Adelita: Heart of a Revolution

By Wallace J. Nichols with Andy Myers

J – as he goes by – is as passionate about the entire ocean as he is about turtles and thinks we are on the verge of a new way of looking at ocean science. His "Oceanophilia" theory posits that the next step towards understanding our water planet is linking neuroscience with marine biology, emotion with science. But he still gets excited tracking sea turtles.

August 10, 1996. A few miles off the coast of dusty Baja California Peninsula, the land appears as a thin ribbon on the horizon and the wind rips across the water unimpeded by anything but a prayer. In a small boat a handful of people is gathered around a female loggerhead turtle. She is called Adelita after a local fisherman's daughter, herself the namesake of the heroine of the Mexican Revolution. The team affixes a Bible-sized box to the turtle's brown and yellow heart-shaped shell. In the box is a satellite transmitter, one of the first ever to track the migration of a sea turtle. It will allow them to follow her wherever she might roam for the next year or so, perhaps longer if the batteries hold. After a wait for the slow-curing resin to set, the team lowers Adelita into the water and a historic journey is on.

Back in the late summer of 1996 I was still a graduate student in marine biology. Debate was then rife among scientists about the loggerheads of western North America. Specifically, where did they come from? Loggerheads love Baja California. They bide their time in Baja like so many tourists, floating around, soaking in the warm sun, feasting on the innumerable red crabs that thrive there. Hundreds, perhaps thousands of loggerheads can be found in Baja—once there were millions—yet no one had ever located a single loggerhead nesting on any beach anywhere along the miles and miles of twisting Baja coast, or the entire Pacific Coast of the Americas for that matter. Not one.

As most school kids will tell, the first, and perhaps most impressive, thing you learn about sea turtles is that they are known to return to the very same beaches where they were hatched to nest as adults. With no known loggerhead nesting beaches in Pacific Mexico, there were many questions to be answered.

The team and I and watched Adelita swim away, our panga bobbing in the immense ocean. We stared out across the expanse of blue before us and thought maybe, perhaps, possibly these turtles aren't born in Baja at all. Maybe they migrate here only to return from whence they came. We gazed at the horizon. Somewhere out there, across the vast Pacific, lay Japan and the nearest known loggerhead nesting beaches, a mere 7,000 miles west. Genetic evidence suggested the possibility of epic ocean-spanning migrations. But dwarfed by the vastness of the Pacific Ocean, the hypothesis was revolutionary at the time.

Each day, the small box on Adelita's back relayed her location to us via satellites linked to a base station in France. Each day we studied the data then uploaded it to the Internet. Tiny dots aligned on a map, surrounded by nothing but blue. Soon, other people took note. And then more. School kids, scientists and turtle lovers the world over were watching Adelita's progress. Alone, but not alone, Adelita stroked on through the deepest, wildest, most humanless expanse of our planet.

People would write. "Hi J., this is Meghan and I was just wondering if you are as excited about this as we are?" At night, I couldn't sleep. I'd lie awake thinking about Adelita. Praying for her safety. Wondering what was beneath her and above her. Was she hungry? How did it feel to be going home after so many years? I became obsessed with checking my email for the latest position. I'd imagine members of our loosely connected club sitting in front of glowing blue screens all over the world, plotting, imagining, hoping and dreaming about that vast blue space.

We tracked her due west out of Baja making a steady 20 miles per day; a healthy walking gait for you or me. By January 1, she was just north of Hawaii. From there, she tracked west and ever so slightly north. Sure enough, she was headed straight for Japan.

Brie wrote "What are you gonna to do when Adelita gets to Japan? I mean are you gonna send a team to get her, J?" "I'm not really sure," I wrote back.

March 9, 1997. Barbara Garrison, a teacher who was following Adelita's progress across the Pacific with her students, receiving my regular emails and thoughts, wrote this poem during the journey as the turtle neared the International Dateline:

Adelita sleeps
Do you ever find yourself
thinking of her
in the middle of the day?

Sister of mercy
adrift in the world
her carapace around her
like a habit
following the liturgy of longitude
like the Stations of the Cross
the draw string of dream
gathering with each dive.

A sea shadow
cradled in the arms
of the great Turtle Mother.

The Virgin of Cobre guiding

through the dangerous sea
the black sand memory
of her natal beach
ringing her course
in peals of instinct.

Cartographer
explorer
world traveler
Adelita sleeps.

A Shinto priestess
leads the way
a goddess path
from Mexico
to the arribada
on a distant
Kyushu shore.

August 13, 1997. Three hundred and sixty-eight days after we lowered her into the Pacific, Adelita's signal finally went dark—her last location put her near Sendai, a port in Japan.

In the years since Adelita, much has changed, scientifically, environmentally, and, most significantly, socially. Prior to Adelita, flipper tagging was how we tracked long-distance turtle migration. But with a metal tag all you know is point A and point B; a turtle that was once there, then is now here, now, nothing more. Satellite tracking, then a nascent technology, held great promise, but it was expensive and tricky to do in the water. Think of your cell phone in 1996; unwieldy to say the least. How long would the glue hold? Would the battery last? Can the transmitter survive in the salty sea? And sea turtles are far from safe out there. All these questions and more were laid to rest when she reached Japan.

Since Adelita we have tracked over fifty turtles along the Baja Peninsula. Today's gear is better, smaller and cheaper. Methods of attachment are more reliable and analysis tools are much more powerful. The information provides a greater understanding of migration and lifecycle, ecology and behavior, as well as threats and potential solutions. The technology has expanded to include tiny cameras that provide a turtle-eye view and tiny transmitters injected to give biofeedback—body temperature, heart rate, respiration and other valuable information. It is becoming standard procedure to track dive patterns and locations of endangered ocean wildlife, watching when, where and how deep animals descend in search of food or to avoid predators. Such data is now used in real time to help fishers and boat captains avoid interactions with such endangered species.

In terms of sea turtle biology, Adelita jump-started an era of tremendous growth in what

we understand about where and how turtles live. Scientists now know that loggerheads born in Japan spend the first months of life adrift on the ocean, moving away from nesting beaches. The lucky ones do anyway, those who make it to adolescence. But only a small percentage of hatchlings make it through the gauntlet that awaits them—foxes, crabs, sharks and fishers' nets, even the carelessly discarded plastic bag can be lethal when mistaken for a jellyfish, a favorite food.

Many young loggerheads will then migrate east across the North Pacific, moving both with and against the predominant currents in search of food. Little is known about the beginning of this eastward trip. The youngest loggerheads are too small to be affixed with satellite tracking devices. Recently, however, a team of U.S. and Japanese researchers has tracked dozens of young loggerheads released into the Kuroshio Current. The results suggest young loggerheads feed along the meandering, invisible ocean edges where currents meet, temperature changes, and soft-bodied animals from the deep accumulate, providing plenty of good food for hungry turtles. Eventually, some make it to Baja and once there they hang out, often for decades, growing large and fat for the long journey back home. They become big, powerful swimmers. Adelita weighed 223 pounds — more than me — just ripe for a satellite tracking device.

At some point, an as-yet-unknown biological trigger, a hormonal surge perhaps, tells the turtles it's time to head home. And then they are gone. On the trip back, we know that turtles follow the ocean's convergence areas, picking up as much help as they can from Mother Nature—and maybe some food along the way. Ever the masters of efficiency and resource, they make a near-straight shot across the Pacific. The details of that long journey, other than location and depth, remain largely a mystery. I would love to trace Adelita's track in a boat. It is a transect through the North Pacific, crossing an area now known best for its accumulating bits of plastic waste, the product of five decades of unbridled consumption by distant civilizations. During the years since Adelita's journey we have worked to raise awareness of plastic pollution in the ocean, a menacing threat whose full impacts on animals and humans are only now being appreciated.

The decade since Adelita has also witnessed a transformation of scientific collaboration. Once, sea turtle conservation was a relatively homegrown endeavor, transpiring on nesting beaches, mostly at night. There was no need to partner with or seek out scientists on the other side of the world because they had their own turtles to worry about. Groups of scientists, conservationists, and activists worked together locally to protect specific beaches or to reform fishing industries of the countries where they lived and worked. Handwritten data became typewritten reports, most bound for file cabinets and dusty shelves. The critical nightly beach work continues, but the playing field has expanded to include international partnerships that sprout fresh ideas and knowledge. Our ability to collaborate at the speed of light has to be considered a revolution in itself.

As it turns out, turtles aren't local at all. We know now that the health of turtles and the ocean in Baja is closely tied to the health of turtles in Japan and all points between, and vice versa. To understand sea turtles everywhere, we must share data and collaborate globally. And, it's not just geographic. It's interdisciplinary. We now work with experts

on mammals, birds, fish, invertebrates and other species as well as chemical and physical oceanographers to understand how all these elements act together as an ecosystem.

Perhaps most significantly, however, the changes since Adelita have been social. The world has changed. People have changed. There has been a revolution in ocean conservation and in how the world views the environment in which we and all life exist.

Though I am a research scientist by training, I have long since abandoned the pure pursuit of knowledge in favor of combining my experience with advocacy and perhaps a fair share of social marketing to advance the greater cause of conservation. There just isn't enough time to wait on scientific consensus on everything before we do something about what's happening to our planet. I think, above all, Adelita showed me that a thin thread runs through each living thing on Earth—plant or animal—and binds us together. The sea turtles of Baja California are a microcosm, and a metaphor perhaps.

So, while I have not abjured science altogether, I have become a vocal advocate for action. I now work with local communities to forward conservation based on the best science we have—but the best science is not always perfect and I can live with that. We do the best we can with what knowledge we have and we adjust when something or someone provides us with a different truth.

Nowhere is the social shift more apparent than in the fishing communities of Baja California Sur. Baja fishermen are working to find economic alternatives to sea turtle hunting, an industry that blossomed in the middle of the last century, then crashed hard. Regulations came too late and turtles virtually disappeared. Still today sea turtles are a delicacy to the people of Baja and there is money to be made on the black market from their meat and eggs, as well as their shells.

Baja is a place where a few dollars from the sale of a single turtle can be enough to feed a family for a week or more. So even modest economic incentives go a long way to stem their being hunted. Our team has been working with local fishermen to promote ecotourism and the establishment of a network of sea turtle refuges. There is a burgeoning interest in sea turtles. Much of it started by, if not inspired by, Adelita. Local fishermen are skilled and knowledgeable guides and they can earn good money leading tourists to turtle "hotspots" to witness loggerheads and greens and hawksbills in their native environment— graceful, gorgeous, and free. Ecotourism can offset the potential money they might make on the black market or from fishing with deadly gillnets. And new research from Australia makes it clear that when people spend time near wild turtles, whales and dolphins it inspires behavior change favoring conservation back home.

January 30, 1999. A few years after Adelita, I helped found Grupo Tortuguero—the "turtle-people group"—a network of individuals, communities, organizations, and institutions from Baja and around the world dedicated to sea turtle conservation. We envisioned sea turtles fulfilling their ecological roles on a healthy planet where people value and celebrate their continued survival rather than see them as a chance for a quick

meal or a quick buck. We are encouraging people and their communities to conserve sea turtles by strengthening relationships within a conservation community, developing innovative programs and participatory research projects and sharing knowledge and information as widely as humanly possible.

Now in its second decade, the Grupo Tortuguero works to restore sea turtles to their ecological role on Baja's reefs, sea grass beds, bays and esteros. In places like Bahia Magdalena, Cabo Pulmo and Laguna San Ignacio and the Loreto Marine Park, these diverse habitats provide refuge for the endangered turtles.

When the Grupo Tortuguero first gathered for its annual meeting in 1999, 45 fishermen, scientists, and conservationists showed up. We fit in a classroom. We laid out our ground rules: one member, one vote; annual meetings, more if possible; and we would be known as the "Grupo Tortuguero." Each member pledged to save at least one sea turtle during the following year. Within a decade, the Grupo Tortuguero grew ten-fold, and filled half of Loreto's municipal auditorium. The meeting is now equal parts conference, fiesta and family reunion. Successful conservation efforts require good science, but music, beer and tacos don't hurt. Countless thousands of sea turtles have been rescued, protected and rehabilitated by members, mostly fishermen and their families.

Grupo Tortuguero's former coordinator, Rodrigo Rangel, grew up on Isla Magdalena in Baja California, one of a long line of fishermen. Sea turtle meat was common fare in his home. "At first, my family called me an 'ecologista' and tempted me with sea turtle soup," he said about the time he first told his family of his new profession. "Now they get it. They respect my work and they help me to protect sea turtles. The sea turtle revolution is happening, one person at a time."

Once I was allowed to witness the fate of an illicit turtle. As difficult and distasteful as it was to me, I felt I had to watch it to understand the culture, people, and traditions of the communities of Baja. I waited as the green turtle was turned on its shell to "live" a few more days in anticipation of a homecoming celebration where traditional turtle soup would welcome the guest of honor. I considered the drastic "rescue" operations I might undertake. And how I'd then need to leave the community, perhaps forever. In the end, I watched an efficient slaughter. I didn't speak. I was motionless, fascinated, paralyzed, curious; a visitor, a guest.

Local myth holds that a sea turtle heart, disembodied, will beat for as long as 20 minutes, pumping non-existent blood to non-existent organs. I now know this to be a fact.

Today some of the fishermen with me that day lead the local sea turtle monitoring and conservation efforts. One of them, Julio Solis, is the executive director of the Waterkeeper chapter fighting unsustainable development projects, championing clean water and restoring sea turtles. These young men are also inspiring the next generation of conservationists by speaking in the schools, holding sea turtle festivals and bringing kids on overnight turtle monitoring expeditions. They are among my most trusted friends.

In my profession, words like dedication, passion, and love of nature are deemed overly sentimental, kind of soft. In science, deep personal relationships interfere with goals. Some say that it's hard if not impossible to maintain one's status as a respectable scientist and also be an effective advocate for the ocean. Some say that to restore nature is only a matter of dollars and enforcement. Then again, some say that's all bunk.

Here is what I know: If we are to repair what is broken in nature, if we are to replace its heart with one that still beats, it will take a revolution full of passionate celebration of nature and commitment to and compassion towards each other. On the Baja peninsula, within a growing number of people who inhabit the towns along its shores, you'll find the beating heart of a revolution. The conservation leaders in Baja respect and understand nature and they have rallied to help protect sea turtles in their own economic and cultural—maybe even spiritual—interest.

We have a long way to go. But, the revolution is spreading one person at a time, and it certainly goes beyond Baja and beyond sea turtles. From efforts to stanch the flow of plastic into our oceans, to beating back climate change, to changing the things we eat, to protecting invaluable coral reefs, there is an ocean revolution raging. Adelita didn't ignite the flame, but she surely fanned it and sparked a few small fires along the way.

Without question, the world—and I—owe a great deal to Adelita. She was a sea turtle who was merely adhering to a millions-of-years-old ritual. She was going home. But she took us with her.

Adelita's exact fate, however, remains a mystery. After she reached the coastal waters of Japan, I continued to receive tracking points from her transmitter, each set more peculiar than the next. The first coordinates fell in a scattershot pattern, inconsistent with those of a turtle making its way along a coastline, as I expected to see. Then, for a time, nothing. Then, there she was again. This time moving in a straight line on a direct path to the port of Sendai, Japan, but far faster than any turtle could possibly swim. Eventually, the signal disappeared for good.

Curious to see the place where Adelita made land, in 1999 I trekked to Sendai, GPS in hand. When I reached the coordinates I'd programmed in—the exact point of Adelita's arrival, her last known location on Earth—I found myself on the dock of a small Japanese fishing village, Isohama, a fleet of squid boats lining the harbor.

I cannot say for certain what happened to her or her transmitter. She may still be out there. Deep inside, I believe she is. One thing is certain, her heart still beats. In places like Baja and Sendai and Sydney and Santa Cruz, all across the world, the heart of an ocean revolution still beats.