WHEN OYSTERS FLOAT

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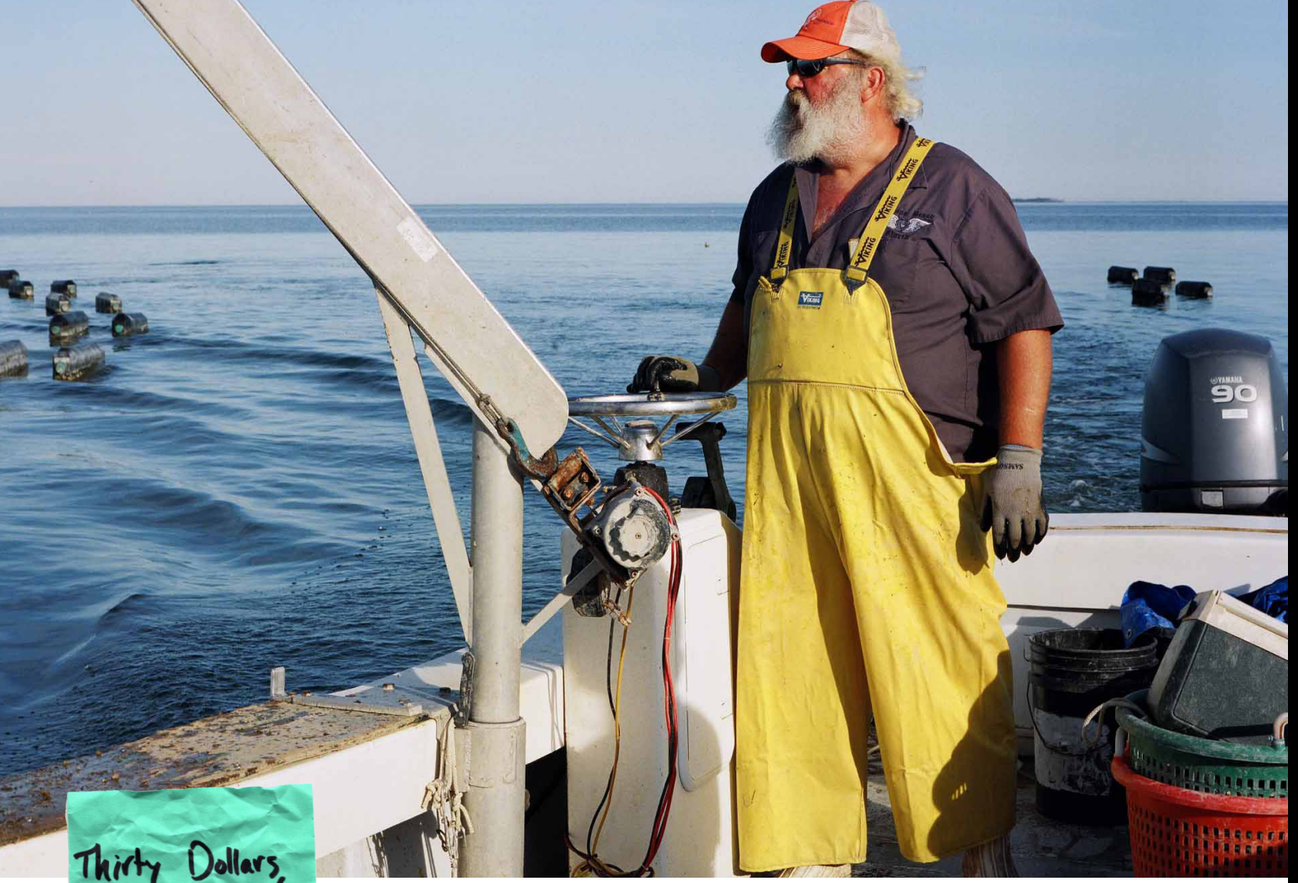
A combination of erosion and rising global sea levels has scientists predicting that the tiny island of Tangier, in Virginia's Chesapeake Bay, will be uninhabitable within 50 years. The drama has been covered by many of the big guns — *The New Yorker*, *The Washington Post*, *Vice*, *Forbes*, *Scientific American*, *Fox*, *The Atlantic*, etc. And they all seem to be saying the same thing: Tangier is disappearing due to erosion and sea level rise from climate change, while, ironically, many of its residents reject climate change.

Hark — the birth of the climate change soap opera, one of many to come, a genre of the new generation!

In every story, Tangier meant despair, and small town conservative culture and politics. Tangier had been typecast, and we wanted a deeper look. Was there anything else to explore, anything unexpected on an island facing existential demise? How were residents embracing the vulnerability of their land and livelihoods?

We found an unlikely hero — oyster farming. A new oyster farming venture, the Tangier Island Oyster Company (TIOC), had recently started up on the island, and like most other oyster farms, it was promising the one-two punch of creating jobs and cleaning the environment. (Oysters work as mini water filters). We were optimistic.

But over the next half year, our perspective on oyster farming morphed under the weight of a critical curiosity. We had read about Tangier the tragedy, and about oyster farming, the sustainable seafood of the future. But we weren't buying the absolutism, on either account.



Tangier Island, VA
Chesapeake Bay
October 2017

One October day, we went to the town of Onancock on Virginia's Eastern Shore to spearfish, hang glide, and observe, before catching a flight to Tangier with a family friend who works as a tow pilot.

We flew low over the creeks lining the edges of peninsulas full of loblolly pine, shrub, and marsh grass. Then, nothing but Bay. Tangier was on the horizon, 30 minutes away. In the water below — clarity is high in the fall — sandbars and shoals shifted like flocks of birds in slow motion. The Bay is an estuary, a place of constant change. Looking down, we pictured Tangier sinking completely into the water around it, and soon.

Then Tangier came into view. The inner harbor on the north end, about as busy as the island got, was a jenga of docks, crab shacks, and boats. As we approached, kids scattered from the airstrip below, where they had been playing football.

Upon landing, we looked around for Todd, who works with TIOC (the new oyster farming business) and had agreed to show us around the oyster fields. We arrived late, though, so Todd wasn't at the landing strip. Without any phone service on the island, we set out looking.

The co-owner of TIOC, Tim Hickey, had described Todd as a Tangier tan Santa Claus, but after fifteen minutes without seeing such a face, we asked a boy, who pointed us straight to Todd's house. We walked up, timid, and knocked on the door. Sure enough, Todd matched the description. He let us in, sat us down at the kitchen table, and pulled out a few oysters from the fridge.

What did we learn of Todd? Todd is both sardonic and jolly. Unlike a lot of the people on Tangier, he wasn't born and raised on the island. In some of his previous lives, he worked as a cobbler, sailed up and down the Eastern seaboard, and became the preferred leather tailor of several motorcycle gangs. Somewhere along the line, Todd sailed into Tangier with his daughter and decided to stay. Now he was an oyster farmer, the salt-of-the-earth type who makes up the place.

After eating some oysters, Todd drove us in his golf cart (the preferred mode of transport on Tangier) to the docks and we all jumped in a company boat. He ruefully told us where the life jackets were stored, in case of emergency, as we pushed off from the slip before speeding out of the channel into wider water.

At first, the oyster field looked like nothing more than a scattering of black buoys. Todd slowed up broadside to one buoy and and hooked a winch to a bag of mesh and PVC that hung from it. He cranked up the bag and slapped it against the gunwale of the boat. It was full of oysters. He pulled one out, showing us. "See, these are market size. Imagine twelve of them on a plate. That'd be thirty dollars, please."

Todd showed off the oyster like a jewel. "See its deep, smooth cup? Polished, not muddied?" We drifted around the farm, winching up oysters. If the bag came up on deck with a thud, the oysters were closing in on maturity. If they came up with a *whishhh*, like the sound of waves over pebbles, they were still growing.

Todd was only one man, he explained, with plenty of oysters to deal with. But if TIOC wanted to hire more people, buy more seed (baby oysters), and produce more oysters — they could. This freedom is a stark departure from traditional, wild oystering, wherein wild oystermen need a waterman's license, which can cost thousands of dollars and is hard to come by. For this reason, wild oystermen can't always just hire more hands or invest more money. And even if they could, the state limits what watermen can take from the Bay.

These regulations were put in place to prevent overfishing, but watermen see a distant government limiting how much money they're allowed to bring home to their families. Todd reasoned that catch limits are easy pills to swallow for people not making their living catch-to-catch. An entire supply chain, from canners to restaurants, is complicit in (over)fishing, yet traditional watermen would argue that they alone are the scapegoats.

We learned about the massive ice storm of February 2015, when TIOC lost a huge number of its oyster bags, right as the company was getting off the ground. Brand new equipment had washed ashore as far away as North Carolina.

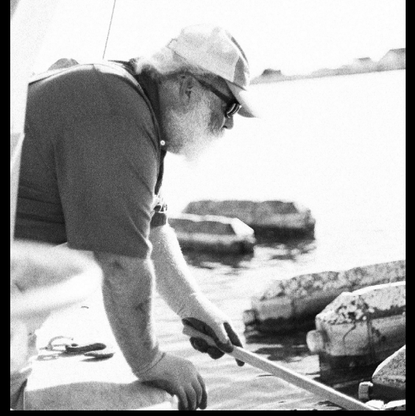
In Todd's view, risking equipment loss to storms is worth the benefits that oyster farming brings. According to Todd, here are some upsides of oyster farming:

Control over the harvest? **Check.**
A more predictable livelihood? **Check.**
Cleaner Bay water, due to oysters' natural ability to filter water? **Check.**
And perhaps most importantly, freedom from catch caps imposed by governments? **Check check check.**

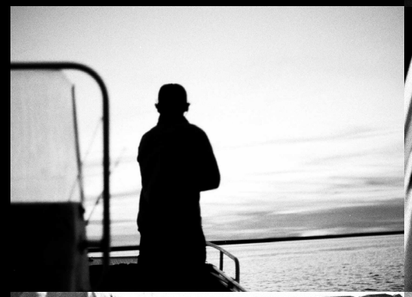
If farm-raised oysters can clean up the Bay while letting watermen earn a less regulated, more fruitful living, we figured: Why the heck not? It seemed like quite the silver lining story for a sinking island.

On the way back, Todd pointed to Port Isobel, a neighboring island just northeast of the oyster fields. It's home to the Chesapeake Bay Foundation (CBF), a conservation group that is one the organizations influential in creating catch limits for wild oystermen. Due to their pro-regulation stance, the CBF is not beloved on Tangier.

One man we spoke with on Tangier said the CBF probably cares more about some obscure species of snail than people. He questioned their motto of *Save the Bay* — "But save the bay for who? Animals or people?" Our inner ecologists wanted to step in on behalf of the snail (and talk about the interconnectedness of the estuary and all forms of life), but not wanting to argue, we just nodded.



The CBF is unpopular for another reason: it has a seawall and several breakwaters around Port Isobel to delay the effects of rising seas and erosion, a move Tangier is hoping to repeat for its own island, but hasn't been able to fund. The US Army Corps of Engineers estimated a price tag of $20-30 million for the type of work that would be required to significantly extend Tangier's lifetime.‡ Mainland critics of the proposal, meanwhile, question the worth of such a huge taxpayer outlay to save such a small island population.



Another waterman we met resented that kind of cost-benefit framing of his community's fate. "If they'd been paying for rocks instead of studies, we'd have our seawall by now," he said. "You see Port Isobel? They got their rocks. It's just a matter of who needs to be saved."

A chill accompanied the dimming sky as we headed back towards Tangier. We felt lucky: a crisp fall afternoon on the Chesapeake is unbeatable. Not a color out of place.

Back at the dock, we tied up the boat and asked Todd to join us for an early dinner at Lorraine's — unsurprisingly, a seafood spot. Stray cats skedaddled from the street on our golf cart ride over. One kitten hid behind a TRUMP 2016 yard sign. (There were enough Trump signs on Tangier to shelter quite a few more strays.)

At dinner over tea and flounder (no oysters available), Todd leaned forward in his chair: "Can't you envision Tangier being something like the Martha's Vineyard of the Chesapeake?" He had a light in his eye for a different sort of Tangier, one that was more than the sinking oddity of the Chesapeake.

After our meal, Todd carted us over to the airstrip, two minutes early for our 5:00 p.m. flight. We told him we would return. And we would.

Once up high, our pilot let us steer the plane. The Bay from the morning had disappeared. It now looked like a dying fire, charcoal water glinting orange, the colors growing rich, but defiantly somber. We flew east, towards the darkening part of the world, as if shot out by the sun.

That evening in Onancock — and over the next days, weeks, months — we began the process of reflecting on the trip and consolidating our findings.

At first we were stoked, spinning, stoked. There is a new thing happening on Tangier, and that alone is a story. Tiny stereotyped Tangier is enterprising and embracing vulnerability in the face of climate change. Forget what the media say. Instead — such resilience! — the island's new enterprise could help out with water health, employment, income stability, and the relationship between conservationists and Tangier residents.

Plus, green tech people, *Save the Bay* people, market-solutions-for-environmental-problems people, restaurateurs and restaurant goers … all these stakeholders get a new reason to care for Tangier and its oysters. All systems go!

Sure, oyster farming won't save Tangier from the sea, but it could surely give the island community a boost in its fight to survive.

We felt funny, though. The Bay used to be a big oyster-producing machine by itself, right? In 1880, for example, wild oyster harvests peaked around 6.3 million bushels of market oysters. Yet current production hovers around 1% of that historic peak.[§] Why do we suddenly have to lean on oyster farming to reap what the Bay used to provide? And why do we then consider farming an innovation?

We wanted to believe in oyster farming (and in Tangier), but we had a lot of questions for it. Dear oyster farming, where were you last night, and what have you been doing for the last 200 years?

Oyster Skeletons in the Closet

Niantic, Connecticut
Long Island Sound
April 2018

In an attempt to settle our dissonance about oyster farming on Tangier, we did two things. First, we read some books to learn about the history of oyster farming. (Most notably, *The Oyster Question* by Christine Keiner.) Second, we set out to visit some more oyster farms (and our grandparents) in Connecticut. Road trip + work trip + family trip? Well worth a trip.

Many podcasts and PBJs later, we finally greeted our grandparents in the town of Niantic, which sits on the Long Island Sound, close to the border with Rhode Island.

We were linking up with long-established oyster farmers at Copps Island Oysters, one of the biggest oyster farms in the US. They'd been around since 1940, and with such history in their company, they were inclined and eager to explain how oyster farming evolved from traditional, wild oystering.

It was still winter up north. Not a bud on the trees. We were cold, and clueless.

We met a couple of the higher-ups of Copps Island Oysters at their place in Norwalk and piled into one of their many boats, then motored out of the Norwalk Harbor into the Long Island Sound. To give you a sense of their kindness, this was at the end of a workday, when they had already spent most of the day on the water. Now they were doing overtime, and they also chose to deal with our questions.

We asked Norm, owner of Copps Island Oysters: what was the root of traditional, aka wild, oystering?

Norm explained: Wild oystering was founded upon the age-old idea that oysters are a communal resource. The natural supply of oysters belonged to the oyster commons, which belonged to the general public. Individuals and entities were free to harvest and sell oysters from the commons for private gain. Oysters in the commons were unownable until taken from the water, though, meaning watermen couldn't enclose or lay claim claim to "their" oysters or a section of underwater bottom that grew them. Simply put, the oyster commons was a type of open fishery.

(Imagine an expanse of untamed land where farmers could harvest as many wild strawberries as they wanted, and weren't allowed to own the strawberries until they picked them. That's the wild oystering model.)

The oyster commons — and the free-for-all nature of the American shellfishery — forged oystermen as an independent breed. Watermen required only know-how and access to make a living from oysters. The oyster commons shaped the economic trajectory of the shellfishery, and its cultural character, too.

How did the oyster commons model give way to private oyster farming, then? And why?

The evolution was slow, because as long as the riches of the commons provided for all, owning or farming the bottom seemed unnecessary. Then, in the early

Dredging farmed oysters with **Copps Island Oysters in Norwalk, CT**

Algae tanks at **Mystic Oysters in Noank, CT**

"When we visited a hatchery in Connecticut affiliated with Copps Island, it looked like the seaside study of a mad scientist, with big bubbling tanks of algae and oysters laid out to spawn."

1800s, Northeastern watermen depleted their own oyster commons so intensely that they were running out of oysters. As a solution, these northeastern watermen (the Yanks!) sailed to the Chesapeake Bay to scoop up oysters to transplant in the Long Island Sound and other locations.†

This broke oystering norms and posed at least two new questions for the world of oystering:

1) Should Northeastern watermen be allowed to harvest from the Chesapeake's oyster commons? And,

2) Could Northeastern oystermen consider their transplanted oysters private property, since they had exerted unprecedented effort to procure them?

Due to changes like this oyster heist, the conceptual tapestry of the oyster commons began to slowly fray. But since repletion from the Chesapeake meant Northern oyster commons survived just fine, questions 1 and 2 didn't get discussed so much. The oyster commons remained the prevailing paradigm of the shellfishery. Meanwhile, sweeping societal changes — refrigerated railcars, new methods to harvest and pack oysters, and the postbellum industrial boom — thrust the oyster into the limelight of the Gilded Age.

Oyster production skyrocketed. Growth thundered in Northern factories and facilities, often on the backs of cheap labor from European immigrants and at the expense of the environment.

During this era, industry began in earnest to pollute and deplete forests, rivers, and rangelands — and, it turns out, estuaries as well. Oyster harvests fell. Watermen and state officials grew concerned. Progressive Era reformers in the 1890s reasoned that since management science improved the efficiency of factories, the new field of conservation science could be used to manage and increase the efficiency of nature for human use.† (Hey, humans — let's micromanage nature … It looks easy!) In fact, many believed this wasn't simply possible — nature needed human ingenuity in order to be its best self. Man was to dominate and better nature, not to be a part of it.

This science-idolizing mantra, that human mastery can enhance nature, took root in the social consciousness by the turn of the century. Empty rivers? Fill them with farm-raised fish. Depleted soils? Pump them with fertilizers. Science was high on itself.

Around a century after Northeastern watermen used the Chesapeake Bay's oysters to replenish their own commons, the market continued to incentivize overfishing, so oyster companies continued to overfish.

Companies also decided that business would be easier if they had private rights to oyster bottoms. Instead of boating out to catch whatever nature had scattered on the bottom of the estuary, they wanted control over their oyster harvests, and therefore, their profits. Oyster companies, along with other capitalists, including the railroad companies that transported the oysters, lobbied governments for the privatization of oyster commons.†

Strangely (to our minds, at least), conservation scientists agreed. Conservationists argued that privately owned oyster bottoms would prevent overfishing by giving watermen the incentive and control to manage their own oyster stocks wisely. Watermen could even recruit the powers of science (breeding, lifecycle management, data-driven crop rotation, etc.) to enhance the bounty of each parcel they owned.†

With the commons deteriorating and capitalists pulling the levers of government, privatization started to win ground. At this time in history, scientists had only a murky understanding of the ecological link between industrialism and oysters' decline, and there wasn't enough political will to muzzle the industrialist machine, anyway. Anti-industrial dissent was diminished by the growing influence of money in politics, such as Virginia's 1902 poll tax, which hushed the voices of impoverished watermen who resisted privatization out of fears that big money would push them out.† (These fears, incidentally, soon became realities.)

In 1910, elite interests convinced the Virginia legislature to extend privatization rights to corporations and individuals, and several other states soon passed similar laws.† The oyster commons wasn't eradicated, though: many states kept most of the oyster commons in the public domain and allowed farmers to lease other parts of the estuary. So, while not gone entirely, the commons now had a new neighbor. The neighbor was a farmer. And the farmer came with fences.

Fast forward to 2018: many oyster commons have collapsed, including the oyster commons of the Chesapeake Bay. Privatized oyster farming now produces 95% of the world's oysters, masking poor health and low producitivity in estuaries.§ Copps Island Oysters, TIOC, and many other oyster businesses turn to cultivating artificial reefs or raising oysters in bags and cages for some or all of their production.

Many oyster farms rely on hatcheries to spawn oysters in tanks on land, away from their polluted and disease-ridden habitats. When we visited a hatchery in Connecticut affiliated with Copps Island, it looked like the seaside study of a mad scientist, with big bubbling tanks of algae and oysters laid out to spawn. The hatchery imitated as many functions of nature as it could. It was awesome. And terrifying.

"The trend I have seen is that farming has taken the place of the wild harvest," said Jim, the head guy at the hatchery and a long-time oysterman. We were astounded to realize this. We knew oyster farming was popular, but from what we were learning, it was more than popular. It was by far the most viable option.

We were dispirited to think that oysters were now more likely to survive in man-made facilities than their natural environments. Jim, however, was focused on the bright side. "If you don't have oysters growing in the environment, by farming you increase the odds that nature gets an upper hand in creating the production. With no oysters, there are no oysters."

With no oysters, there are no oysters.

Back on the boat, Norm explained Jim's point: "By turning over our oyster fields, we clean up the silt that suffocates the bottom." When asked if stopping the source of the silt — land use patterns and wetland destruction — would help the situation, both Norm and Jim agreed it would, but said it was never going to happen. "We have to learn to live with it," Jim said. "People aren't going to give up their niche of concrete and coastal living."

This kind of tension — one one hand staying positive and pragmatic about what oyster farming could do for the environment, and on the other hand feeling like farming was just a way to produce oysters despite dying estuaries — really started to wear on us. We weren't attempting an exposé on oyster farming; we had simply come from Tangier with questions. But the more we learned, the more celebrating aquaculture felt like mistaking a reaction for a solution, and that was depressingly different than the story we had set out to tell.

On our last night in Connecticut, we stayed in the guest house at Copps Island and woke up before dawn the next morning to get on another oyster boat. By daybreak it was sleeting.

The boat, carrying three oystermen plus us, humped out to one portion of the company's privately owned beds. One man drove the boat and controlled the industrial dredges; two men directed the dredges to dump the oysters into big crates; the two of us watched. We felt attuned to what was happening on the boat — a reflection of the history we'd learned about.

The boat pulled up more oysters than we had ever seen. The company had planted them, and knew just where they lay. Masters of the oyster, their operation was rhythmic and backed by a familiar refrain: farmed oysters are better than no oysters at all.

To us it sounded like a last resort.

Tangier Island, VA
Chesapeake Bay
June 2018

When we visited Tangier again in June, it rained the entire time, and most of the island was a puddle. If we were looking for a respite from our newfound cynicism about oyster farming, nature was not providing it.

Seeing the Bay creep into the marsh and lap up against the foundations of houses made us doubt that anything could save Tangier from washing away. We splashed down the island's newly-Venetian streets and saw that the Bay would have its way, eventually. Which sucked.

It particularly sucked since we'd originally tried to counterbalance that exact despondent, humdrum narrative by focusing on the win-win silver lining that oyster farming seemed to be. But now we were down on that, too. So what the hell kind of story were we going to tell, then?

"We saw, at the part right before you wake up in a cold sweat, oysters becoming the next corn: a species so domesticated that it makes you stop and say "what the ...?" when you see it growing somewhere other than a farm: a lifeform so engineered that you're surprised it survived somewhere else, somewhere wild. "

We never regained the optimism of our original story – but something did click for us.

We realized that saving Tangier and farming oysters are both fueled by an ideal of mastery. Both projects rest on the assumption that human ingenuity can out-engineer human-caused problems in nature, without making sacrifices to address the actual roots of those problems. Saving Tangier with a seawall, for example, implies: yes, we can save this island from rising sea levels and erosion without addressing (or believing in) climate change. Oyster farming, in the same vein, implies: yes, we can still produce oysters without addressing the destruction of estuaries.

We had brought our camping gear to sleep on the beach, but the rain wouldn't let up, so we shared a nightcap with Todd in his den and waited out the storm. He told us a story about sailing blind through a squall in search of a New Jersey harbor. One of the things he loves about sailing, he said, is how it doesn't bottle up the environment's resources in pistons or wires or cages. Instead, a sailor harnesses nature without controlling it.

That night we gladly accepted Todd's offer to crash on the floor of his mudroom while the storm continued outside. We laid on our sleeping pads in silence, mulling over how sailing fits with the ideal of mastery.

Our pillow talk that night went like this:

Sailing is entirely dependent on nature, not a way to master it. On the other end of the spectrum are mastery, dominion, cries to build walls to keep Tangier alive, and assurances that oyster farms can sub in for nature.

And frankly, we bet humans could realize those fantasies of mastery to mask the problems at hand. We bet the US Army Corps of Engineers, if their $20-30 million proposal were funded, could engineer the hell out of Tangier — barricade it, fill it with sand and soil and trees, and extend its lifetime. And we were confident that scientists, laboratories, and hatcheries could take the reins of oyster production without much help from the Bay.

But the question became — is that what we need? What happens when we avoid underlying sickness in the Bay and in the climate and use clever solutions to keep Tangier dry and oysters on appetizer trays throughout the country?

With this on our minds, we slept poorly. We started having flashbacks to Connecticut. We could hear Norm echoing the call of utilitarian conservation to best care for nature by managing it for human use. And then, we had what we'll call the scary corn vision: we imagined the evolution of oyster farming over the next 15 years, and how oysters might come to resemble corn.

Oyster farming would grow like a hulk, gaining momentum, fueled by a surging culinary appreciation for the oyster and the industry's farm-to-table veneer. Oyster farm owners would get rich, then richer, accumulating more capital and ramping up production. The Bay would become a vast underwater plantation. From there, market competition would increase and companies would strive to innovate. Some lucky future oyster conglomerate would be the first to develop water-borne pesticides to prevent critters like sea stars and oyster drills from damaging their crop. Every company would take to farming only sterile breeds of oysters (as most already do), while fertile strains would die out, and oysters would fully become another Frankenstein species that only exists because humans had something material to gain by keeping it alive.

We saw, at the part right before you wake up in a cold sweat, oysters becoming the next corn: a species so domesticated that it makes you stop and say "what the ...?" when you see it growing somewhere other than a farm: a lifeform so engineered that you're surprised it survived somewhere else, somewhere wild.

Band-aids have their place, but to fix a major wound, you go to a doctor and take a system-wide view. To the extent that we miss this distinction — wherein we think band-aids can stop internal bleeding — oyster farming and seawalls diminish our political will to do what matters: heal ecosystems and stop climate change through drastic changes to patterns of land and resource use. Piling up seawalls on the shoreline and throwing bags of oysters underwater do not count. Instead, they are short-sighted reactions that resist vulnerability through fantasies of human mastery over nature.

All that being said, a middle ground exists. While neither oyster farming nor saving Tangier will create long-term solutions to our planet's crises, both measures can be starting points that bring disparate parties closer to confronting the deeper issues of failing estuaries and rising seas. Take TIOC as an example. The company's lawyer is Ken Cuccinelli, Virginia's arch-conservative former attorney general who denies climate change and has called climate science from the EPA "unreliable, unverifiable, and doctored." Yet he's involved with oyster farming, a phenomenon praised by liberals and environmentalists and groups like the Chesapeake Bay Foundation. Such traditional adversaries now have a common platform to stand upon when addressing the state of the Bay: oysters.

This is, admittedly, an aspirational brightside. But from what we've learned, we think that managing an estuary like the Bay, including its oysters and its sinking islands, is most successful when stakeholders coalesce around their shared precariousness — watermen with regulators; climate scientists with climate change deniers. The ultimate goal of bringing disparate parties together would be to change the equation of cumulative environmental damage manifesting in failing estuaries and rising seas. If oysters can facilitate this, then we're one step closer.

But that's as far as they'll take us. Let's say we carry on and tell ourselves that profit-driven solutions are sufficient to fix environmental problems: that Tesla, green energy companies, oyster farms, and the gang will be enough to fix what is so direly wrong with our planet. We'd be deluding ourselves. On that path, we'd be stuck in a continual game of whack-a-mole, in which Tangier will be just the first tragedy or triumph among a cast of sinking societies, and farmed oysters will become just another domesticated and engineered organism that is seldom found in the wild.

Sure, we've managed to make oysters float by hanging them from buoys, but their human-made cages are no match for the impending storm.

We can't out-engineer nature.

When we woke up on Todd's floor the next morning, it was still pouring outside. And we had absolutely no control over that.

SOURCES

† — Keiner, Christine. *The Oyster Question: Scientists, Watermen, and the Maryland Chesapeake Bay since 1880*. Environmental History and the American South. Athens: University of Georgia Press, 2009.

‡ — Schulte, D.M. et al. *Climate Change and the Evolution and Fate of the Tangier Islands of Chesapeake Bay, USA*. Sci. Rep. 5, 17890; doi: 10.1038/srep17890 (2015).

§ — Schulte D.M. (2017) *History of the Virginia Oyster Fishery, Chesapeake Bay, USA*. Front. Mar. Sci. 4:127. doi: 10.3389/fmars.2017.00127