What Rainbow Trout Know About Relationships

The concept of the fish ladder helps me think about love, distance, and the meaning of “home”

Painting: “Rainbow Trout,” by Lauren Silverman

All of us are fish. There’s evidence of it in our faces, most visibly in that groove above our upper lips — called the philtrum. It serves no purpose; it is merely a clue as to how our faces form inside the womb. In those first few weeks, our tiny nostrils emerge near the tops of our heads and our eyes are way out on the sides. For a brief window of

time, our jaws and upper lips are nothing more than gill-like structures along our necks. We look a bit like guppies. But then, our eyes and lips and nostrils begin to migrate inward toward each other, some invisible zipper pulling them together until they fuse above the mouth. The philtrum — that tiny divot — is the place where the human face finally comes together. It is a reminder of our water-dwelling past.

Until a few years ago, I'd never considered the similarities between fish and humans; we existed in two worlds, separated by millions of years and the ocean's cold, puckered skin. But something has changed in the way I see fish. And also, in the way I see humans. It started with a sole rainbow trout, twitching toward the Pacific Ocean, searching for something new.

Rainbow trout (*Oncorhynchus mykiss*) may taste bland, but its appearance is spectacular: the body is an iridescent olive green with a stroke of pink that stretches from the gills to the tail. The belly is a metallic silver, fading to pearl white. It has the black spots of a Dalmatian and the shine of an abalone shell. You can find rainbow trout anywhere west of the Rocky Mountains — usually in lakes or streams — which is why I was surprised to see one on the beach off the Pacific Coast during a day trip with my husband, Paulo. It was flapping about in the sand, face pointing toward the ocean with what seemed to be a yearning desire. Behind the trout, a thirty-foot-high waterfall crashed from the cliff onto the beach. I could hear Paulo yelling something over the tumbling of waves, but I couldn't take my eyes off

the fish. It was gasping. The way it opened and closed its lips, gulping for air, looked familiar. Almost human.

“Look!” I shouted to Paulo, who had jumped across the stream. He glanced toward the fish lying in the sand, then up at the waterfall, perplexed.

Most fish don’t leap from waterfalls trying to enter the ocean, but there’s a name for those foolhardy enough to do so: anadromous fish. They migrate from freshwater rivers and lakes to the salty ocean and back to spawn. Anadromous fish make up only one percent of all fish in the world — the ones I knew about were salmon. But rainbow trout are generally freshwater fish, so why was this one making a daredevil dive into the Pacific?

This question has fascinated scientists for years.

The Mystery

Few species have so enraptured fishermen and aquaculturists like the rainbow trout. Anglers love them because they’re feisty and tough on the line; scientists love them because of their unique behavior. In the world of fish research, rainbow trout are notorious. This is, in part, because unlike most other fish that migrate, only *some* rainbow trout decide to leave everything behind and make the journey to the ocean. So why do some become Marco Polo and others stay put?

The Decision To Leave

“Why did you leave your town in La Pampa?” I asked Paulo one afternoon, while sitting on our couch in Oakland. Though I knew we had talked about it years before, in the blur of the streets of Buenos Aires, I had a fresh curiosity about his decision. He leaned back into the cushion and let his chin tilt toward the ceiling.

“Well, I guess it just started to seem dull,” he said. “I had this feeling that there was more out there, and I wanted to find out what.”

I couldn’t argue with that. The place where Paulo grew up was tiny. It had more tumbleweeds than people and if you weren’t interested in working at the flour mill or the school, *estabas jodido* (you were fucked).

“When you left, did you know where you were headed?” I asked.

“Not really,” Paulo shrugged. “I kind of went with the flow.”

Paulo left his town when he was eighteen. He drifted a few hundred miles east toward the Atlantic and landed in a medium-sized city called Bahia Blanca (the White Bay) before traveling farther, to the jostling megacity of Buenos Aires. Somehow, that swarm of eight million people wasn’t enough; he dreamed of crossing continents.

Dreaming of making it to another country is one thing, executing it is quite another.

That is where I enter the story, as a young American student roaming the streets of Buenos Aires. It was there that I first saw Paulo, juggling a scuffed-up soccer ball on the sidewalk next to the apartment where I lived.

We were both in our early twenties, still hungry enough to devour the world and be blissfully ignorant of the bellyache that might follow. I didn't care that Paulo spoke no English and had no bank account. It didn't concern him that I was a capitalist "Yankee" who preferred to live alone and didn't like red meat. At that point, our differences weren't alarming, they were intriguing. It was winter in July and Paulo showed me what life could be like if I loosened up and slowed down. When I speed-walked through the plazas, he'd ask, "What's the rush?" and persuade me to stop and eat sweet *tortas fritas* or sticky *garrapiñadas*. When I got worried about money, he would kick up his legs, throw back his head and chuckle, a fountain of laughter moving through his throat like water. His presence softened me. I knew I would never be like him, so I resolved to keep him near me, hoping I might learn to float in his insouciant tide.

After spending six months together in Argentina and then dating long-distance for another four, we decided to try and live together in the United States. Paulo borrowed money for a plane ticket and work visa, stuffed a few pieces of clothing inside his mother's suitcase and asked a

friend to safeguard what was left: several tattered books, an acoustic guitar, and a leather bullwhip his grandfather had given him. Then, in December of 2009, Paulo boarded a plane for the first time and braced himself for San Francisco.

America may be a nation of immigrants and their descendants, but around the world, those who migrate are in the minority; a very small percentage of people live outside of the country where they were born. After all, you have to be quite brave or desperate (or both) to strip yourself bare and offer yourself to the whims of a distant land.

The Metamorphosis

Try and blend in. That's the standard advice for someone moving to a new place, and it turns out this goes for migrant fish as well. For a freshwater fish to survive in the salty ocean, it has to undergo a massive transformation. The young rainbow trout develops special cells in its gills, kidneys, and other parts of its body to help process the excess salt of the ocean. The trout also changes in appearance; its pink stripe fades and it turns a steely blue for better camouflage. It becomes more fusiform, grows larger, and its tail becomes paddle-shaped for ocean swimming. Once the trout enters the ocean, it also adjusts its diet and acquires a taste for finer foods like squid and crab. Almost unrecognizable from its former self, the rainbow trout's metamorphosis is complete. All that's left for us humans to do is grant it a new name: *steelhead*.

Since fish experts are still debating the origin of the name steelhead, I turned to the amateurs who frequent fish forums for their speculations. Some of them say the name comes from the fish's steely coloration, while others hypothesize that it has to do with all the steel fish hooks that break off in their heads. I'm starting to think they're called steelhead because the journey hardens them. I wonder if they feel fear, or even strength in the ocean. I wonder if their scales become brassy and callous from all that salt. I wonder whether they notice themselves changing.

I remember the moment it hit me that Paulo was transforming. He was on the phone trying to set up an appointment.

"It's for *Paul*," he told the receptionist.

I glanced at him, shaking my head and mouthing "Ewww."

"*Paul* is easier for people to pronounce than *Paulo*," he said, covering the phone with his hand so the receptionist couldn't hear. As silly as it sounds, I hated that he was assimilating. But I also wanted him to fit in.

I started to notice other, more subtle changes: Paulo learned to greet people by shaking hands instead of kissing cheeks; when he walked dogs through the alleys of Washington D.C. for work, he became accustomed to scooping their poop instead of leaving it on the sidewalk; during breaks he attended workshops on tech

entrepreneurship. I wondered what would happen when this new guy, Paul, returned home to Argentina. If he returned.

In the first four years Paulo lived in the U.S. he returned home just twice. After one trip I remember a conversation we had in our apartment in Dallas. We were sharing a cup of tea he'd prepared with dried lemon verbena leaves from his aunt's garden in La Pampa.

"It was so good to be there," he said in Spanish, passing me the mug. I had been checking email on my phone but paused to take a sip. I knew Paulo had mixed feelings about visits home. He had a solid group of childhood friends there, but the country was falling apart. Prices of milk had skyrocketed and people were stuffing dollar bills under mattresses again. Despite his family's anxiety, a part of me didn't want the economy to improve. I worried he might be tempted to leave me and go back.

"After a while you got sick of being there, though, right?" I asked.

He motioned for me to hand back the tea. "I don't know," he sighed. "Maybe one day I'll buy some land in the town where I grew up."

I told myself "one day" meant when we were retired and turned back to checking my inbox.

As much as I loved visiting Argentina, the thought of permanently living there made my chest tighten and my stomach seize. The life

Paulo missed made me claustrophobic: the cramped apartments where you had to shout to be heard over honking taxis; the impromptu barbecues with no place to hide, and the social gatherings that began at midnight and lasted until sunrise. By the time we had moved to Dallas, I had come to accept that I was both introverted and individualistic — two qualities better suited for North rather than South America. So while living in Texas, I slipped into a casual patriotism, reminding Paulo how very special the United States was. “Look how easy it is to get a loan here, and you don’t even have to worry about inflation!” I’d boast. “Have you been to Half Price Books? There’s a whole section on entrepreneurship!” I didn’t mention the aisles dedicated to “Military & Wars” or the shelves packed with translations of the New Testament and personalized Bible covers.

Over the next few years, Paulo finished school, got an engineering degree, and hatched plans to start a business. It seemed like he was acclimating, and I was looking forward to the two of us finally settling down in my hometown of Oakland, California. But as soon as there was a chance to plant roots, he admitted he was feeling a familiar tug toward home.

Some desires are so threaded into our double helix that they’re impossible to deny.

The Way Home

Hundreds, sometimes thousands of miles away from the stream or river where they were born, steelhead trout eventually feel the urge to make their way home. It's thought that they use the earth's magnetic field to locate the mouth of their native river, but even after decades of research, scientists are still not quite sure how they navigate. What is clear is that once the trout are in freshwater, they use their sense of smell to guide them the rest of the way up the river to spawn. That is, unless there's a massive cement dam in the way.

Imagine trying to jump six times your height, without legs. That's what steelhead in California's Alameda Creek must do if they want to return from the Pacific Ocean to the stream where they were born. Alameda Creek was located only a half-hour away from the apartment Paulo and I shared in Oakland, although I'd never heard of it before I started learning about fish. The creek used to be filled with steelhead, but they started to vanish in the 1960s. Over the span of several decades, the construction of dams and culverts made it virtually impossible for steelhead to return to their spawning habitat to lay eggs. In 2008, scientists rejoiced when they spotted a single pair of spawning steelhead for the first time in years; they nicknamed the couple Bonnie and Clyde.

I learned about the efforts to save Bonnie and Clyde and the rest of the Bay Area steelhead in a news article and a 30-page report that used fish icons in place of bullet points. The report stated that the main obstacle for steelhead was a twelve-foot cement dam the fish couldn't pass. Even for the most prodigious jumpers — which steelhead trout

are, they can leap up to five times their length — a jump of twelve feet is impossible. So, what could be done?

The authors recommended constructing a multimillion-dollar fish ladder. I repeat, they wanted to build a very, *very* expensive ladder — for fish. Were they nuts? I looked up the authors to see if they were philosophers or engineers. Indeed, they were engineers. I giggled imagining these practical people suggesting such a quixotic project.

At dinner one night, I told Paulo there was a proposal to build a fish ladder nearby. He laughed.

“Seriously!” I said, pulling out my phone to show him an image of the twelve-foot barrier the steelhead fish need to surpass.

“Poor fish,” he murmured, squinting at the photo of the tall concrete wall. “How do you build the ladder?”

I grinned. “I guess I’ll find out.”

To construct a fish ladder, you need to create a series of leveled pools for fish to climb. If all goes as planned, the fish leap through the water that rushes downstream and rest in the small pools between jumps until they’ve passed the barrier. There’s no one-size-fits-all fish ladder; they’re tailored to the length and stamina of the species. It turns out fish ladders have been in use for centuries, but there’s a new urgency to build more (and better) ladders before species go extinct.

The notion that you could convince fish to climb a ladder and taxpayers to approve such an expense still seemed far-fetched, so I called someone who has dedicated his life to restoring species such as steelhead to Alameda Creek. Jeff Miller, who directs the Alameda Creek Alliance, said not only could a fish ladder save the steelhead, but that the County had already secured some funding to begin construction. “It’ll take three years to complete,” he told me. “Once it’s done, it will be one of the most complex fish ladders in North America.”

Jeff didn’t say it, but I got the feeling that fish ladders are a last-ditch effort to save steelhead trout. The return rates for steelhead across the country are alarmingly low, sometimes only one- to two- percent of the fish who go out to the ocean make it back to their birthplace.

The longer Paulo and I lived in the United States, the more he talked about moving back to Argentina. For the first few years it was a casual comment. “I’d kill for a barbecue with my friends,” or, “I miss playing chess in the park.” Nearly a decade later it morphed into full-blown manifestos that tore down America’s work-first culture and broken healthcare system. I tried to remind him that nowhere is perfect, that he was lonely, but he would scoff and say, “I could never imagine staying here.”

Instead of grabbing a beer with neighbors or friends, Paulo would spend entire afternoons on the couch sending messages to his family in Argentina, playing the videos of his niece and nephew splashing in a

sprinkler on repeat. I couldn't stop staring at his smile when he watched them; it stretched so wide it pushed his round cheeks toward his ears. The expression was both familiar and foreign to me, like something from an old photograph I longed to reproduce. I started trying to make him laugh when we were together but gave up after a few weeks. I decided to shelve our discussions of having kids and stop half-joking about baby names. He was rejecting anything that tied him to the United States, including me.

I could see Paulo sinking into something unfamiliar, the way a heavy boot gets stuck in the mud. At first he didn't admit it, but I could tell it was depression — a depression born of loneliness and nourished by isolation.

After a few months of this, I mustered up the courage to confront him.

"Why don't you try to make friends with people from Argentina who live here?" We were washing the dishes.

He glared at me. I could sense the heat moving up his chest and into his neck.

"I have," he said, slapping the dish towel on the counter. "Besides, just because they're from the same country doesn't mean I'll like them."

I knew he was right, but I wasn't sure what else to suggest. It had been years of us stuck in this eddy, circling around the same dilemma.

“I miss *my* friends,” he added. “*My* family.”

Only the people closest to me dared to suggest that “maybe the relationship had run its course,” or that “it was time to let him go.” Lying in bed at night I would close my eyes and picture the full arc of our ten years together. All the spires I’d constructed and the valleys I’d dug. The way something stable seemed to be emerging near the end. A projection, a mirage? I had to keep building.

My approach was piecemeal: I planned weekend road trips to flaunt the lush landscapes of California; I organized barbecues to surround Paulo with people who loved him; I searched for bigger apartments where he might have space for a workshop; I packed his lunch and left sticky notes with doodles of birds inside to cheer him up. I even bought a bottle of cannabis-enhanced lube to improve our sex life. I was desperate and exhausted, unwilling to accept that neither food nor flesh would be strong enough to fight the tide.

I wanted to blame Paulo’s homesickness for our separation, but of course it was much messier than that. Our personality differences also fed the widening gulf between us. The gap grew to be so large I wondered if we’d ever been compatible in the first place. We tried to find common ground in couples therapy, but the only things we could agree on were the traits that kept us apart: his social nature, my introversion; his love for spontaneity, my need for control; my desire to start a family in the Bay Area and his desire to leave. I started to feel like the anchor dragging him down.

One night in 2019, ten years after Paulo had flown 6,000 miles north to find me, he said he needed to find himself; he needed to return to Argentina. I didn't know if he'd ever come back to this country, or to me.

The Ones Who Stay

It's the little things that reminded me of how alone I felt: the second towel hanging in the bathroom, always dry; the goldfinch chirping for more bird seed outside; the dull knives I never learned to sharpen, and of course, the lyrics to pretty much any song of any genre of any era. I was on the verge of melting into a puddle of nostalgia. At first, I held myself together with baked goods and waterproof mascara, but my body betrayed me.

A rum-colored rash bloomed around my neck. The skin behind my ears started to peel and I had a case of nausea like I was crossing the Drake Passage. I tried to calm my stomach with ginger tea and kombucha. When neither worked I took shots of apple cider vinegar and Fernet. I rubbed steroidal cream into my skin and swallowed Prozac for my brain. Embarrassed by my pink-and-white-checkered complexion, I often stayed home and stared into my laptop, researching anadromous fish as if they, too, might slip away. After all, I still wanted to know the fate of the remaining steelhead trout in Alameda Creek.

It was around this time that I read something so remarkable about steelhead that I actually stopped picking at my peeling skin long

enough to slap my hands on the table in disbelief. I learned that unlike salmon, which return to their native river to spawn — and then die — steelhead trout are wired to survive, and even make the journey to the ocean and back again. In other words, their trip home doesn't have to be one-way.

The Return

Paulo has always hated swimming. His blood runs warm like the summer soil where he was born. But drawing parallels between him and the steelhead was irresistible; it gave me hope. Here's a fish that is born with multiple destinies. It can choose to stay in its native river forever, or swim hundreds of miles into the deep blue — and it makes this life-altering choice multiple times. In fact, steelhead sometimes make three or four round-trips in a lifetime. So, when Paulo called me from Argentina, many months after we'd separated, to say he had decided to return to California — to me — I couldn't help smiling. I was thinking about us, but also about the journey of the steelhead trout.

There's one other thing Paulo said in that long-distance phone call. Something that sounded like an aside but was really the crux of the conversation. He said he was willing to make the Bay Area our home, so long as it was not our *only* home. It took me a few days to understand the question behind his compromise. He was really asking: *Lauren, are you also willing to evolve*?

The request hit me like a backhanded slap. What a selfish asshole, I thought. How could he ask me that after all the things I'd done to support him? The years of navigating a dysfunctional immigration system, all the money I had lent and the moral support I had thrown behind his every decision. What did he think I had been doing all that time?

When the sting of his words wore off, I saw more clearly what I had been doing: I had been trying to help *him* change. I'd been buying and assembling the pieces of a ladder for him to climb, by himself. Sure, I was watching from the riverbank, cheering him on, but I wasn't budging.

It hadn't occurred to me that I might need to take a risk and climb as well.

The truth is I don't know if I can. I don't know if I can jump five times my height and learn to be more spontaneous and sociable and maybe even move to another country. All I know is that somewhere beneath my blotchy skin there is an unshakable desire to try. So last Spring I told Paulo yes, let's keep building.

And here I am, researching ways for us to live abroad, adapting to the idea of leaving what I know behind. It might not work and I don't have a clue as to how we'd make it happen. We can't afford international plane tickets on a regular basis, let alone houses in multiple countries. If we have a kid, we will have to decide where to raise it, and whether

that place is anywhere near either of our families. Right now, the plan seems unwieldy and absurd.

When I start to feel shaky, I look at the spot above Paulo's upper lip. Staring at that diamond-shaped divot, I remind myself that humans evolved from fish. That in the womb, before our eyes and lips migrated across our faces, we looked less like people and more like rainbow trout. That we, too, feel the urge to travel, and also, to return home. That sometimes the trip requires leaping over impossibly high barriers. And that sometimes, because of the love and insanity of those around us, we make it to the other side.

Such journeys aren't impossible, they're just upstream.

Today, the multimillion-dollar fish ladder in Alameda Creek is almost halfway done. It looks like an enormous cement channel — the width of a highway — with resting pools that rise in elevation to help fish jump over the barrier. Once it's complete, the ladder will give steelhead access to more than twenty-five miles of new spawning and rearing habitat. Jeff Miller, with the Alameda Creek Alliance, tells me the ladder could help nurture healthier steelhead runs numbering in the hundreds, if not thousands of fish. I can picture them climbing it, flapping their silver, paddle-shape tails toward some place that feels like home.

Special thanks to fish biologist John R. McMillan for sharing his knowledge of wild steelhead for this piece.