Transcript | Episode 1 | January 20, 2026

# Oysters at Work: Reefs and Farmers Reviving Our Coast

[machine whirring]

DAVID BOUCK: We're just coating the bottom of this area with the live oysters.

JAY FEINSTEIN: How many oysters do you think are on this boat?

DAVID BOUCK: [sharp breath] Like 5,000 oysters.

[music]

STEVE KIRK: You're listening to *Nature is The Solution*, a podcast from the Nature Conservancy.

UNKNOWN SPEAKER: Yeah, I'd say about 5,000.

DAVID BOUCK: Yeah, roughly. In this kind of half-load.

STEVE KIRK: It's a show about how nature could solve some of our biggest challenges. Because doom isn't the whole story. I'm Steve Kirk, the coastal program director for The Nature Conservancy in Massachusetts.

[unknown noise]

UNKNOWN SPEAKER: Prepare to let ‘er rip.

STEVE KIRK: And you're listening to our podcast producer Jay on a boat in Martha's Vineyard overflowing with fish totes, which are about the size of a laundry basket, full of oysters. The crew scopes out the correct zone to dump the load.

DAVID BOUCK: These buoys kind of mark the beginning of the zones and if you look over the side, you'll see the oysters on the bottom.

[sound of oyster shells falling into the water]

STEVE KIRK: And then, one by one, they empty the totes into the water, watching as the shells settle to the bottom of the pond.

UNKNOWN SPEAKER 1: Wow, none of us thought–

UNKNOWN SPEAKER 2: What a wildly successful trip, we're all still alive–

UNKNOWN SPEAKER 1: None of us thought we were gonna make it [laughter] I'm surprised, no [laughter].

STEVE KIRK: This wasn't just any boat ride, it was an oyster restoration mission. The goal here is simple: restore oyster reefs that once covered these waters and bring back the benefits oysters offer to wildlife and coastal communities.

JAY FEINSTEIN: It was awesome. That was so cool.

EMMA GREEN-BEACH: Good. Did you get wet? A little bit. A little splashy.

JAY FEINSTEIN: A little splashy. Not too bad–

EMMA GREEN-BEACH: Good.

JAY FEINSTEIN: I, from all the talk up, I expected much worse.

EMMA GREEN-BEACH: Oh, good. Well…

STEVE KIRK: Most people know how important coral reefs are. They're some of the most biologically diverse ecosystems on Earth. They provide habitats for animals and protect shorelines from flooding, they even slow wave energy. What some people don't know is how oyster reefs offer the exact same benefits

BOZE HANCOCK: The reefs function in exactly the same way. A shellfish reef and a coral reef are ecologically the same thing.

[music]

STEVE KIRK: That's my friend and colleague Boze Hancock, he's a senior marine habitat restoration scientist for The Nature Conservancy, who spoke to Jay about the wide-ranging benefits of oyster reefs.

BOZE HANCOCK: We've measured the fish production from oyster reef in the US on the East coast and the Gulf Coast, and the Mid-Atlantic, uh, it's three tons per hectare per year of extra fish. These are not fish that have been attracted into a reef, they're extra fish that have been produced because of the reef.

And three tons per hectare per year. That's every year, year in year out. That's natural infrastructure working for you on an annual basis.

JAY FEINSTEIN: And why is that? Why are you seeing that?

BOZE HANCOCK: Well, you think about how an oyster reef operates and think about it from the perspective of a baby fish—a small fish—the reef is structure, but if you put a pile of rocks into the ocean, that's also structure. And it is in areas where we have removed all of the structuring habitat, a pile of rocks actually has huge benefit—artificial reef.

But the trick about the oysters and the shellfish generally, the bivalves, is that they're filter feeders. So you turn a pile of rocks into an oyster reef and every single oyster is filtering large volumes, basically a bathtub of water a day, and if you've got millions of them that's a huge amount of water being filtered.

STEVE KIRK: So, oyster reefs can help clean the water and provide shelter for fish and marine life. Really, they’re hotspots for biodiversity, they support the very base of the food chain and are needed for nature at the coast to be healthy. But there is at least one difference between coral reefs and oyster reefs.

BOZE HANCOCK: The problem there is that shellfish are edible, so [laughs] those reefs got destroyed long ago. In fact, it's not just that the shellfish are edible, the process of fishing out something like an oyster reef was go and dredge the oysters off the top, sell them because they're the edible product, but what was left behind was a really valuable source of lime for the lime kilns to burn to make mortar.

So, cities around the world—the Londons, the Amsterdams, the Shanghais, the Sydneys, the Melbournes—they're built on burnt oyster shell, which is quite extraordinary.

STEVE KIRK: These reefs were once incredibly abundant. Billions of oysters carpeted the world’s shores. Coral reefs thrive in warm tropical waters, but those only make up a fraction of our coasts. Elsewhere, like around us, oysters and other shellfish built the reefs that formed the foundation for marine life.

BOZE HANCOCK: We have great stories of Boston Harbor being loaded with shellfish reefs that came to the surface and fairly famous examples from Chesapeake Bay where they were considered a navigation hazard. So there are big shellfish reefs functioning in the same way that coral reefs do, but that's happened all around the world.

STEVE KIRK: On the east coast alone, 90% of oyster reefs have been lost due to over extraction. And when oyster reefs were decimated, the impact rippled across the globe.

BOZE HANCOCK: I think most people can picture a Dickinson-type era painting of the streets of London when there is a push cart of oysters on every street corner—you've probably seen a picture that's a bit like that—and these push carts of oysters were everywhere because that was in the period where that industrial fishing was just mining out massive volumes of oysters and it was the cheapest form of protein in Europe for about a hundred years.

JAY FEINSTEIN: Yeah, this is one of the reasons for the decline.

BOZE HANCOCK: That's absolutely, that's decline [laughs]. That's where industrial fishing has just gone out and turned that into profit until there's none left.

[music]

STEVE KIRK: So, where do we go from here? We know oysters play an important role in a healthy coastal ocean. So, can we actually bring back the lost oyster reefs and all the life that they once nurtured? That’s where we pick up the story on Martha's Vineyard with Jay on that boat at the top of the show on a restoration mission.

UNKNOWN SPEAKER: Well welcome down. Thank you.

JAY FEINSTEIN: Yeah, thank you. I'm just recording everything, so forgive me with the headphones and the microphone.

STEVE KIRK: This restoration effort is part of the SOAR project, an initiative started by The Nature Conservancy and the Pew Charitable Trust in 2020. It stands for Supporting Oyster Aquaculture and Restoration, and it's a unique collaboration that brings oyster farmers into restoration.

JAY FEINSTEIN: Can you just introduce yourself for the mic?

EMMA GREEN-BEACH: Oh, yeah, I'm Emma Green-Beach and I'm the executive director and shellfish biologist for the Martha's Vineyard Shellfish Group.

STEVE KIRK: Emma explains what was happening that day.

EMMA GREEN-BEACH: We've got two farmers here that are just getting ready to leave the landing and they got oysters from their farms that they couldn't sell. Their oversized stuff, they're twisted, they're ugly as we have all kinds of goofy names for all their bent and unsellable oysters and stuff that they otherwise maybe would've given it to friends. Maybe they would've just disposed of it because they couldn't bring it to market.

And so, they've been saving those up all season and they put them in totes, into some sort of consistent number—makes our jobs easier—bring 'em down here to the landing to us and then we bring them out in this boat that's gonna come back here in a minute, and they go and get dumped in a specific restoration area we've been doing with The Nature Conservancy.

STEVE KIRK: The majority of oysters are served in restaurants, so the early days of the pandemic hit oyster farmers hard when dining rooms shut down. SOAR provided a lifeline, a fresh marketplace for farmers to sell their oysters. Then, these oysters, which were grown on a farm, are released into the water helping to rebuild reefs.

NICK TURNER: My name's Nick Turner. I have Honeysuckle Oyster Farm in Katama Bay…

STEVE KIRK: Restaurants may be back in business, but farmers like Nick say SOAR is still a game changer for oysters that remain tough to sell.

JAY FEINSTEIN: What makes an oyster hard to sell?

NICK TURNER: Primarily the market is looking for a smaller oyster for cocktail size at restaurants and once they get too big, they're too big of a gulp on the half shell, and so then it's hard to find a market that will take big ones.

JAY FEINSTEIN: And that's where you find another purpose? They don't go to waste.

NICK TURNER: Exactly. Nope, nope. They don't go to waste. And this is great to move the oysters along out of the farm and help the Great Pond, clean up the water and restore, hopefully, some native oysters.

JAY FEINSTEIN: And what is oyster farming like around here generally?

NICK TURNER: I'm my own wholesaler, so I'm selling direct to local restaurants, and so it's very seasonal. You know, this time of year in the fall, restaurants, a lot of them have closed down or have closed down the raw bars.

JAY FEINSTEIN: Gotcha. So then, being part of a project like this essentially allows you to do something during a time of year where it might have been harder otherwise?

NICK TURNER: Exactly. Yep, yep. You know, there's always lots of oyster work to be done year round, but having money come in when it normally might not is extremely helpful.

[music]

EMMA GREEN-BEACH: I probably should have gone the other way, I should have gone the scenic route. This is the interior route.

JAY FEINSTEIN: It feels scenic to me.

[music]

STEVE KIRK: After the oyster restoration boat ride, Emma drove Jay back to the Martha's Vineyard Shellfish Group headquarters

EMMA GREEN-BEACH: Oh, it's windy and the sky's blue and the oaks are turning and, yeah, that's the airport. So we're like, right in the middle of the island.

STEVE KIRK: Once there, she showed Jay the shellfish group's hatchery, a small greenhouse buzzing with the sounds of pumps and running water. Hatcheries like this one are necessary because there aren't enough shellfish in the water to breed and make more on their own.

So, this is the starting point where oysters and other shellfish like quahogs and scallops are raised to support local fisheries, act as the seed for shellfish farmers and for oysters to be used for restoration.

JAY FEINSTEIN: And can you just describe a little bit more about what you're holding and what that looks like, just because our audience can't see it?

EMMA GREEN-BEACH: Oh, absolutely. Let's see here. So, this cluster that I'm holding is probably about six or seven inches across and it has maybe 20 oysters on it, making this really sharp three dimensional sculpture. And this cluster, the oysters are stacked really tightly next to each other and there's all these little crevices, little spaces, that in nature little fish would hide in there, baby crabs, other really important organisms. This is like the building block of what an oyster reef turns into, but at the moment it's just really sharp and really textured.

JAY FEINSTEIN: Yeah, I mean, it does look like a sculpture.

EMMA GREEN-BEACH: It's absolutely a piece of art, and look at every oyster's a little different. This one has stripes on the back, has dark grayish, little purple-ish stripes. This one has a black stripe on the top, but they don't all, they're all different shades of—this one's really black on the top. And there's a couple other species on here, there's jingle shells in here, and there's some little, you know, a few sea squirts growing in here as well.

JAY FEINSTEIN: How does that happen?

EMMA GREEN-BEACH: They just come in as larvae through the sea water. So they're just part of the wild community.

JAY FEINSTEIN: But I guess a part of a thriving oyster reef is probably many different species.

EMMA GREEN-BEACH: Oh, absolutely. If you grab something like this out of the pond that we were just at, it would have little, squishy, weird little anemones stuck to it, and when you disturbed it, little crabs would come out—all kinds of different fish. When we pull up and the oyster farmers, when they pull up cages of oysters, even though it's all artificial substrate—it's plastic bags and rebar cages—eels come swimming out and in some spaces, they find little lobsters, so many juvenile fish that take refuge amongst the bags.

So, aquaculture, even in a really commercial controlled way, is still promoting all this biodiversity that natural oyster reefs do.

STEVE KIRK: Emma hit on something important. In addition to farmers making great conservation partners, oyster farming itself can be beneficial to the environment. Jay and I talked about this back in the recording studio.

JAY FEINSTEIN: It's kind of counterintuitive, this idea that oyster farming and aquaculture can support conservation and oyster restoration. I feel like farming and aquaculture might have a reputation for being maybe the opposite. Were you surprised to know that they could work together?

STEVE KIRK: I am not surprised that the aquaculture industry can work with the conservation community. The aquaculture sector, that industry has the know-how, they know how to grow oysters. They're really good at it. They also have the tools necessary to be on the water. They have boats, they have docks. They know how to lift heavy things. These are the core activities of an oyster farm and what we are doing is bringing that expertise to the habitat restoration world. We're also doing it with an eye to trying to strengthen the oyster aquaculture industry.

I used to have my own oyster farm and I was really taken to the idea that this could be an agriculture type that actually improves the environment. If you think to the challenges that we're facing from an environmental perspective, many of those challenges come at the hand of producing food. If you look at the freshwater use, the land use, the fossil fuel use of producing food across the planet, it’s a lot. Many environmental challenges have come from the agriculture sector. I was really taken by the idea of an agriculture producing method where the environment is improved on and around the farm.

JAY FEINSTEIN: That's incredible. I wanna dig more into this vision that you just talked about. Your vision is that oyster farmers will sell to consumers, sell to restaurants, and then also sell to the conservation community, essentially, right? They're growing oysters to be consumed and then oysters to also benefit restoration projects. Is that right?

STEVE KIRK: Yeah, you say it well. It's, again, it's not super complicated, but it's a relatively new concept. I would say that we have been working with the aquaculture sector to support us in oyster reef restoration for many years. The pandemic and this SOAR project has really sort of narrowed the focus and brought it into something that can be more well established, more reliable, as opposed to potentially working with a farmer in a one-off type situation.

[music]

JAY FEINSTEIN: What's with this margaritaville sign?

CHRIS SHERMAN: Oh, our crazy hatchery staff. I don't know, it's fun in here. It's five o'clock somewhere. We're a bunch of comedians over here at Island Creek.

STEVE KIRK: Another one of The Nature Conservancy's aquaculture partners is Island Creek Oysters in Duxbury, Massachusetts. That's CEO Chris Sherman, who gave us a tour of his facility.

CHRIS SHERMAN: So, these are actually fake oysters because they're just shell…for the farm tours, because broodstock is like two months ago, so…

JAY FEINSTEIN: Do you tell the people touring that they're fake?

CHRIS SHERMAN: If they ask [laughs].

JAY FEINSTEIN: Only if they ask, so everyone thinks they're real unless they ask?

CHRIS SHERMAN: Totally. I mean the people who come through the tours in May and June get real oysters, but this time of year, it's over [laughs].

JAY FEINSTEIN: And I see on the wall there are male and female oysters?

CHRIS SHERMAN: There are. Oysters are sequential hermaphrodites, so they switch back and forth from male to female over the course of their life. So, when we have a cohort that we're going to spawn, we don't know if they're male or female until they start to spawn and we can look at the gamete to see if they're sperm or eggs.

Oyster sex is not very exciting. They just release their gametes into the open water where it combines and forms a free-swimming larvae. They are particular, though, about when they want to spawn. So, we put them in these trays with each oyster in its own dish and we raise and lower the water temperature, we put on a little Marvin Gaye, we try to turn the lights down, and then one oyster will spawn and it sends pheromones out to all the other oysters, then they'll all start to spawn.

STEVE KIRK: Island Creek Oysters has collaborated with The Nature Conservancy for years. An example project that we ran with Northeastern University aimed to better understand the environmental impacts of oyster farming. We looked into how oyster farms can deliver many of the same benefits as natural oyster reefs.

JAY FEINSTEIN: What have you seen in the research about the benefits of these oyster farms?

STEVE KIRK: Yeah, very simply, we've researched whether or not oyster farms can contribute to increased habitat and the findings are generally, yes. And the way that we measured that, is we put underwater video cameras mounted onto oyster farming gear and counted the fish, and you can count those fish and compare it to areas where the oyster farm wasn't and there are more fish there. That's the super rudimentary description of the study design. It was a little bit more robust than that in practice, but you can actually see the fish on the farms and, and that's what we were measuring.

CHRIS SHERMAN: We are in a bit of a strange position where the crops that we grow are both benefiting the environment, providing ecosystem services, and dependent on a healthy environment to thrive and be commercially viable. So for us to have a livelihood, we need good water quality.

JAY FEINSTEIN: So, what you're saying here is that being a good ecological steward is also good for the bottom line?

CHRIS SHERMAN: Exactly. It's an essential part of what we do.

[music]

STEVE KIRK: Oyster farming doesn’t just boost environmental resilience. It also fuels the local economy and helps sustain a way of life that’s deeply woven into our culture.

CHRIS SHERMAN: So, the history of New England has been a maritime-based economy. It was a way of life and a truly key element to the ability for human life to persist and thrive here. It really was the foundation of the economy here in a lot of ways, the foundation of our, the birth of our nation. So, shellfish harvesting, mostly wild capture, has been a big part of that.

As far as farming shellfish specifically, we were actually a little late to catch on. Farming here, as we know it, didn't really start until the late 1980s, and largely that was in response to what we call the oyster renaissance. Where a lot of the wild oysters disappeared and when that happened, the latent demand for the product never really went away, and as certain local fisheries started to struggle—or the economics behind them did—biology aside, people started to try to figure out can we farm these things? And they did so successfully and what had happened is they awakened this latent

element of American cuisine where people didn't know why, but they just really wanted oysters.

JAY FEINSTEIN: Just the terminology is fascinating, calling it a renaissance. Renaissance to me is a revival of sorts, but in this case, the renaissance is maybe the loss of oysters.

CHRIS SHERMAN: Well, I think the renaissance is the loss happened, and it was unfortunate because oysters were were cheap protein for people in New York City and Boston and all over the place, and people loved oysters and then supply went away and that was the, I guess that's the loss—that's the paradise loss, I guess. And then, when the farming technology got to a point where it was somewhat scalable and the supply came back, that was the renaissance because it tapped into that kind of genetic, historic need for people in this area of the country to eat shellfish from its waters.

For years, we sat around thinking when is the fad gonna end and when will people catch on to the fact that eating these rocks isn't all that cool? And every year we continue to see growth and enthusiasm that is sustained for people who just love eating these live little sea rocks.

STEVE KIRK: Like everyone who has a deep connection to the water and to the coast, Chris' connection to oysters is profoundly personal. It's what pulls him to the water time and again.

CHRIS SHERMAN: Bringing that smell off the water just calls to me on a very deep and profound level, which is kind of the squishy part of it. And then, the other thing for me is that the difference between a lake and ocean is that you can step onto your boat off the dock here in Duxbury and you can wind up in France some weeks later. And that potential, to me, and the vast scale of the ocean and all of the food that comes from it, and the travel across it, and the history, has always really been the thing that's drawn me to it.

[music]

STEVE KIRK: Oysters most certainly connect people beyond Duxbury. Emma witnessed how oysters and shellfish help unite neighbors and strengthen community ties on Martha's Vineyard.

EMMA GREEN-BEACH: What shellfish mean for the island is a really, really rich and deep, deep story. It never ceases to amaze me and just tickle me. We go to different

places and people love shellfish, and they have stories of going, whether it's quahogging or going oystering or scalloping in the wintertime with their family, with their grandparents, and there definitely has been changes. You know, in the eighties, nineties, there were a lot more shellfish, there were a lot more bay scallops especially. There were many, many more, many fold more, commercial fishermen, people who actually, literally made their living and paid all of their bills and built their homes from money from harvesting wild shellfish. And so, there's a lot less of that now but the cultural aspects of it still remain.

[music]

STEVE KIRK: We mentioned that oyster farming contributes to local economies, but it's also important to recognize that oyster restoration, too, brings in its own economic benefits. Here's Boze talking about some tributaries that were restored in the Chesapeake Bay.

BOZE HANCOCK: They restored about 350 acres of oyster reef that cost $52 million. After three years, they did quite extensive sampling of that reef area and documented, in a combined sense, about $23 million of economic stimulus annually. So, what that breaks down to is about 50% return on investment year-over-year. I mean, you don't get that kind return from any stock [laughs] not even the big seven at the moment.

STEVE KIRK: Here in Massachusetts, the economic impact of oyster farming and oyster restoration are clear. Take it from Tom O'Shea, commissioner for the Massachusetts Department of Fish and Game.

TOM O'SHEA: In Massachusetts we have, I think, over 30 million generated just in aquaculture and oysters alone. So you can see that having a very healthy coastal ecosystem is why people either come here to Massachusetts or how they're generating their living—the economy—through the seafood industry, but also combining that with our technology. It's really important that we look at our coast as a place to take care of and protect because it is really knitted into the fabric of who we are as a blue economy in Massachusetts.

JAY FEINSTEIN: So this is another great example of why resilience is good for people and for nature.

TOM O'SHEA: Yeah. I mean, resilience, people say, well, what is that? Well, that's really about how we can recover from changes that can be damaging to our coastline and damaging to our way of life and the places we live and the nature around us that is part

of that resilience. Why? Well, because nature actually is good at healing itself and recovering, and especially if we help it.

[music]

STEVE KIRK: Restoring oyster reefs and strengthening the aquaculture sector isn't just good for the environment; it's a smart investment for our communities. And beyond the economic impact, there's another reason for hope: more people than ever understand the importance of restoring our marine habitats.

BOZE HANCOCK: The good news is that I really don't have to explain to many people what marine habitat restoration is anymore. I mean, 20 years ago when I talked about what I did, nobody had the faintest idea, but today you talk about shellfish restoration, coral reef restoration, restoring mangrove forests, salt marshes, people tend to be familiar with it so we've, I think, turned a corner. You know, people do understand that the ocean is in trouble and needs help. People are less sure just how to help and what to do.

STEVE KIRK: One answer is being a supporter of getting more shellfish in the water, whether that's supporting a habitat restoration project or buying oysters to enjoy with friends and family.

[music]

STEVE KIRK: Thanks for listening to *Nature is the Solution*, a podcast from The Nature Conservancy. Next week, we take a step closer to the shore. We'll talk about how living shorelines can leverage the power of nature to protect us.

UNKNOWN SPEAKER: It  actually looks really pretty now. I'm telling you, it looked horrible. If I showed you a picture before we came in and worked with the community to restore this area, you just would be disgusted [laughs]. This area is coming back to life.

STEVE KIRK: Stay tuned for next week. For more episodes, search for our show on Apple Podcasts, Spotify, or wherever you listen.