

Stray Hopes

I

Thumps and splashes jerked me out of my slow slide into sleep.

Bear! Bear! My mind shouted, throat closed around my scream. I cautiously raised my head and peered through the summer twilight. The upper half of a gigantic fish seemed to protrude from the ground. Groggy and grumbling, I left my warm sleeping bag to stand on the bank of the narrow stream channel where I had camped. The salmon, so much longer than the channel was wide, twisted, turned, and thrashed its way determinedly upstream. It eyed me, then thrashed again, moving itself a few inches farther.

The channel was close to the braided mouth of the Slug River. I was spending that summer of 1976 counting seabirds in the far northwest corner of Bristol Bay but had hiked to the head of Nanvak Bay for a break from the daily counts at the seabird colonies and to escape the confines of the twelve-by-twelve-foot cabin I shared with another biologist. Still in graduate school, I was only a half-trained wildlife biologist, but I knew that salmon migrated from the ocean to the stream where they were hatched to spawn and die. The relentlessness of salmon had never sunk in until I saw that three-foot-long beast of a fish dragging its way up a channel so narrow it could never turn back in water that barely covered its fins. I brought my sleeping bag to the channel and settled in to keep watch. As soon as the first salmon passed, I heard the splashes of another, and when that one struggled by, another; it was a slow-moving parade in the ghostly August twilight.

II

Ensnconced in a wooden tower overlooking the Wood River in Bristol Bay during the summer of 1977, I saw firsthand how the state of Alaska managed salmon harvests. Wildlife jobs were scarce, so I felt fortunate to have a seasonal job counting salmon.

I was the leader of a crew of biologists hired to count every salmon that had escaped the gauntlet of fishing boats in Bristol Bay to make their way up the Wood River to their spawning grounds. Wood River connected to Lake Aleknagik, the Agulowak River connected Lake Aleknagik to Lake Nerka (*nerka* being the species name for sockeye salmon), and so on up a chain of five long, skinny lakes and short streams of the Lower Wood-Tikchik system.

From the tower, I could tell apart chum salmon by their scarlet slashes on light sides and kings by their bright red sides. Sockeyes share the red sides but have greenish heads. The hooked nose of the male distinguishes them from the females. Jack salmon, which have come back after fewer years in the ocean, are obviously smaller than those that come back after more. In the era before data entry on cell phones and computers, I counted by clicking in each salmon on a handheld tally-whacker and penciled the numbers in each category on a datasheet.

The three of us on the crew split up the twenty-four-hour period. I took the midnight sun shift from 10:00 p.m. to 6:00 a.m., a shift I've never repeated. Each night as I drove a skiff a mile from our cabin to the tower, I prayed the engine wouldn't quit and require some sort of impossible repair that would leave me drifting helplessly out into Bristol Bay. Once I reached the tower, the quiet of the river settled in as the long light of summer began to dim.

After I climbed the wooden ladder to the tower, I watched the ancient salmon pageant unfold beneath me. They came in pulses, in an irregular rhythm syncopated to tides and winds that some Native groups call fish winds. Smelling and tasting their way back to the gravels, they wriggled up toward the light. Pursuing their own breeding imperatives, birds flew about at eye level in the spruce trees that surrounded the tower. The singular piercing notes of varied thrushes and the trilling *oh-dear-me* of golden-crowned sparrows reached a crescendo as the sun dropped low, quieted for a time, and started again as it rose a few hours later. Every day at the same time, I joined the chorus of crews like mine radioing in our counts. Our eyes on the Wood River runs were just one node in a network of watchers and counters. The numbers poured in to managers in Dillingham from counting towers and weirs at knick points in Bristol Bay salmon geography. I felt like part of a well-oiled machine that opened and closed the commercial

fishery like a faucet, based on the numbers of spawning salmon that had eluded the fleet to dutifully produce the next generation.

After the managers ran their arcane calculations about the actual numbers against their predictions and models, they made announcements on the marine channel we used and every fishermen tuned into on their boats.

“The Nushagak District purse seine fishery,” we would hear, “will be open for twenty-four hours from midnight, July 5, to midnight, July 6.” The managers might decide to open the season for forty-eight hours or they might keep it closed for days until they saw the escapement numbers they thought were needed to reach their seasonal target. The equations were complicated; the numbers of spawners was a result of what happened in streams and lakes over several years in the past and the age of return a result of what happened in the ocean. The decisions they made would affect the potential harvest several years into the future.

Escapements, such as the one managed by the elaborate system of counts in the Bristol Bay drainage, were intended to ensure salmon would reproduce. Escapement numbers were also the sweet spot for maximizing the harvest. Allowing too few fish to escape the nets threatened sustainability of the run, but to allow too many, termed *over-escapement*, was just as bad. In their frenzy of digging redds and mating, biologists warned, an overabundance of salmon crowded onto the spawning area could dig up the eggs that had already been fertilized and buried.

Each salmon I counted in the river became an escapement data point. While my view of the run was mostly from the tower, my crew and I also sampled it a couple of times of week. We tied one end of a gill net to a tree on the bank of the river and stretched it across the current, anchoring the other end. When the salmon swam into the invisible net, they pushed their heads through the mesh and their wider bodies caught. It was the flare of their gill covers that caught them, thus the name of the net, but some thrashed and tangled themselves even more. We brought the net onto the bank, untangled the fish and measured them nose to tail and then weighed them.

We kept a few salmon out long enough that they became “trap mortalities,” meaning dinner for us. We

released the rest. But if you just put a disoriented, oxygen-starved fish back in the river, more often than not it flips over and hangs, floating downstream in the current and almost sure to die. So each of us waded in and placed salmon one by one gently in the river. I learned how to hold the salmon upright, nose pointed into the current, so gently I wasn't rubbing off any more of its protective slime and scales. I could see every breath it took as gill covers pulsed and its body shuddered in my hands.

Each salmon I released became more than a data point with a length and weight attached. I could feel that urgent life force again. Each salmon had escaped being caught and eaten by predators all its life. The fishing fleet and my dinner companions were just the last ones to try. The gill net the salmon had nosed into was just one more obstacle to push through, placed there by the entire unwieldy superstructure of Alaska fisheries science and management.

As I slowly released my grasp, the salmon headed home.

III

Another summer in the late 1970s, I sampled Arctic char on the Canning River in the Brooks Range in northeastern Alaska. The gill nets we set caught the occasional pink salmon. They were pinks, "straying," wandering hundreds of miles away from the stream where they were hatched. I was a wanderer myself then, a 20-something stray far from my childhood home of Montana.

IV

I make my short summer day pilgrimages now by crossing a few miles of water between Homer and the south shore of Kachemak Bay to dip net sockeye salmon returning to China Poot Creek. As a local Alaskan, I can participate in this personal-use fishery. My fishing equipment is a large long-handled net, which is about as much gear as I can manage with my limited mechanical skills. I can even avoid dealing with a boat motor by kayaking from Peterson Bay Field Station to the head of Peterson Bay and then portaging across a narrow isthmus to China Poot Bay and paddling to the opposite shore. When salmon are running, I strap my kayak on the water taxi that drops me off in the morning. I need to time my

departure to cross the isthmus when it floods at the most extreme high tides of the summer. As the tide ebbs, it becomes a muddy slog.

I undertake my journey in the long-lived glow of Alaska's summer light. A small crowd, brought by motor boats that threaded through a maze of channels into the shallow bay, converges at the mouth of the creek. I wade into the strong current of the creek as deep as my hip boots allow, where I can see the salmon entering the creek mouth. Some bump against my legs as they move past. Others pass just out of reach. I dip and I dip, missing fish after fish, until finally the weight of muscled silver in motion threatens to pull me down into the water or yank my arms out of their sockets. I keep lifting against the pull, stumbling backward over the rocky bottom until the salmon swings clear. Out of the water on the bank, it quickly succumbs, aided by a sharp rap I inflict with a stone to quicken its death. As I wait and stumble and pull and whack it with a stone a few more times for good measure, I fill plastic bags with my catch and I think of my winter freezer full of fish.

I'd like to cling to the comforting idea that the wild salmon I catch in China Poot Creek are local food, my means to tie myself and my food to the ecosystem's cycles and to have a sense of food security in a state where 95 percent of food purchased is imported and is often costly. In the Sugpiaq villages on the south shore of the bay and in Homer and other Kenai Peninsula communities to the north, nearly every household has someone who fishes. Salmon—caught or bartered—are a crucial supplement to the well-traveled foodstuffs in our markets.

“Alaska's salmon—wild, sustainable, and natural!” is the marketing cry of the State of Alaska in the early twenty-first century. Yet when I actually trace the lives of the salmon I catch in China Poot Creek, I find neither wildness nor nature, and I have my doubts about sustainability. The sockeye salmon that milk and swarm about the entrance to China Poot Creek can never complete their life journey to a lake to spawn and die. They began their lives as eggs in a high mountain lake many miles away and were reared in a hatchery, far inland from Kachemak Bay, where no predators harried them. Their food arrived on a regular schedule and when they were fry, a slow-flying plane plopped them into China Poot Lake, though the U.S. Geological Survey persists in mapping it as “Leisure Lake.” When the young salmon grew up

and were inevitably drawn to the sea, they went downstream and tumbled over falls, caroming over rocks to arrive bruised and battered. Yet many of them evidently made it out to sea, lived there two or three years, and then returned with the taste of China Poot Lake in their memory. Then there were those falls again.

Imagine the confusion in a small fish brain for a moment, like Odysseus milling around with all of Penelope's suitors along with the added problem of a cliff he could not scale. And there I stand with dozens of other human predators ready with our dip nets.

China Poot Lake, the home ground of the salmon I dip net, became a poster child for a watershed coaxed into producing salmon in the 1970s about the same time I was having my own first fishy encounters. No spawning sockeye had ever ascended from China Poot Bay up the steep outlet of the lake. Undaunted, department biologists added two million salmon fry to the lake every year and counted up how many juveniles left, how many adults returned to the base of the falls, and how many adults were caught by commercial fishermen, with telltale fin notches as markers of their residence time in China Poot Lake.

For several years, all went well. Juveniles swam out to sea and returned as adults in two or three years. But then something changed; the juvenile salmon leaving the lake were smaller in size every year. Adults that were caught or returned became smaller as well. As each new load of fry drew on the lake's food web, ounces of flesh and nutrients departed from the lake when they did. When no adults returned, the nutrients were never replenished to fuel the food web. When the next load of fry arrived by airplane, they had less food than the generation before them. The circle had been broken when the lake had become purely an export economy.

In 1985, the next step was the addition of fertilizer—fifteen tons of nitrogen and phosphorus every year for five years. The result was an astonishing sevenfold increase in the biomass of zooplankton. The survival rate of fry that made it to the smolt stage to leave for the ocean almost doubled, and the smolts went to sea at younger ages. Survival in the ocean by adult salmon increased, and the commercial sockeye

salmon harvest received a tremendous boost as well.

After the success of the experiment, stocking the lake with fry followed by fertilizer has continued for forty years. But what if all of this human intervention stopped? Nutrients in the lake would eventually dwindle again, young salmon would grow more slowly and fewer might survive. Fewer, and smaller, adults would return to be caught by Alaskans like me, standing in waders in the current with a long-handled net, proud of her self-sufficiency.

We've come a long way from Alaska salmon as a resource that the economist Richard Cooley touted in 1969 as requiring "no capital outlay or labor to sow and cultivate." We've created an infrastructure that's a miracle of science and technology, including hatcheries, net pens, float planes, boats, gallons and gallons of fossil fuels, and an army of fish culturists. Billions of salmon fry are released onto the open range of our Alaskan ocean ranch each year in the hopes that millions will come back. In the circular logic of hatcheries, boats scoop up hundreds of thousands of returning adult salmon to sell to recover the costs of running hatcheries.

Another army of fisheries scientists and managers predict the annual harvest, set escapement goals, and open and close the fisheries. A crew of technicians still spends part of the summer in the counting towers like the ones on Wood River. Other crews count fish at weirs. Others count the fish that escape. Fish tenders and canneries record the harvest on fish tickets. All of the data fed into the process of developing new predictions about future returns.

As climate change makes salmon survival and returns more uncertain, I take some comfort that past predictions of the imminent extinction of Alaska salmon by fishing have been proven wrong by what state fisheries managers claim as the success of science and clever management. But my hope is with salmon lineages whose fidelity to the scent of home is not completely without a penchant for moving up or down the coast and spawning somewhere else. When I pulled a salmon out of a net at the base of northern foothills of the Brooks Range, I was looking at the future.

For now, salmon remain a gift—to me at China Poot Creek, to Alaskans, to the world. Alaska Natives

say salmon give themselves to people wily enough to learn their ways and persistent enough to catch them. Like all gifts, they're best when they keep circulating—from people who catch them and gift them first to their family, their neighbors, and community potlucks and re-gift the scraps to their dogs and to the soil microbes in their gardens. I'm thankful from the first one I catch in my net to the last one in the freezer.

Salmon are the gift that returns. As they come back to the streams where they were born, they weave the abundance of the ocean back into the land. The next generation returns the favor. But the circle of the gift can be broken; salmon come back to hatcheries and even push on valiantly toward lakes they'll never reach. When the sockeyes run strong in China Poot Creek, I can scoop up my daily limit of six in an hour or so. I load them into the storage compartment of my kayak and paddle back to the field station. I clean my catch on the beach well into dawn. I'm as tired and as rich as I'll ever be.

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