



Kayaking from Source to Sea on the Colorado River:

The Basin Up-Close and Personal

By Zak Podmore with photos from Will Stauffer-Norris

The 2012 Colorado College State of the Rockies Report Card
The Colorado River Basin:

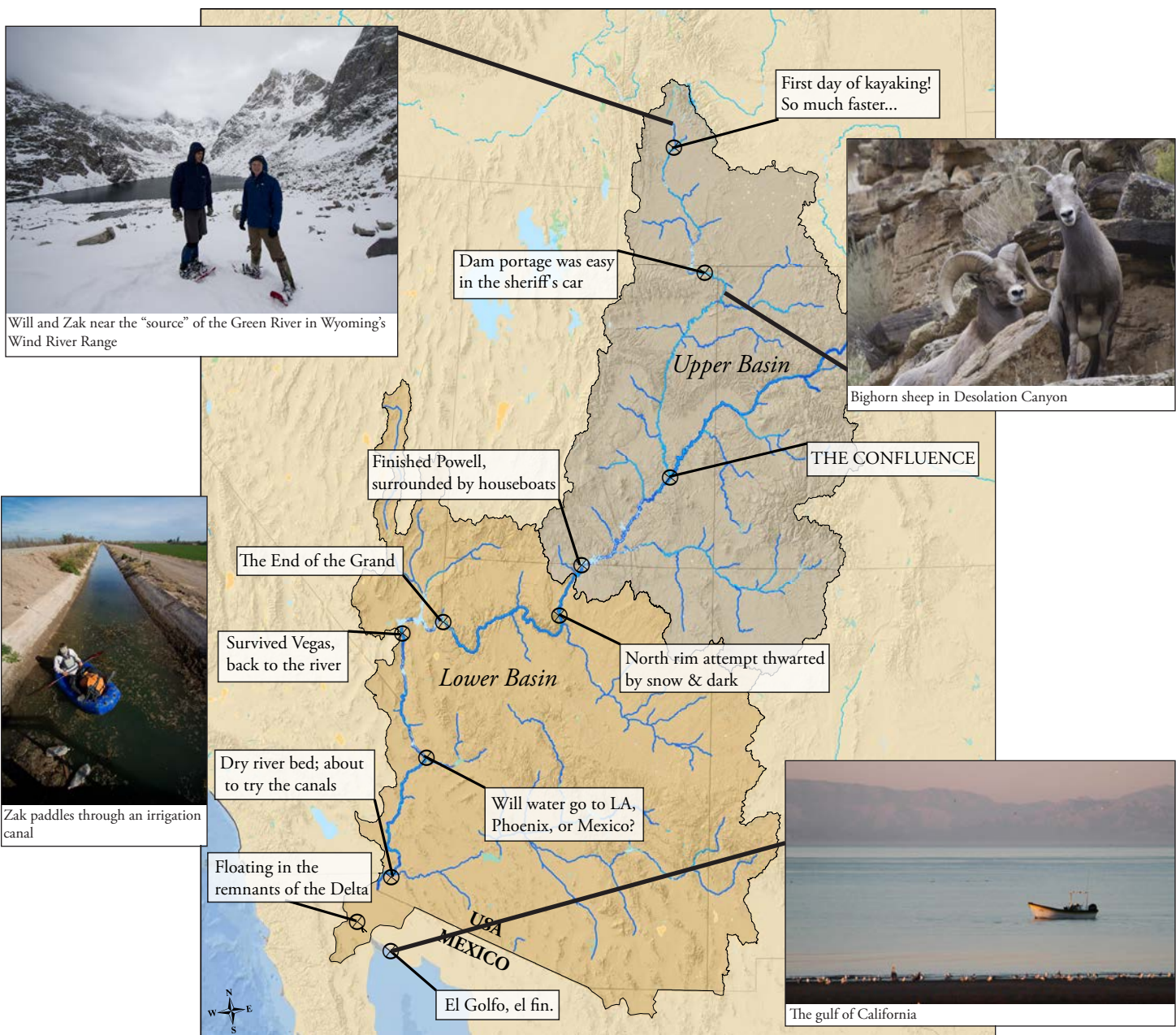
Agenda for Use, Restoration, and Sustainability for the Next Generation

About the Authors:

Zak Podmore (Colorado College class of '11) is a 2011-12 Field Researcher for the State of the Rockies Project.

Will Stauffer-Norris (Colorado College class of '11) is a 2011-12 Field Researcher for the State of the Rockies Project.

Will Stauffer-Norris



The messages on this map were transmitted from Will and Zak via GPS while they were on the river.

Between Mountains and Mexico

High in the Wind River Mountains of Wyoming, Mexico was a joke. A group of recent Colorado College grads floundered in two-and-a-half feet of freshly fallen October snow, our snowshoes leaving a winding track next to an iced-over creek. Breaking trail over mountain passes slowed us, our soaked boots chilled us, and fighting our way through slick boulder fields frustrated us as we made our way towards an alpine lake we were calling "the source." The going was slow, but our jokes kept us amused as long as they stayed south of the border. Conversation revolved around tacos—and of lying stretched out on a beach in Baja, gratefully soaking in the desert sun.

We were amused because the idea was impossibly far away. The frozen creek beside us was to become the Green River. At 10,000 feet above sea level and over 1,700 miles of river from the Gulf of California, we were nearing the furthest upstream point in the entire Colorado River Basin. And the plan was to follow the river all the way to tacos and salt water.

By mid-January, the Colorado River had become a joke. Will Stauffer-Norris and I climbed out of a concrete irrigation canal somewhere in northern Mexico to meet a rapidly growing crowd of spectators. A pickup truck pulled up, a few bikes stopped, an old man in the process of setting a fishing line in the canal wandered towards us. They watched as we struggled to pull our overloaded, inflatable pack rafts out of the water and onto the road. We were bearded and dirty, feeling ridiculous in our life jackets and knee-high rubber boots. We had strange muscles protruding from behind our shoulder blades after months of forward paddling. Slightly embarrassed, we grinned at the crowd. Questions came pouring in. I attempted to explain how we arrived in my broken Spanish. "Four months," I say, "on the Rio Colorado. In boat. 3,000 kilometers. All on the river."

The fisherman smiled sadly at the confused gringo. "El Rio Colorado?" He shook his head and chuckled. "No hay agua en El Rio Colorado." There's no water in the Colorado River. Our story must be mistaken.

Beginnings

Will and I set out in the fall of 2011 to paddle the entire length of the Colorado River as field researchers for the State of the Rockies Project. The expedition, which would eventually take us through six states and into another country, was designed to better understand the river that supplies 30 million people in the Southwest with drinking water. The river, we knew, was endangered. We'd heard that it hadn't reached the sea since 1996, and we wanted to see for ourselves what that meant--eventually. But the fact that, between the source and the delta, the river also happened to take us through some of the most spectacular canyons in the world didn't exactly dissuade us from the expedition.



Zak preparing to hike to the source of the Green River in Wyoming's Wind River Range

Although nothing could have wholly prepared us for four months on the river, we both had the necessary skill sets: the ability to roll a kayak, a willingness to paddle forward for days on end, and the love of desert rivers. Will grew up in Blacksburg, Virginia, but he acquired these skills during his childhood summers in Idaho. He fell for the West and its water while learning to raft and kayak on the Salmon, the Snake, and Green Rivers. I was equally fortunate, having been taken by my parents on desert float trips starting at the age of one on the Colorado, Green, San Juan, and Dolores Rivers. Will and I met on an 18-day Ritt Kellogg Fund trip on the Nahanni River in the Northwest Territories of Canada. The next winter, I got a permit for the Grand Canyon and Will suggested we paddle the whole river. A year of convincing later, the expedition was born.

The Green River

The Colorado River begins in Rocky Mountain National Park- 50 miles northwest of Denver; its headwaters lie about 1,450 miles from the sea. Our journey, however, began in the snowfields of a Wyoming mountain range. We'd decided early on that to traverse across the entire Colorado drainage basin it would be best to begin outside of the state of Colorado and on the Green River. This apparent contradiction often required explaining. Before 1921, the Colorado River officially began where it joins the Green in what is now Canyonlands National Park. From the headwaters to the confluence, it was known as the Grand River—hence the names of Grand Junction, Grand Lake, and Grand Mesa. Despite the fact that the Green River is about 250 miles longer than the Grand, it was renamed the Colorado for political reasons a year before the infamous 1922 Compact that would divvy up the flow of the river between eight southwestern states and Mexico. If measured by length, the headwaters of the Green River where we were snowshoeing that October day are the true source of the Colorado River.

But, of course, a river has many sources. We were quick to remind ourselves of this platitude when the first snowstorm of the year forced us to turn back about a mile from where the line on the map marked 'Green River' petered out in a near-vertical alpine valley. Will, myself, and three friends, who joined us for the first five days of hiking through the Wind Rivers, were slightly disappointed, but we were exhausted enough to spend the next 24 hours huddled in a tent without getting too restless. We listened as the wind howled and snow piled around



Will and Zak prepare to start kayaking after days of packrafting

the fly. Two days later, Will and I were on our own, blowing up our pack rafts on the shores of Green River Lakes. We paddled to the outlet and down the creek that was to take us to the sea. We quickly learned how many calories it is possible to burn when your feet are packed in frozen shoes, when your drysuit accumulates ice as soon as the sun ducks behind a ridge, and when you spend all day paddling against the wind with little current. Salami, mayonnaise, and peanut butter jars became our close friends. Fifteen hard-earned miles were about all we could squeeze out of a day's work.

After five days of packrafting, the river had gathered enough flow to switch over to kayaks. At 14.5 feet long, the boats were a lifesaver. The calories kept turning over as we paddled through ranch lands and gas fields, but our daily mileage more than doubled. The 15-mile-long Fontenelle Reservoir stood behind the first of 11 dams we'd cross before the sea. We paddled to the backside of the earthen dam and climbed out, expecting to be stopped by security. When nobody came, we hauled our 300 pounds of boats and gear to the top and lowered it down the steep front side with ropes.

The next reservoir, Flaming Gorge, was slightly more daunting. At 95 miles long, the threat of up-lake wind made us fear we'd miss our first permitted launch date in Dinosaur National Monument still at least a week's paddle downstream. Fortunately, my father and his friend, Jonathan Cooley, met up with us for several days, carrying plenty of fresh food that gave us a chance to refuel. Between sandwiches and breakfasts of bacon with butter-covered, deep fried toast, we learned from Jonathan, a geology professor at Colorado Mesa



Below Fontenelle Dam

University, that the reservoir that was offering us a chance to fill ourselves back up with calories was in danger of being siphoned out of the basin. An estimated \$9 billion pipeline from Flaming Gorge to Colorado's Front Range cities had just received funding to commence a feasibility study.¹ If funded, the project would spell not only a problem for the fisherman and jet boaters who come to use the reservoir for recreation, but would also have repercussions all the way to Mexico. The Green's yearly flow would be reduced by as much as one-fourth, and the wilderness canyons of Lodore and Desolation would often be unrunnable for rafters. The desiccated, but ecologically crucial, delta just north of the Gulf of California would suffer further damage in times of drought, and water related controversy in Nevada, California, Arizona, and Mexico would surely increase. Extending 560 miles in length, the

project would be the most expensive water diversion in Colorado's history. And, to top it off, we read: "the majority of the water in Colorado's cities is used to keep lawns green for three months in the hot, dry summer."² Nine billion dollars and a series of incalculable negative effects downstream seemed a high price for green grass, but Jonathan encouraged us to learn more about the project.

We portaged Flaming Gorge Dam through the courtesy of the Daggett County Sheriff's department. Two patrol cars were waiting for us when we dragged our boats out of the reservoir, and we loaded one into the back of each car, the tails sticking six feet out beyond the bumper. Glad to be back on the flowing river, we made good time and met two friends who came to float through the Gates of Lodore with us.



Hitching a ride around Flaming Gorge Reservoir

The Wilderness River: The Gates of Lodore to Cataract Canyon

We went to the river in part to see what was threatened, going, or gone, but we also went to see the sections that have remained relatively healthy and intact. The 350 miles of wilderness canyons between Flaming Gorge and the confluence with the Colorado played no small role in the trip's attractiveness. As those who have spent any time floating between the monolithic sandstone walls of Utah's river canyons or made the effort to explore the secret wind-carved, water-sculpted folds of the Colorado Plateau know, this desert can take a hold on the mind which is slow to dissipate. The beauty of this place cannot be easily summarized. Its value refuses to be simply disclosed.

To an economist who can only see worth if it has a dollar sign in front of it, these canyons are near worthless. Protected from roads and diversions, recreation is about the only contribution the wild sections of the Green River make to "job creation" or "economic stimulation." Natural gas and uranium extraction has begun to draw roads along their outskirts. And the value of Colorado River water increases with each passing year as Colorado Springs, Denver, Phoenix, Las Vegas, San Diego, Los Angeles, and the other desert cities continue to grow. Unfortunately for the multitude of species that depend on a flowing river, water is more valuable out of the river than in it.

For three weeks, from the Gates of Lodore, through Desolation Canyon, under I-70, into Labyrinth and Stillwater Canyons, past the confluence with the Colorado, and through the rapids of Cataract Canyon, we saw no other boaters. The days were spent trying to understand why we'd agreed to float down these waters in late fall, and how, amidst the cold and the solitude, we were managing to enjoy it—and enjoy it immensely. The long November nights were spent reading John Wesley Powell, the first European to explore these canyons by boat, and Edward Abbey, the first anarchist to promote the violent sabotage of machinery in the name of the same canyons. Both writers loved the river and understood the critical role it would play as population grew in the West. We attempted to convey its value in our journals but only ended up paraphrasing our favorite parts of Powell's report and Abbey's essays--the parts that could only be understood from the floor of a remote canyon. When our attempts to explicate the river's value seemed to fall short, we wound up writing self-righteous lines such as: "Those who wish to understand what value water has in a free-flowing river must visit one. Float down it, if possible. Drink from it, if safe. Sleep on its banks for a week or a month, if prepared to be changed." Essentially, we said little that would convince the stubborn economist, but we said much to endorse our own river trip.



Sunrise breaks through the morning fog in Lodore Canyon

Lake Powell

Towards the end of Cataract Canyon, the current slowed and then stopped completely. Silt banks rose on either side until we were floating down a canyon of leg-eating mud. One foolish step onto what looked like solid bank kept us in our boats well past dark. We'd found Lake Powell, the largest and most controversial reservoir we'd pass on our journey, and we were still 165 miles from the Glen Canyon Dam.

The silt walls that made for such difficult camping had been dropped in the reservoir by the river at a rate of 30,000 dump truck loads per day ever since the Glen Canyon Dam was completed in 1962. Lake Powell, which formed behind it, holds 27 million acre feet of water when full,³ generates electricity for Phoenix, and draws 2.4 million visitors annually.⁴ The reservoir has been a focal point of heated environmental debate since it was built largely because the remote canyon it flooded is in one of the least accessible portions of the continental U.S. An estimated 500 people floated through the Glen Canyon between John Wesley Powell's exploratory 1869 trip and the filling of the reservoir. By comparison, about 20,000 people currently float the Grand Canyon each year—some waiting over a decade to obtain a private rafting permit—and over four million people visit the park annually.⁵ It's not unthinkable that Glen Canyon might have drawn similar numbers had it remained intact. A collection of personal testimonies from those who had the chance to visit Glen Canyon before the dam and Eliot Porter's 1963 photography book *The Place That No One Knew*, speak for the stunning beauty of the place. Much of the seven days it took us to paddle our kayaks across the reservoir were spent trying to imagine the canyon that lay several hundred feet below us. Our Lake

Powell Thanksgiving meal of turkey jerky and instant mashed potatoes left us feeling grateful that five more dams, which were once proposed for the Grand Canyon, had been stopped by concerned environmentalists in the 1960s.

But we were well aware that our perspective might be different if we were equipped with motors like the other boats we passed on Powell, or if we fully understood the story about the reservoir's role in water storage. Since the dam's construction, there have been people calling for its decommissioning. We attempted to get caught up on some of the latest arguments for and against the dam. Unlike the series of reservoirs on the Arizona/California state line a few hundred miles downstream of the Glen Canyon Dam, Lake Powell provides no irrigation or municipal water except to the small towns built along its shores. Energy, recreation, and water storage are often cited as its uses. Advocates for the dam often claimed in the past that the reservoir was necessary to hold water in times of drought, but when a dry spell hit the Southwest in the late 1990s and continued until 2010, both Lake Mead and Lake Powell fell below half their capacities.⁶ Since then, people have begun to question if the 860,000 acre feet of water that Lake Powell loses annually to evaporation and seepage outweigh the dam's benefits. The water lost is equivalent to six percent of the Colorado River's annual flow, and with evaporation comes increased salinity levels and decreased water quality. Both reservoirs have been substantially replenished thanks to heavy snowfall during the 2010-2011 winter in the Rockies, but with the current demands on the river, they are never expected to fill again. The debate has died a bit for now, but is sure to resume when the next drought hits.

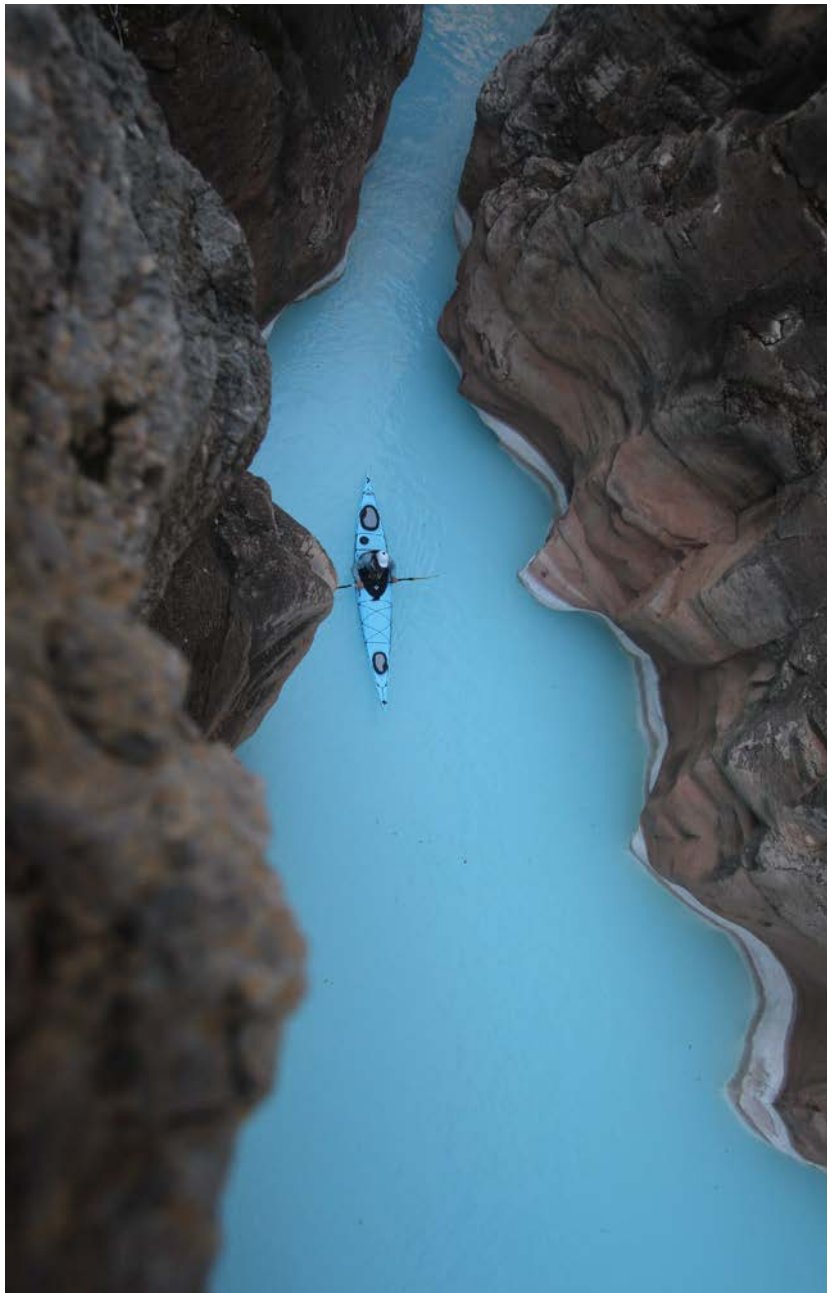


On Lake Powell above the Glen Canyon Dam

The Grand Canyon

We'd structured the entire trip around one date—November 29, 2011—the day of our Grand Canyon launch, which was doled out to us by the National Park Service years earlier. Our willingness to brave the canyon in winter greatly increased our odds of winning a launch date in the yearly lottery. The notorious difficulty of obtaining a permit is a necessary restriction placed on the river corridor. Without strict measures limiting the number of rafters allowed in the canyon, the Grand would quickly lose the values that attract so many people—including the ability to find solitude and wonder in a wild, still largely untrammelled place. The trip is in such high demand that each year several people are jailed or heavily fined for violating the many restrictions in place. The growing number of rafters applying for the private permit lottery speaks to the benefits of keeping our rivers wild and free flowing. While the Grand Canyon isn't dangerously close to running dry, that is not the case for the rest of the river, which has numerous sections that are equally spectacular.

For Will and me, the Grand meant a chance to relax. After nearly two months of difficult paddling, the Lee's Ferry boat ramp provided the double relief of current and companions. There, we rejoined the clear, cold current being released from the bottom of Glen Canyon Dam, and met 11 of our friends who had come to float the canyon with us. Lake Powell was releasing a much higher volume of water than usual in an attempt to refill Lake Mead before next year's spring runoff. The current, flowing at an average of eight miles per hour, made it easy to meet our daily quota, and it gave our tired shoulders some much-needed rest. We spent our days lounging in camp, strolling up deserted side canyons to waterfalls draped in greenery, and exercising our underused vocal cords. For 25 days, we were lost to the outside world. Our drysuits saved us on multiple occasions when the 18-foot rafts were flipped effortlessly by the



Sophia Maravell, Will paddles through Havasu Creek

river's waves, hurling bodies through the air. In the evenings, we ate wonderful meals out of the Dutch oven and huddled next to the fire. When we emerged at the other end of the canyon, it wasn't easy to say goodbye to the group and the comforts of raft-supported camping. We reluctantly reduced our gear to what we could fit in our kayaks and paddled out to Lake Mead, the first of many reservoirs still between the sea and us.

Mead to Mexico

Our families kayaked onto a deserted Lake Mead with us for Christmas, and helped us transition back away from the large group we'd grown used to. But at the Hoover Dam it was time to part ways again and head out on our own. We dropped into the Black Canyon below the dam expecting to find the wilderness solitude that had accompanied



The Rockies researchers get some much needed raft support through the Grand Canyon



The Rockies researchers begin the trek across Lake Mead with family

us since the source. Instead we found hikers, canoeists, rafters, jet skiers, and power boaters, flocking to the many hot springs tucked into the side canyons of the ten-mile stretch. Motors buzzed, voices shouted, firecrackers went off. We tried to enjoy ourselves but found crowds grating after so much time with the remote desert river to ourselves. Arriving late in the day to Arizona Hot Springs, we found the best campsites occupied and ended up sleeping on the edge of a busy trail. That night, we almost lost our kayaks as the river doubled in volume in less than half an hour.

It was clear we had some adjusting to do. The river changed character dramatically after Grand Canyon National Park. It was so heavily dammed, dredged, diked, and diverted that from the top of Mead to the sea, we permanently lost the illusion that we were floating on a river resembling its natural state. The flux of water that almost swept our gear onto Lake Mojave was an effect of the water demands of farmers or cities below, not a sudden influx of water into the river basin. Downstream of Lake Powell, flows in the river are determined by water and power demands as opposed to snow melt.

For the first time in the 1,300 miles we'd traversed since Wyoming, the river began to shrink in volume. Lake Mead was trying to recover from dropping hundreds of feet below its capacity in 2010, and the city of Las Vegas was dealing out crowds of people into the canyon in exchange for water. Sitting in the hot springs on December 30th we heard that there would be an estimated 500,000 people on the Vegas strip for New Year's Eve. The following afternoon, Will and I stashed our kayaks next to the river and hiked out to see the city where some of the water was going. We spent the next 24 hours wading through the overflowing streets of Vegas, staring into bubbling fountains, and gazing out on rows of palm trees and lawns. All these sights, which would have seemed so normal had we arrived onto the streets by car, felt dreadfully out of place in the middle of a landscape that

receives about four inches of rain a year. What would John Wesley Powell, who finished his first Colorado River expedition in 1869 in the tiny hamlet of Las Vegas, have thought if somebody told him that in less than 150 years the mightiest river in the Southwest would be drained completely before reaching the sea?

Las Vegas represented only the first of many municipal diversion projects we'd pass in the coming weeks. Below Davis Dam, we passed a series of waterfront casinos, followed by rows and rows of riverside houses boldly asserting their faith in the ability of the Glen Canyon and Hoover Dams to prevent flooding. Past the London Bridge on Lake Havasu, we found the two largest straws sucking from the river yet. First, the Colorado

River Aqueduct, which pumps water 242 miles through a series of canals and tunnels to Los Angeles and, second, the Central Arizona Project (CAP), the coal-powered, 336-mile long pumping and diversion project that takes water through Phoenix and eventually to Tucson. Within ten miles of each other on Lake Havasu, the two canals represent the first major trans-basin diversions since Colorado's Front Range. While irrigated farmlands next to the Colorado River return roughly half of the water used in irrigation to the river system and in-basin domestic use returns up to 90%, trans-basin projects mean 100% of the water that is diverted is gone from the river for good. With two substantial rivers worth of water being taken out of the Colorado River at Lake Havasu, it's no wonder that the river dries up.

Photographing the pumping station for the CAP, which immediately brings the water several hundred feet up a steep hillside to a tunnel system, Will and I had a disturbing thought. Which way does the river go from here? We chose to start our journey on the Green River instead of the Colorado, in part because it was the longer tributary by a couple



Lake Havasu and the pumping station for the Colorado River Aqueduct

hundred miles. If we followed that logic now, then shouldn't we follow the longest continuous body of water? Tucson—at 336 miles away—was considerably further from us than the ocean. Does a river follow its water, or is the dry riverbed in Mexico still the true river? We debated these issues for some time, pondering biking alongside the CAP to Arizona's biggest cities. Perhaps they were the new sea. When we began paddling, we thought we had a firm grasp on what the term 'river' meant. Now, we weren't so certain. Eventually, we based our decision on less philosophical grounds and concluded that risking contaminated water and drug smugglers in Mexico was safer than risking arrest and endless flat tires in the Arizona desert.

We pushed on through five more reservoirs and past two more enormous irrigation canals—the Gila Gravity Main Canal and the All-American Canal. While some of the Gila water returns to the river as agricultural runoff, the All-American Canal greens the fields of the Imperial Valley in Southern California and drains into the near toxic Salton Sea. Alfalfa and a wintertime supply of produce are grown in this region thanks to Colorado River water. By the time the river reaches the Mexican border near Yuma, Ariz., 90% of the water has been diverted.

Below the Imperial Dam where these two canals depart, we left our kayaks and paddled our pack rafts down the Colorado River turned creek. We spent one final night next to the river, camped on the edge of a farm. It was the first night we'd had to spend on private property since we began. Across the border, we'd grow used to camping on farmland, but we never fully adjusted to the absence of the river that carried us 1,600 miles and across six states.

The next day, we paddled towards the Morelos Dam. We passed a tall fence on the bank and watched as the scenery suddenly changed. The left side of the small reservoir was lined with graded sand tracks and dotted with Border Patrol vehicles. From the right side, we heard dogs barking, tires screeching, and the forlorn horns of the local Norteño music blasting. The smell of burning plastic drifted through the air. At last, Mexico was in view.

We floated up to the dam, taking our boats out on the U.S. side. Border Patrol agents half-heartedly searched our bags and told us that if we'd set foot on the opposite bank, we'd be in handcuffs right now. We assured them that we'd



Below Davis Dam

cross in the proper location when the time came and walked around the Morelos Dam. On one side, the remnants of the Colorado River were still flowing and green. On the other side, there was a feeble trickle of water that was completely consumed by sand within a few miles. And we were still 90 miles from the sea.

The Delta

After two days of preparation in Yuma, we crossed into Mexico and feasted on the heavenly tacos that seemed so far away when the trip began. Those tacos, which had been laughable at the source, were now about the only certainty we had left—the rest we'd have to improvise. Although we'd speculated on the definition of a river back at the CAP, we didn't actually come that close to abandoning the river. Now we were face to face with the dry riverbed, and, for the first time in three and a half months, we had to make a decision about our route. We could either walk down the sand where the river once flowed, or attempt to navigate the complicated canal system in our pack rafts. Lugging our 100-pound backpacks the half-mile from the border crossing to the other from the border crossing to the other side of the Morelos Dam did the deciding for us. We inflated our tiny blue rafts and paddled out on the canal that was carrying the remaining water in the river to the Mexican cities of Tijuana and Mexicali, as well as hundreds of square miles of farmland. For the first several hours, we half expected to be stopped by a security



Imperial Dam



Morelos Dam and the end of the river

guard of some kind, but the cars alongside the canal only greeted us with double takes and blank stares. We spent our time learning how to awkwardly climb out of the concrete-lined canal to portage the many bridges and gates impeding our progress.

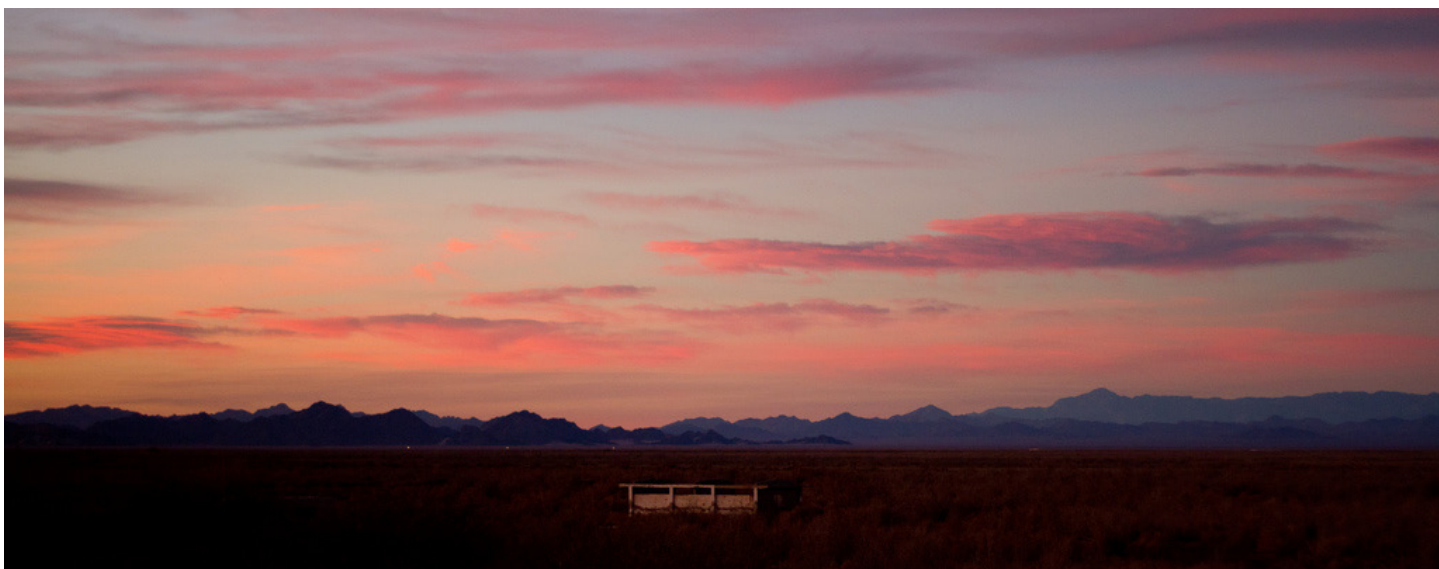
Several days later we'd grown used to the stares. I relearned enough Spanish to begin to explain what we were doing. Almost everybody asked if we were fishing and when we said no, the phrase "gringos locos" seemed to explain the rest. The thought of eating fish out of the canal water, that we were taking pains to avoid touching, made our stomachs churn, but we saw fishermen on several occasions. When the river still flowed, fishing was a large source of local income—now, it's farming.

The hospitality of the locals was endless. Security guards for the canal—instead of stopping us—gave us directions. Cars pulled over to offer us food. A kind woman in a store that only sold chips and sodas went to her home to bring a more hearty meal of beans, bread, and cheese and then refused payment for it. Crowds of children flocked out of their sheet metal homes to chase us, jaws agape, for a few hundred yards.

Mile after mile of farms floated past us, and the drone of crop dusting planes became familiar. The excitement of traveling by irrigation canal through a foreign country was almost enough to make us forget the dead river. But one day, while looking for a place to camp among a thick stand of invasive tamarisk trees, we stumbled across a pocket of water outside of the canal. We'd found a pool of agricultural runoff in the former riverbed. In the time it took us to paddle the several miles before it dried up, we saw a greater variety of bird species than we'd seen on the whole trip. The small wetland was a stark reminder of what the delta was losing.

The contrast was made sharper when canals finally dried the next day and we bushwhacked for ten miles through dying clumps of tamarisk. The thin line on the GPS marked "Colorado River" looked no different from the other ten miles of mud cracked desert we crossed that day. Our legs scratched from the brush and our throats parched from the January heat, we eventually found the Rio Hardy, another body of agricultural drain water that is keeping the delta from completely drying up. There, we rested at an "eco-camp" maintained by the Sonoran Institute, a nonprofit involved in restoration work in the delta. Among the native species, such as mesquite that had been planted on the Sonoran Institute land, we learned what the Colorado River delta once was.

When I heard, long ago, that the Colorado River dried up before reaching the sea, an image came to my mind. I pictured the river in the state of Colorado where it often flows at the bottom of boulder-choked canyons. If the river were to dry up there—as it often does for several miles in Glenwood Canyon at the Shoshone Hydroelectric Plant—what's left is the rocky canyon floor: only the width of the river is dried. I never questioned that image until Will and I arrived at the delta and understood what a different landscape we were dealing with. We were no longer between the narrow canyon walls of the upper river; we were standing on a great plain of Rocky Mountain and Colorado Plateau silt that had been steadily deposited for the last six million years as the river flowed into the Gulf of California and dropped Grand Canyons worth of sediment. The drying of the delta doesn't translate to a waterless, boulder-filled channel. The delta without water means the loss of the most biologically diverse area in the entire river basin—an enormous swath of land that once extended from the sea all the way into California's Imperial Valley, covering over 3,000 square miles.⁷ The riverbed that we imagined we were crossing as we hiked to the Rio



Sunset over the Sonoran Institute's EcoCamp

Hardy was never as narrow and stable as the riverbed is in mountain canyons. Instead, the river on the delta poured out of a single channel into a vast network of wetlands, lagoons, and riparian areas that were replenished with yearly flooding events. The sediment being carried into the sea helped the fisheries to flourish for millions of years and provided a crucial habitat from millions of migrating birds.

Today, less than ten percent of the former delta remains, and the 380 species of birds still living in the area depend on wetlands formed by agricultural wastewater, particularly in the 40,000-acre Cienega de Santa Clara just north of the Gulf of California. But the amount of wildlife we encountered on the much smaller pockets of water we crossed was testament to the difference a minimal amount of water can make for restoring the delta. Edith Santiago and Francisco Zamora of the Sonoran Institute told us that their research indicates that if less than one percent of the total annual flow

of the Colorado River could be obtained for the river corridor, a vital section of the riparian habitat could be restored and the river would once again flow into the sea. Fisheries would begin to be replenished along with bird populations and local economies dependent on ecotourism and fishing. But to make this happen, Mexico and the United States would need to collaborate to secure the necessary water. Suddenly, Colorado didn't seem so far away. The delta is drying due to the cumulative actions of the 30 million people who rely on the Colorado River. It's too easy to forget where the water comes from when you turn on a tap in Denver or L.A. Will and I left the eco-camp, vowing to help spread the word that the state of the delta is deeply connected with the state of the Rockies, even if they are over a thousand miles apart.

The Sea

The Rio Hardy carried us within several miles of the high tide mark before it grew too shallow to paddle. We

packed up our rafts one final time, and slogged through a putrid swamp of mud and rotting brush. A few hours past nightfall, we were standing on a levee with salt water at our feet. We'd been dreaming of this moment for close to four months, and we both imagined that arriving at the sea would be similar to driving up to a beach. All of the sudden, we thought, we'd be standing at the edge of the ocean. Of course, the transition was more gradual than expected and we had 30 miles of intertidal zone ahead of us.



Zak searches for water in the Delta

Unaccustomed to ocean travel, we misread our tide chart and when we awoke before dawn, it was a couple hours after high tide. The water that was lapping the levee the night before was now nowhere in sight, except for a shallow channel draining off the immense mud flats. Several hours were spent cursing and sinking up to our thighs into the saturated silt before we finally found enough water to float. Soon, the current was flowing more quickly than it had since the Grand Canyon, and we made good time until the tides switched and the current came rushing back towards us. We were forced back onto the mud until late evening when the current changed again.

Running low on drinking water and still miles from the nearest town, we floated in the dark along the clay banks of the estuary.

The crescent moon shone on the surface of the water. The tidal river flowed quickly and deeply back towards the gulf. Exhausted from struggling in the mud and lulled by murmuring waters, I nearly fell asleep when a fin suddenly emerged a few feet from my pack raft. My first thought was “Shark!” and I instinctively began to race for shore. But before I could take more than a few strokes, the gleaming eye of a dolphin broke the surface and stared at me. Its mouth opened and clicked before it disappeared.

Will paddled up, not noticing the exchange. I started to explain my sudden movements when a tail flicked out of the water and sent water into both our rafts. Then more fins appeared—a pod of dolphins was swimming upstream towards the former mouth of the Colorado River, breaking the surface in steady rhythm. We watched the dark forms rise and fall



Will and Zak rest on a beach after pulling themselves out of the Sea of Cortez

until the whole pod had passed us. The tide carried us away from the moonlit mountains on the horizon. The smell of salt water hung thick on the air. “Dude,” said Will, “I think we’ve found the sea.”

¹Information in this paragraph was found in: Gary Wockner and Alexandra Cousteau, “\$9 billion Flaming Gorge Pipeline Would Further Drain the Colorado River System,” *Huffington Post Denver*, January 10, 2012, http://www.huffingtonpost.com/gary-wockner/flaming-gorge-pipeline_b_1195154.html.

²Earthjustice, “Colorado River Protection Coalition Intervenes Against Flaming Gorge Pipeline,” December 15, 2011, <http://earthjustice.org/news/press/2011/colorado-river-protection-coalition-intervenes-against-flaming-gorge-pipeline>.

³Bureau of Reclamation, Glen Canyon Dam Statistics, accessed February 28, 2012, http://www.usbr.gov/projects/Facility.jsp?fac_Name=Glen+Canyon+Dam&groupName=Overview.

⁴Bureau of Reclamation, Lake Powell recreation area details, accessed February 28, 2012, <http://www.recreation.gov/recAreaDetails.do?contractCode=NRSO&recAreaId=2002&contractCode=129>.

⁵National Park Service Statistics, Grand Canyon NP user days, accessed February 28, 2012, <http://www.nature.nps.gov/stats/viewReport.cfm>.

⁶Information in this paragraph was found at: Glen Canyon Institute website, accessed February 28, 2012, glen canyon.org.

⁷Information in this and the following paragraph found in: Zamora-Arroyo, Francisco, Jennifer Pitt, Steve Cornelius, Edward Glenn, Osvel Hinojosa-Huerta, Marcia Moreno, Jaqueline García, Pamela Nagler, Meredith de la Garza, and Iván Parra, *Conservation Priorities in the Colorado River Delta (Mexico and the United States)*, 2005 accessed online at sonoran.org.



The remnants of the delta and the Baja mountains