The People and The Park:
How a small Mexican community created one of the world's most successful marine preserves

by

Laura Castañón

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Signature redacted

Signature of Author: _____
Program in Comparative Media Studies/Writing
May 22, 2018

Signature redacted

Certified by: _____
Toby Lester
Thesis Supervisor

Signature redacted

Accepted by: _____
Seth Mnookin
Professor of Science Writing
Director, Graduate Program in Science Writing

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ABSTRACT

Cabo Pulmo National Park is a 27-square mile protected area in the Gulf of California, near the southern end of Mexico's Baja Peninsula. The park surrounds one of the oldest coral reefs on the western coast of North America. Once damaged and depleted by overfishing, the reef has seen an incredible recovery since its protection in 1995. This recovery is due in large part to the efforts of the very people who once fished the reef. The adjacent community of Cabo Pulmo, in collaboration with a group of scientists from the Universidad Autónoma de Baja California Sur in La Paz, Mexico, requested the marine protected area, acted as vigilante enforcers for the park's rules, and worked to prevent proposed developments that might damage the ecosystem. As the ecosystem has recovered, they have been able to reap the economic benefits of the park, opening dive shops and restaurants. The story of their struggles and triumphs can provide valuable lessons for community-based conservation efforts around the world.

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Title: Thesis Advisor

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Laura Castañón

José slid his knife cleanly through the blue and green scales of a dorado.

He was working at a white plastic table on the beach at Los Frailes Bay, on the southeastern end of Mexico's Baja Peninsula. The table stood unevenly in the sand alongside a small weathered fishing boat known as a panga, which José had pulled clear of the water. Beyond the table was an aging SUV – José's car – which he had driven to down the beach to retrieve his fishing gear. The sky was cloudless and the sun relentless, but a breeze rippling across the water eased the heat. To protect himself from the sun, José wore jeans, a sweatshirt, and a thin buff that wrapped around his chin and rose up under his baseball hat.

The dorado's blood spilled across the table as José worked. Discarded in the sand near his feet lay the carcasses of six other fish, watched hungrily by a growing crowd of seagulls. A pelican, less patient than the gulls, slunk clumsily up to the pile, snagged a piece of skin, and hurried back to the relative safety of the shallow water.

The mountainous deserts of southern Baja, which separate the chilly waters of the Pacific Ocean from the warm, narrow Gulf of California, are covered in low wiry scrub brush punctuated by towering cardón cacti. As you approach Los Frailes Bay, this sparsely populated desert transitions abruptly to curving beaches and sharp, rocky points. Turkey vultures and frigate birds mingle overhead. The bay is accessible only by a single dirt road that runs along sandy cliffs barely wide enough for two cars to pass. It's hell for the unwary driver, with sections clogged by sand from the winter winds or washed away entirely by the rare summer rains.

José doesn't have a problem with the drive. When I met him on the beach this past January, he told me he'd been fishing in the area for more than 40 years. (He did not tell me his last name.) His home is outside the city of La Paz, about four hours away, but he lives for weeks and sometimes months at a time with his wife Amelia in a fishermen's camp at Los Frailes – a tangle of 20 or so ramshackle shelters built from driftwood, tarps, and sheet metal a few hundred feet up the beach from where he was working on the dorado. Just north of the camp, a line of wooden posts and a sign bearing the photograph of a sea turtle marked the reason for my visit. The sign

read PARQUE NACIONAL CABO PULMO, a surprisingly humble indicator for one of the most successful marine preserves in the world.

Cabo Pulmo National Park is not a large area. But within its boundaries, which encompass 27 square miles of coastal waters including half of Los Frailes Bay, the marine life is flourishing in a way that provides a glimmer of hope for the rest of the Gulf of California – and the world. Twenty-five years ago, the ecosystem here was on the verge of collapse, but today the change is dramatic. Coral reefs grow along eight rocky ridges, playing host to a medley of gaudy tropical fish, including schools of black-striped sergeant majors and impossibly thin lookdowns. Thousands of jacks gather in whirling tornadoes to spawn in the deeper sandy areas. Sharks prowl the edges of the reefs in numbers seen nowhere else in the Gulf. In winter, humpback whales arrive with their new calves, as do vast schools of mobula rays, which leap dolphin-like from the water. Five species of sea turtle, all endangered, have been spotted cruising the area.

I asked José if he had seen sea turtles nesting on the beaches. Of course, he said, every year. He gestured to a sandy point at one end of the beach. He'd spotted a huge turtle nesting there, the biggest he'd ever seen. *Un laúd*, he told me excitedly. Reading the confusion on my face, he crouched to draw in the sand with his finger a perfect sketch of a leatherback, the largest species of sea turtle in the world. *Un laúd.*

The park is only about 20 years old. José used to fish in the areas where snorkelers and scuba divers now admire the rebounding biodiversity. He has to travel further to the legal fishing grounds now, and is gone for longer, but he doesn't mind the extra time on the water. The park is good for business, he said. The protected reef is a breeding ground for fish. Species grow up there, then swim out into deeper water where José and other fishermen can catch them. The fish are larger and more plentiful than they used to be, and Americans pay good money for a day of fishing from his panga.

Cabo Pulmo has become a stunning example of successful conservation. And the way José described it, it all seemed so simple. Protecting this small place allowed it to recover and thrive,

and its renewed abundance of life has benefitted not only the park itself, but also a growing population of fishermen, tour operators, and restaurant owners.

But this process was neither quick nor easy. The recovery of Cabo Pulmo's reef would have been impossible without the commitment of a small community of fishermen whose story provides valuable lessons for those hoping to engineer similar recoveries in other parts of the world.

About five miles north of the beach where I met José sits the town of Cabo Pulmo, a small cluster of concrete houses, dive shops, and restaurants nestled in a gentle curve of the coast. The area was settled in the early 1900s by a handful of families who came to graze cattle on the land and dive for pearl oysters on the reef. In drought years, when the cattle died, these early settlers turned to the water to feed their families, casting lines from small boats driven by oars and sails. The bounty of the reefs seemed endless – sharks could be speared from the boats, and sea turtles and lobsters caught by hand.

For years, little changed. In 1940, the novelist John Steinbeck joined a biologist friend on a scientific cruise of the Gulf of California, and after anchoring at what he called "Pulmo Reef," Steinbeck marveled at the quantity of life they witnessed. "Clinging to the coral, growing on it, burrowing into it, was a teeming fauna," he later wrote. "Every piece of the soft material broken off skittered and pulsed with life – little crabs and worms and snails. One small piece of coral might conceal thirty or forty species of urchins, and the colors of the reef were electric." Despite only collecting from the shallows – the expedition did not have dive equipment -- the team was overwhelmed with specimens, and quickly ran out of containers to preserve them all.

On land, the area remained sparsely populated into the 1970s. "There were not many houses – only maybe six or seven," I was told by Judith Castro, whose grandfather was one of the first settlers in the area. Castro, who is in her 40s, has lived in Cabo Pulmo her whole life. Her family was heavily involved in establishing the marine park, and she herself has traveled the world to share the story of the park's success. We met at her home, a squat concrete building in a dusty

lot, a short distance away from a cluster of tourist bungalows and the town's dive shops. Sitting on a comfortable brown loveseat, she gestured toward her open front door. "There was a fisherman camp and a ranch," she told me in a slow gentle voice, switching easily between Spanish and English. "My uncles, they had cows." There was no education in the village, so she and her brothers spent much of their childhood attending school in the city of La Paz. But they would return every summer to Cabo Pulmo, where three generations of their family worked as fishermen. She and her family would all crowd into a small shack on the beach, roughly assembled out of scrap wood and fiberboard. "I was so happy there," she told me. "We could hear the ocean all night long and wake up with the sun."

But Mexico's attitude towards fishing was changing. The government began promoting the development of commercial fisheries to increase economic growth. On the Baja Peninsula, this meant subsidies for upgrading fishing boats and equipment, paving roads, and encouraging fishermen to form cooperatives to sell their catch. It was easier for fishermen to be mobile, following the seasonal variations in fish from coast to coast. The paved roads helped tourists reach new destinations for sportfishing as well. The number of people fishing at Cabo Pulmo began to rise.

By the mid-1980s, Cabo Pulmo was a different place. At certain times of the year, more than 100 pangas stalked the shoals of fish, scarring the reefs with their anchors. Commercial shrimp trawlers and tuna seiners were common sights just offshore, and sport fishermen arrived in increasing numbers. Many species of fish seemed smaller and more scarce. Hammerheads, bull sharks, and large groupers seemed to be gone entirely. Castro watched the men in her family spend more and more time on the water, but still sometimes return empty-handed. "I didn't want to see them like that," she said. "When the fish were declining, I remember it was a hard, hard time for my family. I kept asking if they could change, because fishing was not giving us enough to live."

At the same time as the fish were declining, Cabo Pulmo was attracting the interest of local scientists. The reef is the only hard coral reef in the Gulf of California, and one of the oldest. Researchers estimate that it was formed 20,000 years ago, making it roughly four times older

than other reefs on the Pacific side of the Americas. Recognizing its ecologic importance, scientists from the Universidad Autónoma de Baja California Sur in La Paz, or UABCS, started assessing the coral community in 1986. For five years, they dove on the reef every month, cataloging the species they saw and the changes in the habitat. And while they were there, they began talking with people in the community about their work.

Hector Reyes Bonilla, a professor at UABCS, was an undergraduate on some of these early trips. He was about the same age as some of the young fishermen, including Castro's brothers, and they all played soccer together each time the scientists visited. This led to some interesting conversations about what everyone was seeing – or not seeing – on the reef. It wasn't just fish that were decreasing. Over the course of their study, the researchers also saw a decline in the diversity of coral and other invertebrates. Nets and anchors had damaged the fragile habitat, and the removal of large predators had disrupted the species balance, allowing smaller herbivore populations to grow unchecked and over-graze the area. The researchers shared their findings with the fishermen, and explained the vital role their reef played in the larger ecosystem. "In the beginning, it was just small talks," Reyes Bonilla told me. "Just to tell them, 'Look at what you have here. This is important.'"

Eventually these discussions became more formal. The scientists organized monthly meetings in the community for people who were invested in the future of the reef – fishermen, owners of a small resort, people in the tourist industry. The scientists explained that, given time, a reef can recover. Five, maybe ten years, and this place could flourish again. But it would need protection. With the community's support, the university could petition the government to turn their reef into a national park.

But the fishermen were not easy to convince. They had been fishing for generations. What would they do? Tourists were increasing in the area, but it was hard to imagine that there would be enough business to survive on. Mario Castro, Judith's brother, recalled many meetings going back and forth with the scientists from La Paz. "Of my father and my uncles," he said, "only my uncle Juan said, 'Okay, come on, let's see. Let's try.'" The younger generation, Mario and his brothers, were more open the idea. They couldn't see a future for themselves as fishermen, but

maybe tourism could provide a new way of life. Mario traveled to Cabo San Lucas to train as a scuba-diving guide, hoping to open a dive shop in Cabo Pulmo.

The Castros made up a significant portion of the residents in Cabo Pulmo. Once the patriarchs of the family were on board, they hosted the researchers from UABCS as well as government officials as they drew up a proposal for the national park. A small group of Americans with second homes in Cabo Pulmo and several owners of nearby resorts also contributed to the discussions. This group created a list of goals for managing the park that stressed not only the need to protect and monitor the coral but also, crucially, to create economic benefits for the community. Eventually, after almost ten years of work, the scientists submitted a petition to government on behalf of the community. On June 6, 1995, the president declared the area a national marine park.

"When the fishermen, with the University, requested the natural protected area, I was the happiest woman," Judith said. But not everyone welcomed this decision. Transient fishermen, José among them, had not been involved in the discussions about the park. They only spent a portion of their time in the area and would have a difficult time switching to tourism. Some were not even aware the park was a possibility until they were told their fishing grounds were off-limits.

When the Mexican president announced the borders of the new park, even members of the Castro family felt that the final decision had been taken out of their hands. The park had been drawn as a simple rectangle, and included an important fishing site that was too deep for coral to grow. "Everybody requested in the management plan that the site should be out of the park," Judith said. But somehow the area had been lost in the bureaucratic handoff. The fishermen were frustrated that their voices had not been heard, and accusations arose that the site had been included not because it was necessary for conservation, but because it abutted hotels that considered local fishermen an eyesore.

For the locals who had depended on fishing for generations, things got worse instead of better. "They didn't have an alternative," Judith said. "It was really hard for a couple years. I remember

they were so, so poor." The men continued fishing beyond the park's waters, spending extra time and gas money to catch just as little as they did before the park, or traveling to other areas to find work, leaving their families behind for months at a time. According to Judith, people who'd been opposed to the protected area were convinced they'd been right all along. "I remember my brother and my father," she said. "Everybody was thinking, *Yeah, maybe we made a mistake*."

Efforts to branch out into tourism weren't immediately successful, either. Mario opened his dive shop, but business was slow. The newly protected ocean needed time to recover. Needless to say, few tourists were willing to travel down 20 miles of dirt road to see an unimpressive reef located outside of a small village with no amenities.

Less than 100 feet from Judith's home and Mario's dive shop, I met with Octavio Aburto, the youthful director of the Gulf of California Marine Program. We sat on the porch of his rented bungalow, under a woven palm-leaf roof, surrounded by drying wetsuits and camera equipment. Aburto, who is also an underwater photographer, was in Cabo Pulmo working with a film crew from *The Economist* to create a short documentary about the recovery of the reef.

Aburto first visited Cabo Pulmo in 1992, as a marine biology student at UABCS. He returned with the university several times, but even after the park was established he wasn't very impressed with the reef. "I didn't see very big things or very nice things compared with other reefs along the Gulf of California," he said. "There wasn't anything special, back in those years."

It's no surprise that nobody wanted to visit. "Things were very tough," he said. "Not only for a community that didn't have the expectation of continuing to fish anymore, but also because nobody wanted to support what they had decided." Government funding and assistance for the park did not appear. In fact, there was no operating budget, management plan, or official on-site enforcement until the mid-2000s, more than ten years after the park had been officially

established. The closest fisheries officials were roughly four hours away, in La Paz, so a quick response to illegal fishing was impossible.

The dream of a protected reef could have died right there. But the talks with the university had convinced many of the locals that conservation was the best way to secure their future. Discouraged with the lack of official support, they decided to protect the park themselves. It was this decision that would ultimately transform the park into the success it is today.

The first step was to patrol the park. When Mario took the occasional tourists out for dive trips, he watched for boats fishing in the protected area. So did other fishermen, as they headed beyond the park's boundaries. Usually they knew the offenders, so chasing them off was as simple as approaching their pangas and reminding them of the new rules.

But in the spring of 1997, in an incident reported in the *LA Times*, the locals were confronted by a much bigger threat. Several large shrimp boats from the Mexican mainland showed up at Cabo Pulmo hoping to capitalize on the increased demand for fish during the month of Lent. They launched smaller boats to spread out massive gillnets and began hauling in fish by the ton. Gillnets only discriminate by size. Any fish, stingray, or turtle that is too large to slip through the holes winds up tangled in the nearly invisible threads. To the community's horror, the boats stayed for days, even recruiting local help to bury several tons of waste on the beach with a bulldozer. But their prolonged stay gave the local fishermen and hotel owners time to reach out to officials in La Paz for help, and time for that help to actually arrive. In the end, the boats were confiscated and the poachers were arrested and heavily fined.

The incident drew attention to the new national park and gave some confidence to the vigilante enforcers. When large boats from the mainland arrived again the following year, they were intercepted by pangas from Cabo Pulmo before they ever had a chance to drop their nets. While technically only about a third of the park was supposed to be off-limits to fishing, those involved decided to impose "no-take" rules throughout the park. "De facto," Aburto told me, "this area became basically the only no-take marine reserve in the Gulf of California."

Conservation efforts started on shore as well. Community groups organized beach cleanups and sea-turtle protection efforts. Slowly but surely, the locals started to see changes in the reef. Groupers, snappers, and jacks, species of fish that had been scarce for years, were appearing in greater and greater numbers. When Aburto returned in the mid-2000s, Cabo Pulmo was a different place. "I was amazed," he said. "I saw big groupers, big snappers, and I started seeing the corals, the sea fans, were in very, very good shape."

José, the fisherman I met fileting dorado on the beach at Los Frailes, told me he had seen similar sights himself.

From a submarine.

What? How? Who? In my sub-par Spanish, I tried to get José to explain. All he could tell me was that it came with a big ship that carried people from all over the world. The ship's crew lowered a three-person submarine right into the bay. They took him underwater, he said, and he saw life that hadn't been there twenty years before.

For most of the 20th century, marine scientists assumed that the balance of predators and prey in the oceans should be similar to that on land, where biomass was largest at the bottom of the food chain and smallest at the top – tons of grass, plenty of zebra, a few lions. This balance seemed to be reflected in the ocean – tons of plankton, plenty of small fish, a few sharks. But this comparison was being made in areas already impacted by humans. It wasn't until the early 2000s, that research began to reveal that an undisturbed reef could support many more top predators like sharks and grouper than had previously been thought possible.

Why the difference? The current theory is that because small fish have significantly shorter lifespans than, say, zebras, there are multiple generations acting as food for the top predators. "A shark can live for 40 or 50 years, while herbivores may only live one year," Aburto said. "In the life of a shark, there could be 50 populations of herbivores." Many of these prey species gather

together to reproduce in massive groups called spawning aggregations. These tight, whirling balls of thousands of fish provide the perfect feeding opportunities for hungry sharks and grouper.

The problem is that they are also easy targets for fishermen.

Catching fish in spawning aggregations, before they are able to reproduce, can have disastrous results on the size of the next generation. By the time researchers started monitoring fish in Cabo Pulmo, these aggregations had been wiped out by fishermen. It wasn't until several years after the creation of the marine park that the spawning aggregations began to occur again, restoring an important source of food for the top predators.

Aburto recalls a dive from 2007, where he encountered a group of 20 massive groupers. Groupers are typically solitary fish with their lips set into a perpetual pout. Some species can grow to be over six feet in length and weigh several hundred pounds. As he came upon them, the grouper were attacking a school of smaller grunts. "There were maybe a hundred grunts," Aburto said, "and it was like seeing sharks fighting for their food. After the groupers came snappers, and even moray eels. It was an amazing, amazing spectacle."

The changes he was seeing inspired Aburto to raise funds to follow up on a study he'd been a part of ten years earlier. The original expedition had surveyed reef communities throughout the Gulf of California, including Cabo Pulmo. Most were degraded by overfishing, coastal development, and other human-related impacts. In 2009, 14 years after park was established, his team surveyed 73 reefs, roughly double the number covered in the original study. At the majority of the sites, even those within designated protected areas, his team found no noticeable recovery. Some ecosystems had continued to deteriorate, while others seemed stable, but unimproved. But at Cabo Pulmo, the results were hard to believe. The fish were larger and more abundant than anyone had expected. The total biomass, the physical volume of living things in the area, had increased by 463 percent. The change was even more significant for the top predators like groupers, which had increased by more than 1,000 percent. With the restoration of their food source, the groupers and sharks had returned to Cabo Pulmo in extraordinary numbers. At the

end of the study, the data from Cabo Pulmo showed the largest recovery ever documented in a marine reserve. The reef at Cabo Pulmo was beginning to resemble a species balance that has become more and more difficult to find in the oceans – that of a reef undisturbed by humans.

The area's success begged an obvious question: Why haven't other protected areas in the Gulf of California rebounded in similar ways? One answer is that the rules and management strategies for marine reserves in Mexico are not governed by a universal set of regulations. What's more, in most protected areas, typically only a section of each park, known as the "core area," is actually off-limits to fishing – and the size of these core areas can vary widely. Some parks, like the 15 square mile preserve off the coast of Cabo San Lucas, just 60 miles to the south of Cabo Pulmo, have no core area at all – sport fishermen frequently troll the park for marlin, tuna, and dorado.

Officially, Cabo Pulmo's core zone makes up 35 percentage of the park – more than twice the percentage of any other reserve in the Gulf of California. In reality, the locals enforce these rules across the entire park. But Cabo Pulmo is relatively small – less than 30 square miles. The Upper Gulf of California and Colorado River Delta Biosphere Reserve, or UGCBR, for example, is large enough that its core area alone, which makes up only 16 percent of the reserve, could hold the entirety of Cabo Pulmo National Park twelve times over.

In the UGCBR, small-scale fisheries and large trawling vessels operate in and around the protected area with impunity. Additionally, the reserve sees high amounts of illegal fishing, as poachers pursue the endangered totoaba, a 6-foot silver-scaled fish whose swim bladder is such a delicacy in China that out-prices cocaine on the black market.

This sort of poaching, unfortunately, is inevitable if fishermen are not provided with viable alternatives for making a living when reserves are established.

One morning during my visit to Cabo Pulmo, I headed down to the beach, flashlight in hand, to watch the sun rise. I passed concrete homes with palapa roofs and several half-finished buildings

– Mario and Judith were both opening restaurants. The ramp to the beach is made of hard-packed sand and is flanked by a tall watch tower and a sales pavilion advertising snorkel tours. A motley pack of dogs joined me as I made my way down it, but they quickly abandoned me as the first trucks pulled into the dive shops. Work starts early in Cabo Pulmo. The men arrive before sunrise to prep their dive equipment, open the storefronts, and rake yesterday's footprints out of the dust.

As the day started to brighten, Luis Castro, one of Mario's nephews, towed a panga behind his white Chevrolet truck, down the ramp to the beach. The truck showed signs of hard use. The tailgate was heavily dented and both tail lights were cracked. Luis spun it around in the loose sand and lined the trailer up towards the sea. A group of four sleepy but excited tourists climbed into the panga, assisted by one of the other guides.

With the tourists situated and the captain on board, Luis quickly backed the truck towards the water, pushing the trailer into a retreating wave. As the boat slid free, the next wave crashed into the back of the truck. Luis switched gears and gunned the engine. The wheels spun for a moment in the wet sand, before catching and lurching forward, dragging the trailer free of the surf. The captain on the panga waved as he started the boat's engine and began to maneuvering off through a break in the reef.

Over 8,000 people visit Cabo Pulmo National Park each year, spending roughly $5.8 million, according to a report commissioned by the Mexican Ministry of Environment and Natural Resources. While not all of this goes directly to the residents of Cabo Pulmo, household incomes in Cabo Pulmo are higher than the average income in Mexico, and definitely higher than what they were when most residents made their living as fishermen. "It's brand new," Mario told me, pointing to the nearest in a line of boats outside his dive shop. "Five boats are here at the store. There are ten others that I have in a partnership with my brothers and my mother. At that time, we had one."

The influx of tourism necessitated more official management. Staff was hired in 2008 and a management plan was finally approved in 2009. The park currently has six employees: a

director, a department head, two park rangers, and two technicians. The rangers staff the watch tower by the beach and enforce the park's public use plan, which includes limiting the number of tourists who can visit each site on the reef.

The park rangers make a difference, Enrique Castro told me. But on the water, he continued, "mostly we are the ones – captains, guides, all of us – who are looking out for the reserve." Enrique, one of the younger members of the Castro clan, works as a guide and captain for the family business. The tour operators are part of a community surveillance committee, which was formed in 2008 to work alongside the new park staff. They still watch out for illegal fishing, he said, but also for people snorkeling without a guide, diving too close to the bottom, or touching the reef – new regulations established with the management plan. Some offenders don't know the rules. Others know but don't seem care. "It's the same in the whole world," he said.

The growing tourist industry has been good for the town of Cabo Pulmo, but everyone I spoke with was wary of runaway development. Judith Castro and I stood on the shore one cool evening, as the gentle waves smoothed away the tracks from the boat trailers and trucks. A cool breeze blew steadily off the water and swirled through the palm-leaf awnings of the closed dive shops. "I don't want to lose this peace," she said. "I don't want to lose this contact with nature."

For a reminder of the nightmare they are hoping to avoid, the people of Cabo Pulmo only have to look at the sprawling tourist hub of Cabo San Lucas.

Seventy years ago, Cabo San Lucas was a remote fishing village accessible only by boat or private plane and known primarily as a place where wealthy sport fishermen could go to catch 500-pound marlin. Today, investment from international developers has transformed it and the nearby colonial city of San José del Cabo into a massive tourism hub, full of large hotels, golf courses, and a thriving night life. These developments have come at the expense of working-class Mexicans in the area, who have been squeezed into overcrowded neighborhoods or illegal squatter settlements.

As the two cities sprawled ever wider, developers began to eye the roughly 100 miles of stunning coastline running up the Gulf of California side of Baja, known as the East Cape. Land was comparatively cheap there, and the area held the promise of empty beaches and plentiful marine life.

It also held Cabo Pulmo, a little past the halfway point. As the national park at Cabo Pulmo grew successful, interest in the surrounding real estate only increased. In 2008, a Spanish company proposed a massive development only six miles north of the park's border that would cover an area roughly two thirds the size of Manhattan and include several golf courses, a marina, and approximately 30,000 hotel rooms.

"We were so worried," Judith Castro said. "Not only because of the size of that project, but how many people should come here to work for that project." The fragile desert surrounding Cabo Pulmo doesn't have the infrastructure to support the workers necessary for such a development. The plans also included a marina, a desalinator, and man-made coves, the construction of which would send clouds of sediment spreading through the area, potentially smothering life at the reefs.

The project was initially approved by the Mexican government, but the growing notoriety of the national park meant Cabo Pulmo and its allies had the political muscle to fight back. Environmental organizations, scientists, and the local community banded together in opposition and in 2012, then-President Felipe Calderón cancelled the project after it failed to prove that it wouldn't negatively impact the park.

A few months later, the same development company returned with a new proposal for the area. It, too, was quickly shut down, but a scaled-back version ("a sustainable project that will preserve the environment") resurfaced in 2014, with new investors. At the moment, that plan is on hold; after again facing fierce opposition, the development group withdrew this version, but stated its intention to try again in the near future.

These developments are worrying for more than just their potential impacts on the reef. "They talk about a marina, golf courses," Mario Castro said. "With what water?" Water on the East Cape comes from several aquifers fed by dry river beds, called arroyos, that fill only during the occasional rains. These projects would be a significant burden on the area's water resources during normal times and a potential disaster in a drought. Already, the small aquifer around Cabo Pulmo is severely overtaxed: the town uses a switching system where only half the residents get water at a time. (The non-Mexican community pays to have water pumped from the region's larger aquifer and as a result does not face the same limitations.) Water flows to Judith's house for three to five days at a time, before it is redirected to other homes. The pumps are solar powered, so during the occasional cloudy days, water is even more limited.

So far, there have been no new proposals for the land north of the park, but many people in the community feel that it is all but inevitable. "[The developers] are always there, waiting to see when they want to do it again," Mario said. Smaller undeveloped parcels are also on the market in the area. One real estate listing only minutes south of the town of Cabo Pulmo brags that it would be the ideal setting for an "amazing Natural organic type resort" with room for "golf course organic gardens and restaurants boutique hotels and branded residence." Priced at $250 million, it advertises "enough room to allow over 70 large beach front home lots," all of which would sit along the shores of the national park.

Without permanent legislation protecting the park from any future development, each project must be fought individually as it is proposed. Organizations in the community are pushing for these sorts of laws, but it's a long-term struggle, hampered both by the slow pace of government legislation and what activists argue is political corruption. But according to people like Judith, the response from the community in Cabo Pulmo has made the government wary about authorizing new developments. "We are a community that is ready to fight, if necessary," she said. "And the government has to think about that."

But there are more challenges to be faced. Residents of the town still lack most basic services. There is no health clinic. The school is a one-room building, where all six grades are taught simultaneously by a rotating cast of young people from out of town with no professional training.

There is a better school in La Ribera, where Judith now sends her son, but it is almost 20 miles away. "That's what development means," Judith said. "It's not only hotels or tourism services. It's to grow together for the community, with the schools, with health services, and a grocery store and a church and all of that."

In 2012, Aburto was finally able to capture a photograph he had envisioned for three years. It features David Castro, Mario's son, standing in scuba gear and fins on the sandy ocean floor, dwarfed by hundreds of thousands of jacks swirling in a ball in front of him, while still more form a spiraling column towards the surface. The photo captures the jacks' courtship behavior, one of the tornado-like spawning aggregations that now flourish in the protected areas. But for Aburto, it is also a symbol of Cabo Pulmo. "I called this picture David and Goliath," he said. "The story is that yes, humans can recover the marine environment."

Humans can recover the marine environment. It's a simple, hopeful statement. Despite overfishing, pollution, climate change – perhaps all is not lost. But recovery requires patience and conviction, and an acknowledgement that people who depend on marine resources to survive cannot simply give up their livelihoods for some greater environmental good. "You can't protect the ecosystem if you don't protect the communities," Judith told me. "You can't separate them." People need viable economic alternatives, and support during the transition. Cabo Pulmo did it the hard way. While they had the moral support of the government, scientists, and conservation associations, they had little financial help to get through the most difficult years. It was the commitment of the community that made the park a success.

And some luck, too, Mario reminded me. Cabo Pulmo gathered enough friends and allies – some Mexican, some international – to fight off the threats to the park. Without them, the small village would have little hope of stopping the advancing wave of development. The town and its park also happen to be perfectly located for small-scale tourism: close enough to international airports to be accessible, but far enough away to avoid being inundated with an unsustainable amount of

visitors. But the story of successful conservation in Cabo Pulmo comes down to the people who live there, and the decades of work they put in to find a balance with their ecosystem.

When José told me on the beach that he had been underwater in a submarine, I figured I must have misunderstood him. I still wonder if something was lost in that conversation, tangled in words I couldn't quite grasp. Perhaps he was referring to 2015, when a collaboration of scientists mapped the local seafloor and explored sections with an ROV. Perhaps he was simply telling a fisherman's tale. In the end, it doesn't matter. There was no mistaking the delight on his face as José described what he saw under the water at Los Frailes. There is a canyon out there, 200 *brazas* deep, he told me, holding his arms out wide. A *braza* is a fathom. Six feet. I nodded, and he crouched down in the sand, next to the sketch he had done for me of the leatherback turtle. Using his finger, next to his turtle he drew for me an overhead view – the canyon starting relatively close to shore, then swooping out into the gulf. Right here for two hours, he said smiling. There were huge sharks and tiny fish. Shrimp, starfish, and beautiful coral. Just beautiful.

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