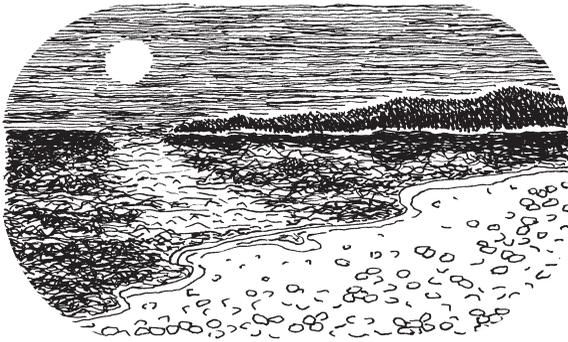


TIDES



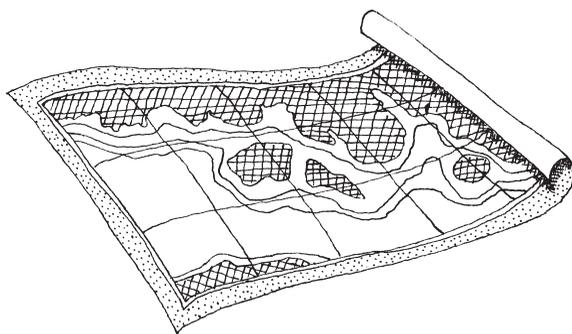
WHEN THE FULL moon hauls back the waters, they emerge, a glittering band along the shore, like doubloons washed up from the wreck of a Spanish galleon. They close their shells tight and, for a few hours, become land. Bears slip out of the cedary woods and trundle over them, picking at small fish that lingered too long. From a distance you might think they were glinting rocks, just another cobbly beach, rather than acres of living coastline. But if you stepped out of your boat and explored, old shells popping softly beneath your boots, you'd smell their salt-spray aroma and hear the crackling of receding water droplets and know

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that they were the living sea itself, holding on to the land to keep it from squirming away. And if you sat down among them and pried open some shells and tipped the briny flesh into your mouth, you might get some sense of how it had always been.

Then the moon lets go and the water returns, snaking along the low points, bubbling up like springs from under the shells. Soon they are covered, and they phase back to their other existence. They open their shells and drink in the sea. The bears withdraw and sixteen-armed purple sea stars pull their way up the tide's advancing edge, gobbling as they go. Tiny creatures hunker down beneath the shells, within the shells, spinning out little lives in a biogenic world. For a few hours, they disappear beneath the waves. And if you arrived at high water and didn't take the time to poke around, or if you were from some place where the land and the water have already come unglued and you assumed that the world you knew was the one that had always been, then you'd probably keep on going, and you'd never even know they existed at all.

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IN THE EARLY 1990s, a young Canadian marine biologist named Brian Kingzett scored an ecologist's dream job. The province of British Columbia wanted to know how much of its Swiss-cheese coastline had the potential for shellfish aquaculture. Most shellfish live in estuaries—bays or inlets sheltered from the open ocean—and BC was rich in such areas. Shellfish aquaculture is a form of intertidal farming. You obtain “seed”—baby shellfish resembling grains of sand—from a hatchery, plant it on beaches or mudflats, then harvest the shellfish when they mature

in two to three years. Shellfish aquaculture has become a huge worldwide industry, as well as an important restoration tool—because shellfish feed by filtering algae out of water, they are an estuary’s way of keeping itself clean and healthy. Eager to utilize its natural resources, whether logging, mining, or seafood, and with vast stretches of wild coastline under provincial control, BC embraced shellfish farming in the early nineties.

British Columbia has a staggering 16,780 miles of fiorded coastline, thanks to the glaciers that whittled fjords out of its ridges during the last ice age. Much of this coastline is on Vancouver Island, the largest island on the west coast of North America. A 450-mile-long outrider kissing the coast of Canada, Vancouver Island was not originally part of North America, nor even of Pangaea, the übercontinent formed by all seven of today’s continents. Instead, the earth’s mantle burped Vancouver Island into the South Pacific four hundred million years ago. The island began a jaunt across the Pacific, slamming into North America one hundred million years ago. But, like an immigrant holding on to her culture, it never quite assimilated with the rest of North America. By staying a few miles offshore, it provided the BC mainland with an epic breakwater sheltering a sailor’s paradise of blue waters, snowy peaks, and protected inlets.

Vancouver Island was full of beaches and mudflats that might be suitable for both shellfish and the farmers who would be harvesting them, but many were hidden amid long stretches of fjord too steep for aquaculture. BC

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couldn't exactly convince shellfish farmers to head out into the wilderness if it couldn't tell them where to go. It needed the equivalent of a real estate catalog for shellfish farms. So in the early 1990s the Ministry of Agriculture, Fisheries, and Food put out a request for proposal on a contract to catalog the entire coast.

At the time, Brian Kingzett was a twentysomething consulting biologist for a firm called Aquametrix Research. He'd coauthored a paper titled "Biophysical Criteria for Shellfish Culture in British Columbia: A Site Capability Evaluation System." He'd also just started his own oyster farm. He needed to do something to support his "oyster habit," as he called it, which had yet to turn a profit, and the adventure of exploring BC appealed deeply to him. Aquametrix had calculated the bare minimum it would need to do the job, submitted its bid, and won. Kingzett became the latest in a long line of explorers, going back to James Cook and George Vancouver, commissioned to mess about in boats along the wildest coast in North America.

It was a dream job, but not an easy one. Water temperatures hung in the forties and fifties year-round. In winter the North Pacific catapulted storm after storm into the battlements of the coast, shutting down all boat traffic for days at a time. The only safe months were July and August, and even then the winds and swell were often too much for small boats like Kingzett's. To make the most of his seasonal window, he had to camp for weeks in the BC wilderness. That was just fine with him. He couldn't think

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of a better way to spend what would become his next seven summers.

Kingzett soon had his routine down. He'd travel a piece of coastline, cataloging every beach bigger than half an acre. From his boat he'd estimate the beach's size and slope and the distance between high and low water marks. Then he'd go ashore, note whether the sediment was mud, sand, or cobble, and snap a photo from the mid-tide line looking down the beach. He'd find an area of representative sediment and dig into it, looking for clams, the best indicators of what that beach could produce. He'd note if there were any predators such as sea stars (what used to be called starfish), which are voracious consumers of shellfish.

After recording all his data, Kingzett would write a line or two summarizing the beach. Often his notes would be brief: "Soft mud estuary." But anytime he saw something anomalous, he would write it down. All the information and photographs went into an online database keyed to a map of the BC coast.

In the course of his travels, Kingzett came to know the coast like few others. He startled flocks of sandhill cranes that scattered croaking into the sky. He saw natural luminescence in the water so strong that sea otters left glowing trails like shooting stars as they dove. He anchored near remote hot springs and convinced the local Tsimshian First Nations to show him hidden petroglyph carvings along the shoreline. He saw signs of ancient First Nation activity on many beaches and was always careful to note what he called "anthropogenic changes": rock fish traps

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built centuries ago by natives, and strange symmetrical lines in the sand, always right at the low-tide line, that he couldn't quite make sense of. He saw a lot of these in the Broughton Archipelago, a jumble of islands snuggled between Vancouver Island and the BC mainland. While in the Broughtons he also saw a mysterious helicopter flying a hundred meters over the coast, seemingly surveying the same areas he was.

By the summer of 1995 Kingzett had surveyed about four hundred of the two thousand beaches he'd eventually cover. He was working in the vicinity of Nootka Island, a remote stretch of coast even by BC standards. The green slopes of Nootka Island hit the water at a steep grade and plunged into the depths, leaving nowhere to get a purchase. However, wherever a stream flowed down from the island's peaks, ten thousand years of outwash had built up a cobbly shelf that formed a pocket beach. No sane shellfish farmer would choose such a spot, but Kingzett needed to survey them anyway.

The cobble on such beaches dropped straight into the abyss, which allowed him to adopt a run-and-gun approach to cataloging them. He'd do a clockwise loop of the fjord, stopping at every beach. He'd nose the boat right into the beach, leave the motor down and idling, throw an anchor over the bow, and literally run off the front of the boat with his rake, clipboard, and camera. Click, click, click, he'd get his data and photos, then push off and jump back on the boat. It was a bit sketchy, and with a promising site he'd have taken more time, but he figured he needed to do

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at least twelve beaches during every four-hour low tide just to stay on schedule. And by now, he was pretty sure he knew what he'd find at these spots. After you've surveyed your first hundred beaches, they start to fall into groups. After your first four hundred, you can almost drive by at thirty knots and fill out your data sheet.

One day Kingzett was hustling to make up for lost time. The day before he'd busted his propeller in a long inlet called Mary's Basin that has a notorious bottleneck. If you don't time the tides just right, you run aground. While fixing the prop, he'd heard a plop; the bushing—the metal cylinder on which the prop sits—had fallen into the water. He'd managed to rig a new bushing using a piece of copper pipe, but it was dodgy at best. More important, he'd lost half a day to the repair. He wanted to get the beaches surveyed and get the hell out of there. Kingzett had a partner boat running up the center of the fjords taking mid-channel salinity and temperature readings. If worst came to worst, he could have towed his boat home, but it would have been a long, long ride.

Kingzett motored into Port Eliza Inlet, nosed his boat onto the first beach, and leaped ashore, ready to jot down his notes. Then he stopped and stared. The beach looked like it was covered in old coins. They were huge drifts of *Ostrea conchaphila*, the Olympia oyster, the only native oyster of the Pacific coast of Canada and the United States. He knew they had been the basis of a fishery in British Columbia in the early twentieth century. Now you rarely saw them. That was enough to make him take notice. But

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that was all he knew about *Ostrea conchaphila*. No one in Canada specialized in the oyster anymore. He noted its presence, snapped some photos, then pushed on to the next beach. He filed a mental note deep in the back of his mind. Had he been near the end of his seven-year survey, he might have done more than that. But he was just beginning, and he had no way of knowing that only a handful of the two thousand beaches he would ultimately visit would be like this one. He had no way of knowing that here, in the middle of nowhere, in a dead-end inlet nobody ever visited, he was looking at one of the rarest beds of oysters in the world.