Pacific Coast
SHELLFISH GROWERS ASSOCIATION
Partners with Mother Nature

GEODUCK FARMING IS GOOD FOR WASHINGTON STATE

The geoduck clam is native to the west coast but the largest concentrations are in Washington and British Columbia. In fact, wild geoducks constitute the largest mass of any single species of marine animals in Puget Sound. Currently, the state Department of Natural Resources (DNR) and the Native American tribes co-manage the subtidal geoduck fishery

Geoduck were harvested by native Americans long before Europeans settled in the Puget Sound area. Wild geoduck beds in deeper water have been harvested by divers since 1970, and shellfish growers have farmed geoduck commercially in shallow waters since the early 90s. Geoduck farming techniques were pioneered by the Washington State Department of Fish and Wildlife over concerns of over-harvesting natural geoduck stocks.

Presently, geoduck are commercially farmed on about 150 acres – 1/1000th of Washington's total tidelands. By contrast, DNR estimates there are 44,000 acres of subtidal wild geoduck beds. While DNR is considering leasing some state-owned tideland for geoduck farming, the potential for expansion is limited by the nature of the crop and its growing environment. Geoduck are not easy to grow. Seed is difficult to produce, mortality is high, and hatchery capacity is very limited at this point. Moreover, only tidelands with deep clean sand, high salinity, and waters certified clean by the State Department of Health can be used for geoduck farming.

GEODUCK IMPROVE THE ENVIRONMENT

Because geoduck farming requires clean water, geoduck farmers play a duel role as environmental stewards. Many are active in their communities, helping local residents and regulators maintain water quality and healthy tidal habitats. In addition, the geoduck themselves help improve the marine environment.

- Each adult geoduck filters about 30 gallons of water per day, feeding on microscopic algae, thereby removing nitrogen and phosphorous and helping to clean the water in which they grow.
- Their filtering improves water clarity allowing more sunlight to penetrate, which can aid the growth of eelgrass, which in turn provides valuable habitat for salmon and other marine life.
- As digested algae is expelled into the beach sediment, the remaining nutrients become more readily usable by eelgrass, essentially providing a fertilizing function.

The environmental benefits of shellfish are well known. In Chesapeake Bay on the East Coast, and in our own Eagle Harbor here in Washington, shellfish are being used to to clean nutrients from the water, and to help offset the effects of encroaching human development.

HARVESTS HAVE ONLY LOCALIZED, SHORT TERM EFFECTS

Some have voiced concern about potential impacts resulting from the way geoduck are harvested. Harvest only occurs once every 5-6 years and research to date has shown that any impacts from geoduck harvests are confined to the immediate area. The beach recovers over a period of weeks to months depending on the time of year and location.

Environmental Impact Statements (EIS) produced by the Washington State Department of Natural Resources on the effects of their geoduck harvest program[1] found that geoduck harvest techniques result in only short term and localized impacts. In fact, another indication of the health of geoduck beaches is that growers can replant geoduck within days of harvest.

Geoduck harvesting is a slow process. It takes a crew of three over a month to harvest a single acre. Rather than dig each animal with a clam gun and shovel as recreational harvesters do, which can leave a hole 3 feet wide and 4 feet deep, commercial geoduck harvesters pump large volumes of seawater at low pressure to

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loosen the sand and release the geoducks (approximately 20 psi and 40 gallons per minute). This is the same method employed by commercial and tribal geoduck divers over the last 35 years on wild, subtidal geoduck tracts to harvest an estimated 130 million pounds.

Geoduck Co-Exist with Endangered Species

A recently conducted comprehensive biological assessment found that geoduck farming practices are not likely to adversely affect any listed threatened or endangered species or essential fish habitat.[2] Geoduck farming, like all shellfish farming, may actually increase the biodiversity along beaches. Researchers have found greater abundance, diversity and richness of species in sea beds with shellfish crops and farming gear than in bare seabed and greater or equal than seabed habitat with eelgrass (Ferraro and Cole 2006[3], Dealteris et al 2004[4]).

Geoduck Densities are Carefully and Sustainably Managed

Geoduck farms are planted at densities similar to wild, undisturbed subtidal geoduck tracts. These densities are seldom seen on Puget Sound's beaches because the intertidal area has been harvested over time and geoducks take a long time to reestablish naturally. Growers carefully limit the population density in their farms, because if densities become too high, it lengthens the time it takes for shellfish to reach market size.

A difference between farmed and wild beds is frequency of harvest. After harvest, wild subtidal beds that rely on the reproduction of nearby wild geoducks to reseed them, take an average of 39 years before they are ready to harvest again. By contrast, depending on seed availability and season, geoduck farmers replant as soon as possible to ensure ongoing and sustainable yields. On average, farmed geoduck beds are harvestable every six years. While geoduck farming is relatively new, several beds are in their third six year crop cycle. All evidence to date suggests geoduck farming will be every bit as sustainable as oysters which have been farmed for well over a century in Washington.

Minimizing Farming Debris

While geoduck are grown without pesticides, herbicides, hormones or antibiotics, some shellfish culture methods use plastics and other manmade materials that occasionally get loose. However, most of Washington's shellfish farmers are diligent in assuring their nets and culture equipment remain within the confines of the geoduck farm. Regardless, winter storms can wreak havoc on beds and each farmer must work to clean up escaped gear. To help maintain clean beaches, the Pacific Coast Shellfish Growers Association organizes beach cleanups at least twice a year in which shellfish growers clean up beach litter, the vast majority of which is not related to shellfish farming. They have also established a toll-free hotline, 800-964-6532, to report shellfish aquaculture debris for clean-up.

Geoduck and Waterfront Views

While shellfish growers understand that some waterfront homeowners are distressed about their views, geoduck farming is confined to the lowest intertidal areas. The nursery tubes used to protect baby geoduck are in place for only the first one or two years of a 4-6 year crop cycle, and are only visible 4% to 6% of the time. After the nursery tubes are removed, the geoduck crop is virtually invisible for the next four years. Many geoduck farms remain open for the public to walk along the beach, and boating can occur as it always has over the farm during high tide.

Geoduck Farming Helps Rural Communities

Washington is the largest producer of farmed shellfish in the nation. Farmed geoduck provides crucial living wage jobs in struggling rural communities. For example in Pacific County shellfish culture represents the single largest private employer and in Mason County it is second. Geoduck and other types of shellfish farming also provide lease income to some tideland owners who face increasing shoreline taxes.

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1. State of Washington Department of Natural Resources, Department of Fish and Wildlife 2001, Final Supplemental Environmental Impact Statement, State of Washington Commercial Geoduck Fishery.
2. ENTRIX Inc, 2004, Programmatic biological evaluation of potential impacts of intertidal geoduck culture facilities to endangered species and essential fish habitat, prepared for Taylor Shellfish, Seattle Shellfish, and Chelsea Farms.
3. Ferraro, S.P. and F. A. Cole. 2006. Benthic macrofauna—habitat associations in Willapa Bay, Washington, USA. Estuarine Coastal and Shelf Science (in press)
4. Dealteris, J.T., B.D. Kilpatrick, R.B. Rheault. 2004. A comparative evaluation of the habitat value of shellfish aquaculture gear, submerged aquatic vegetation, and a non-vegetated seabed. Journal of Shellfish Research, Vol. 23, no. 3, 867-874.

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