Turns out the driver used the carpool lane with an inflatable Grinch as his passenger, UPI reported. Officials said they appreciated the driver’s “festive flair,” but that didn’t stop them from citing him for an HOV violation.

IDAHO

The Boise Bicycle Project made 580 kids happy by giving them their very own set of wheels. “Our goal is to make sure that everyone, regardless of income, has access to a bicycle and safe places to ride,” Boise Bicycle Project founder and Executive Director Jimmy Hallyburton said. KTVB7 reported that 200 volunteers helped to customize donated bikes based on the kids’ specifications. To date, the Boise Bicycle Project has given away over 10,000 bikes and shows no sign of hitting the brakes. ✨



Heard Around the West

Tips about Western oddities are appreciated and often shared in this column. Write heard@hcn.org.

BY TIFFANY MIDGE | ILLUSTRATION BY ARMANDO VEVE

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#IAM THE WEST

YASSINE DIBOUN

**Business owner and endurance athlete
Portland, Oregon**

I've been sober for 18 years now, but I always try to stay on the front lines so I don't get complacent. I try to help folks who struggle with substance addiction redirect that energy into something positive, like movement, running and fitness. Getting outside and getting moving on a regular basis should be a regular part of your life for as long as you live.

Cultivating a community is like a garden: Year after year, if you keep adding things and taking care of it, eventually the soil is going to become really healthy, and you're going to have animals and insects coming in, and it's going to be this harmonious garden that is bountiful. Connecting with others and putting yourself out there can open up a whole life that you never even dreamed of.

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