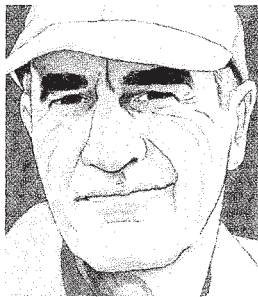


A geoduck farm on a disputed section of beach on Totten Inlet. Geoduck farmers place four seedlings per tube and up to 35,000 tubes per acre.



**incite**  
An independent  
advocate for the  
environment.  
by Ted Williams

## muddy waters

In Washington State's Puget Sound, the world's largest burrowing clams have spawned a fledgling aquaculture industry as well as a battle over beach access, aesthetics, and possible damage to birds, fish, and other marine life. But the issues of environmental stewardship are far from black and white.

THESE DUCKS ARE FLIGHTLESS EXCEPT WHEN packed in bubble wrap and gel ice and air-freighted to markets around the world, especially Asia, where they sell as delicacies and alleged aphrodisiacs for as much as \$100 apiece. They range from Alaska to Baja California, though they're most prolific in Puget Sound and British Columbia. They can live for more than a century, weigh 15 pounds, and stretch their necks 39 inches through the mud. They're geoducks (pronounced "gooyeducks")—the largest burrowing clams in the world.

Unlike most other bivalves, the geoduck, whose name derives from a Nisqually Indian term meaning "dig deep," can't fit inside its shell (that's why it has to dig deep). Touch the "neck" (siphon) when it shows during an extra-low tide and it voids a robust stream of seawater at you as it shrivels. Moreover, when you dig up a geoduck (a major

undertaking) the long, fleshy neck dangles obscenely, confronting even the purest mind with an inescapable vision of a human phallus and thereby creating much of the demand in China and Japan where they're eaten cooked or as sushi.

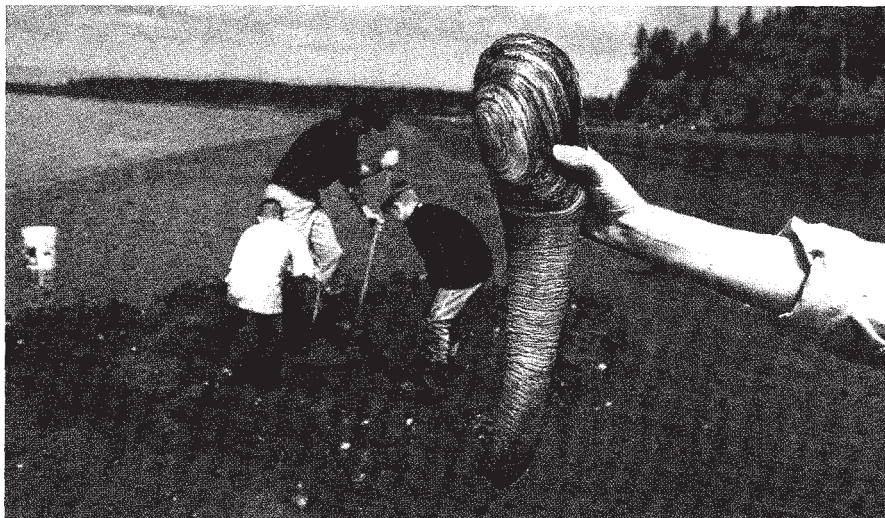
In the United States, however, where the resemblance of organisms to human body parts has not impressed since liverwort was being prescribed for cirrhosis, the media and public have difficulty taking geoducks seriously. During sporting events at Evergreen State College in Olympia, Washington, for example, a student prances around in an outlandish geoduck outfit while fans sing the school's fight song: *Go, Geoducks, go/Through the mud and the sand, let's go./Siphon high, squirt it out, swivel all about/let it all hang out.*

Yet there is nothing laughable about the vicious battle under way between property owners also



## ■ Incite

"I've been on countless advisory committees over the last 25 years. This is my life. And I have never seen this level of anger and polarization."



Although in Washington locals have long dug wild geoducks, which can weigh 15 pounds, geoduck farming has been big business for just 14 years. The farmed clams are primarily exported to Asia.

south Puget Sound and the booming, 14-year-old geoduck aquaculture industry. The president of the Coalition to Protect Puget Sound Habitat, Laura Hendricks—seen by both sides as the Genghis Kahn of anti-geoduck insurgents—tells me she gets death threats by phone and in person, that she's been run off the road, and that someone cut her car's brake lines.

And this from Bruce Wishart, a member of the multi-stakeholder Shellfish Aquaculture Regulatory Committee, set up by the state legislature in 2007, and policy director of People for Puget Sound: "I go to all these meetings, and I'm continuously amazed at the animosity on both sides. I've been on countless advisory committees over the last 25 years. This is my life. And I have never seen this level of anger and polarization."

For the most part, mainstream environmental groups don't oppose geoduck farming per se, and they're not fighting with the industry. They're just worried about possible dangers to fish and wildlife and are pushing for decent science and reasonable regulations. "This is not a classic good guys versus bad guys confrontation," says Paul Sparks, conservation vice president for the Washington council of Trout Unlimited. "The shellfish folks perceive themselves as responsible environmentalists, and in many ways they are."

But no one knows what geoduck farming is doing to near-shore ecosystems, and the demand has created a gold-rush atmosphere that will result in major expansion of the \$80 million industry in Washington and

British Columbia. Bryan Flint, director of the Tahoma Audubon Society, which favors a moratorium on geoduck farming until there are peer-reviewed studies of its effects, told me this: "It's like the wild, wild West or the 1800s with logging. Here's a new agriculture that has no rules. It has been open game for them—go do it. Our history in the Northwest is that we've just cut the trees and farmed the fish, and 50 years later we start to realize the damage we've done."

I began to perceive the conflict's intensity when I stopped by the house of Tom and Anita Woodnutt on Puget Sound's Totten Inlet, where I was greeted by 13 outraged shoreline residents, all trying not to interrupt one another as they plied me with horror stories about what Taylor Shellfish Farms, the biggest shellfish grower on the West Coast, was doing here. Under early afternoon sunlight we walked the windless beach. The tide was up, so I couldn't see the geoduck beds.

Oysters, mussels, and sundry steamer clams can protect themselves from predators and stay moist during low tides by sealing themselves into their shells. But because geoducks let it all hang out, as the song goes, they opt for deeper water, sometimes to depths of 360 feet. Without scuba gear you can't dig wild ones except on extreme low tides and then not many. To facilitate harvest the aquaculture industry plants geoducks in the intertidal zone (between extreme high and extreme low tides)—where they are vulnerable to predation. So seedlings must

be planted inside sections of PVC pipe that are jammed into the mud and covered with protective netting. The pipes—about 35,000 per acre—are unsightly, and storms dislodge them and scatter them around the beach.

Moreover, because geoducks aren't able to fit into their shells they're obliged to bury themselves deeper than other clams. So they can't just be raked; instead aquaculturists have to liquefy the surrounding substrate with water from a high-volume hose, disrupting the centuries-old layering of sediments and basically "turning the beach upside down," as critics like to say. It can't be good for the delicate and complex web of life that abounds in the top few feet and that sustains species far beyond the intertidal zone, such as fish and shorebirds.

Laura Hendricks, who had arranged the gathering at Totten Inlet, pointed out that the conflict isn't just about geoducks. "In most of these areas," she said, "industry is trying to maximize profits by planting geoducks in the deepest sections, then oysters, then Manila clams. This effectively takes over the entire beach with nets, tubes, rebar, oyster bags, and clam netting."

"There used to be big schools of sand lance and other baitfish in here," said Fritz Mondau, president of the Association for the Protection of Hammersley, Eld, and Totten Inlets. "This activity is taking place in the historical spawning places of these forage fishes. They need zooplankton to survive. Starve them for a few hours and they're in big trouble. Juvenile Chinook salmon, [federally] threatened in Puget Sound, depend heavily on sand lance."

"Our water used to be crystal clear," declared Anita Woodnutt. "You could stand out there waist-deep, look down, and see the place teeming with little fish and crabs and all kinds of life. All that's gone. You used to be able to kick over the rocks and see things crawling out. No more."

"In places where they haven't done any geoduck planting, you don't see this muddy water except in the worst winter storms," said Bill Burrows, a retired University of Washington business professor and spokesman for the Concerned Citizens of Harstine and Stretch Islands. "This level of siltation is totally unnatural."

I didn't see much life on the beach. On the other hand, the tide had covered most of it and we were walking on the rocky section. The water was indeed muddy, especially around the geoduck beds. But Totten

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## Incite

Inlet is shallow, and a bottleneck entrance at Steamboat Island drastically impedes flushing action.

The assemblage was particularly exercised about the unauthorized planting of an estimated 25 acres of Totten Inlet's state-owned tidelands to oysters and geoducks. On July 12, 2008, after a lengthy interview and tour with Laura Hendricks, the *Seattle Post-Intelligencer* reported that "critics estimate Taylor secretly converted at least 25 acres of state tidelands into a shellfish farm."

The conversion to private land, which happened in 1905, was indeed "secret" but only in the sense that apparently no one—including Taylor, which purchased the parcel from one Carl Adams in 1972—knew about it. In 1895, six years after statehood, Washington passed the Bush Act, by which public tidelands could be sold into private ownership specifically for the farming of native oysters. Surveys were inaccurate, titles unclear, boundaries confused. For 103 years all shellfish growers who farmed this piece of state property had incorrectly believed they owned it.

Hendricks contends that the Totten Inlet situation "isn't just an isolated incident," and maybe it isn't. But legal farming of public tidelands will soon be under way. The state's Department of Natural Resources (DNR), which is charged not only with managing public beaches but with making money from them, has been given authority by the legislature to lease state tidelands for geoduck aquaculture. "Two hundred and fifty acres would be the upper limit," says the agency's land manager, Jeff Shreck.

That doesn't sound like much until you consider three facts: 1) Geoducks can be planted only in thin bands along the intertidal zone, so 250 acres might extend along 30 miles of beach; 2) geoduck aquaculture is feasible only on smooth, sandy beaches—the ones most popular with the public; and 3) only about 10 percent of the beaches in the south sound, where geoducks can be farmed, are publicly owned, meaning all of the public shoreline could be taken up by geoduck farming.

"There simply are not enough beaches available in the public domain for 250 acres of geoducks," said Bill Burrows. "Those beaches belong to everyone. We think private companies that make money from shellfish aquaculture should do so on private beaches."

In its dual role of beach steward and shellfish-industry promoter, the DNR's credibility sometimes comes into question, especially when it pontificates on the ecological effects of geoduck farming. For

example, on August 11, 2006, it proclaimed that "our scientists have looked at the forage fish issue and determined that there would be minimal interaction between the geoduck aquaculture methods and forage fishes (sand lance and surf smelt)." For 20 months citizens' groups pressed for specifics. Finally, on April 10, 2008, the DNR's Peggy Murphy wrote Kathryn Townsend of Protect Our Shoreline, as follows: "Two of the Department's scientists reviewed the Washington Department of Fish and Wildlife website information and based on their training and best professional judgment determined that the interaction is minimal." In other words, the DNR's research on possible dangers to forage fish consists entirely of surfing the Web which, even at the Fish and Wildlife site, contains no information to support a conclusion of "minimal interaction."

Supposedly for the protection of fish and other near-shore organisms, wild geoducks can't legally be harvested in water shallower than 18 feet below the average low-tide line. So why does the DNR assume there's no problem with harvesting farmed geoducks in the intertidal zone?

British Columbia is not accepting new applications for intertidal geoduck aquaculture "due to gaps in understanding of geoduck aquaculture techniques on fish habitat." And so worried is Trout Unlimited that Paul Sparks had contacted me before I could contact him when he'd heard I was researching geoduck aquaculture. "Geoduck farmers prefer a white sand and gravel mixture," he remarked. "That also tends to be the preferred spawning habitat for surf smelt and sand lance. When farmers plant a beach they often take off the rocks, shellfish, logs, all the stuff that's habitat for, say, coastal cutthroat trout. In some cases they drag the beach."

Jim Gibbons, founder and president of Seattle Shellfish, the second-biggest oyster, clam, and geoduck operation on the West Coast after Taylor, sees the forage-fish flap as, well, a red herring. "There is no science to support the case that geoduck farming is harmful to the environment," he told me. And he's right.

There is, however, no science to support the case that it's *not* harmful, and there's excellent reason to suppose that it is. Gibbons suggests that farmed geoducks are cleaning up Puget Sound by filtering out phytoplankton, certainly a possibility but a stretch when one considers that only about 300 acres have been planted so far and that the biomass of wild geoducks is greater than that of any other species in



his is not a classic good guys versus bad guys confrontation. The shellfish folks perceive themselves as responsible environmentalists, and in many ways they are.”

the sound. Finally, his contention that the geoduck flap is driven by rich, vocal NIMBYs” appears only partly true.

Some backyards are worth protecting, I thought, as I sat on the porch of Laurie Brauneis’s cabin, inhaling the sweet Pacific breeze and waiting for the tide to fall out of Carr Inlet. Pigeon guillemots bobbed and ducked. Closer to shore great blue herons stabbed at shoals of dimpling forage fish. An adult bald eagle sailed out of a Douglas fir and taloned a stranded flounder. Kingfishers chattered, and somewhere a baby seal *ooohed* for its mother.

Brauneis didn’t strike me as a rich NIMBY. Before taking on her full-time, non-paying job as president of Save Our Shoreline! four years ago, she cleaned houses. At dead low tide we walked far out onto her beach, tickling the tips of wild geoducks necks and getting squirted. The brittle chimneys of tube worms protruded from the mud like week-old whiskers. Moon snail egg masses, resembling mud-stained shards of plastic milk bottles, littered the beach. Crabs scuttled out of our way. We walked around thick beds of

eelgrass and picked our way through dark masses of sand dollars.

Five years ago Jim Gibbons had approached Brauneis and her neighbors with an offer to lease their tidelands for geoduck aquaculture. He was talking big money, and Brauneis needed it. It sounded like a win-win. But to make sure, she and her neighbors visited Totten Inlet, then turned Gibbons down. “Plastic tubes and pieces of net were strewn around,” she recalled. “Dangerous things—broken tubes, rebar—were everywhere. I was totally appalled that our beach could look like that...” She turned away. “Excuse me,” she said and cried briefly.

Before I could contact Taylor Shellfish, the company’s newly retained public relations consultant, Bruce Gryniowski, contacted me. He’d heard I was working on a geoduck story and wanted to make sure I got a “balanced” view of the industry. Accordingly, he arranged for me to observe harvest and seeding operations. It would be an “antiseptic tour,” the insurgents informed me.

On the bright, still morning of August

3, 2008, I met Taylor’s public affairs manager, Bill Dewey, and geoduck manager Brian Phipps at company headquarters in Shelton. Taylor may be the biggest and oldest geoduck producer, but I’m not sure it’s capable of giving anyone a “balanced view” of the industry.

For one thing, there is no more ardent, effective, or politically powerful advocate for clean water in Washington State. This leadership caught the attention of the National Oceanic and Atmospheric Administration (NOAA), which gave Taylor its Excellence Award in 2005. The company has been a magnet for people like Dewey—one of three founding board members of the Skagit Conservation Education Alliance, an all-volunteer, 501(c)3 outfit with a mission to “protect, conserve, and enhance the natural ecosystems in the Skagit Watersheds.” For this kind of activism NOAA presented him with its 2008 Environmental Hero Award. With his longtime friend and ally—Audubon Washington’s executive director, Nina Carter—Dewey served on the board of People for Puget Sound.

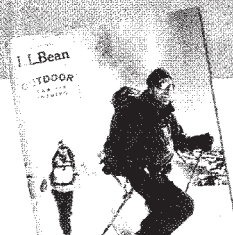
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## ■ Incite

“There simply are not enough beaches available in the public domain for 250 acres of geoducks. We think private companies that make money from shellfish aquaculture should do so on private beaches.”

constructed at Taylor’s Shelton shop, we sped along the glassy sound to a farm leased from Manke Lumber Company where squirting geoducks, inches apart, made the mudflats look like they were being irrigated by one vast sprinkler system. Along the timbered bluff a bald eagle glided toward its nest.

Whatever the environmental and aesthetic impacts of Taylor’s farms may be, the company makes an effort to get things as right as it can. When shoreline residents complained about the unsightliness of the white PVC pipes, it changed the color to gray. When they complained that they couldn’t tell whose PVC was littering their beaches, it invented a machine to brand each pipe. When they complained about dislodged netting and rubber bands that held it over each PVC pipe, Taylor went to no bands and one big net. The big nets, which collect seaweed, look somewhat natural and hide the pipes, but when a bald eagle got entangled in one, barely escaping the advancing tide, Taylor promised to go back to individual netting near active eagle nests, and it had done so at the Manke farm. When shoreline residents complained about the noise of the gasoline

pumps that powered the harvest hoses, Taylor went to diesels enclosed in insulated boxes.

If Carr Inlet is not appropriate for geoduck farming, maybe the Foss family beach in Pierce County is. Taylor leases it. We walked the farm at low tide, and it didn’t look a lot different than Laurie Brauneis’s beach. The water was clear. Sand dollars and crabs abounded. If some companies strip beaches of rocks, logs, and other habitat, Taylor hadn’t done it here. According to Dewey and Phipps, it doesn’t do it anywhere.

The 12-acre Foss farm stretches along a mile of wild, undeveloped shoreline sandwiched between other families’ houses, bulkheads, docks, and sloughing banks. The previous week Phipps had watched a black bear amble out of the woods. Not long before that two cougars had screamed at the Foss kids who had gotten between them and a deer kill.

Presently Leslie Foss and her husband, Ken Johnson, appeared on the beach, wondering who we were. After introductions Foss told me the family had been trying to figure a way to avoid developing its 125 acres. Logging had paid the property taxes until about

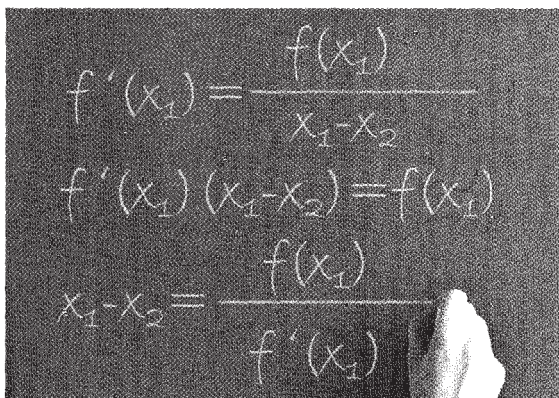
15 years earlier. When Taylor offered to lease the beach in 2001, it had seemed like a win-win, and according to Foss, that’s just what it has been. The family gets \$1,000 per acre, per year, then 10 percent of the total harvest value about every five to six years, which at current prices should net it \$720,000.

Dewey attributes geoduck farming’s enormous unpopularity mostly to the Internet. “The vitriol surprised us,” he said. “With the clear-cutting debates it took a while for the opposition to build momentum and become effective. But with the Internet a few people can create a facade, copying every legislator in the state with a push of a button. It’s overwhelmed us.”

Pierce County, unlike most others, requires a Shoreline Development Permit for geoduck farms—to be issued only after approved environmental review. After such review had been approved and the permit had been issued, and after Taylor had developed its Foss farm, the company believed (and says it was told by county officials) that it didn’t need another development permit. But last March, under pressure from shoreline residents, the county proclaimed that

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it does. With at least \$20 million worth of geoducks potentially growing past optimal market size and no possibility of harvesting them until the issue was resolved, Taylor filed a \$25 million damage claim against the county. Taylor has since received a new determination from the county, allowing it to harvest the Foss farm geoducks. This will reduce the damage claim, said Dewey.

At the Stretch Island farm, also 12 acres, we encountered baseball-size moon snails, their thick white feet tangled in the nets as they probed for geoduck necks into which they inject acid and eat away the flesh with their raspy, conveyor-belt tongues. Geoduck farmers have to live with them. In 1998 Taylor lost \$1.2 million by pulling the Stretch Island tubes too early. "After two years the geoducks were down 18 inches, and we thought that was enough," said Phipps. Two weeks later almost all were gone. The crew returned with an underwater camera but didn't bother to deploy it because an enormous raft of scoters, whose appetite for geoducks rivals that of Asians, floated over the remnant plantation.

There was nothing "antiseptic" about the harvest and planting operations, which obviously had been going on for days. Twenty-one workers were planting thumbnail-size

seedling geoducks, raised at the Taylor hatchery, three to a tube. (About half die or get eaten.) Two wet-suit-clad harvesters were on their hands and knees, stabbing the beach with hoses and reaching into the mud to their armpits. During weak-tide months harvesters have to use scuba gear, and in the winter they have to work at night because there are no low tides during the day.

At Laurie Brauneis's cabin I met her friend Washington State Representative Pat Lantz (D-Gig Harbor and Bramerton), to whom she and other shoreline residents had turned for help in 2004. Lantz described Taylor as "wonderful" but pointed out that every geoduck outfit isn't Taylor. "When I looked into geoducks I discovered the pathetic state of regulation; there is none," she said. When she brought the issue to her colleagues she was received like Typhoid Mary. "State government had heebie-jeebies about getting crosswise with clean-water, property, and money interests," she said. "It was lose-lose. They ran from me." When Lantz went to the DNR, she said, she was "stonewalled." Finally, she found an ally in Jay Manning, director of the state Department of Ecology. She wrote a regulatory bill but it was promptly shouted down.

With that, Lantz managed to get a re-written bill heard by the House Puget Sound Water Quality Committee instead of the openly hostile Natural Resources Committee. On March 6, 2007, the legislature passed her geoduck legislation, which funded studies by Washington Sea Grant and set up the 14-member Shellfish Aquaculture Regulatory Committee representing the shellfish industry, the environmental community, shoreline property owners, tribal governments, and the Departments of Ecology, Fish and Wildlife, Agriculture, and Natural Resources.

But Lantz is leaving the House in January, the legislature can't appropriate money for more than two years, and the studies will run at least six.

Meanwhile, rather than taking British Columbia's precautionary approach of waiting to see if intertidal geoduck farming is safe before committing to it, Washington will wait to see if it's destructive before stopping it. □

**WHAT YOU CAN DO:** For more on the geoduck issue, go to [www.ecy.wa.gov/programs/sea/shellfish-committee/index.html](http://www.ecy.wa.gov/programs/sea/shellfish-committee/index.html), [www.saveourshoreline.net](http://www.saveourshoreline.net), or [www.taylorshellfishfarms.com](http://www.taylorshellfishfarms.com). **Web Exclusive:** To read about the dark side of the geoduck trade, go to [audubonmagazine.org/geoduck](http://audubonmagazine.org/geoduck).



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